Critical Urban Theory vs. Actor-network theory

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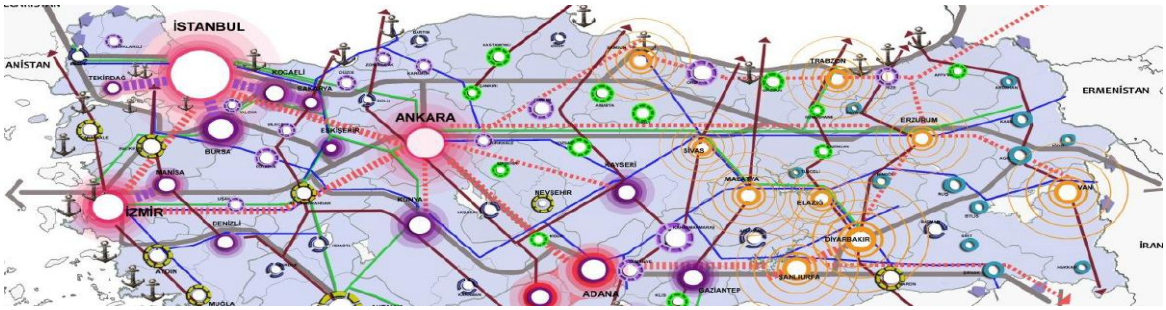
Insights from the Urban Revolution of Diyarbakir, Southeastern Turkey



Author:	Zemiattin Yildiz
Student nr.:	1632698
Track:	Research Master: Regional Studies.
Faculty;	Faculty of Spatial Sciences (FRW), University of Groningen (RUG)
Date:	24-10-2019
Supervisor:	prof. Gert de Roo
Second reader:	prof. J. Arts

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Master thesis

Zemiattin Rombard Yildiz

Supervisor: prof. dr. Gert de Roo

Research Master in Regional Studies

Faculty of Spatial Science

University of Groningen

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"Videsne illam urbem, quae parere populo Romano coacta per me renovat pristina bella nec potest quiescere?"

Do you (not) see that city which, after being forced by me to obey the people of Rome, resumes old wars and cannot keep the peace?

Marcus Tulius Cicero, De Re Publica, 6:11

Acknowledgements

It is with a feeling of great content but also relief to finally having handed in and approved my master thesis and therewith completing my education as part of the Research Master Spatial Sciences at the Faculty of Spatial Sciences, University of Groningen. My home town.

Village or city, urban center, or even metropolis, knowledge pearl, consumption hub, public-private partnership, socio-spatial pinnacle of our idolized (post)modern society, specter of past and contemporary class struggle or simply an ill-constructed, quasi-scientific, spatial economic artifact (a historical coincidence even?) would be fine too! After four years of reading writing, mostly failing to but, fortunately, improving my understanding of urban theory and philosophies of the social sciences and, finally, having attempted to lay down some of the fundaments of, what *in posterior* might be most adequately labeled, the sociology of urban knowledge, the discrepancy between the various expressions and representations of the very object of inquiry that is dear to so many spatial scientists, sociologists, economists, anthropologists, philosophers and especially to the ordinary people and average citizens we so desperately want to guide and assist with our knowledge, and which I now encounter on a daily basis, have become, to me, an inexhaustible source of merriment. In other words, after all this work, sweat and tears labor day has yet to come. This baby has yet to be born. Up to that day I will remain a well-equipped non-Modern private, embrace (not just mine) but 'our' pre-modern habits, empathize with my handicapped modern friends and seriously flake on these post-modern wanderers and tourists. Just another way to summarize this project.

But enough with the crazy stuff. After a good old ego trip and some scientific soul searching it is always difficult to admit that all had never been possible without the help, inspiration and work of others. And many others it were.

My first thank you goes to Philip McCann. It was he who made the awesome decision to approve my application to the research master program. Upon consulting me about my competences in statistics and especially the sincere gaze outside the Mercator building he must, most undoubtedly, have seen the divine light.

A much bigger shout-out goes to my man slash associate professor Justin Beaumont. Nothing had been possible without the huge involvement and spirited engagement of this very crazy, but even more devoted, academic and philosopher. From being my teacher, supervisor of my IRT project and first two years of writing my master thesis, employing me as a student assistant for his philosophies of the social sciences and urban honors courses and summer school in New York, to writing a joint book chapter together on creative city policy in Groningen, I cannot find enough words to thank him for all his support, inspiration, motivation and trust. The expertise and responsibilities he respectively shared and delegated as well as his extreme passion for the subject matter have been paramount to this thesis.

I also want to express my sincere gratitude to professor Gert de Roo. When Justin left the faculty and Groningen Gert took over supervision of my master thesis. His experience, feedback, encouragement, trust, patience and happiness have been invaluable resources when stress, financial restraints and hopelessness were gaining the upper hand. He enabled completion of this thesis in (almost) excellent form and afterwards even tried to get me on board at the faculty as a PhD candidate. Also for Gert goes that words alone are not enough.

Despite my largely absence on non-compulsory events I thank my ReMa student group with whom I had the pleasure of attending courses, doing group assignments and occasional chat. I also thank my mentor Chris Zuidema who introduced me to the ReMa program,

Much love to my mother for her patience. My 'little' sister for occasionally dropping by to give me a sandwich and sharing her violin concert preparations. And my father for sharing his intellectual repository of (neo-)classical economics, non-'Western' (if not, anti-'Western' and anti-imperialist) Marxist analysis and the Ottoman's and Turkey's spatial planning and economic development history. Also I want to thank my friends for being tolerable regarding my long periods of absence over the past four years and having beers ready whenever needed.

Lastly, and very importantly, I want to thank everybody involved in the case study and who helped me in Diyarbakir. First, my uncle Mehmet his wife Talia, my cousin Edip and his wife Yüksel as well as Cembeli, Ramazan, Murat and Mustafa for being my outpost in Istanbul. My friends Baver and Egid and my cousins Firat and Günduz for helping me finding my way in the city of Diyarbakir and making me feel at home. My uncle and aga Wasif for being there upon my arrival. Special thanks to Dicle (named after the Tigris river that flows through Diyarbakir) for being the best interpreter I could have wished for.

And second, all my respondents. From the Metropolitan Municipality of Diyarbakir I thank Murat Alokmen and Sermet Azizoğlu for introducing me to the staff members and the latter for explaining me what a *gundi* means. *Zor sipas* to Necati Pirinççioğlu, Mustafa Kutlu, Orhan Balsak and Suleyman Ak Gónül A very big thank you to Tahir Dadak from the Development Center for sharing his expertise and stories on forced migration and its regional impacts and showing me some special places in Surici. I thank the people from the Regional Development Agency Diyarbakir-Sanliurfa for their cooperation and assistance. Especially Zuhal Deniz for her expertise and inviting me for dinner with her husband. Thank you to Erdal Balsak and Zeynep Zsakinci from The Union of Municipalities for their spirited input. And thank you to Nezir Gunus from Diyarbakir's Chamber of Industry and Commerce

Last lastly, I want to thank all people I met during my far too short four weeks in Diyarbakir. I have visited many countries and cities in my lifetime but this was the first time I was actually sad that I had to return to my home-town.

I cannot conclude this lengthy text without expressing my grievances for the people of Surici and concerns over the political landscape and media coverage within NATO borders. Only three months after leaving my hotel, situated within this historic city center of Diyarbakir, its residents have been displaced over the course of a three month, so-called anti-terror operation, conducted in response to the declaration of its autonomy from the Republic of Turkey by local militant youth. A proclamation which was arguably motivated by fear over land appropriation by the State and national (Kurdish) aspirations. Together with 500.000 residents of some neighborhoods from some of Turkey's majority Kurdish populated cities in Southeast and East Anatolia, who were subjected to similar brutality and collective punishment in the same period, the residents of Surici – approximately 50.000 – lost their homes and many of their family and friends as all buildings were razed to the ground. All parcels in Surici have since been appropriated by the State. To all people who now have to get by, depleted, just as their beloved Dicle and Firat rivers, from hope, "You deserve so much better".

Abstract

The current period in human history has been convincingly defined as an urban age. Population, productive activity, wealth and scientific, social, cultural and creative innovation are increasingly concentrated in cities. However, after almost a century of existence, the interdisciplinary field of urban studies has still not succeeded to articulate a well-demarcated concept of the city and logically consistent approach to the scope and limits of urban theory. This is because the field has failed to adequately settle four main scientific controversies in urban theory: (a) the nature of cities, (b) urban epistemology, (c) urban social philosophy, and (d) the moral (non)viability, or social (in)justice, of urbanization under capitalism.

Against this backdrop, this research has investigated how the four most influential paradigms in urban studies today – (1) Traditional, taxonomic, urban theory (TTUT) , (2) Critical Urban Theory (CUT); (3) Post-colonial urban theory (CULT), and (4) ANT-inspired urban studies (ANT) – approach and seek to settle these scientific disputes in urban theory. In particular, this research departed from CUTs proposal for a new urban epistemology and agenda that accounts both for the intrinsic relation between cities and capitalism and the mediation of conventional urban knowledge and urban policy intervention by ideology. Moreover, it was conducted explicitly in the context of a series of active debates between all four paradigms.

Facing profound Modern limits to CUT, in particular, and urban studies and the social sciences, more generally, as well as recent endeavors to advance ANT in (critical) urban theory that have been articulated in response to these, this research analyzed whether and, if so, how, ANT may contribute to CUTs approach to the four sources of scientific dispute. In this way, it explored the possibility of a joint CUT/ANT approach and agenda for 21st century critical urban studies.

Research entailed a (meta)theoretical-philosophical, or paradigmatic, inquiry, mapping out, analyzing and comparing CUT and ANTs competing concepts of nature, society, politics and space and approaches to ontology, epistemology, methodology, empirics, social philosophy and morality underpinning their respective approaches to the four scientific disputes in urban theory. While research was conducted by means of a literature study in order to animate its scientific and societal relevance the analysis has been complemented with a paradigmatic case study on the urban revolution in the city-region of Diyarbakir, Southeastern Turkey.

In light of the failure of recent attempts to advance ANT in urban studies, more generally, and to articulate a joint CUT/ANT agenda in face of the four scientific controversies in urban studies, in particular, research has deployed ANT as a social study of urban science to analyze how CUT, TTUT and CULT construct their respective objects of the nature of cities rather than an alternative methodology for analyzing urban and urban-related phenomena alone. While research found that a joint CUT/ANT approach is impossible given their fundamental incommensurability, by entering this so far ill-explored territory of inquiry it has succeeded both to explain the fallacies and contradictions in CUT, TTUT and CULTs approach to the four scientific disputes and to articulate a concrete trajectory, or horizons, for a complementary CUT/ANT research agenda. These horizons inform new conceptions of and approach to the nature of cities, the internal and external functioning of urban science, and especially the relationship between the latter two.

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1. Introduction

1.1 Background of research

In many ways the current period in history has been convincingly defined as an urban age (Amin, 2013). Population, productive activity, wealth and scientific, social, cultural and creative innovation are increasingly concentrated and agglomerating in cities (Storper and Scott, 2016; Scott and Storper, 2015; Glaeser, 2011; McCann, 2008; Hall, 1998). Since 2008 more than 50% of the total world population are living in cities (UN-Habitat, 2007; UNFPA, 2007). Moreover, during the last decades cities have become increasingly interconnected on a global scale so that national systems of cities and urban dynamics are being overtaken by increasingly integrated international (regional) and global networks of cities. For example, the McKinsey Global Institute (2011) has pointed out that in 2007 only 600 cities (amounting to 1,5 billion world inhabitants, just over 20% of the global population) together account for more than half of global GDP, meaning that global economic growth relies on the performances of a limited portion of cities (see Dobbs et al. 2011). In addition, a small portion of these cities – also called "global cities" – are exercising a disproportionally high extent of territorial powers, in terms of high concentrations of knowledge, innovation, financial relations, creativity and infrastructure, while also performing significant political and elite power as well as cultural and symbolic influence (see Sassen, 2005, 2006).

While cities are considered to offer higher levels of well-being and standards of living than rural settlements – up to the point that many argue that "even the urban poor are better off, on average, than the rural poor around the world" (Storper and Scott, 2016: 1114) – at the same time, social, economic, cultural, environmental and ecological problems, ranging from the local to the global level, are increasingly manifested in cities. Moreover, the relative effects of these so-called 'bads' of cities, including, concentrated poverty, abandoned old industrial cities, slums, ethnic and gender cleavages, segregation, gentrification, homelessness, unequal access to housing and struggles to affordable housing, global resource and energy consumption, pollution, crime and violence, political unrest and oppression, terrorism (the list goes on) on a the world population is increasing substantially. For example, UN-Habitat (2008) prognoses point out that with the ongoing urbanization of the globe in 2020 one billion of more than 4 billion urban dwellers is set to live in slums. Glaeser et al (2008) demonstrate that urban inequality, measured in terms of changing GINI Coefficients over a wide range of USA Metropolitan Statistical Areas, has increased in almost all these territories over the last 26 years (c.f. Florida, 2015; see also Piketty and Saez, 2014, for a study on increasing income and wealth inequalities within individual cities in terms of the relative shares of the top 10%, 1%, and 0.1%). Moreover, cities account for about 60-80 percent of global energy consumption and about 75% of CO2 emissions (Burdett and Rode, 2011).

Accordingly, questions about how to mitigate the negative externalities *of* urbanization and other profound societal problems *in* cities and, equally, questions about how to bear the fruits of the positive externalities of cities are increasingly constituting key concerns of leading planning and governance institutions at all spatial scales. A hallmark to these concerns is the proliferation of the sheer of scientific and research-based policy guidance literature on urbanization and urban planning – see for example: World Bank (2009), United Nations (UN-

DESA-PD, 2012; UN-Habitat, 2007; UNFPA, 2007); the OECD (2009a,b) and the European Commission (Barca, 2009; Sapir, 2004; c.f. Barca et al., 2012).

More importantly, a growing body of scientific research aims to develop and fine-grain a common grammar and vocabulary of cities and urbanization by proposing a coherent and well-demarcated concept of *the nature of cities* (What is a city?) and, in extension, *the scope and limits of urban theory* (How can cities be known) (Storper and Scott, 2016; Scott and Storper, 2015). After all, without adequate knowledge of the nature, and equally the virtues and problems, of cities, the right questions cannot even be asked; neither, in this way, can the adequate mediations to the realm of practice (in terms of institution, organization, policy, planning, concrete interventions on the ground, or otherwise) be articulated and implemented.

Still however, up to this day and after almost a century of existence the interdisciplinary field of urban studies has failed to produce a coherent, well-demarcated concept of the city. To the contrary, never more than in the past decades has the field of urban studies been so significantly marked by a multiplicity of active debates on the fundamentals of urban theory (see Storper and Scott, 2016, Scott and Storper, 2014; Brenner, 2013, Brenner and Schmid, 2014, 2015a; Mould, 2015; Peck, 2015; Leitner and Sheppard, 2015; Smith, 2013; Ong and Roy, 2011; Robinson, 2006; Soja, 2000; Harvey, 1974, 1996, 1989; Amin and Graham, 1997; Amin and Thrift, 2002; Farías and Bender, 2009; McFarlane, 2011a). In summary the key points of contestation can be divided into four sources of *scientific controversy*.

1. *The nature of cities*: (a) the historical and geographical specificity of urbanization and cities as ontologically distinct objects of inquiry and (b) the scope and limits of urban theory. disputing *the basic raison d'être of urbanization* and the societal (economic, cultural, political) specificity of urban processes versus the rest of society as a whole.
2. *Urban epistemology*: (c) the adequate empirical and theoretical precepts for acquiring knowledge of the nature of cities; and (d) the dependency of urban knowledge on its spatiotemporal context of production; i.e. the mediation of urban knowledge by power and ideology, forms of domination (capitalism, patriarchy), universalism, rationalism, economism and ethnocentric, modernist, secularist and developmentalist biases.
3. *Social philosophy*: (e) the relevance of urban scientific knowledge and, hence, urban science to scientific progress; (f) relevance of urban science with respect to societal progress (the role of urban theory in guiding social urban practice); and (g) the relation between scientific and societal progress, where the accumulation of true knowledge of the nature of cities is assumed to enable rational solutions to urban problems.
4. *The moral (non)viability, or social (in)justice, of urbanization under capitalism*: referring to social issues, such as, the connection between urbanization and (wealth or income) inequality, asymmetrical distribution of the 'goods' and 'bads' of cities among the urban population, urban dystopia and ethnic and gender cleavages in cities, etc..

The fact that these controversies have not yet been settled undermines any scientific attempt to adequately address the scientific challenges associated with the increasing concentration of human activity in cities. Moreover, in face of the emerging urban condition the absence of a 'satisfactory' consensus regarding these controversies also impedes formulation of adequate mediations to the realm of practice in which the need for viable policy in the search for social

justice and economic development is becoming more urgent every day. After all, the manner in which scientists (but also policy makers and lay people) understand cities and urban processes greatly determines the horizons and tools for further action and assessment.

Against this back-drop this research focuses on 'the scientific eye', so to speak, in order to obtain an understanding of the key sources of the scientific controversies in urban studies. Moreover, it explores the possibility of articulating an alternative approach to confront these disputes accordingly. Research focuses on how different paradigms in urban studies conceptualize the nature of cities by comparing the distinct scientific (empirical, methodological, epistemological, ontological, social philosophical and normative) implications to urban theory and (further) urban research. Moreover, research attends to (analytical and normative) consideration of the moral (non)viability of urbanization under capitalism that culminate from the former. In addition, it focuses on their implications to urban (policy) intervention and the respective ideas about role of urban science and knowledge more generally that is presumed in this regard.

1.2 Scientific context and motivation of research

This research is conducted in the context of a series of scientific disputes about the nature of cities and the relation between urbanization and inequality between four currently influential paradigms in urban theory[1]: (1) Traditional, taxonomic, urban theory (TTUT), (2) Critical Urban Theory (CUT); (3) Culturally-inspired approaches to urban studies (CULT), and (4) ANT-inspired urban studies (ANT).

Specifically, this research departs from an earlier research project conducted as part of my Individual Research Training (IRT). This research project followed up on a call for papers for a conference session at the Annual meeting of the American Association of Geographers (AAG) at Los Angeles, CA, US on April 2013 named "Rising to the challenge: defining the contours of a new 21st century critical urban theory", organized by Justin Beaumont, who acted as my IRT supervisor, and his colleague Chris Baker (see Appendix A). The IRT thesis was written in a similar context of scientific controversies in urban studies. However, it focused only on one paradigm in urban studies explicitly – CUT – and its aim to confront and address, what Harvard Professor in urban studies Neil Brenner (2013) has termed, "The Urbanization Question". The Urbanization Question presents a (meta)theoretical and (meta) philosophical inquiry in the nature of cities in face of the alleged mediation of urban knowledge by (capitalist) ideology and CUTs associated claim that such urban ideologies obscure and sustain the contemporary *social injustices* of capitalist urbanization.

The objective of the IRT was to identify the main theoretical obstacles in CUTs attempt to confront and address the *Urbanization Question* in face of, what Brenner (2013) has recently termed, *Planetary Urbanization* – a hypothesis that stresses that the boundary between urbanization and the rest of society has recently been entirely dissolved under contemporary post-Foridst, neoliberal capitalism – and to elaborate a new urban epistemology and research agenda for critical urban studies in response. This entailed (1) analyzing CUTs concepts of

[1] Respective defenders of each paradigm consider these four paradigms the most influential in urban studies. See Storper and Scott (2016) TTUT; Brenner (2013) for CUT; McFarlane (2011a) and Farias (2011) for ANT; and Ong and Roy (2011), Robinson (2006) and Soja (2000) for CULT.

'the urban'[2]. In addition, (2) it focused on the analytical conception of the relation between urbanization and inequality and the moral conception of urban inequalities that culminate from these concepts as well as (3) the implications to urban intervention these concepts imply. Moreover, since CUTs concepts of 'the urban' are grounded on an antagonistic relationship to conventional urban knowledge (TTUT), the IRT also (4) analyzed CUTs assumption of the reciprocal relation between urban knowledge and urban intervention. Finally, the IRT (5) explored if there is another approach or paradigm that may help to address CUTs problems alternatively.

IRT research found three problems to confront the *Urbanization Question*; all of which can be traced back to the four key sources of scientific controversy in urban studies. Moreover, it found these problems does not require further theoretical abstraction, as CUTs methodology implies, but instead pose a challenge to the social sciences *in toto*, since they cannot be grasped along traditional (post)Modern social scientific coordinates. In particular, these problems imply that an inquiry in the nature of cities, the relation between urbanization and inequality, and the reciprocal relation between urban knowledge and practice requires an inquiry in (the production of) Modern urban knowledge. In this way the IRT underpinned the need to view Modern urban science, and hence Modernity, themselves subjects of enquiry.

Simultaneously the IRT found that the obstacles to confront the *Urbanization Question* have already been used as momentum by some urban scholars to popularize the paradigm of Assemblage in (critical) urban studies. Based on an exploration of Assemblage literature and its applications to urban studies the IRT found that by viewing Modern knowledge subject of enquiry Assemblage is exactly oriented at how such scientific disputes that define current debates in urban theory are settled in practice. As such, it is indeed a timely effort to inquire in the contrasts and connections between Assemblage and CUTs approach to 'the urban' so as to explore the possibility of alternative approach that can adequately address the Modern obstacles to CUT while remaining sensitive to the scientific and societal concerns posed by the *Urbanization Question* and *Planetary Urbanization*. However, it also found that with respect to identifying the conjunctions and disjunctions between CUT and Assemblage and exploring the possibility of a joint research approach and agenda the more elaborated and demarcated ANT offers a more adequate approach for this purpose.

1.3 Research objective and questions

The key objective of research is to *explore whether and, if so, how ANT can change the manner in which CUT approaches the relation between urbanization and inequality*.

Similar to the IRT the master thesis departs from CUTs attempt to confront the *Urbanization Question* under planetary urban conditions. In response to the Modern problems of CUT, it compares CUT and ANTs concepts of 'the urban' and the relation between urbanization and inequality by mapping out their competing concepts of Nature, Society, Politics and Space and competing scientific implications underpinning their approaches to the scientific disputes in urban studies so as to explore the opportunity of a joint research approach and agenda.

Apart from inquiring in ANT a notable differences to the IRT is that the moral (in)viability of cities is analyzed in terms of (urban) "inequality" instead of "social (in)justice" as the latter

[2] In this thesis, the term "concepts of 'the urban'" serves as a shorthand to designate the simultaneous or related conceptualization of 'the city', 'urban space' and 'urbanization'.

belongs to CUTs theoretical lexicon exclusively. Moreover, compared to the IRT this research pays considerably more attention to the paradigms of TTUT and CULT as it found that CUTs approach to 'the urban' relies on a rather simplified and one-sided account of the latter two. In this way, research prevents paradigmatic bias and can be linked more adequately to the wider context of the scientific controversies in urban studies.

Since this research builds upon my IRT it has translated the latter's objective to identify the theoretical obstacles to confront the *Urbanization Question* into *four preliminary research questions*.[3] Hereafter, the main question and sub-questions are listed accordingly.

Preliminary questions:

1. How does CUT conceptualize the city, urban space, and urbanization?
2. How does CUT conceptualize the relation between urbanization and inequality?
3. What moral conceptions of urban inequality derive from CUTs theory of the relation between urbanization and inequality?
4. What are the implications for urban practice that culminate from CUTs analytical and moral conception of 'the urban' and urban inequality?
5. How does CUT understand the relation between urban knowledge and urban practice?[4]

Main question

Can and, if so, how does ANT change the manner in which CUT approaches the relation between urbanization and inequality?

Sub-questions

1. How does ANT approach and define the city, urban space, and urbanization?
2. How does ANT evaluate CUTs concepts of, and approach to, the urban?
3. How does ANT evaluate CUTs theory of the relation between urbanization and inequality?
4. How does ANT evaluate CUTs implications for urban practice?
5. How does ANT evaluate CUTs understanding of the relation between urban knowledge and urban practice?[5]

1.4 Research Approach

Literature study

Since this research analyzes CUT and ANTs approach to cities and urban inequality by mapping out their competing concepts of Nature, Society, Politics and Space and claims pertaining to theory, empirics, methodology, epistemology, ontology and social philosophy it forms a (meta)theoretical-philosophical, or *paradigmatic inquiry*. Moreover, since it embarks on largely unchartered territory research is *explorative* with an emphasis on *ground clearing*. The paradigmatic inquiry is conducted by means of a comprehensive *literature study*.

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[3] Because this master thesis significantly builds upon the literature study of my IRT a large part of its findings have been incorporated in the theoretical framework of this research (see Chapter 2).

[4] Because CUTs concepts of 'the urban' are grounded on an antagonistic relationship to conventional urban knowledge (TTUT), these four questions cannot be adequately answered in isolation from CUTs implicit critique of TTUT. Therefore a *fifth preliminary research question* reads:

[5] Since CUTs approach to 'the urban' and urban inequality cannot be grasped in isolation from its conception of the relation between urban knowledge (TTUT) and urban practice, exploring ANTs evaluation of the former also requires an exploration of how ANT evaluates the latter.

Paradigmatic case study

Since the research questions, analysis and outcomes are rather abstract they require further *exemplification*. Moreover, because research also compares CUT and ANTs approaches to 'the urban' along their respective conceptions of the relation between urban knowledge and urban (policy) intervention, research has to be informed by application of urban knowledge 'on the ground'. Therefore, the literature study is complemented with empirical research that serves as an illustration, or metaphor, of the paradigmatic inquiry. Empirical research is conducted by means of a *paradigmatic case study* centering on urban phenomena, or *issues*, in the city-region Diyarbakir, Southeastern Turkey. including: accelerated agglomeration-cum-polarization of distinct land uses; local economic development; the relation between the city and its hinterland; urban-rural migration; urban and regional policy and strategy; urban sprawl; segregation; and urban inequalities.

The case study is not deployed to exemplify (let alone disclose) true knowledge of the nature of cities (e.g. by testing the respective truth claims against the urban phenomena observed). Instead, it describes how CUT and ANTs approaches to the scientific disputes about the nature of cities, urban epistemology, the philosophy of urban science and the relation between urbanization and inequality respectively apply to – i.e. inform, explain, or oppose – studies, interpretations and interventions in a range of urban issues in Diyarbakir. In this way the case study serves as a metaphor of the contrasts and connections between CUT and ANT. Case study data are obtained by means of (1) semi-structured interviews with a variety of urban practitioners (i.e. actors formally involved in the formulation and implementation of urban policy); (2) policy document analysis; and (3) urban scientific literature on these issues.

1.5 Research Relevance

Since this research os a paradigmatic inquiry with questions at the level of (meta) theory and philosophy it is primarily relevant to the sciences. Moreover, since it is *explorative* with an emphasis on *ground clearing* its outcomes mainly consist of implications for further research.

Scientific relevance

This research is most relevant to urban scholars with an expertise in contemporary debates and scientific disputes about the nature of cities (see Storper and Scott, 2016; Scott and Storper, 2014; Brenner, 2013, Brenner and Schmid, 2015a; Ong and Roy, 2011; Robinson, 2006; Amin and Thrift, 2002). More specifically, it addresses scientists that aim to propose and innovate CUT or ANTs approach to urban theory; especially those that are in conclave about the contrasts and connections between CUT and ANT so as to explore the possibility of a joint research approach and agenda in face CUTs attempt to confront the *Urbanization Questions* (see McFarlane, 2011; Brenner et al., 2011; Farias, 2011; Wachsmuth et al., 2011).

Concrete scientific output of this research includes:

- The preliminary results of this research served as input for a book chapter written with my previous supervisor Justin Beaumont in the co-edited book *Inequalities in Creative Cities*. (see Beaumont and Yildiz, 2017).[6]

[6] See: Beaumont, J., Yildiz, Z., (2017) Entering a Knowledge Pearl in Times of Creative Cities Policy and Strategy. The Case of Groningen, Netherlands. In: Gerhard U., Hoelscher M., Wilson D. (eds) *Inequalities in Creative Cities*. Palgrave Macmillan, New York. The book comprises of

- The preliminary results of research were used for a co-authored paper with Beaumont at a conference session at the AAG in Chicago, IL, US on April 2015, 'The urban political at a time of late neoliberalism', organized by Theresa Enright and Ugo Rossi.[7]
- This research has informed the selection of course literature for the FRW/RUG master course, titled 'City Matters', and Honours College at RUG, titled 'The Urban Question'.

Societal relevance

While this thesis primarily addresses urban studies, of course, research is always conducted in order to uncover how the world we inhabit functions. Accumulation of scientific (true) knowledge of the nature of cities enables us to obtain increasingly adequate understandings of why cities exist and how they function. This, in turn, enhances our ability to provide increasingly rational solutions to a multitude of urban problems. By analyzing a variety of theories of the nature of cities and the relation between urbanization and inequality, certainly, this research can be regarded an attempt to contribute to our collective efforts to provide rational solutions to contemporary and future urban challenges and disparities. In this light, this thesis is primarily relevant to urban practitioners; mainly formal (governmental) actors from the local to the supra-national level. These actors are exclusively endowed with the task of supplying public goods and services to manage the conflicting interests of households and firms, secure the positive externalities of agglomeration and prevent or mitigate its negative externalities, while relying on urban knowledge to inform and motivate their policies accordingly. In addition, given the focus on urban inequalities the outcomes of this research may be useful to actors in the sector of social cohesion (e.g. NGOs concerned with urban development and social problems in cities).

The co-constitution of societal and scientific relevance in a knowledge society

However, rather than disclosing true urban knowledge to guide urban practice the scientific and societal relevance of this research lies in identifying how different urban paradigms (claim to) obtain knowledge of cities and urban inequality and what they (assume to be able to) know (and don't know) about these phenomena. Moreover, because research analyzes how these paradigms approach the scientific disputes about social philosophy, besides this reality/ representation-problematic, it also puts questions and presumptions in urban studies about the societal role and responsibility of urban science (e.g. obtaining true urban knowledge to inform practice) and the tasks, responsibilities and capacities of societal actors (e.g. participation, optimizing self interest, applying urban knowledge) at the heart of analysis. Thus, a large part of both the scientific and societal relevance of this research is manifested in

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comparative studies that seek to identify new issues and approaches to the relation between creative cities and urban inequalities in small –and medium-sized cities across the world. In this chapter we draw on CUT and ANTs concepts of the city and urban policy mobility in order to assess the motivation and application of Creative City policy and strategy in the city of Groningen with respect to local economic development and growing urban disparities. See also Appendix A on page X.

[7] Using urban development in the city-region of Diyarbakir as a case in point Justin and I drew on current debates on the contrasts and connections between CUT and ANT-inspired concepts of 'the urban' in order to contribute to current theoretical endeavors to re-define the notion of 'the political' in urban studies in times of late neo-liberalism. After submission we were invited to present our paper and to submit a chapter for Enright, T. and Rossi, U. (eds.) *The urban political: Ambivalent spaces of late neoliberalism*. Palgrave Macmillan, New York (2018). See also Appendix B on page X

analyzing the different conceptions of alleged scientific and societal progress enabled by the production of urban knowledge; especially the relation between both. Facing the increasingly complex relation between science and society in our contemporary knowledge society (where scientific and societal change are increasingly co-constitutive) adequate comprehension of this relation is becoming more urgent to both urban scientists and practitioners every day.

1.6 Thesis Structure

This thesis is structured along six chapters.

Chapter 2 (Theoretical Framework) provides a thorough description of the state of the art literature on: urban inequality, TTUT and CUTs concepts of 'the urban', the current debates between CUT, TTUT and CULT about the nature of cities, the theoretical/ philosophical problems of CUT to confront the *Urbanization Question* under Planetary Urbanization. In response to these debates and obstacles it offers an overview of current attempts to advance ANT in urban theory. Hereafter, it teases out ANTs approach to 'the urban' by reviewing its approach to the (natural) sciences, social theory, political theory and (urban) space.

Chapter 3 (Method and Approach) outlines and motivates the research methodology and approach. Along a description of the type of research (paradigmatic inquiry, explorative), type of study (literature study and illustrative case study) and methodological issues it explains why research deploys a qualitative, non-standardized and a descriptive approach. It also explains how a paradigmatic inquiry in how ANT changes the manner in which CUT approaches the relation between urbanization and inequality is borne out by a case study on urban issues in Diyarbakir, By motivating the selection of the case study type and site, case study design and empirical questions it underpins the internal and external validity of empirical research. Note that a more detailed description of the research design and methodology is provided separately in Appendix C.

Chapter 4 (Case Study Findings) provides an overview of the urban planning, governance and economic geographic context of Turkey and Diyarbakir's modern urban history and urban and regional disparities. Moreover, it discusses recent concrete interventions, policies, strategies and visions of the Metropolitan Municipality, the Regional Development Agency Şanliurfa-Diyarbakir and other urban practitioners in face of a number of urban issues in Diyarbakir. In particular, it focuses on the urban knowledges that are applied by these urban practitioners as well as urban scholars studying the city-region to respectively motivate, explain, inform, oppose or support the particular interventions, policies and visions at hand.

Chapter 5 (Analysis and Results) answers the research questions with reference to the theoretical framework (literature study) presented in chapter 2. Moreover, it illustrates the research outcomes along the paradigmatic case study findings.

Chapter 6 (Conclusion and Discussion) summarizes the objectives, questions and outcomes of research with explicit reference to the theoretical framework. Apart from discussing the generalizability/transferability of the outcomes and limitations of research, it relates these results to the wider scientific debates and societal context of research by means of implications for further research and rough mediations to the realm of urban practice.

2. Theoretical and social-philosophical framework

Chapter 2 presents the theoretical and social philosophical framework of this thesis obtained from an extensive literature study.

This chapter is divided over five sections.

Section 2.1 discusses the phenomenon of urban inequalities before narrowing down the focus of research to 'the urban' as object of inquiry in the remainder of this chapter. It describes the various meanings and definitions of inequality (2.1.1) and explanations and expressions of inequality (2.1.2), thus highlighting both its normative and analytical aspects. It discusses the variety of approaches, studies, and resulting conceptions of *urban* inequalities (2.1.3), and explains this thesis' approach to how the relation between urbanization and inequality (2.1.4).

Section 2.2 discusses TTUTs concept of the nature of cities, its approach to the four sources of scientific dispute and the origination of the inter-disciplinary field of urban studies as rooted in The Chicago School of Sociology.

Section 2.3 describes Critical Urban Theory's (CUT) approach to the four sources of dispute in urban studies, taking the recent works of Neil Brenner as a key reference point. It describes the philosophical background of CUT (2.3.1), CUTs concepts of the city and urbanization (2.3.2) and draws on the hypothesis of 'planetary urbanization', Brenner has postulated to advance a new urban epistemology and agenda for 21st century critical urban studies (2.3.3).

Section 2.4 reviews the scope and limits of CUT. It discusses two debates in light of the critiques levelled against CUT by two influential traditions in urban studies: (1) post-colonial urban theory and (2) TTUT (2.4.1 and 2.4.2). In response to these debates, section 2.4.3 detects three profound problems intrinsic to the paradigm of CUT to adequately confront and address the *Urbanization Question* under planetary conditions and to guide urban (policy) intervention: (1) Normative questions, (2) The Crisis of Critique, and (3) Epistemological conundrums. Moreover, it argues that these problems are grounded in its broader, Modern social scientific and philosophical heritage, therewith underpinning the need to view Modern urban knowledge and, hence, Modernity themselves subject of inquiry (2.4.3.4). Against this backdrop, section 2.4.4 underpins *the rationale for introducing ANT to critical urban studies*. Moreover, it discusses and assesses the contemporary ANT interventions in urban studies (2.4.4.1 and 2.4.4.2) while teasing out the requirements of an adequate investigation in the potential contributions of ANT to CUT.

Section 2.5 provides an extensive overview of the paradigm of ANT in order to tease out its approach to four sources of scientific dispute in urban studies in Chapter 5. It describes ANTs approach to science and the philosophy of science as rooted in its conception of the co-evolution of science, technology and society, its account on the actor-network and the Modern Constitution and approach to the historicity of things (2.5.1). Moreover, it describes ANTs implications to social theory (2.5.2), political theory (2.5.3) and cities and spatiality (2.5.4).

2.1 Urban Inequalities

This research investigates how different paradigms in urban studies respectively approach and address the relation between urbanization and inequality. Since this is a broadly defined research topic, requiring a thorough analysis of both, this section clarifies how the phenomenon 'inequality' will be approached in this thesis before narrowing down the focus of research to 'the urban' as object of inquiry in the remainder of this chapter (see sections 2.2-2.5). Section 2.1.1 describes the various meanings and definitions of inequality, highlighting its normative aspects. Section 2.1.2 draws on the explanations and expressions of inequality, therewith highlighting its analytical aspects. Section 2.1.3 discusses the variety of approaches, studies, and resulting conceptions of *urban* inequalities, drawing mainly on urban literatures. Section 2.1.4 explains how the relation between urbanization and inequality will be approached in this thesis and, hence, underlines how the term 'urban inequalities' is deployed.

2.1.1 Meanings and definitions of inequality

The topic of 'inequality' constitutes one of the most popular and striking issues in urban studies today. One the one hand, because inequality has always been a key feature of traditional and modern societies it has always constituted a fundamental, moral issue of societal debate. On the other hand, the social challenges that accompany the contemporary neoliberal age have refuelled attention to the matter. Inequality has never been a monistic concept but instead is subjected to a multitude of, often conflicting, approaches and narratives (Gyuris, 2014). Without oversimplifying the matter, however, we can still distinguish between its *analytical* and *normative aspects*. Normative aspects of inequality raise the question whether particular approaches problematize inequality and whom they regard responsible in this respect. Here, problematization of inequalities, or otherwise, remains subjected to political views, which, in turn, influence how inequality is analyzed, monitored and responded to. Moreover, Foucault's (1994) notion of "problematique" reminds us that we cannot think of *inequality* problematically without (at least implicitly) assuming its opposite: *equality*.

Especially two conflicting approaches mark debates on (in)equality in moral philosophy (Gyuris, 2014). The first understands equality as *equal distribution of resources* regardless of individual contribution to society, based on the assumption that all human beings are equal. In addition, the concept of *equity* also stresses equal distribution of resources, but with the exception that it takes into account the relative 'starting positions' of different individuals and social groups. For example, while equal distribution of basic health care services to all seems fair this form of (in)equality is regardless of the fact that some groups can already afford additional health care on their own while others face limited access (for example, due to limited mobility, poor health, or linguistic and racial barriers). The second concept of equality, however, depicts equality as equal merits based on equal rewards – i.e. *equality in judgement* (Gyuris, 2014). Both concepts of equality are relevant and have strong convincing power, and accordingly are often appropriated respectively by the political Left or Right.

However, both concepts have their weaknesses too. For example, absolute equality in terms of equal distribution might risk undermining individual efforts to contribute to 'society'; a de-moralizing effect – although it should be noted that this conception hinges on presumed individual motifs: the benefits associated with certainty of command over resources may outweigh the disadvantages associated with uncertainty. Conversely, absolute equality in

terms equal rewards based on equal merits could result in profoundly destructive and immoral situations, since the question what one considers a merit is a normative one. Moreover, the question who is to define merit is a matter of power relations as well (Gyuris, 2014).

Accordingly, both concepts of equality can – and indeed often are – deployed in different circumstances. For example, for lower education equality in terms of 'equal distribution' is generally the norm. But for housing and labour markets the standard of equality in terms of 'equal judgement' usually prevails. In addition, in many sectors more hybrid arrangements (mixing elements of both concepts of equality) are applied as well (e.g. social housing). Moreover, the same person may prefer different conceptions of equality along different contexts, and one's opinion on the matter is rarely independent from her/his respective (social, economic, ethnic) 'status'. Thus, inequality is not a question of 'pure' morality alone, but one of interests and power-relations too. In addition, the researcher's 'situatedness' and the actor's interpretations – referring to *the double hermeneutic* (Giddens, 1982; c.f. Rorty, 1991) – strongly influence how inequalities are analyzed, interpreted and conceived of.

2.1.2 Sources, explanations and forms of inequality

Analytical aspects of inequality concern the manifold methods and the selection of relevant factors and indicators to investigate inequality. The move from normative to analytical aspects entails a shift from moral conceptions and (de-)problematization to the extent, form and explanations of inequality. While in the moral sense the question is whether particular forms of inequality are to be regarded (un)*just*, in the technical sense the question is whether (or under which circumstances) disparities can be mitigated, or eradicated entirely.

Analytical aspects of inequality can be divided into two strands. In the first, forms and sources of inequality are comprised of *material* relations (i.e. social and economic relations of production and/or exchange) which are analyzed using indicators, such as, wealth and income distribution, employment, 'material' housing conditions, access to socioeconomic resources, etc.. In the second, sources and forms of inequality are grasped in *immaterialist* terms (i.e. culture). Immaterial sources and explanations of inequality concern the role of institutions, belief systems, language and (scientific) knowledges in sustaining, mitigating or eradicating inequalities. Because societies are characterized by complex and asymmetric power relations (Flyvbjerg, 2001) inequalities are often institutionalized, meaning that a multitude of institutional tools – including: legal structures (Attoh, 2001), institutions, educational systems (Bourdieu, 1986), but also mass media, or what Meusburger (2011) calls the "memory industry", and even knowledge institutions (Harvey, 2006) – serve their maintenance.

While 'social inequalities' can be understood as "differences among people in their command over social and economic resources" (Osberg 2001: 7371), inequalities have also been defined in terms of *distribution* of resources and (human, social, creative) capital (referring respectively to Rawls and Bourdieu). Marxian approaches focus on *historic dynamics of production and consumption* to underline *processes* that *engender* disparities. Again, others define it in terms of "recognition" of the rights and desires (Honneth 1995; 2003), or *capabilities* of different individuals and social groups (e.g. Nussbaum; c.f. Fainstein, 2010). Each approach attributes inequality to different sources and factors, deploys different indicators for analysis and, hence, explains the phenomenon differently. This is because each has a different understanding of the social elements that hold societies together and which

elements are more (and less) decisive in maintaining dominant social, economic political and cultural relations, including inequality. Thus, apart from their respective moral stances (regarding the *fairness* of a particular form or extent of inequality), each approach has a different conception of what is *realistically possible* given the dominant social forces at work.

For example, the "Difference Principle" in John Rawls' (2001; c.f. 1971) *distributive concept of justice*, which is based on dominant ideas and concepts of utility, economic growth and wealth maximization, assumes that societies' absolute wealth grows most steadily when those who are most productive have the highest earnings. Within this model Rawls argues for a division of primary goods that is to the greatest benefit to the least advantaged group. However, at the same time he insists that the associated redistributions may not lead to a stagnation of economic growth. Thus, in his view, difference in income and wealth remains a necessary – and, therefore, *legitimate* – feature of modern societies as long as growth in the absolute shares of primary goods of the middle and most advantageous groups is not at the expense of the least advantageous group. In this way, income and wealth inequality works to the advantage of those who will be worst off. Conversely, a Marxian approach – which holds an anti-utilitarian conception of society and focuses on processes of industrial production and capital accumulation – understands equality as equal ownership of productive assets and wealth based on the principle that all people are equal. Here, individual property rights, competition and the free market – which, together, are prerequisites for capitalist societies – will inevitably result in extreme forms of wealth and income inequality due to an over-accumulation of capital in the hands of a few at the expense of the many.

Lastly, different approaches respectively focus on different forms of inequality. In addition, each approach has a different conception of the respective relevance of, and interrelations between, the material and the immaterial and normative and analytical aspects of inequality. For example, while the Marxist tradition mainly focuses on how dominant forms of social and political life (involving wealth inequalities, social stratification and class power) are historically produced through material relations of production and exchange, at the same time it underlines the role of the culture (e.g. of the State, institutions, norms and values and also science itself) in maintaining these relations. Karl Marx argued that the class structure associated with the capitalist mode of production leads to alienation of workers from their *essence* (i.e. of the nature of themselves and the society they inhabit). Following Marx, social stratification deprived workers to *conceive* of themselves as directors of their own actions, to define existing social interactions and to bear the fruits of their own labour. Because the working class is unknowingly unaware of the social and economic forces that drive and dominate them and their society, they lose the ability to determine their *own* life and destiny[8]. Moreover, as he viewed knowledge subject to the same power struggles, with conventional

[8] In *The Eighteenth Brumaire of Louis Bonaparte* Marx (2005 [1852]) elaborated his ideas on the subject/object divide in a capitalist state: "Men make their own history, but they do not make it as they please; they do not make it under self-selected circumstances, but under circumstances existing already, given and transmitted from the past. The tradition of all dead generations weighs like a nightmare on the brains of the living' (p. 13). In Marx view, humans are both objects and subjects of the world they live in: People are subjects as they are capable of endowing activity with meaning and, hence, make their own history, but simultaneously also (meaningless) subjects of (an objective) history as their contemporary world and ideas are structured by practices and ideologies of the past.

science mainly serving the capitalist elite, Marx distinguished between bourgeois and proletarian knowledge. Similarly, though following alternative lines of reasoning, other studies have also emphasized the significance of collective representations and (moral) conceptions of inequality, belief systems, and representations of income and wealth dynamics as factors of (the historical evolution of) material inequalities (e.g. Piketty, 2014a).

2.1.3 Approaches to urban inequalities

The various definitions, forms, approaches and explanations of (in)equality, discussed above, still tell us little about *urban inequalities*. When we think of urban inequalities we may think of cities being increasingly divided between the poor and the rich. We may consider the one billion urban dwellers that are set to live in slums by 2020 (UN-Habitat, 2008). But we can also think of inequalities in terms of differences in (the *distribution* of, or *command* over) the very resources and amenities that characterize urban space. Routine examples are inequality in the distribution and/or quality of basic urban services and resources, such as (urban) infrastructure, or the relatively high density of potholes in low-income neighbourhoods. An illustrious example of assessments of urban inequality is provided by Richard Florida (2015) who applied the Urban GINI Coefficient[9] across a large sample of metropolitan areas to point out that income disparities in cities generally exceed those in nation states. Recently Glaeser et al. (2011) argued that in almost all USA Metropolitan Statistical Areas income inequality has increased significantly over the last 26 years. Also Piketty and Saez' exploration of the evolution of the respective income shares of the top 1% in New York City, New York State, and the United States over the last 30 years suggests that cities, on average, are characterized by greater extents of income and wealth inequalities. (see figure 1 on the next page).

Taken the variety and complexity involved in approaches to inequality concepts and ideas of urban inequalities are equally prone to numerous interpretations. With substantial societal and urban transformations over the past ages – from feudalist and monarchic regimes to early industrial capitalism, Fordism and post-Fordist (neoliberal) regimes – the living conditions of urban dwellers have altered substantially. Moreover, these transformations were accompanied by the increased availability of *tools* (e.g. concepts and equipment) to analyze, measure, interpret and assess inequalities. Accordingly, the conceptions and forms of (de-) problematization of urban (in)equalities have changed substantially over time.

The first in-depth and resonant scientific inquiries occurred in the early 19th century. These undertakings were motivated by the Industrial Revolution, the vast rate of rural-urban migration and the consequent emergence of deep divisions in rapidly growing industrial cities, such as London and Manchester. Moreover, the then recent availability of comprehensive statistical tools alongside the new approach of social physics, which enabled identification of (ir)regularities along social groups in spatial – (often) national – contexts, played a significant

[9] The Gini Coefficient is a model of statistical dispersion developed by Corrado Gini in 1912. It is the most commonly used measure of income inequality. The Gini Coefficient measures the relative share of cumulative income of different income groups. While it is mainly applied at the level of countries it is becoming increasingly used to measure income inequalities in urban areas. However, because the Gini Coefficient is a relative measure, countries with different income distributions can have the same Gini Index. Moreover, Piketty (2014a) has criticized the Gini Coefficient for its reliance on relative income shares and its use of low granularities (usually only five different income groups). As such, it excludes statistical outliers and, thus, exactly elides extreme forms of income inequality.

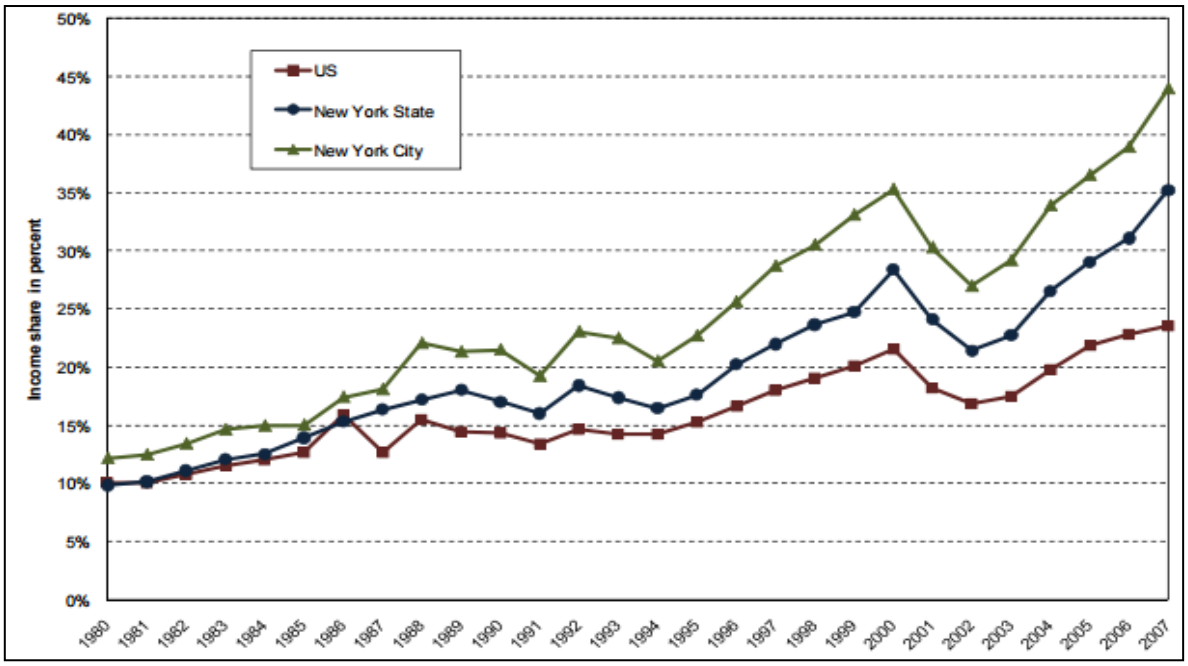


Figure 1: Analysis of the US top 1% income share compared with NYS and NYC over the 20th century (Source: Fiscal Policy Institute FPI, 2010; based on research of Piketty and Saez)

role in this respect (Quetelet, 1835). Charles Booth's (1902–1903) survey on mass poverty in London is a renowned example of one of the earliest comprehensive studies on urban inequality. Booth attempted to falsify the claim of the Marxist Social Democrats in London that at least one quarter of the city's working class was living in "dire poverty". To this end Booth launched, what he called, "an objective, scientific investigation" consisting of a series of surveys that stretched over 120.000 households in London and accounted for income statistics as well as for more subjective indicators, including environmental conditions (Zimbalist 1977: 74). Ultimately, he reluctantly concluded that the proportion of those in poverty was far larger than professed by the Marxist Social Democrats (Bateman, 2001).

Despite the politically biased and analytically problematic outset of these earlier methods up to the early 20th century social surveys constituted the most influential method for studying urban inequality in sociology and political science. Nonetheless, these endeavours remained solely oriented at the social dimension while neglecting spatial aspects of inequality. Moreover, positivist approaches to urban disparities in the mid 20th century rarely emphasized inequality as a normative question. but rather took them as corollary to urban existence.

Without attempting to short-circuit the evolution of urban disparity research, here, three dominant strands of research that decisively incorporated space into time-cantered analysis of inequality will be highlighted. *First*, the emergence of (neo)Marxist geographies in the early 1970s ushered in a large shift from positivist towards more normative and theoretical approaches to urban inequality. By investigating forms of inequality within cities, such as, ghetto formation, gating, segregation and the erosion of public space, as well as processes closely related to urbanization, such as, gentrification, accumulation-by-dispossession and poor access to affordable housing, this approach was the first to analyze and problematize inequalities at the local level (in cities). Marxist geographies attempted to surpass Rawlsian liberal conception of distributive (in)justice in favour of the revolutionary concept of "social justice", which entailed "a move from a predisposition to regard social justice as a matter of

eternal justice and morality to regard it as something contingent upon the social processes operating in society as a whole" (Harvey, 2008 [1973]:15).

The core argument of these studies stresses that cities exhibit forms of inequality that are immanent to its mode of development and which are intrinsically (un)*just*. Marxist geographies, thus, combined the problematization of inequality as a matter of (un)*fairness* – a normative standpoint – with the development of an analytical framework of urbanization under capitalism (more on this in section 2.3). As such, urbanization became considered synonymous with processes of 'un-equalization'. Proponents of this approach have captured the search for more equal cities and a more fair mode of urban development with the concept of the *Just City*" (see Fainstein, 2010; Marcuse et al., 2009; and Soja, 2010).

A *second* strand, which constitutes the hegemonic approach to urban inequalities in urban research and policy formulation, derives from the fields of urban and economic geography and is characterized by a positivist and empiricist approach. One of the earliest models is Williamson's (1965) neo-classical inverted U-model of regional disparity. Based on the work of Simon Kuznets (1953, 1955)[10], Williamson argued that inequalities *between* regions increases during the early stages of economic growth and declines in the latter stages. During the 1990s, the institutionalization of endogenous growth theories and the 'New Economic Geography' pioneered by Paul Krugman gave birth to the models of β and σ convergence as measures of urban and regional disparity (Gyuris, 2014). The first model assesses the extent to which the economic growth of 'poor' regional economies catches up to 'richer ones. The latter assesses the extent to which the dispersion of income levels between different regions decreases. Importantly, leading international institutions, including the European Union (EU), apply models of β –and σ-convergence to inform and evaluate the performance of their policy and strategy concerned with urban and regional development and spatial disparities (see for example *EU Regional Cohesion Policy*, European Commission, 2010).

The core assumption within this strand of research is that urban and regional disparities result from malfunctioning and disintegrated markets Still, however, these models tell us little about the inequalities that persist at other scale-levels (e.g. within the region or at the level of the neighbourhood), let alone about how the hierarchical interrelationships of processes of un-equalization at different scale levels are continuously reorganized through political struggles (Brenner, 2001). Moreover, demographic effects can romanticize figures of divergence-convergence. For example, negative migration rates in regions and cities facing unemployment and stagnating or slow economic growth may aggrandize figures of (per capita) regional output and income so that it only seems *as if* a region is catching up.

[10] During the 1950s Kuznets (1953, 1955) conducted the first comprehensive empirical research on the evolution of income inequalities. His research pointed out that with sustained economic growth market forces will first increase income inequalities before subsequently reducing them. However, Piketty (2014a) recent study of the evolution of wealth and income disparities over the past 200 years has demonstrated that, instead of decreasing, in most countries wealth and income disparities have instead increased substantially in correlation with economic growth since the 1970s, and are set to increase even further; mirroring the extreme forms of inequality in the 19th and early 20th century. Moreover, Piketty's (2014a) argues that historical evolution of income and wealth disparities cannot be adequately explained along market dynamics. Instead, he suggests that fluctuations in the distribution of wealth depend on the institutions we choose; mainly with regards to finance and taxation.

A *third* strand of research on urban inequality that originated during the 1990s consists of culturally-inspired studies that seek to alter or supplement the two dominant approaches discussed above; and along various lines of reasoning (see also section 2.4.2). First, by calling attention to the various cleavages along which urban disparities persist other than the socioeconomically informed distinctions of social class and stratification (e.g. gender, ethnicity, race etc.). Second, cultural studies argued for allocating greater significance to the immaterial (co-)constituents of social relations (i.e. belief systems, norms, values, institutions) and the particularities of local contexts as sources, forms and expressions of, but also solutions to, urban inequality. For example, by underlining the significance of *discourse* in urban (policy) intervention and of the *social construction* of identity and culture in the material transformation of the urban form and politics (Ribera-Fumaz, 2009). Accordingly, third, cultural studies also sought to alter the manner in which inequalities in cities and forms of inequality related to urbanization are approached and theorized. Against respectively economic determinist (materialist), rationalist, universalist, developmentalist and political-economic conceptions, instead these studies drew attention to the multiplicity of "modalities" of urban inequality (i.e. their cultural, social, political, legal and physical 'dimensions'). Moreover, this analytical reorientation to urban inequality was paralleled by a normative reorientation towards more modest and non-foundationalist geographies of democracy and spatial (urban) *justice* (see for example Barnett, 2011; c.f. Young, 2000).

2.1.4 Urbanization and inequality

In sum, 'urban (in)equality' remains an ambiguous and contested object of enquiry. First of all, the term 'inequality' is subjected to a wide range of (often conflicting) approaches and narratives, neither exclusively analytical nor normative. Second, there exist a multiplicity of "modalities of inequality" (i.e. their legal, economic, political, social and physical 'dimensions'), and "cleavages" along which inequalities persist (e.g.. social stratification, class, gender, ethnicity, health, education and social and human capital etc.). Third, concepts and explanations of inequalities diverge substantially, referring respectively to Osberg, Rawls, Bourdieu, Marx and Honneth. Accordingly, the *vocabularies* and *grammars* deployed to address (in)equality also differ a great deal (MacLeod and McFarlane 2014). Fourth, and paramount to the potential solutions one may wish to advance in order to prevent further entrenchment of inequalities, the construction and availability of (new) tools – e.g. concepts, equipment, statistics, measuring instruments, and, not the least, money – to investigate inequality are crucial elements for how both academics and 'others' are able to measure and interpret the issue, and, in extension, to (de-) problematize it.

The complexity and ambiguity involved in defining, approaching and conceptualizing inequality increases when explicitly engaging with *urban* inequalities, because the question whether a form of inequality ought to be conceived as an *urban inequality* depends on the manner in which 'the urban' is defined in the first place. Certainly, the term urban inequalities marks a shift from social inequality – underlining the dimension of *time* – to approaches that consider the *spatial* (geographic) dimension as well. 'But what is specifically *urban* about urban inequalities?' This is a key and recurrent question throughout this thesis.

Take for example Florida and Piketty and Saez' suggestions that cities are characterized by greater income inequalities than countries (see figure 1) The main issue that appears in the

wake of these findings revolves around the question whether income disparities are simply greater in cities than in nation states because people, social (inter)actions, capital and labour are concentrated in cities or because they are engendered by urbanization specifically. In other words, 'Are particular forms or extents of inequality a distinct feature of cities, or are they simply more clearly pronounced in cities?' Similarly, paramount to determining whether an urban resource is distributed unequally; access to, or command over, an urban resources is spatially differentiated; or, a form of inequality is simply located within urban space, is to 'decide' what is specifically urban about that resource, or space. Illustrating this matter along the example of potholes, 'Do potholes designate a specific urban resource which is distributed unequally among different individuals and social groups; are potholes unequally distributed topographically; (a combination of) both; or neither of them at all?'

These questions are complicated even further when we consider the difference between *cities*, as bounded spatial (topographical) *objects* (units), and urbanization, as a specific *process* that forms and transforms cities. 'Are urban inequalities simply addressing specific forms of inequality evident *within* cities exclusively?' 'Or is the term deployed to designate forms of inequality specifically engendered by urbanization and/or through associated socio-spatial processes, including for example, urban-rural migration. urban sprawl. real estate development and speculation and concentration of firms and labour?'

Two red threads inform how the term urban inequalities is deployed in this thesis. The *first* derives from the research objectives and the implications of this section. On the one hand, this research aims to investigate how different urban paradigms respectively conceptualize the relation between urbanization and inequality and, as such, imply different (moral/analytical) conceptions of urban inequalities. At the same time, since the meaning of 'urban inequality' depends on the manner in which 'the urban' is defined, at this stage of the inquiry neither a clearly demarcated object of urban inequalities nor an distinct (conceptual) 'framework' of the relation between urbanization and inequality can *yet* be articulated. Together, these presuppositions and research objectives underpin the very *research rationale* for inquiring in the relationship between urbanization and inequalities by focusing, in the first instance, exclusively on different urban concepts, thus, without advancing a single definition or deploying any absolute factors and indicators of urban inequality.

The *second* thread points to more profound (social) scientific controversies that haunt current approaches to (urban) inequality and touch closely upon debates in the philosophy of science about the internal and external functioning of science[11]. One the hand, these issues concern the *status of urban studies' object of inquiry* – i.e. the limits of theorizing and producing limits of urban practices, referring to the relation between knowledge (of the relation between urbanization and inequality) and reality (really existing urban inequalities). On the other, these issues are animated by the status of (urban) inequality as an analytical-normative concept that neither exclusively belongs to the realm of science nor to the realm of politics. Here, research focuses explicitly on the *role* and *relevance* of urban studies in 'guiding' (urban) practice, referring both to the reciprocal relation between science and politics and to the relation between urban knowledge and urban (policy) intervention.

[11] This thesis returns to these issues over the course of this chapter (see sections 2.4.3 and 2.5.1) and discusses their ramifications in Chapter 5 (Analysis and Results) and 6 (Conclusion).

2.2 The Nature of Cities

While cities so prominently characterize our contemporary world, paradoxically, questions and debates regarding the true 'nature' and 'virtues' of cities are multiplying. 'What is exactly meant by 'cities' and 'urbanization'?' Why do cities actually exist?' and, 'How are cities embedded in, but simultaneously distinguishable from, the rest of geographic space and social reality?'This section discusses the more conventionally scientific answers to these questions.

2.2.1 The Chicago School

The Chicago School of Urban Sociology, established in the 1920s, was the first academy to inquire in 'the urban' *as a distinct object of inquiry*. The school comprised of a mix of urban sociology and environmental studies applying both social theory and ethnographic fieldwork in the city of Chicago. One of its main contributions was the "social disorganization theory" which held that high rates of crime resulted from environmental factors of the neighborhood. Following the Chicago School urban environments, similar to natural ones, constituted ecosystems subjugated to Darwinian laws of nature. The School developed planning models for alleviating undesirable ecological conditions, which were captured, amongst others, in the now illustrious city-models of Robert Park and Ernest Burgess (1925). Park and Burgess attempted to elaborate the ideal urban design by carefully dividing up the urban area in segments, each fulfilling its own function (e.g. residual, industrial, commuter), while drawing clever corridors to connect the parts efficiently and along residual preference. They captured these designs in mosaic-like, blue-print formula's for planners to implement.

Apart from these intervention-oriented studies and designs the Chicago School is also known for its theoretical endeavours to tease out the main features of urban life (or *urbanism*). Here, it moved away from earlier studies of patterns and place towards an approach that prioritized 'scale' and 'function'. In this way, it advanced an understanding of the city as a self-contained (eco)system; a distinct spatial unit as opposed to the country-side, or 'rural space'. The most noteworthy contribution, in this respect, is Louis Wirth's (1969 [1938]) *Urbanism as a Way of Life* which attempted to develop a "sociologically significant definition of 'the urban'" (p. 4).

Following Wirth, besides their distinct physical structure, economic product and institutions, cities are most adequately defined by three sociological properties: population size, density and high levels of social heterogeneity. Together, these characteristics contribute to a distinct "urban way of life" and an associated "urban personality and collective behaviour" (idem: 23). For Wirth the city, as a form of social organization, implied "the weakening of bonds of kinship, the declining social significance of the family, the disappearance of neighbourhood and the undermining of traditional basis of social solidarity" resulting in isolation, declined interaction and participation and falling fertility rates (idem: 21-22). Wirth also underlined several positive sociological properties, such as, freedom, emancipation and toleration of differences which, in is words, "may be regarded *as prerequisites for rationality* and which lead toward the secularization of life" (idem: 15: emphasis added). Wirth attempted to account for the differences between urban and rural personalities and between agriculture –and industry-based societies in terms of the functional responses of urban dweller to the three characteristic environmental conditions of the city. For example, if urban dwellers were considered more tolerant but also more impersonal than rural dwellers it was merely a result of *adaptation* to the *urban environment* (Wirth, 1969*)*.

2.2.2 Traditional, Taxonomic Urban Theory

The Chicago School was not only the first academy to study phenomena *in* cities but also to separate out 'the city' as a geographically and historically distinct phenomenon, thus laying the foundations for the field of urban studies. However, its studies focused primarily on city-life and urban characteristics. The Chicago School did not inquire in the *urban rationale* – i.e. the reason why individual cities grow or why the overall urban population (in the US) grew at the time. Instead it took urbanism as the 'obvious', scalar (geographic) and functional (social) mode of development in Modernity: "the beginning of what is distinctively modern in our civilization is best signalized by the growth of great cities", Wirth stated (idem: 1) As such, the *nature of cities* remained underexplored. Therefore, and without attempting to short-circuit the historical evolution of urban studies, this sub-section turns to the current status of urban studies by reviewing the hegemonic urban knowledge(s) of the 21st century, which, for purpose of this thesis, I have termed, 'Traditional Taxonomic Urban Theory' (TTUT)[12]. It describes how this urban paradigm approaches *the nature of cities*. taking the work of Allen Scott and Michael Storper (two of its most renowned defenders) as a reference point.

Storper and Scott's (2016) theory of cities[13] "build[s] on the observation that cities are everywhere characterized by agglomeration involving the gravitational pull of people, economic activities, and other relata into interlocking, high-density, nodal blocks of land use" (p. 1116). Since the current period in history is witness to an unprecedented trend where productive activity wealth and population are increasingly concentrated and concentrating in cities, in their view, it is not only best defined as a global era but also an urban one. As they explain "[t]he primary, but by no means the only mechanism driving this fundamental tendency [...] is the emergence of organic divisions of labor in which social and economic life (i.e. the production of goods and services, but also including cultural, religious and governmental pursuits) is organized and reorganized within networks of specialized but complementary units of human activity" (idem). Individuals, households, firms governments concentrate together because all benefit from proximity with respect to pursuing their goals (e.g. production, consumption, leisure, governance). "Most cities offer a better standard of living for more people than ever before in human history; even the urban poor are better off, on average, than the rural poor around the world" (p. 1114). As such, "[a]ll cities can be understood in terms of a theoretical framework that combines two main processes, namely, the dynamics of agglomeration/polarization, and the unfolding of an associated nexus of locations, land uses and human interactions" (Scott and Storper: 2014: 1). The next paragraphs describe Storper and Scott's concepts of urbanization and the city.

Urbanization

Following Scott and Storper (2014), "throughout the course of history, urbanization has been fundamentally engendered by a complex interaction between economic development,

[12] The term TTUT refers to all *urban* studies that: (a) claim that there exist a basic raison d'être of cities; (b) capture the essence of cities as concrete, localized, scalar, social phenomena and in opposition to rural space; (c) divide objects, individuals and phenomena into groups; and (d) *tax* the (inter)actions of these groups along spatial-economic indicators (e.g. trade costs, physical distance, density, nominal GDP per square kilometre etc.).by categorizing them along a 'fixed' topographic grid.

[13] Storper and Scott (2016) explain that they deploy the term 'cities' "to cover both small and large urban forms, including metropolitan areas and city-regions" (p. 1133).

divisions of labor, agglomeration, specialization and external commerce" (p. 6). Historically, cities originated in 'regions' where food surpluses could be extracted. These cities, in turn, had substantial feedback effects on the adjacent country-side, fostering further agricultural development (Soja, 2000). When, due to increased agricultural development, food production exceeded subsistence needs it became possible to maintain a group of non-agricultural consumers so that more specialized goods and services could be produced in cities. "The members of this cohort, who frequently hold some combination of political, military, religious and economic power, will often congregate together in geographic space to form urban or proto-urban places" (Scott and Storper, 2014: 4). Until the 16th century, "[e]ven in areas where urbanization was relatively robust, it did not advance in a continuous, linear way since most cities were caught in a Malthusian trap stemming from uncertain agricultural surpluses" (p. 5). The 16th and 17th century witnessed a steady growth of a limited portion of cities, due to increased long-distance trade, which allowed for a more expanded and tightened web of inter-urban flows that connected a few highly specialized centres. However, it was until the Industrial Revolution that a distinct process of urban growth began to occur. As a result of mechanization and associated increased productivity and specialization the Malthusian trap was finally surpassed. Especially European and American cities began to amass quickly in terms of productivity and population size: "[t]he Industrial Revolution ushers in the modern era when urbanization begins in earnest. This is an era when the fundamental relationship between economic development and urbanization becomes especially clear" (idem).

While admitting that the *urban rationale* cannot be reduced to economic denominators, Scott and Storper insist that "the most basic *raison d'être for cities*, certainly in the modern era, resides in their role as centers of economic production and exchange within wider systems of regional, national and international trade" (p. 6: emphasis added): "[i]n capitalism, in particular, the basic dynamic of agglomeration of capital and labor combined with interregional sorting of people, households, capital and firms lead to systems of linked but specialized cities at various scales of resolution, from the national to the global" (p. 7). The big question, then, is how we ought to grasp the *geographical specificity* of urbanization. 'How is urbanization *embedded* in local, regional, (inter)national, and global processes of sorting people, labor, households, capital and firms while simultaneously constituting a spatial phenomenon that is distinguishable from these scale-levels? 'The answer can be 'partially' illustrated along TTUTs response to Thomas Friedman's (2007) thesis *The World Is Flat*.

Following Friedman, since the year 2000 the world has witnessed a profound process of homogenization due to a set of political economic and technological events and breakthroughs, including the fall of the Berlin Wall, the creation of the World Wide Web, the development of out-sourcing and supply-chaining and the boost of off-shoring. Friedman (2007) argues that these phenomena – conjoined in, what he calls, "Globalization 3.0" – have resulted in the fall of transaction costs associated with overcoming geographical distance too such extent that people and firms are no longer bound to particular locations. However, in contrast to Friedman, Scott and Storper (2014) argue that rather than geographical distance becoming meaningless during the age of globalization instead *place* has become more decisive than ever in shaping the economic geography. While urban growth had slowed down by the 1970s due to de-industrialization and job dispersal to low wage regions and countries, since the 1980s the 'post-Fordist' economy – involving a shift from material-intensive

manufacturing to high-tech, management, logistics, service, design and cultural sectors – is marked by a resurgence of agglomeration and increased proximity of people and firms and has brought cities back at the epicentre of production and consumption markets (idem).

In response to Friedman, Phillip McCann (2008) has argued that "[s]patial transactions costs have not fallen over recent years, but instead they have changed" (p. 352). McCann (2008) explains that while "spatial transmission costs" – i.e. the transaction cost "dependent on communications and transportation technologies" (p. 355) – *do* have fallen, the overall spatial transaction costs have substantially increased. Following Scott and Storper (2014) this trend results from a particular set of 'localizing effects' ("agglomeration economies") which "can be generally understood as a mechanism of sharing, matching and learning"[14] (p. 6). In addition, Scott and Storper (2014) state that "the *specificity of the urban* depends not so much on the crude ratio of its internal to external transactions, but on the contrasting qualities of these two sets of transactions and their locational effects": compared to long-distance transactions intra-urban transactions "tend to be marked by high costs per unit of distance and dense tacit information content (hence the frequent need for face-to-face contact)", and form one of the pillars of agglomeration (p. 7: emphasis added; c.f. Storper and Venables, 2004).

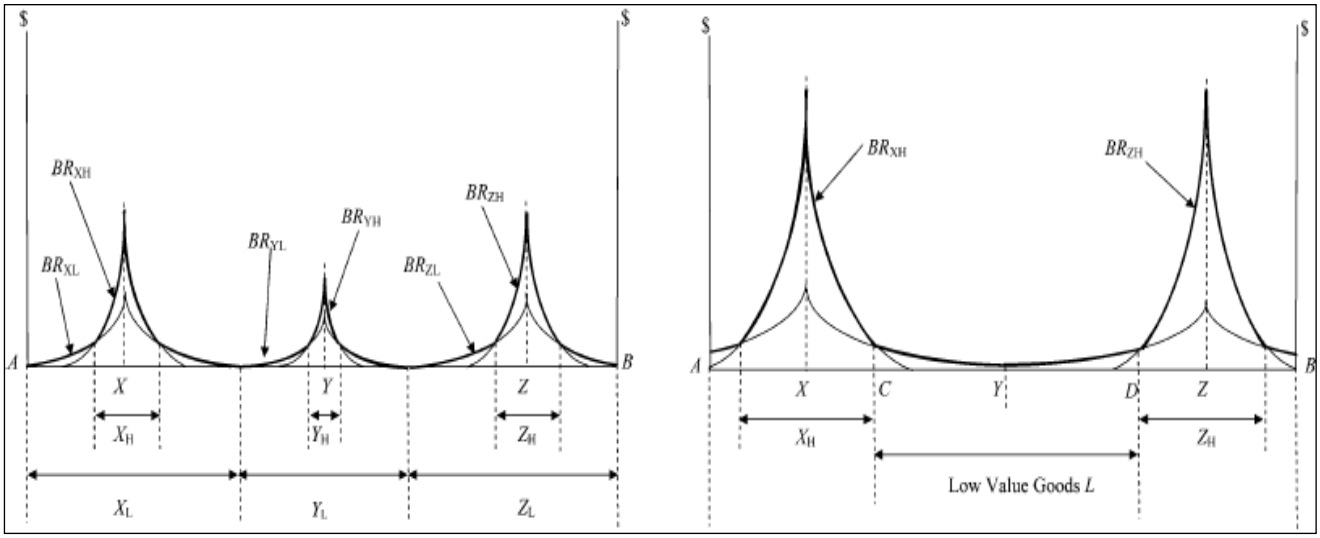


Figure 2a (left) depicts cities X, Y and Z on a one-dimensional economic geography with a distance AB. Each city performs two types of production: low -and high-value goods and services Figure 2b (right) depicts the globalization and localization effects on X, Y and Z. The bid-rent curves for high value goods and services (BR_{XH}, BR_{YH} and BR_{ZH}) are drawn in bold. (McCann, 2008: 362).

To demonstrate that processes of globalization-cum-localization account for *the urban rationale*. McCann (2008) has devised a visual template that depicts their combined effects on urban growth (see figure 2a and 2b). Figure 2a depicts three hypothetical cities (X, Y and Z) in the space economy, with producers of high value goods and services (H) located in their respective centres (X_H, Y_H and Z_H), and producers of low value goods and services (L) located on the fringes (X_L, Y_L and Z_L). As figure 2b illustrates, with globalization spatial transmission costs (mainly applying

[14] "*Sharing* refers to dense local interlinkages within production systems as well as to indivisibilities that make it necessary to supply some kinds of urban services as public goods. *Matching* refers to the process of pairing people and jobs, a process that is greatly facilitated where large local pools of firms and workers exist. *Learning* refers to the dense formal and informal information flows (which tend to stimulate innovation) that are made possible by agglomeration and that in turn reinforce agglomeration" p. 6: emphasis added; c.f. Duranton and Puga, 2004).

to low-value goods) fall sharply, meaning that firms producing these goods are no longer bound to particular locations (idem). Accordingly, the bid-rent curves for these land uses (BR_{XL} BR_{YL} and BR_{ZL}) flatten. This is the spatial economic process on which Friedman's thesis of flat space relies.

However, whilst, as a consequence of falling transmission costs, producers of low-value goods and services can locate virtually everywhere, contrarily, producers of high-value goods and services "will benefit from location-specific agglomeration economies" (idem: 363). Besides the localizing effects, this is because the spatial transaction costs associated with the production of high-value goods and services have increased. Accordingly, the bid-rent curves for these land uses (BR_{XH} and BR_{ZH}) become steeper. As the production areas of high value goods and service producers (X_H and Z_H) increase in size, cities X and Z expand while their gross economic output increases (the surface under X_H and Z_H becomes larger). Moreover, since the bid rent-curves for H exceed the bid rent curves for L, producers of low value goods will move out of the city (land uses X_L and Z_L disappear). City Y may disappear altogether as its previous locational advantage disappears and the low distance costs now neither protect Y against cities X and Z any longer, nor enable the maintenance of Y's local monopoly on its hinterland (idem; c.f. Fujita et al., 1999).

The City and the Urban Land Nexus

Building on their definition of urbanization, Scott and Storper (2014) "identify a related feature that is equally critical to any account of the nature of the city", "the *urban land nexus*", by which they mean, "an interacting set of land uses expressing the ways in which the social and economic activities of the city condense out into a differentiated, polarized, locational mosaic" (p. 8). This shift from processes of agglomeration-cum-polarization towards the resulting concrete, localized articulations of 'urban land' constitutes TTUTs change in tack from urbanization to cities. Accordingly, they define city as "*a concrete, localized, scalar articulation within the space economy as a whole*, identifiable by reason of its polarization, its specialized land uses, its relatively dense networks of interaction [...] and the ways in which it shapes not just economic processes (such as the formation of land, housing and labor prices) but also socialization dynamics, mentalities and cultures" (idem: 7). Following Storper and Scott (2016) within the urban land nexus, "the city represents *a very specific scale of economic and social interaction*" (p. 1119). However, as cities are (varyingly) caught up in local, (inter)national and global processes of sorting land uses, there is no rigid line separating cities from the rest of geographical space. Rather the urban/rural-divide should be approached along "a series of spatial gradations in which we move from the one to the other" (p. 1130).

One question that remains, then, concerns the *historical specificity* of the city, or "the scope and limits of the urban", as Scott and Storper (2014) call it (p. 9); that is: 'How are cities *embedded* (or *integrated)* in economic, political, cultural and social arrangements while at the same time constituting a distinct phenomenon separated from the rest of social reality?' Here, Storper and Scott (2016) "distinguish between phenomena that occur *in* cities but are not generated by urbanisation processes as such, and phenomena that are legitimately elements *of* cities in the sense that they play an active role in defining the shape and logic of urban outcomes" (1117: emphasis in original). They explain that, whilst a hospital located in urban space may play an important role in the city "its internal administrative arrangements are not likely to be of much relevance to any understanding of the city" (idem). Anything that does not comply to these criterion cannot be considered relevant to any understanding of the city.

2.3 Critical urban studies

This section describes how Critical Urban Theory (CUT) approaches the nature of cities and the relation between urbanization and inequality, taking the recent works of Neil Brenner as a key reference point. Section 2.3.1 discusses the philosophical background of CUT and explains how CUT positions itself vis-à-vis hegemonic urban knowledge and practice. Section 2.3.2 discusses CUTs concepts of the city, urban space, and urbanization.. Section 2.3.3 draws on the hypothesis of 'planetary urbanization', which Brenner (2013) has postulated in order to advance a new epistemology of 'the urban' and to renew the agenda for critical urban studies.

2.3.1 Critical Urban Theory

What is Critical Urban Theory? Following Brenner (2009) the term CUT generally designates "the tradition of post-1968 leftist or radical urban studies" (p. 198). However, it "also has determinate social–theoretical content", voicing various strands of (post)enlightenment social-philosophy, including Hegel, Marx and the Critical Theory of the Frankfurt School (idem). CUTs approach to urbanization can be summarized along three basic tenets. *First*, CUT insists that our access to *ontology* (here, *really existing urbanization*) is 'mediated through abstract concepts and interpretations, which together determine our understanding, research and action towards this phenomenon (Brenner and Schmid, 2015b). CUT, therefore, rejects scientific traditions that claim it is possible "to stand 'outside' of the contextually specific time/space of history" (Brenner, 2009: 202). Instead, it insists that all social knowledge is intrinsically contextual since it is "embedded within the dialectics of social and historical change" (idem). This means that *urban knowledge* is "historically specific and mediated through power relations" (idem: 204). As such, the nature of urbanization can only be grasped through theoretical abstraction and reflexion; meaning that access to the object of research is 'mediated' by *epistemology*. In this sense, we always remain prisoners of our own mind.

Second, CUT constitutes a simultaneous critique of conventional urban knowledge(s) and existing urban formations. Following Brenner (2009) CUT "transcends a generalized hermeneutic concern with the situatedness of all knowledge. It is focused, more specifically, on the question of how oppositional, antagonistic forms of knowledge, subjectivity and consciousness may emerge within an historical social formation. Critical theorists confront this issue by emphasizing the fractured, broken or contradictory character of capitalism as a social totality" [...] "Critique emerges precisely insofar as society is in conflict with itself, that is, because its mode of development is self-contradictory" (p. 202). In this vein, CUT seeks to "expose" how hegemonic urban knowledge(s) both contain and obscure the contradictory historical-spatial contexts of urbanization under capitalism (Marcuse, 2009: 189). Accordingly, *third*, CUT is "concerned to excavate possibilities for alternative, radically emancipator forms of urbanism that are latent, yet systemically suppressed, within contemporary cities" (Brenner, 2009: 204). Here, debunking inherited urban knowledge(s) is not only paramount for *exposure* but especially to "propose" and "politicize" emancipator forms of urbanism in response (see Marcuse, H. (1990 [1960]); c.f. Marx's *Theses on Feuerbach* (1976 [1845]) and *Introduction to the Grundrisse* (1857). Brenner (2009) calls this complex relation between urban *theory* and urban *practice* "the disjuncture between the actual and the possible" (idem: 203). Summing up these tenets, Brenner foresees a considerable – though compromised – role for urban *theory* and critical urban studies, asserting that CUT:

> "insists that another, more democratic, socially just and sustainable form of urbanization is possible, even if such possibilities are currently being suppressed through dominant institutional arrangements, practices and ideologies" (p. 189) [However, it is] "not intended to serve as a formula for any particular course of social change; it is not a strategic map for social change; and it is not a 'how to'-style guidebook for social movements. It may—indeed, it *should*—have mediations to the realm of practice, and it is explicitly intended to inform the strategic perspective of progressive, radical or revolutionary social and political actors. But, at the same time, [...] [i]t is focused on a moment of abstraction that is analytically prior to the famous Leninist question of 'What is to be done?'" (idem: 201-2)

Manuel Castells: The Urban Question

Brenner's engagement with urbanization, departs from Manuel Castells' (1977 [1972]) now classic work *The Urban Question*. Witnessing an increased importance of "urban problems" in governmental policies and mass media concerns, Castells criticized the Chicago School for its failure to delineate the historical specificity of cities under capitalism (idem: 1). To test his proposition, he distinguished between cities' "scalar" aspects – i.e. "the materiality of social processes organized on the urban scale" as a distinct "spatial unit" – and their "functional" aspects – depicting "not merely its geographical setting" but " its functional role" in society as a whole (Brenner, 2008: ii). Castells "found multiple social processes within capitalist cities, but argued that only collective consumption was *functionally specific* to the urban scale" (idem: emphasis in original). The absence of a distinct social function (*i.e. of capitalist production*) meant that 'the urban' as object of inquiry could not be separated from the rest of social reality. Castells, therefore, rejected the whole notion of 'the urban' as an ideological construct that had to be deconstructed. Up to this day Castells' work remains a key reference point in urban studies because without a clearly demarcated object of inquiry it makes neither sense to investigate the city nor to use it as an umbrella for a particular set of spatial studies.

David Harvey: Urbanization and Capitalism

In the same period David Harvey (2009 [1973]) published *Social Justice and the City*, where he attempted to explain the phenomenon of "ghetto formation" and, in turn, proposed a *radical* paradigm shift in human geography to understand this process. In the subsequent decades, Harvey (1982, 1978, 2003) went beyond Marx' theory of *Capital* – which centred on the factory and took industrialization both as the *process* and *product* of the capitalist mode of production – to argue that capitalism is not only a historical phenomenon but has a distinct spatial dimension as well. By exposing the multiplicity of ways in which the forces of production (employer-employee conditions, divisions of labor, and property relations) – the (economic) base – constitute preconditions for urbanization while underlining the role of the state, institutions and power-relations in consolidating these spaces of 'social reproduction and consumption' – the superstructure – Harvey (2008) argued against Castells for an "intimate connection [...] between the development of capitalism and urbanization" (p. 24).

Similar to how Marx understood that the creation of surplus product depends on separating use from exchange values and labour from capital, Harvey argued that urbanization entails the transformation of use values of land into exchange values of real estate. With concepts as "circuits of capital" (1978) and "the spatio-temporal fix" (2003) Harvey demonstrated that instead of commodities circulating on space, space itself is commoditized and, thus, is a capitalist construct (similar to time). This marked a shift in thinking about space as absolute to relative: circulation of commodities, capital and money in the (global) market bends, curves,

and compresses space; it creates its own space-times. Because surplus capital gets absorbed (*fixed*) and accumulated within the built environment, urbanization constitutes the main, socio-spatial crystallization of industrial capitalism and capital circulation. Moreover, Harvey (1982) argued that the dynamics of accumulation imply "uneven geographical development". Because circulation of capital depends on differential development, capitalism inevitably engenders difference: accumulation of capital in one place is inextricably linked to crises in, and devaluation of, others. While uneven development occurs at multiple scale levels – from the neighbourhood to the global – it is primarily manifested within cities and (global) inter-urban networks. Urban development generates local labour excesses, land speculation, rent-seeking behaviour and asset-stripping, resulting in ghetto formation, gentrification, but also intra –and inter-regional disparities. As such, inequality is inextricably linked to urbanization.

For example, his studies on the Second Empire Paris and the Paris Commune illustrate how Haussmann's urban regeneration project mainly intended to secure surplus capital for the elite while suppressing aspirations of the Parisian labor force by absorbing both in large-scale urban restructuring. More recently Harvey (2010, 2013) demonstrated how the creation of credit serves investors to dominate both consumption and production of real estate (and urban land); and how, since the financial crack-down in 2008, a global process of post-crisis urban restructuring has been unfolding to consolidate these spaces of surplus appropriation and capital circulation. For this reason Harvey argues that 'the city' is not simply a contingent site and spectator of contemporary class struggles but its primary locus. Harvey (2008) envisions a considerable political role and potency for the city as an arena to encounter, resist and, finally, revolutionize society, which he captured in the famous slogan 'The Right to the City". For Harvey the city poses fundamental questions as concerns 'ownership' and 'basic human rights' and, as such, represents the main site for class struggle and political emancipation.

2.3.2 Henri Lefebvre: the city, urban space and urbanization

In the same period, Henri Lefebvre's (2003 [1970]) *The Urban Revolution* concluded that industrial capitalism was not simply reorganized in cities, as Castells had claimed, but that urbanization had surpassed industrialization as the dominant capitalist mode of production. Similar to Harvey, Lefebvre also found an intimate relation between urbanization and capitalism but turned the argument upside down: while for Harvey industrial capitalism (the primary circuit of capital) still dominates over finance capital (the secondary circuit of capital) and "is the raw material out of which urban change crystallizes", according to Lefebvre the latter reorganizes the contradictions of the former into contradictions of the city (Smith, 2003). According to Lefebvre, beyond a certain level of growth urbanization creates the conditions for industrialization and, thus, (re-)*produces* industrialization rather than the other way around. In this way Lefebvre expanded the relevance of space versus time in studies of capitalist societies even further. Besides Harvey and Castells' work, it is mainly along Lefebvre's contributions that Brenner elaborates CUTs approach to urbanization.

City vs. Urbanization: 'Urban Effects'

One fundamental insight of Lefebvre was to distinguish between the city and urbanization in terms of "moment" and "process" (Wachsmuth, 2014: 78). 'Process' refers to urbanization, because it concerns a transformation in space and time – e.g. in terms of population (Davis, 1945; UN-Habitat, 2008), as a way of life and its corresponding form of settlement space

(Wirth, 1938), of agglomeration-cum-polarization (Scott and Storper, 2014), or otherwise. 'Moment', on the other hand, refers to the concept of the city, "because, in the standard understanding, cities are the still frames comprising the urbanization process: stop the process at any point in time, and the discrete spaces you observe are the extent of urbanization" (Wachsmuth, 2014: 78). Lefebvre only referred to the city as "a historical phenomenon (e.g. the mercantile city and the industrial city) or to a present-day representation (the image or concept of the city)" arguing that both are the same object: "[y]esterday's sociological truths may become today's ideologies" (idem: 75: emphasis in original; c.f. Lefebvre (2003 [1970]: p. 57). Wachsmuth (2014), therefore, suggests to treat the city as a "thought object" rather than a "real object": "we should neither dismiss the concept of the city as outdated nor try to resuscitate it as a category of analysis, but rather treat it as a category of practice: a *representation* of urbanization processes that exceed it" (p. 75).

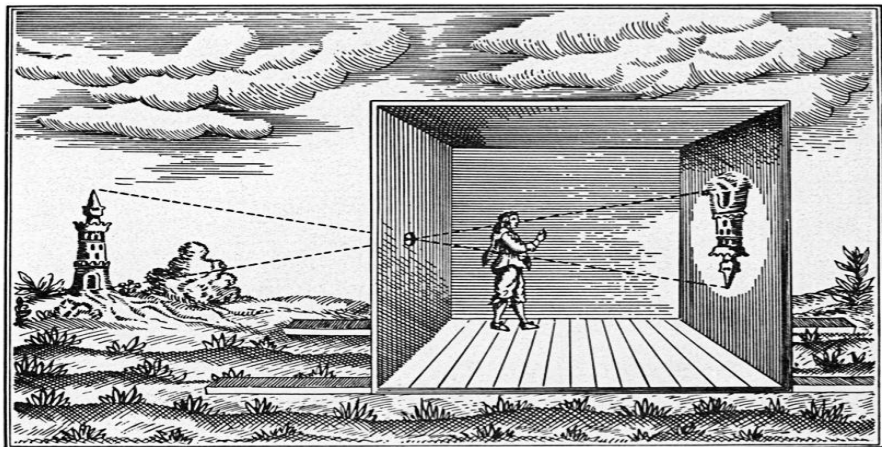


Figure 3: We may consider this 17th century illustration of the 'camera obscura' as a metaphor for what Brenner calls 'urban effects'. The tower represents 'really existing urbanization'; the box represents the mind. The tower projected in the box is 'an ideological representation of urbanization'.

In continuation of Lefebvre and Castells, Brenner (2013) affirms that traditional concepts of the city (including TTUT) are ideological representations of urbanization Following Brenner (2011), 'urban ideology' should not be understood as 'false consciousness' but as structured by everyday practice, where ideology is understood as a form of practice embedded in social practice. Thus, urban ideologies are part of social reality. In a reference to Marx and Engels's *Critique of German Ideology* Brenner (2013) alludes to the camera obscura as a metaphor for this representationalist problematic (see figure 3) and argues that these representations are "urban effects", fethishizing the urban as an object of analysis by maintaining an obsolete distinction between urban and rural space that obscures our conception of urbanization under capitalism (p. 100). As such, he returns to Castells' (1977 [1972]) earlier conclusion that after nearly 100 years the field of urban studies has still not succeeded in defining a coherent object of inquiry. Moreover, since the concept of 'the urban' "contains the possible as an immanent and constitutive moment of the real" (Brenner et al., 2011: 235; c.f. Lefebvre, 2009; Marcuse, H. (1990[1960]), debunking 'urban effects' is paramount to exposing the contradictory nature of capitalist urbanization – including the associated forms of uneven development and socio-spatial inequality. In turn, 'exposure' allows for alternative, more socially just, modes of urbanization to be "proposed" and "politicized" (Marcuse, 2009: 193-4). For Brenner (2013) the *Urban Question*, therefore, revolves around the *deconstruction* of urban effects[15].

[15] Section 2.4.2.1 offers a timely example of urban ideology by describing Brenner and Schmid's (2014) critique of TTUTs concept of 'the urban' along their deconstruction of 'the urban age thesis'.

Urban Space: Towards the 'Urbanization Question'

Brenner and Schmid (2015a) clarify CUTs urban concept along two oppositions to TTUT. *First*, "the urban and urbanization are theoretical categories, not empirical objects" (p. 163). Against "mainstream traditions" that treat the urban "as an empirically self-evident, universal category corresponding to a particular type of bounded settlement space, the 'city'", they argue that "its demarcation as a zone of thought, representation, imagination or action can only occur through a process of theoretical abstraction" (idem). Merrifield (2013) explains how Lefebvre conceptualized the urban in terms of world market dynamics and as the basis of capital accumulation: "[i]f a city is a complex adaptive system, the change in tack from 'cities' (in the plural) toward 'the urban' (in the singular) marks a simplifying movement, an analytical sidestep from the concrete to the abstract" (p. 913). The urban, he connotes, "is more precisely a *concrete abstraction*, the terrain of theoretical knowledge" (idem), or in Lefebvre's (2003 [1970]) terminology, an "illuminating virtuality" (p. 17). In contrast to the city (which remains a thought object), Merrifield (2013) explains that 'the urban' "represents a theoretical object and a possible object" (p. 913): "we could easily transpose 'urban' for 'world market' without losing any of Marx's clarity of meaning": similar to how Marx (1975 [1862]) conceptualized the rise of the world market – where foreign trade allows the market to become a world market and abstract labour to become social labour – the urban can also be defined as "an actual reality and a concept of reality"; the urban is both real and embodied in agents, but simultaneously "flow[s] as [a] non-observable phenomen[on]" as well (idem).

Second, "the urban is a process, not a universal form, settlement type or bounded unit" (Brenner and Schmid, 2015a: 165) – what Brenner (2013) calls "nominal essences" (p. 98) – since these "are in fact merely temporary materializations of ongoing sociospatial transformations" (idem: 2015a: 166). "[U]rbanization under capitalism is always a historically and geographically variegated process: it is mediated through historically and geographically specific institutions, representations, strategies and struggles that are, in turn, conflictually articulated to the cyclical rhythms of worldwide capital accumulation and their associated social, political and environmental contradictions" (idem: 175). While urbanization is closely aligned to (neo)industrial capitalism and world market expansion more generally "*its specificity* lies precisely in *materializing* the latter within places, territories and landscapes, and in *embedding* them within concrete, temporarily stabilized configurations of socioeconomic life, socio-environmental organization and regulatory management" (idem: 172 emphasis added). Ongoing sociospatial (re-)configurations temporarily internalize the contradictions related to employer-employee conditions, divisions of labor, and property relations and the associated class struggles, over-accumulation and political control of surplus value. Insofar these configurations can no longer maintain their operational effectiveness in face of the conflicts generated through such contradictions, they are radically 'renovated', or "creatively destroyed", up to the point a new urban formation is "produced". As such, urbanization is "a process of constant, if contested, *innovation* in the production of sociospatial arrangements—albeit one that always simultaneously *collides with*, and thereby *transforms*, inherited formations of spatial practice, regulatory coordination and everyday life" (idem: 175). Accordingly, Brenner (2013) proposes to replace Castells' *Urban Question* with *The Urbanization Question*. Instead of asking, "Are there any specific urban units", for Brenner the key question now is, 'Does there exist a distinct urban process'? (p. 104).

Urbanization = Implosion ←→ Explosion

Another fundamental insights of Lefebvre is to understand urbanization as a historical process that "contains two dialectally intertwined moments": *Implosion* and *Explosion* (Brenner 2013: 94). Similar to the urban age thesis (UN-Habitat, 2008), 50 years earlier Kingsley Davis (1945) already defined 'the urban' along an algebraic formula where the extent of urbanization (U) equals the total population in cities (P_{cities}) divided by the total world population (P_{total}). Brenner (2013) remodels this equation along Lefebvre's argument that urbanization equals to a dialectic of the moments of *concentrated urbanization* (U_{conc}) and *extended urbanization* (U_{ext}). On the one hand, urbanization is characterized by concentration, centralization, agglomeration of infrastructures, capital and labour. Here, urbanization is defined by 'Implosion' of activities, materials, conflicts and struggles. Concentrated urbanization appears quite similar to TTUTs concept of the city (see figure 4; c.f. figure 2 in section 2.2.2), and does not designate a singular settlement type, but can instead take different morphological expressions (e.g. node, agglomeration, metropolis, city-region). On the other hand, urbanization is characterized by 'explosion': "[t]hough largely ignored or relegated to the analytic background by urban theorists, such transformations – materialized in densely tangled circuits of labor, commodities, cultural forms, energy, raw materials, and nutrients – simultaneously *radiate outward from the immediate zone of agglomeration* and *implode back into it* as the urbanization process unfolds" (Brenner: 2013: 103: emphasis added).

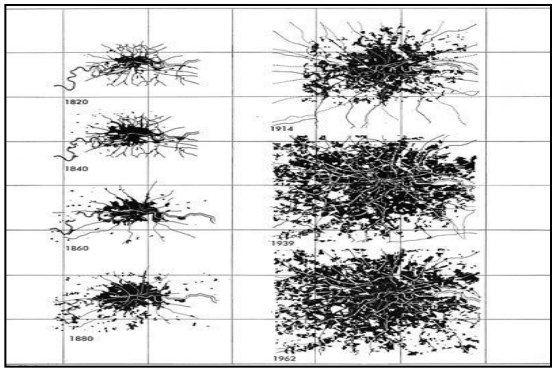


Figure 4: Evolution of London's spatial morphology featuring concentrated urbanization in 1820, 1840, 1860, 1880. 1914, 1929 and 1962 (Doxiadis, 1986).

Figure 5: Visual representation of the global mobility network featuring one form of extended urbanization (Source: Max Planck Institute für Dynamics and Self-organization, 2011).

Brenner and Schmid (2015a) identify three types of extension. (1) "a major expansion in agro-industrial export zones", including large-scale infrastructure investments and land-use transformations associated with the production and circulation of food and bio-energy; (2) "a massive expansion in investments related to mineral and oil extraction". (3) – and dovetailing what Friedman (2007) termed 'Globalization 3.0' – "the accelerated consolidation and extension of long-distance transportation and communications infrastructures [...] designed to reduce the transaction costs associated with the production and circulation of capital" (p. 173) (see figure 5). Following Brenner (2013 these configurations, purportedly located 'outside' cities, are also constitutive of urbanization processes (p. 103).

Following Brenner and Schmid (2015a) concentrated and extended urbanization do not refer "to distinct morphological conditions, geographical sites or temporal stages, but to mutually constitutive, dialectically intertwined elements of a historically specific process of sociospatial transformation" (p. 169). Just as the continuous growth, consolidation and

restructuring of agglomerations depends on the geographies of extension, so do activations and transformations of extended urban landscapes depend on the concentration of capital and labor in urban centers. Moreover, *Implosion* and *Explosion* do not exclusively equate with respectively concentrated and extended urbanization. Rather Lefebvre deployed the metaphor of Implosion/Explosion as "a useful basis for demarcating a *third*, *differential moment* of urbanization", referring to the *creative destruction* of inherited urban formations through ongoing processes of capital accumulation and industrial development (idem: 168). Accordingly, Brenner (2013) defines the urban as "a 'concrete abstraction' in which the contradictory sociospatial relations of capitalism (commodification, capital circulation, capital accumulation, and associated forms of political regulation/contestation) are at once *territorialized* (embedded within concrete contexts and thus fragmented) and *generalized* (extended across place, territory, and scale and thus universalized)" (p. 95: emphasis added).

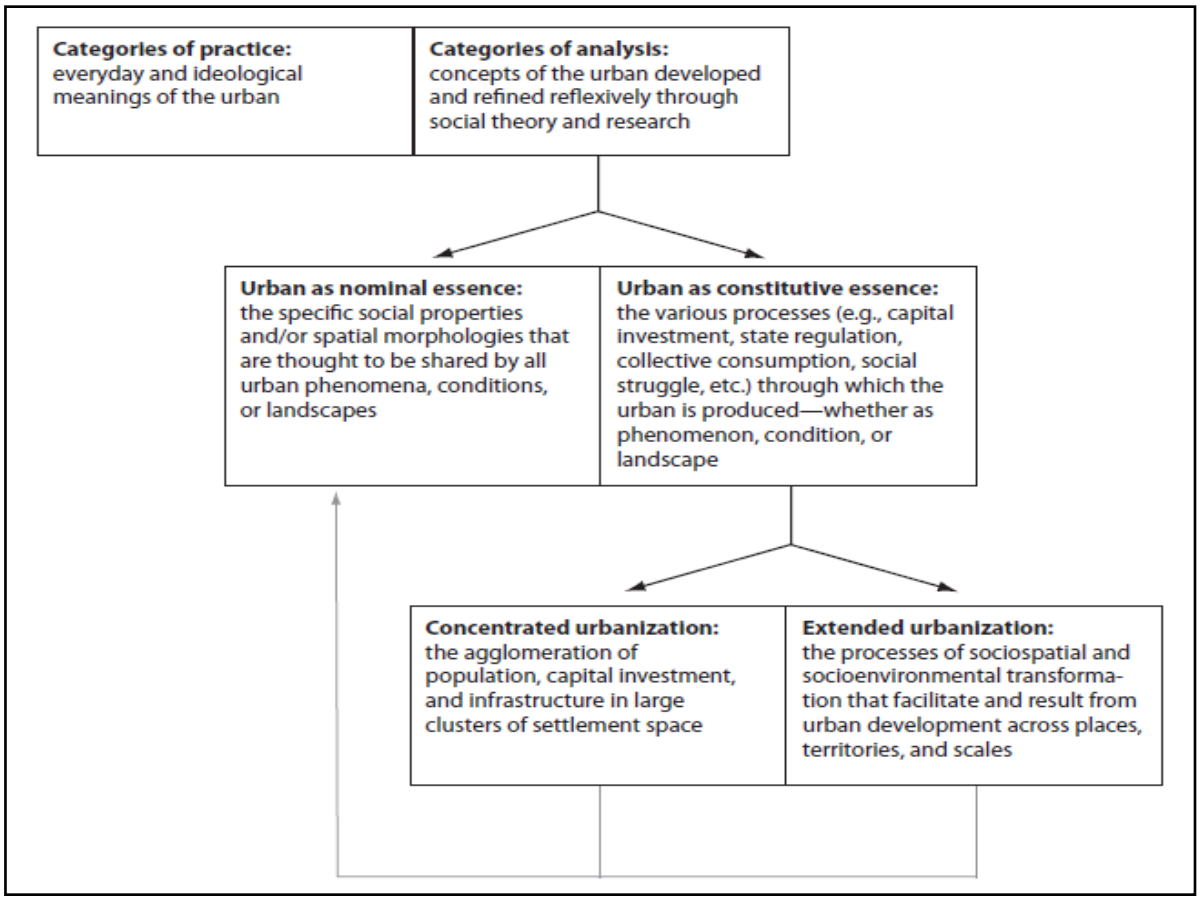


Figure 6: Three distinctions that underpin CUTs approach to the urban' (Source: Brenner, 2013: 96).

Marxian approaches to urbanization (e.g. Harvey, 1978, 1982) have already analyzed the creative destruction of urban formations *within* large agglomerations. As such, these approaches hence developed a comprehensive account of the interaction between concentrated and differential urbanization. Brenner and Schmid (2015a) explain that, in contrast to these approaches, they "have only a limited grasp of how—via what mechanisms, struggles, patterns and pathways—the landscapes of extended urbanization have been creatively destroyed during the history of capitalist development", and whether it occurred in relation to concentrated urbanization or regimes of capital accumulation and industrialization more generally (p. 168). Brenner (2013) insists that while so far urban studies have treated

'concentration' as the privileged or exclusive domain of urban development – either as a *nominal essence* (e.g. TTUT), or as a *constitutive essence* (e.g. CUT) – today it is more urgent to inquire instead (though not exclusively) in the (re-)production of the 'extended urban landscapes'. Figure 6 illustrates Brenner's approach to the urban along three distinctions.

The Urban Fabric and its Dimensions

While the notion of *Implosion/Explosion* blasts open inherited urban epistemologies simultaneously it engenders a sense of 'ontological confusion'. 'If urbanization does not only feature the concentration of contradictory sociospatial relations of capitalism in historic sociospatial arrangements (typically associated with cities) but also the universalization of these relations across places, territories and scales (traditionally distinguished from cities), then *what* remains of the specificity of 'the urban'?'. While Brenner and Schmid (2015a) specify the urban as a "dynamically evolving force field" *in which* sociospatial arrangements are continuously (re-) produced (p. 168), still this leaves unanswered the question *what* the urban itself is exactly made of. '*What is* its substance?' 'What does, or may, it resemble?'

We can find the answer in Lefebvre (2003 [1970]) concept the "urban fabric" (p. 3). Initially Lefebvre coined the term 'urban fabric' to refer to "all manifestations of the dominance of the city over the country" (p. 4). Instead of constituting discrete spatial units, Lefebvre understood the urban as something that flows; something that was beginning to stretch; universalizing its characteristics within and across countries, therewith assimilating the country-side. However, in his later works Lefebvre (1991 [1974]) did no longer grasp domination as a matter of geographical specificity (e.g. of the city over country), but to underline that domination is *immanent* within the phenomenon of the urban itself; "*immanent* within the accumulation of capital itself, *immanent* within its secondary circuit of capital" (Merrifield, 2013: 915).

According to Merrifield (2013) Lefebvre wants us to grasp the urban as "a single, indivisible substance whose attributes — the built environment, transport infrastructure, population densities, topographical features, social mixes, political governance — are all the formal *expressions* of what pervades it ontologically" (p. 913: emphasis in original). When we take the urban fabric as a kind of 'organic tissue' that comprises the essence of nature and (social) reality, or what Spinoza called "substance", each of these attributes "expresses the reality or being of the substance" (Spinoza, 1993: 9; c.f. Merrifield, 2013). Thus, these attributes of the urban "are how the urban *looks* and how it can be *seen* and *known*" (idem: emphasis added).

To offer a visual metaphor of the urban fabric Merrifield refers to Jackson Pollock's giant drip canvases (see figure 7). While at first glance Pollock's canvas seems to depict a dense built environment from a birds-eye perspective instead Merrifield invokes this pictorial constellation as a metaphor for the substance of the urban *process*. Similar to 'the urban fabric' "there is chaos to these attributes yet underlying order to its substance" (p. 913). Similar to the urban, the canvas has no centre, no beginning and no end. For Merrifield the

Figure 7: Lavender Mist (Jackson Pollock, 1950).

canvas "evokes what Clement Greenberg (1961) called ‘the crisis of the easel picture’, the crisis of the classic framing" (idem: 914). the problem of obtaining an adequate representation of the nature the urban; the 'right' *perspective* of a phenomenon which, in the first instance, only displays chaos and ambiguity: formlessness.

Pollock's canvas reflects the three moments of urbanization. *First*, chaos and ambiguity refer to 'concentrated urbanization'. While the dynamic of agglomeration-cum-polarization appears as straightforward the associated nexus of locations, land uses and relations that unfolds only comprises temporary and variegated manifestations of this global urban process (Brenner 2013, 2004). Because the urban flows as immovable capital, its attributes (or *products*) are always *territorialized*; embedded within concrete contexts. Thus, while urbanization displays generic features its manifestations 'on the ground' are always context-dependent and, as such, fragmented (amorphous). Just as when we observe the canvas in a standstill, if we *look at* the urban only in terms of *outcomes* it only displays formlessness. *Second*, the immense size of Pollock's canvas and its pictorial density are metaphors for extended urbanization which, by expanding the secondary circuit of capital to territories typically distinguished from cities, stretches of the urban fabric. Moreover, as extension involves the generalization of the socio-spatial contradictions of capitalism across the globe, the fractals can also be understood as a metaphor for the 'seemingly' resulting homogenous, global urban landscape.

Insofar concentration and extension are approached as unrelated, discrete moments of urbanization the urban fabric remains formless. Just as Pollock's fractals can only be understood when his canvas is *seen* in motion we can only begin to *understand* the substance of the urban if we *view* it as a dialectic of *Implosion/Explosion*. and consider the flows that (re-) produce space. The fractals represent complex loops of investment flows that "power the ‘secondary circuit’ of capital into real estate" and, hence, produce space (Merrifield, 2013: 914). "The secondary circuit flows as fixed and usually immovable capital, [...] a whole built investment for production and consumption" (idem). All these urban 'attributes', or *immobiles*, as Lefebvre called them (e.g. apartment complexes, warehouses, office blocks), have their value *fixed* in space and can only be de-valued through creative destruction (Harvey, 1982).

These sociospatial configurations temporarily internalize the contradictions related to employer-employee conditions, divisions of labor, and property relations. When Lefebvre argues that urban space is creatively destroyed he does not merely imply that new urban attributes are replacing old ones, nor that the built environment is renovated – although, of course, inherited topographies and built environments generally change as well. More importantly, he suggests that new flows as immovable capital, new geographies of production and consumption, are being articulated to render new cycles of finance capital operationally effective in face of the conflicts generated through the (formerly) contradictions of capitalism. This involves the constitution of new socio-spatial contradictions accompanied by new (types of) temporary socio-spatial configurations. Here, the urban fabric is not simply being emptied and re-filled but is itself entirely *re-woven*[16]. Moreover, since new flows as immovable capital collide with and transform inherited circuits of capital, creative destruction generally involves a process of *interweaving* hinting at particular limits (or *path-dependency*) to capital (Harvey,

[16] For a visual illustration of what the re-weaving of the urban fabric may resemble when viewed in motion see this short movie clip: https://www.youtube.com/watch?v=_5rI7sFu_pg

1982), and, hence, limits to feasible socio-spatial configurations under capitalism that compromise the 'maneuverability' of urban development in space and time.

Pollock's canvas offers a fruitful metaphor to *understand* the substance of the urban fabric as "a fine grained texturing" that is both medium and product of urbanization: a "formless form" (Merrifield, 2013: 915). Its underlying pattern can only be grasped if seen in motion, but conversely the *expressions* of its movements always appear amorphous. Thus, randomness, spontaneity and diversity are paradoxically inherent to its underlying structure. "It is like trying to know, with certainty, both the movement and position of a subatomic particle, both its wave and particle characteristic — the paradox between process and product, between movement and outcome, between urbanization and the urban" (idem).

In *The Production of Space* Lefebvre (1991[1974]) sought to develop an approach that could simultaneously grasp how, throughout history, space is produced by social forces and how social relations are produced in and through space. He argued that space is produced in two ways: "as a social formation (mode of production), and as a mental construction (conception)" (Elden, 2007: 109). Lefebvre finds an opposition between these two *spatial dimensions*. The first entails *spatial practice* – i.e. how space is *perceived*. This is space as concrete and physical (materialism); of social (inter-)activity or, equally, of relations of production and exchange, that is both sustained (urbanization under capitalism) and obscured through contradictions in everyday life (see table 1). The second entails *representations of space* (or discourses on space) – i.e. how space is *conceived* – referring to theoretical regimes, spatial planning professions and expert knowledge that give an image to (signify) and, hence, define space. This is the space as abstract and geometric (ideology). For example, the urban age thesis involves a quasi-abstraction from cities (concrete) to 'the urban' (geometric space).

At the same time, Lefebvre found an intimate relation between both dimensions. For example, the production of space depends as much on material relations of exchange as on theories through which such interactions themselves are defined (and thus *conceived*) as such. Following Lefebvre, therefore, both dimensions have to be grasped simultaneously: space as both concrete and abstract; as "*real-and-imagined"* (idem). To this end, he devised a third dimension through Heidegger's notion of 'the lived': *spaces of representations* (or discourse of space). These "do not refer to spaces themselves" but "to the process of signification that links itself to a (material) symbol" denoting the world *as it is experienced in everyday life* (Schmid, 2008: 37). Lived space is defined by contradictions between traditional and collective forms of life of the proletariat and daily practices, routines and common sense as concerns modern life and morality. This space itself becomes a vehicle that transports meaning evoking social norms and values (e.g. masculinity),.involving more informal and local forms of knowledge (Elden 2007). This is the realm of mythification, passion and desire, designating space as it might be; shocking people into a new conception of space.

spatial practice	*l'espace perçu*	perceived	physical	materialism
representations of space	*l'espace conçu*	conceived	mental	idealism
spaces of representation	*l'espace vécu*	lived	social	materialism & idealism

Table 1: Lefebvre's conceptual triad (Source: Elden, 2007: 110).

Lefebvre's brings the three dimensions together in a conceptual triad (see table 1). All dimensions are of equal 'value' and can relate to one another in a variety of ways in complex motions (Schmid, 2008). Brenner and Schmid (2015a) build upon this conceptual triad to identify three dimensions that together co-constitute the three moments of urbanization: "spatial practices", "territorial regulation" and "everyday life" (p. 170).

2.3.3 Towards a new epistemology of the urban

Planetary Urbanization

A final insight of Lefebvre (1991[1974]) derives from his hypothesis that urbanization would become a generalized condition on a world – in his words, *mondial* or *planetaire* – scale. He called this "planetary urbanization". Considering the production of space throughout history, urbanization started around the mid 19th century with the transition from commercial to industrial town. Between 1850 and 1970s the urban was defined by industrial and metropolitan formations. During the 1970s, when secondary circuit of capital began to prevail over industrial capitalism, the primacy of concentrated urbanization was overtaken by the activation of extended urban landscapes that stretched the urban fabric outwards to develop territorial urban formations[17]. Writing *The Urban Revolution* at the time, Lefebvre (2003 [1970]) already professed the urbanization of society as an emergent phenomenon. Under these conditions, a critical (social) theory could only be a critical *urban* theory; and a social revolution only an *urban* revolution (idem; c.f. Merrifield, 2013). To visualize planetary urbanization Lefebvre alludes to Asimov, who, in his *Foundation* series, describes the Planet Trantor 22.500 years in the future; a planet-wide city (*ecumenopolis*) that is not only the astronomic ('geographic'), but also economic and administrative ('functional') centre of the galaxy. "Today, it is virtual, tomorrow it will be real", Lefebvre (2003 [1970]: 7) warned us.

Following Brenner and Schmid (2015a), "[t]oday, it is increasingly evident that the urban has indeed become a worldwide condition in which all aspects of social, economic, political and environmental relations are enmeshed" (p. 173). On the one hand, planetary urbanization "is the cumulative product of the earlier longue durée cycles of urbanization" (idem: 176). On the other, it emerged following "the post-1980s wave of global neoliberalization" (idem). The emergence of planetary urbanization is expressed in a number of ways. First, it entails discrete *spatial practices*, including (a) "the remarkable territorial expansion of urban agglomerations" (captured, for example, through the notion of the "100-mile city") that dissolves the boundaries between different urban centers and between agglomerations and their hinterlands; (b) the transformation and activation of extended urban landscapes; and (c) the creative destruction and re-production of urban landscapes. Under these newly *perceived* spaces traditional *conceptions* of urban formations "as nodal concentrations organized around and oriented towards a single urban core" – including models of Metropolis/Hinterland, Center/Periphery Urban/Rural, Society/Nature and North/South – have become obsolete (idem: 173). Second, planetary urbanization is accompanied by new forms of *territorial*

[17] In *The Urban Revolution* Lefebvre developed an historical model of the agrarian-industrial and industrial-urban transitions. For a schematic overview and illustration see Elden (2004: 132). In *The Production of Space* Lefebvre further elaborated these 'social spatializations' throughout history, covering Absolute Space (nature); Sacred Space (Egypt, divine kings); Historical Space (Roman empire, middle ages); Abstract Space (capitalism, collapsing land into property, lots), Contradictory Space (global vs. local, use vs. exchange value); and Differential Space (Implosion/Explosion).

regulation, including: "the deregulation of the global financial system"; "the neoliberalization of global, national and local economic governance"; "the worldwide digital revolution"; "the flexibilization of production processes"; "the generalization of global production networks"; and "the creation of new forms of market-oriented territorial regulation" (idem: 172), involving planning and management procedures that promote speculative urban investment and competitive urban development. Third, with new spatial practices and conceived spaces, *lived space* – i.e. the world, as it is experienced in everyday life – has transformed as well.

Planetary urbanization "does not entail the homogenization of socio-spatial landscapes" or the 'globalization' and universalization of *urbanism as a way of life* across the planet (idem: 175), as Soja and Kanai (2006: 26) claimed. Nor does it imply that the planet is completely covered by dense agglomerations – i.e. that we literally live *in* an *ecumenopolis*, so to speak. Rather it suggests that we live *through* an urban world[18]. When, in Asimov's Foundation series, Trantor became a galactic empire, it became central to the transformations of all worlds in the galaxy: all planets eventually lived through the Trantorian empire. With his hypothesis Lefebvre did not intend to argue that the physical *location* of world problems was changing – i.e. that cities had become the topographical epicentre of all economic, social, and ecological problems and prospects – but instead stressed their *displacement* in dominant social relations. Since society has been urbanized, all problems are intrinsically urban 'in nature'.

Under planetary conditions the *Urbanization Question* no longer poses theoretical or (social) philosophical questions – respectively about the nature of urbanization and the legitimacy and validity of urban knowledge. Instead it presents a meta-theoretical and meta-philosophical question. Since the urban has subsumed all social, cultural, economic and physical orders, space has been split up across so many disciplines that *social space* has become *invisible*. Accordingly, illuminating the historically specific patterns and trajectories of urbanization now requires a unity of theory between fields; one that can grasp the interplay of all orders; that cuts across a variety of disciplines and modes of reasoning. For Lefebvre "[t]he urban is

[18] Merrifield (2013) explains how Lefebvre grasped the generalization of urbanization on a planetary 'scale' along an opposition between Word and World. The relation between what we know about the World and how we see and experience it (Word) is never completely settled because we are surrounded by the world. This *representationalist* account on theory and praxis is closely aligned with John Berger's et al. (1972: 7) *Ways of seeing*. Word represents the worldly experience as lived and conceived of in everyday life. World represents the capitalist (world) system of (re-)production of uneven urban space. 'World', here, should not be conflated with 'global'. *Globe* designates a *technical* image of where things happen (in the world), and *globalization* refers both to 'a final up-scaling' of social (inter)action (e.g. to the limits of the globe) and at the same time a 'compression' of these interactions (e.g. the death of distance). *World*, however, does not refer to the place/space where an activity takes place, but *the being there*, or *the taking place*, of that activity; not the world *in which* we live, but the world *through which* we live. *Mondialization* designates a process where the relation between 'living in the world' and 'living through the world' becomes increasingly intensified. It means that *the essence of beings' being on the world* is undergoing a profound transformation (see also Elden, 2008; Lefebvre, 2009; Nancy, 1997, 2000, 2007a).

Moreover, Kostas Axelos' (1979; c.f. Axelos and Elden, 2004) notion of "systems of systems" may clarify how critical urban theorists ought to confront 'the urban' under planetary conditions. In *Le Jeu de Monde* (*The Game of the World*), Axelos explains that the rules of the world are different from any rule of any system. They are the highest order of all systems – a system of systems – for they are *through which* every other system takes place. In this light, planetary urbanization signals a problematic we face in our attempts to understand the totality of the interplay of all systems.

now an ontological reality inside us, one that behoves a different *way of seeing*: it is a *metaphilosophical* problem of grappling with ourselves in a world that is increasingly urbanized" (Merrifield, 2013: 911-12: emphasis in original). What becomes planetary is not 'the urban form' (morphology) but "the urban as a question, as a theoretical framework, as a conceptual object of struggle" (Madden, 2012: 781). "Urban questions and movements [...] emerge, they appear and disappear pretty much everywhere in the world. The problems posed by the modern city […] are worldwide problems" (Lefebvre, 2009: 282).

Redefining the Contours of CUT

According to Lefebvre the *concept* of planetary urban space suggests a contribution to its own transformation in *practice*. However, as Madden (2012) notes, "[t]here is still no fully developed theory here about the mechanics of how planetary urban space will contribute to its own transformation.—there is mostly the suggestion that it can and should" (p. 783). While in the context of *The Urbanization Question,* at first, planetary urbanization should be seen as a continuation of the call to deconstruct 'urban effects',.as Brenner (2013) explains, "this task has acquired renewed urgency under conditions of planetary urbanization, in which the gulf between everyday cognitive maps and worldwide landscapes of creative destruction appears to be widening" (p. 101). The contradictory space/time contexts that implicate the patterns and trajectories of capitalist urbanization are now nested "in qualitatively new configurations whose contours remain extremely difficult to decipher" (Brenner and Schmid, 2015a: 176).

For this reason Brenner (2013) argues that the *Urbanization Question* has to be reposed; that there is a need *to redefine the contours of Critical Urban Theory*. The suggestion is that re-defining the site, scope and agenda of CUT requires another *perspective* – a new *lexicon*, or *vocabulary* (Merrifield, 2013) – hinting at a *paradigm shift* in (critical) urban studies. If new theories and concepts cannot be produced at least new 'words' (new ways of describing and encountering) may help to produce alternative frameworks to develop more adequate accounts of urbanization under capitalism (Merrifield, 2013). The hypothesis of planetary urbanization, then, should be understood as an attempt to develop a *new epistemology of the urban*.

Teasing out more concrete implications for further urban theory and research, Brenner and Schmid (2015a) explain that "with the deconstruction of monodimensional, city-centric epistemologies urbanization can no longer be considered synonymous with such commonly invoked developments as: rural-to-urban migration"; concentration of capital and labor in densely populated areas; or "the diffusion of urbanism as a sociocultural form into small- and medium-sized towns and villages" and so on (p. 169). These developments "*may*, under specific conditions, be connected to distinctive patterns and pathways of urbanization", but only insofar such analyses do not rely on the assumptions (a) "that they necessarily originate within specific settlement units" or (b) "that they necessarily result from the replication of formally identical urban settlement types, infrastructural arrangements or cultural forms across the entire territory" (idem: 169-170). For them the essential task "is less to distinguish 'new' urban *forms* that are putatively superseding earlier spatial morphologies" [e.g. global cities, informal cities, edge cities] "than to investigate the historically and geographically specific dynamics of creative destruction that underpin the patterns and pathways of urbanization, both historically and in the contemporary epoch" (p. 176: emphasis in original).

Against this backdrop, Brenner (2013) considers two strands of explorations for further urban theory and research. The first entails an investigation in how "the relation between concentrated and extended urbanization [has] evolved during the history of capitalism" (p. 108). Such exploration would then focus on the extended landscape(s) of urbanization and especially on the "crisis tendencies and socio-ecological barriers" [...] that are destabilizing the developmental rhythms of extended urbanization" (idem). The second follows up on the slogan 'the right to the city', but suggests to link these struggles associated with concentrated urbanization "to broader politics of the global commons that is also being fought out elsewhere, by peasants, small landholders, farmworkers, indigenous populations, and their advocates, across the variegated landscapes of extended urbanization" (idem).

2.4 The scope and limits of critical urban theory

Brenner's (2013; Brenner and Schmid, 2015a) engagement with *The Urbanization Question* and the hypothesis of *Planetary Urbanization* provides important insights in the nature of capitalist urbanization as well as its socioeconomic significance throughout Modern history. Especially, it demonstrates that exposing the socio-spatial dynamics and the moral non-viability of contemporary urbanization necessitates a radical re-thinking of the categories of practice that inform both further urban research (the search for a new urban epistemology) *and* interventions in urban practice (e.g. by institutionalizing emancipatory modes of urbanization via everyday forms of planning and policymaking).

Still however, so far the status of CUTs concepts both in the field of urban studies as with regards to urban interventions has remained heavily marginalized. Amongst other, it remains unclear how CUT will exactly produce 'meaningful mediations to the realm of practice'. Apart from intellectual endeavours that underline the importance of social resistance and mobilization for a revolutionary urban metamorphosis (e.g. Merrifield, 2013; c.f. Harvey, 2008) still no (clear) 'instructions' for *what* potential, alternative modes of urbanization ought to be pursued – let alone, *how* they could be attained in practice – are provided (Catterall, 2014). Moreover, little suggestions are offered regarding the role and 'clothing' of urban governance, planning, policy and strategy in this respect (Arboleda, 2014). While concepts as the Divided City, the Just City, and the Right to the City have been appropriated by leading urban planning and governance institutions at all scales (from development reports of the World Bank, United Nations and EU cohesion policy to municipal policy and planning) Kuymulu's (2013) account of how United Nations-affiliated institutions, such as UN-habitat and UNESCO, recently appropriated the Right to the City concept while re-framing it and detaching it from its neo-Marxist roots offers a case in point.

Sections 2.4.1 and 2.4.2 discuss two strands of critique of CUT by two influential traditions in urban studies: (1) 'cultural approaches' to 'the urban' and (2) TTUT. It will do so along a description of two debates: *Ongoing (post-)modern and (post-)structural tensions*, and *the CUT/TTUT-debate on 'the nature of cities'*. In response to these debates, section 2.4.3 attributes the obstacles to adequately confront and address the *Urbanization Question* under planetary conditions and its marginalized position with respect to guiding urban (policy) intervention to some profound problems intrinsic to the paradigm of CUT. Moreover, it argues that these problems are grounded in the broader, Modern social scientific and philosophical heritage, therewith underpinning the need to view Modern urban knowledge

and, hence, Modernity themselves subject of inquiry. Against this backdrop section 2.4.4 underpins *the rationale for introducing ANT to critical urban studies*.

2.4.1 Ongoing (post-)modern and (post-)structural tensions

The first debate revolves around tensions between Modern, structuralist approaches of CUT and TTUT, on the one hand, and cultural approaches to 'the urban' that appeared during the 1990s, on the other. The latter – including, amongst others, post-colonial urban theories (e.g. Robinson, 2006), feminist geographies (e.g. Massey, 1991; McDowel, 1983), cultural political economy (CPE) (Ribera-Fumaz, 2009, Sayer, 2001), and the Los Angeles School of urbanism (Soja, 2000) – originate from postmodern and post-structural critiques of modernism and structuralism in the social sciences, more generally, and the 'cultural turn' in human geography, in particular. Tensions between both traditions revolve along a set of dualisms which, despite being related, by no means ought to be aligned with one another (Sayer, 2001).

- *Economy (material) vs. Culture (immaterial):*
  CUT and TTUT treat 'the urban' primarily as an economic reality. Cultural approaches instead renegotiate the *culture/ economy-divide*, for example, by highlighting the role of belief systems, discourse, identity, or racial, ethnic and gender cleavages in the material transformation of the urban form and politics (e.g. Zukin, 1995; Dear, 2003; c.f. Ribera-Fumaz, 2009). Hence, their charge of *economic determinism* (e.g. Mould, 2015).
- *Generality vs. Difference*:
  While CUT and TTUT rely on theoretical abstraction to reveal the general dynamics of urbanization across space and time cultural studies instead emphasize empirical difference and complexity to underpin the distinctiveness of individual cities and urban processes along their space/time contexts. Hence, the charges of *universalism* and *ethnocentrism*.
- *Micro vs. Macro and Scalar Hierarchy*:
  While both CUT and TTUT assume a scalar hierarchy in which supra-urban (global) and inter-urban dynamics and networks dominate urban processes at the local level cultural studies often favor the latter for understanding urbanization (see Purcell, 2003).
- *Structure vs. Agency*:
  CUT and TTUT allocate urban agency primarily to collective entities (e.g. world market) that determine the behavior of individual subjects (people, firms, organizations). Cultural studies instead stress the capacity of these subjects to act independently .Hence, their critique of structuralism (c.f. Marx (2005) [1852]); see Section 2.1.2: p. 3: footnote 1).
- *Urban Inequality:*
  These dualisms also fuel debates about forms of domination (capitalism vs. patriarchy), dimensions (e.g. economy/culture), and scales (micro/macro) in shaping urban disparities.

Cultural critiques of modern, urban theory

One distinction between both approaches resides in their respective *methodologies*. FOr example, whilst the methodology of CUT is generally embedded in dialectics, critical realism or historical geographical materialism, cultural approaches are generally embedded in the interpretive tradition, including semiotics, ethnography and (radical) hermeneutics, or more eclectic approaches. Accordingly, both approaches also differ in their application of method and types of data collection and analysis (e.g. qualitative vs. quantitative) (see Purcell, 2003; Ribera-Fumaz, 2009).

Another important opposition concerns their conception of the *(in)commensurability* of urban forms and experiences across different *space/time contexts*. Most cultural studies stress the social constructivist 'nature' of science (Kuhn, 1970; Foucault, 1973; Haraway, 1988) and, hence, the historicity of knowledge. This claim not only amounts to that spatiotemporal biases are inherent to any theoretical endeavor but also to the absence of any Archimedean point of view from which disparate truth-claims can be settled once and for all; meaning not only that knowledge is always provisional and tainted by human interests (Habermas, 1971), but also that it is essentially biased by the space/time-context in which it has been constructed.

For example, Post-colonial urbanism claims that cities in the Global South as well as cities throughout past history are unique and different from today's cities in the Global North. In line with thinkers as Said (1979) and Spivak (2008) post-colonial urban theorists argue that TTUT and CUTs applications of 'Northern' urban theory to cities and intra-urban phenomena in the 'Global South' has led to erroneous understandings of the latter two as these cannot be grasped when isolated from their historical, economic, cultural, geographical context (i.e. the claim that the whole cannot account for the parts). In order to correct these *universalist* and *ethnocentric* tendencies Ong and Roy (2011) have called for a cosmopolitan, pluralist urban theory that incorporates urban experiences in the 'Global South (or what they call 'worlding'). Others have gone even further to argue that the context-dependency of knowledge implies that "no single urban theory of ubiquitous remit" can exist (Leitner and Sheppard, 2015). For example, Robinson (2006) insists on the irreducible idiosyncrasy of all cities. Similarly, Amin and Graham (1997) postulated the term "ordinary city" to signify the equally distinctiveness and uniqueness of all cities so that no single form or aspect of urbanization serves as a privileged metaphor for others. (i.e. the claim that the parts cannot fit a whole).

However, the main tensions between both approaches concerns *urban epistemology* – i.e. the scientific precepts for acquiring adequate knowledge (representation) of 'the urban'. Cultural charges of CUT and TTUT all come down to the same meta-claim of *misrepresentation*. By demonstrating, amongst others, the significance of micro vs. macro processes and of culture vs. economic relations in shaping 'urban outcomes', cultural studies have attempted to disclose spatiotemporal conjunctures of urbanism that CUT and TTUTs epistemologies fail to grasp. They captured these conjunctures in city-concepts – such as, the post-colonial city (Robinson, 2006), the Ordinary City (Amin and Graham, 1997), the Postmodern City (Dear, 2000), Los Angeles (Soja, 2000), the Postsecular City (Beaumont and Baker, 2011) – each highlighting a distinct deficiency of CUT (or TTUT): economism, universalism, ethnocentrism, patriarchy, structuralism , rationality, secularism, modernity or a combination of these.

For example, Post-colonial claims of the exceptionalism of cities in the Global South hinge on the presupposition that urban phenomena and problems here (e.g. urban poverty, slums, informal markets, liable property rights and inadequate sanitation) endow them with unique features that cannot be grasped by theories informed by urban experiences in the North (Roy, 2005). Equally, post-colonial critiques that CUT and TTUT contain developmentalist and modernist biases are based on the claim that these theories promulgate a *teleological concept of cities* where the history of cities and urbanization processes across the world are considered subjected to a linear, evolutionary growth path from less to more modern and developed, hence relegating cities and societies in the Global South to a status of 'backwardness'. While

admitting that such conceptions apply to the Global North post-colonial theorists argue that development and urbanization in the Global South, in contrast, are non-linear and complex.

Modern urbanists' critique of cultural urban studies

Scholars of both TTUT and CUT have welcomed cultural takes on 'the urban' as fruitful complements to one-sided approaches that downplay, for example, the importance of context, urban experiences in the 'Global South' or the role of belief systems, discourse and gender and ethnic cleavages in shaping urban outcomes. However, simultaneously they have univocally dismissed t associated 'cultural critiques' of Modern urban theory (Harvey, 1989; Sayer, 2001; Brenner, 2013; Brenner et al., 2010; Peck, 2015; Smith, 2013; Storper and Scott, 2016). Their *first* motivation for dismissing cultural studies stresses its failure to overcome the divisions listed above and, in extension, its tendency to favor 'the other sides' of these oppositions. On behalf of CUT, Brenner (2013) has argued that by fetishizing micro-interactions and inquiries in local forms of urbanism at the expense of supra -and inter-urban processes and networks cultural studies both fail to account for the more generic dynamics of urbanization and to explain why urbanization has become 'ubiquitous'. Jessop and Oosterlynck (2008) have argued that cultural studies' prioritization of the immaterial over material realities of urbanism has resulted in "a soft economic sociology that focuses on the similarities between economic and other socio-cultural activities at the expense of the specificity of the economic" (p. 1155).

The *second* concerns cultural studies' treatment of *context*. Against post-colonial charges of *ethnocentrism* (Ong and Roy, 2011) and *universalism* (e.g. Robinason, 2006), Storper and Scott (2016) argue that while knowledge is always mediated by its space/time contexts of production this does not necessarily compromise the possibility of concepts to attain universal status, or equally, "that an idea developed at place a must invariably fail when transferred to place b" (p. 1122). Moreover, against comparativists' claims that the context-dependency of knowledge implies the *incommensurability* of all cities (Amin and Graham, 1997; Leitner and Sheppard, 2015), Storper and Scott (2016) reverse the argument stating that "the authors fail to define what they mean by 'different contexts' and how we might identify them" (p. 1121). According to them, therefore, "*[p]rior conceptual labour about these matters is essential if comparative methodologies are to produce – other than by accident or good luck – significant results*" (p. 1124: emphasis in original). Without an *a priori* concept of the generality and difference of cities it remains unclear, not only *how* but especially *why*, these 'purportedly' disparate urban phenomena ought to be compared in the first place.

Still, the main charge against cultural studies concerns its *critique of misrepresentation*. In particular, Storper and Scott (2016) denounce post-colonial claims that the supposed exceptionalism of cities in the Global South amounts to TTUTs erroneous understanding of these cities In fact, they find that cities in the North and South have much in common as both represent concentrations of specific land uses which lead to similar *types of* challenges, for example, with regards to competition for space. Moreover, similar to many cities in the South today, many cities in the North (like London) have also been overshadowed by slums in the past. Even further, they argue that such claims ignore a range of *similar* interrelations between urbanization and economic development *across time and space* (p. 1123). As such, while affirming that the features of urbanization and cities may change over time and vary along cultural, economic and geographic contexts they insists that post-colonial urbanists are wrong

to take the resulting empirical differences as prove that cities in the Global South warrant a new urban theory. After all, these are all variations of a the *same* object.

> "Our argument here is not that empirical particularities are inherently uninteresting or valueless, far from it. Rather, we offer the obvious and time-worn point that in any scientific endeavor, conceptual abstraction actually helps the researcher to reveal *meaningful* levels of diversity and difference in basic observational data, just as it is an essential prerequisite for the construction of useful empirical taxonomies. At one level of analysis, for example, the brown and black suburbs of Paris differ sharply from the racially and ethnically distinctive communities of South Central Los Angeles or from the barrios of Caracas. Similarly, the upper-class neighborhoods of London are very different in texture from those of Tokyo, just as these two cases are quite unlike the privileged communities of Gávea or São Conrado in Rio de Janeiro. Yet beneath the obvious empirical differences between these examples (and note that the terms 'neighborhood' and 'community' already resonate with theoretical meanings) we encounter widely observable mechanisms of social segregation resulting from the ways in which land and housing markets work in combination with agonistic relations of race, class and ethnicity" (Scott and Storper, 2014: p. 11: emphasis in original).

On behalf of CUT, Brenner et al. (2011) argue that "in its determination to avoid any kind of structuralist foreclosure, this approach runs the risk of positing an equally overgeneralized, if not ontologically predetermined, analytic of local diversity, variability, mutability and contingency" (p. 202). While affirming that the amorphousness of 'the urban' *does* confront urban theorists with an incommensurable empirical diversity, Brenner (2013) instead aims to reveal how urban processes are being unfolded and naturalized within and across these variegated sites, or what he calls, the "*context of context*" (p. 92; c.f. Brenner et al., 2011), as it is this meta-context in and through which these 'supposedly' idiosyncratic urban processes unfold. Since the urban, *taken as a whole*, already presents an 'amorphous' object, obviously, a variety of empirical differences across space and time will be disclosed. Therefore, CUT considers cultural charges of misrepresentation *ignoratio elenchi* (Smith, 2013: 2291).

2.4.2 The CUT/TTUT-debate on the Nature of Cities

This section discusses the *CUT/TTUT-debate on 'the nature of cities'* along a recent series of exchanges between Brenner and Schmid (2014, 2015a; Brenner, 2013) and Storper and Scott (2016; Scott and Storper, 2014). Sub-section 2.4.2.1 describes Brenner and Schmid's (2014) critique of TTUTs along their deconstruction of 'the urban age thesis'. Section 2.4.2.2 discusses Storper and Scott's defence of TTUTs object of inquiry. Section 2.4.2.3 describes their critique of the hypothesis of planetary urbanization.

2.4.2.1 CUTs deconstruction of TTUTs object of inquiry

Brenner and Schmid (2014) deconstruct the claim – advanced by leading, international institutions, such as, the World Bank (2009), European Commission (2010) and the United Nations (2008) – that we are currently living in an "urban age", as more than 50% of the world population lives in cities. "While urban age discourse is usually put forward as a set of empirical claims regarding demographic and social trends, the latter are premised upon an underlying theoretical and cartographic framework whose core assumptions, once excavated and scrutinized, are deeply problematic" (Brenner and Schmid, 2014: 744) As they explain through Figure 8, "the intellectual core of the urban age thesis is (1) the methodologically, territorialist assumption that the world is divided into discrete types of settlement" (p. 744). This assumption hinges on claim (A) that all social (inter)activity is "bounded and self-

enclosed within clearly delineated, mutually exclusive zones" (p. 745). On this basis (2) "the urban/rural opposition is presented as the analytical foundation for such classifications"[19] (p. 744). This opposition "hinges upon the largely uninterrogated claim (B) that certain unique social conditions obtain within cities or agglomerations that do not exist elsewhere" (idem). Consequently, "the urban/rural opposition serves as an epistemological anchor for the exercise of classifying purportedly distinct types of settlement space" (p. 745). This model "engenders (3) a distributional notion of urban transition in which sociospatial change is said to occur through the reapportionment of populations from rural to urban settlement types" (p. 745-6).

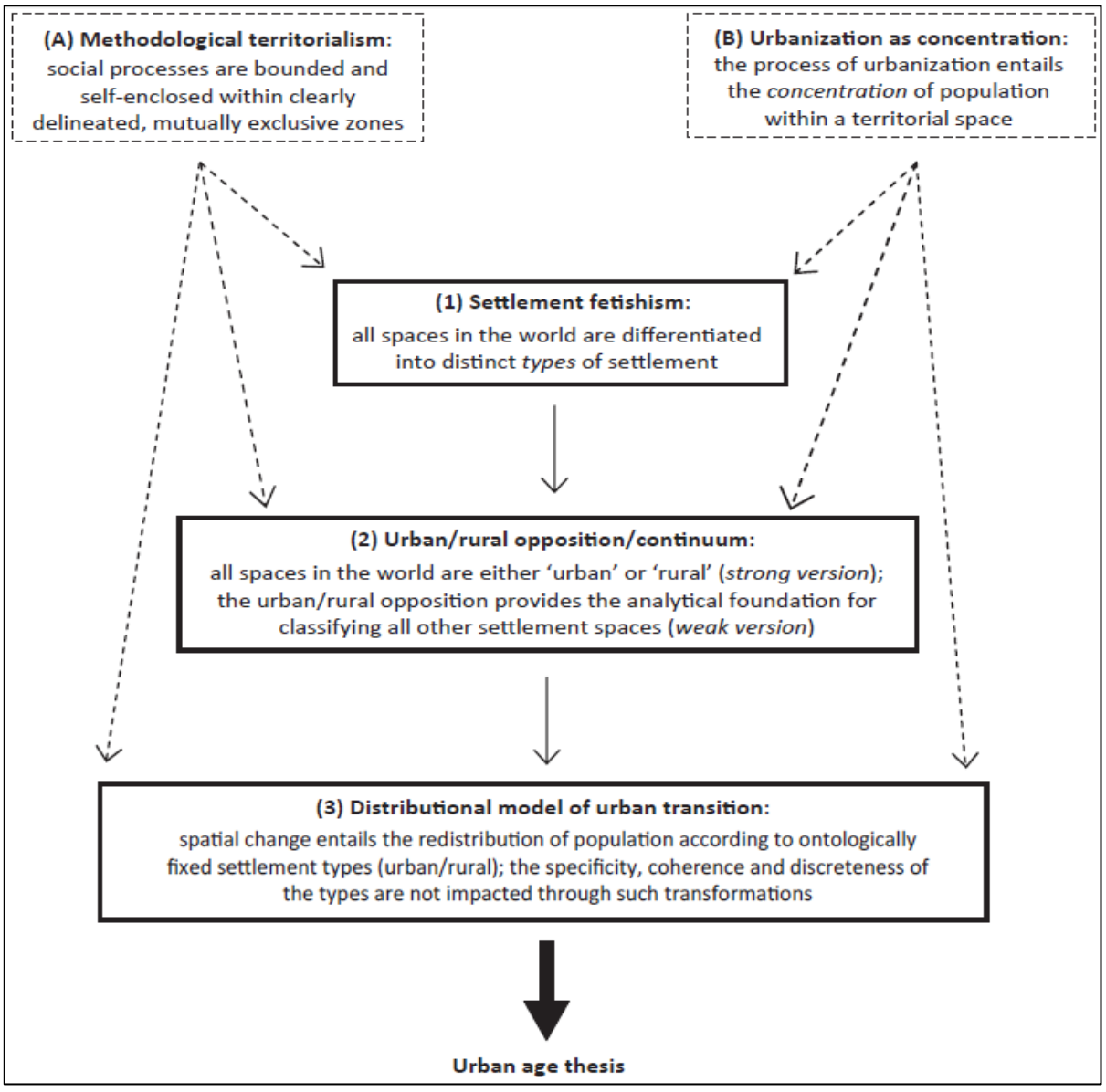


Figure 8: Conceptual architecture of 'the urban thesis' (Source: Brenner and Schmid, 2014: 745)

Brenner and Schmid (2014) criticize the urban age thesis on two interrelated grounds. *First*, and as a result of the claim (B) that cities possess certain unique features that do not exist

[19] Brenner and Schmid (2014) state that while, generally, the urban/rural-divide is "presented as an either/or ontological choice" some theories use "a weaker version of this assumption" where this opposition is deployed to provide an analytical foundation "to demarcate a continuum of settlement types" (p. 745; see Storper and Scott, 2016: 1130; Section 2.4.2.3 on TTUTs position in this respect).

elsewhere, it "*divides the indivisible* in so far as it treats urban and rural zones as fundamentally distinct, thereby ignoring the pervasive imprint of urbanization processes on settlement spaces that [...] are officially categorized as rural" (p. 748: emphasis in original). Since, "the formation of cities and urban zones is premised upon and in turn triggers a range of large-scale, long-term sociospatial transformations beyond the agglomeration itself, across less densely settled places, territories and scales (p. 744) – i.e. what Brenner (2013) calls extended urbanization (section 2.3.2) – the notion of the rural as a category of social scientific analysis "becomes highly problematic" (p. 747). Moreover, since urbanization has become a "planetary formation" rather than a set of spatial economic features, or a way of life, that is bounded to distinct *types of settlement space* (section 2.3.3) such an "outdated urban/rural dualism" exactly obstructs a multi-scalar analysis of the "emergent patterns and pathways of sociospatial differentiation within and across this worldwide urban fabric" (idem).

Second, it "*lumps together the unrelated and the inessential* owing to its inadequate specification of what specific phenomena are meant to be contained within each term of the urban/rural dualism" (p. 748: emphasis in original). Due to its territorialist assumption (A) of the "boundedness, coherence and discreteness of the spatial units in which social relations unfold" (p. 744) the categories of urban and rural space are both "generalized to the point of meaninglessness" (p. 748). While the notion of rural space refers to all settlement types that are 'not urban', TTUT fails to define their common features across different contexts (e.g. in terms population size and composition, land use or labor markets). As such, the notion of 'the rural' remains a "black box". Conversely, the urban is "radically *over*-specified": it "is used to refer to so many divergent conditions of population, infrastructure and administrative organization that it loses any semblance of analytical coherence" (idem). Moreover, the heterogeneity of settlement configurations and socio-spatial transformations – or what is termed the amorphousness of 'the urban' (section 2.3.2) – makes one doubt whether these 'purportedly', distinct settlement types pertain to "any meaningful theoretical content" (idem).

The first line of critique stresses TTUTs mistreatment of *the geographical specificity of 'the urban'* – i.e. its neglects of (a) the supra -and inter-urban dynamics within and through which urban processes unfold, (b) the functional relations between urban and rural settlements. The second stresses TTUTs mistreatment of *the historical specificity of 'the urban'*. Following Brenner and Schmidt (2014), the (B) ontological divide between urban and rural spaces "prevents exploration of their structuration by some of the same political economic processes" (p. 747). Moreover, the insistence on (A) the boundedness, discreteness and coherence of distinct settlement types (1) "presuppose[s] rather than examine[s] or explain[s] the historical construction and reconstitution of territorial boundaries at any spatial scale"; (2) "ignore[s] the historical specificity and political instrumentalities of territory as a form of sociospatial organization"; and (3) "bracket[s] the role of non-territorial sociospatial processes such as place-making, networking and rescaling that likewise figure crucially in the structuration of political-economic relations" (p. 744). In addition, they claim that TTUT is *logically inconsistent*: while the urban/rural-divide serves as an epistemological model of socio-spatial restructuring in which changes in the distribution of population and *types of* human activity are argued to occur, by its definition of ontologically urban and rural fixed settlement types, it *a priori* rejects the possibility that the specificity, discreteness and coherence of these settlements types are themselves impacted by ongoing socio-spatial restructuring (p. 746).

According to Brenner and Schmid (2014; Brenner 2013) the data accumulation, analyses and cartographic representations associated with TTUT obscure policy debates related to urban poverty, labour markets, housing, education, transportation and environmental issues, because all are anchored by theoretical precepts that engender *confusing and misleading conceptions of capitalist urbanization*. They explain that, today, such urban knowledge(s) are being disseminated and naturalized at all spatial scales and among powerful actors and institutions so as to facilitate the transfer and diffusion of competitive urban policy, strategy and development. In turn, through its definition of cities, urban(-related) policy and strategy is sustained along these territories while simultaneously facilitating its *legitimacy*.

2.4.2.2 Storper and Scott's defence of TTUTs object of inquiry

In response to Brenner's critique of TTUT Storper and Scott (2016) agree (1) that urbanization processes are increasingly embedded in wider global and international flows of goods and people; referring to the supra -and inter-urban dynamics and (2) that cities are increasingly connected to less densely settled places, territories and scales officially categorized as rural. Moreover, they note that Brenner and Schmid "are also right to claim that the notion of a purely 'rural' realm occupying the interstitial spaces between cities is archaic and misleading", since the current notion of 'the rural' (as categorized exclusively in opposition to the urban) denies "the [irreducible] diversity of these territories" (e.g. forests, lakes, mountains, modes of peasant farming) (Scott and Storper, 2016: 1128). In their view, therefore, the notion of the rural "has never [....] been entirely satisfactory" (idem). However, they insist that Brenner and Schmid fail to "conclusively demonstrate" that (1) the wider supra and inter-urban networks and (2) the increasing functional relations between urban and non-urban settlements problematizes their theory of cities and urbanization.

In response to the first claim, Storper and Scott (2016) argue that despite the increasing weight of supra -and inter-urban dynamics – especially in terms of "volume and extension" – the associated localization effects have contrarily reinforced the need for proximity and local (inter-)activity (p. 1131). In fact, their finding that "the *specificity of the urban* depends not so much on the crude ratio of its internal to external transactions, but on the contrasting qualities of these two sets of transactions and their locational effects" (Scott and Storper, 2014: 7) (section 2.2.2), makes it exactly meaningful to define the city (1) as a distinct scale of socio-economic interaction and (2) an identifiable spatial unit versus the rest of topographic space.

> "long-distance interconnections between cities have always been a feature of urban life, beginning in Jericho 6500 years ago, and [..] they are typically a crucial condition of continued urban viability. As such, they do not represent the negation of the identity of the city but one of the conditions that have made the existence of cities possible throughout history" (p. 1131).

Second, Storper and Scott (2016) agree "that cities have diverse functional connections to other places in many different parts of the world that form its so-called 'constitutive outside'" (p. 1131) – or, what Brenner (2013) calls, "extended urbanization". However, while admitting that "[t]hese relations are capable of inducing certain kinds of changes in cities, such as bursts of growth in central business districts or changes in given population categories", they insist that, "their effects are virtually always assimilated into the urban land nexus as such without destroying its integrity as a complex social unit" (p. 1131). In their view, therefore, these relations "in no way undermine the theoretical notion of the urban land nexus as the critical *constitutive inside* of the city" (idem: emphasis in original).

2.4.2.3 Scott and Storper's critique of planetary urbanization

In response to Brenner and Schmid's (2014;.Brenner and Schmid, 2015a; 2015b) hypothesis of planetary urbanization, Storper and Scott (2016) agree that "[g]iven the geographically intensive and extensive development of global capitalism, the authors are doubtless correct to refer to an integrated planet-wide socio-economic system" (p. 1128). However, they entirely dismiss planetary urbanization on two grounds: (1) its mistreatment of the *geographical specificity of 'the urban'* and (2) its mistreatment of the *historical specificity of 'the urban'*.

Planetary mistreatment of the geographical specificity of 'the urban'

Storper and Scott (2016) *first* point of critique of the hypothesis of planetary urbanization stresses its failure to overcome the urban/rural divide and its semantic affirmation of the terms 'urban' and 'rural'. They state that, what Brenner "clumsily" calls, "concentrated urbanization" is what they "usually call 'cities'" (or urbanization) while, what Brenner calls, "extended urbanization" [...] "more or less corresponds to everything else" (p. 1128). For them "the puzzle" is why Brenner and Schmid "introduce the semantic confusion that ensues from applying the term 'urban' with all its familiar city-centric connotations to everything else when numerous other descriptive terms are quite conceivable" (idem)[20]. Similarly, they denounce the fact that in their rejection of the distinction between 'the urban' and the rest of geographic space Brenner and Schmid "misleadingly insist on calling [the latter] 'the rural'" (p. 1128).

Second, while admitting that Brenner and Schmid "correctly" claim "that there are usually no simple or intuitively-identifiable boundaries between the city (concentrated space) and the rest of the world (extended space) so that the continuity between the two appears to be unbroken", Storper and Scott (2016) insist that they are "wrong to think that the issue goes away by assimilating the whole of geographic space into an urban problematic" (p. 1129). As they state, "Planetary urbanization for its most part concentrates on an attempt to reformulate the relationship between 'concentrated' and 'extended' forms of human settlement, land use, and spatial development by assimilating both of them into a theoretical urban landscape that is nothing less than global" (p. 1115). Given the *(in)indivisibility of space*, they state that "there is in fact a more satisfactory way of approaching this problem" (p. 1129). For sake of illustration, they allude to a list of intra-urban phenomena, including, neighbourhoods, slums, industrial clusters, CBDs and suburbs, and their relation/distinction to the urban land nexus:

> "Each of these phenomena represents a distinctive and multifaceted type of socio-spatial outcome within a wider urban space (the urban land nexus) and none is divided from the rest of the city by a clear line of demarcation. Yet each appears to us as an ontologically distinctive scale of urban space not only because of its empirical character but also because *each poses uniquely problematical scientific and political questions* deriving from its mode(s) of operation" (p. 1129: emphasis in original).

From this point onwards, Storper and Scott (2016) draw on two interrelated claims. For the *first* they compare the distinctiveness of intra-urban phenomena versus the urban land nexus as a whole, on the one hand, with the distinctiveness of the urban land nexus versus planetary space, on the other: Just as intra-urban phenomena, such as, gentrification and clusters of

[20] Storper and Scott (2016) suggest a number of alternative terms for planetary urbanization: "planetary capitalism", "global space-economy", or "geographical anatomy of global society" (p. 1133). According to them all these terms "capture the spirit of what Brenner and Schmid seem to be saying, without obliterating the commonly received meaning of the term 'urban'" (idem).

specialized production, "are marked by powerful spatial dynamics that are uniquely problematical as objects of inquiry" despite the fact that they "are embedded in and marked by all manner of continuities with the urban land nexus", so the city is ontologically distinctive despite its embeddedness in global or planetary space and its functional relations to 'rural' spaces. It are exactly "its properties as a locus of agglomeration, gravitation and density" and "its specific daily and weekly rhythms of life [...] embodied most notably in its local labour markets and its regular patterns of commuting" (p. 1130) that make the city "an identifiable geographic entity and scale of socio-economic interaction within planetary space" (p. 1128).

> "just as neighbourhoods, slums, industrial quarters, etc. are distinctive and idiosyncratic socio-spatial articulations (albeit within the urban land nexus), so the urban land nexus itself is a distinctive sociospatial articulation (within wider global or planetary space)." (p. 1130).

The second claim builds on the city's status as "an irreducible collectivity" by approaching it as "a composite social, political, cultural and economic phenomenon (anchored and integrated by the urban land nexus) that is very much greater than the sum of its parts" (idem). Instead of reducing the urban to a mere spatial economic phenomenon they explain that cities also comprise of distinct forms of socialization, mentalities and cultures. Following Storper and Scott (2016) agglomeration endows the city, as "a site of joint dynamics", with "a joint identity" (e.g. the San Francisco Bay Area) (p. 1130). Moreover, the urban land nexus "is by its very nature subject to peculiar and endemic forms of politicisation" (p. 1117): competition for land, land use incompatibilities, inclusion/exclusion, rent seeking behaviour, congestion and pollution all create social and political tensions peculiar to the city. As such, the more general political interests of firms, households and other functional units are directly related to "a concrete set of political interests specific to the city" so as to mitigate these negative externalities while bearing the fruits of the positive externalities of agglomeration (sharing, matching and learning) (idem). In addition, these interests are often mobilized collectively and in harmony with formal (governmental) institutions – often realized through overlay's between the urban footprint and administrative boundaries – that intervene in the urban process (regulate, tax, finance) as to increase employment, earnings and quality of life (idem).

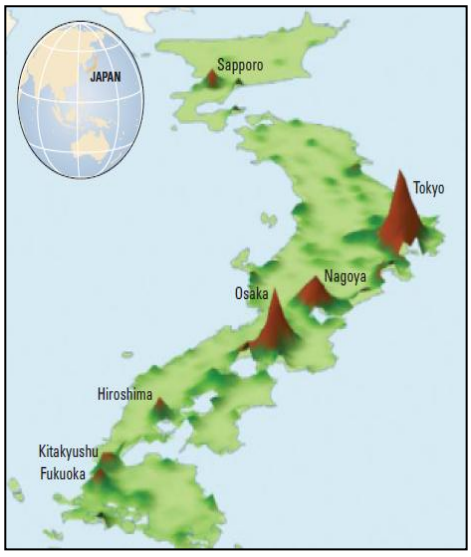


Figure 9: Image of Japan's cities in the space-economy in terms of GDP per km^2. (World Bank, 2009: xix)

Joining both claims, it is exactly because proximity and density matter (i.e. that world is *not* flat) and because a significant portion of (especially) present, but also past, forms of human existence are all anchored in the associated dynamics of specialized land uses and dense networks of interaction, that the city is distinctive not only "as an object of scientific enquiry" but also "as a scale of human political and economic life" (p. 1130-1). According to Storper and Scott (2016), therefore, "proponents of so-called methodological cityism are mistaken in their characterisation of the city as nothing more than an ideological mirage" (p. 1131).

Given the question where the boundary between urban and rural space *should be* drawn 'exactly', Scott and Storper (2016) explain that "in spite of the *continuity/indivisibility* of geographic space (*or of reality as a whole for that matter*)" cities can still be distinguished

from the rest of geographic space if observed along "a series of spatial gradations in which we move from the one to the other" (p. 1131). For sake of illustration, Scott and Storper (2014) compare the city in the space-economy to a mountain in the wider topography: "[i]n neither the case of the city nor the mountain can a definite line be drawn that separates it from its wider context, but in both instances, certain differences of intensity and form make it reasonable and pragmatically meaningful to treat each of them as separable entities" (p. 7) (see figure 9). Lastly, given the burgeoning question *how* 'exactly' individual cities should be distinguished from the rest of geographic space Storper and Scott (2016) state the following:

> "we almost always have considerable leeway *in practice* as to how we demarcate the spatial extent of the urban land nexus, but that the best bet is to define it *in any given instance* in a way that optimises our ability to deal with whatever given question(s) we may have in hand (e.g. economic development, public transport, ethnic conflict, neighbourhood blight, urban political strategy and so on) while eliminating from consideration as much irrelevant territory as possible. *In practice*, we have little option but to follow *the pragmatic rule of thumb* that has always been adopted by geographers and to locate the line of division in some more or less workable way *relative to available data*" (p. 1130: emphasis added).

Planetary mistreatment of the historical specificity of 'the urban'

Besides specifying the geographical specificity of the urban Storper and Scott (2016) explain that TTUT also enables separating out what is inherently urban from the rest of social reality.

> "In particular, we must distinguish between phenomena that occur *in* cities but are not generated by urbanization processes as such, from phenomena that are legitimately elements *of* cities in the sense that they play an active role in defining the shape and logic of urban outcomes". Thus, a hospital located in an urban area will usually play an important role as an element of the urban land nexus, both as a specific kind of service provider and as a catchment point for those who use its services, but its internal administrative arrangements are not likely to be of much relevance to any understanding of the city. Similarly, the interest rate, ideologies of imperialism or the price of sugar are not intrinsically urban; or rather, they can be said to have urban significance only insofar as they can be shown to play some role in the dynamics of the urban land nexus" (p. 1117: emphasis in original).

Accordingly, Storper and Scott (2016) also see an opportunity to draw on the relation between urbanization and inequality. They explain that poverty "has important urban dimensions but also has many substantive and relational manifestations that are not generated by the urban as such" (p. 1117): "[i]n capitalist or market economies especially, poverty is not fundamentally caused by urban processes, but by the complex forces that shape income distribution in an economy marked by private property, competitive markets and wage labour" (idem). They further clarify this point by stating that "measurements of inequality or poverty *in* cities are not equivalent to the claim that inequality or poverty are basically engendered *by* cities" (idem: emphasis added). According to them, any claim that a phenomenon is urban simply because it occurs *within* cities is "liable to the error of ecological fallacy" (idem).

> "even though we have affirmed that we live in an urban era in the sense that cities formally represent the principal geographic containers within which contemporary human society unfolds [...] not all aspects of life, perhaps not even most aspects, can be understood as being necessarily (that is, 'ontologically') urban phenomena" (p. 1117)

For this reason they do not accept Lefebvre's proposition that under planetary conditions society has become an urban society (p. 1117-8). Equally, they consider CUTs claim regarding "the role and potency of cities in political life" – voiced among others by the 'social

justice' and the 'Right to the City' movements (e.g. Soja, 2010; Harvey, 2008) – "clearly exaggerated" (Scott and Storper, 2014: 13). Therefore, against the hypothesis of planetary urbanization Storper and Scott (2016) insist that "not only is there no conceptual [...] gain by this maneuver, but considerable theoretical loss" (p. 1128-9). In addition, they argue that its "major blind spots and analytical distortions" [...] "are not only regrettable in their own right, but are notably disabling in a field where the need to frame viable policy advocacies in search of social justice has become more and more insistent" (p. 1115).

2.4.3 Modern Limits to CUT: Introducing ANT to Critical Urban Studies

In response to these two debates on the nature of cities this section discusses three profound social scientific and social philosophical problems intrinsic to the paradigm of CUT: *Normative questions* (2.4.3.1;) *The crisis of critique* (2.4.3.2); and *Epistemological conundrums* (2.4.3.3). In addition, it demonstrates that these problems are grounded in the broader, Modern social scientific and philosophical heritage, therewith underpinning the need to consider Modern urban knowledge and, hence, Modernity themselves subjects of enquiry.

2.4.3.1 Normative Questions

The first problem of CUT concerns *justification* and *representativeness* of its norms of critique. This issue becomes most apparent in debates on 'social justice' and 'the right to the city' (Harvey, 2008; Marcuse et al., 2009; Soja, 2010). A *first* critique stresses that the concept of social justice is subjected to the normative and political positions of its respective inventors. Advocates of social justice, contrarily, "argue that the normative concepts of justice and equality operative in their fields of research are not deduced by academics, but are immanent to the arenas of contestation which they are investigating" (Barnett, 2011: 248). One problem, here, is that these *arenas* constitute mere, scattered and isolated fragments of (the urban) society. In political terms, CUT, therefore, may fall into, what Kuymulu (2013) calls, "collective individualism" (p. 927), where the passions and indignations of one social group are considered *representative* of the passions and indignations of society as a whole. Moreover, in theoretical terms, it risks inducing *universalism* (Barnett, 2011, 2012 and 2013).

A *second* and *third* critique derive from CUTs combination of a problematization of inequality in terms of *(in)justice* – a normative standpoint – with an analysis of capitalist urbanization (section 2.1.3). CUT needs its strong commitment to political ontology and general norms of critique to *expose* how contemporary urban formations under capitalism sustain and obscure structural forms of *injustice*. Simultaneously, implicit to its approach is to demonstrate that things could be different; that a more just (or equal) mode of urbanization is *possible*. As such, CUT both requires an explanation of why a particular state of affairs is unjust and a definition of what is (not) of value when alternative trajectories of urbanization are to be articulated. However, because CUT subtracts the values for a potential (*future*), 'just' mode of urbanization from actual (*historical*) forms of 'urban injustice', its definition of a Just City remains intrinsically bounded to its explanation of injustice.

In theoretical terms, therefore, CUT *reduces* normativity to an analytics of spatially -and historically-specific processes. For example, Barnett (2011) argues that radical geography, more generally, frames normativity along ideological categories and that "[t]his closure has only been squeezed tighter by the elaboration of Lefebvrian perspectives on 'the production of space' [where] one always already knows that distributive concepts of justice and rights

simultaneously obscure and sustain the more fundamental sources of injustice generated by modes of class power, property relations, accumulation by dispossession, and exploitation, albeit mediated by dynamics of gender, race or sexuality, and state formation" (p. 248).

Moreover, in metaphysical terms, therefore, CUT stumbles upon *an insurmountable gap between urban theory and* practice, hence voicing *an obsolete conception of the reciprocal relation between science and society*. Because its definition of the values and norms of a 'just' mode of urbanization are to be obtained by exposing the temporal-spatial-specific urban processes that harbour the fundamental sources of injustice, its *propositions* for a 'Just City' always remain pending between history (*the actual*) and present (*the possible*); between *what is* and *what should*; between urban theory and urban practice. For this reason CUT struggles to confront, and alter, dominant understandings of *what is* (not) to be of value when articulating alternative, just modes of urbanization. Against the assumption of a pertinent abyss between urban theory and practice – where knowledge is intrinsically mediated by historically-specific power relations (section 2.3.1) – the problem of normativity signals that CUT should instead inquire in that very reciprocal relation between science and society.

2.4.3.2 The Crisis of Critique

The second problem, related to the former, revolves around issues of popular support or, what could be called, 'The Crisis of Critique'. Such a crisis refers to the Leftist *malheur* associated with the political demise of (neo)Marxism, more generally, that has been unfolding since the 1980s, including the fall of the Soviet Union and the advent of global neoliberalism and the rise of right-wing populism and conservatism. Confronted with these issues, critical urban theorists, in a kind of Pavlov knee-jerk reaction, immediately attribute these developments to the capitalist subsumption of everyday life and ideological representations of urban space (Lefebvre, 2003 [1970]; Harvey, 2010; Brenner, 2009, 2015b; c.f. Lefebvre, 1991; Marcuse, H., 1990 [1960]), hence reminding us of Marx's (1976 [1845]; 1857) notions of 'false consciousness' and 'alienation'. Certainly, an appeal to the mediation of knowledge by power and ideology *is* not unrealistic in itself (e.g. Weber, 1973; Mannheim, 1936; Habermas, 1971, 1970; Foucault, 1973) However, such critique that couples the assumption of the dependency of contemporary norms, values systems and justification of oppressive practices on a capitalist superstructure, on the one hand, with the power of *exposing* 'the hidden facts' of capital, on the other, seems to have become all the more untenable throughout the past decades (see Latour, 2004a). After all, if the demise of capitalist critique – just as the rise of the TeaParty for that matter (see Marcuse, P., 2010) – has to be explained by the very thing that is critiqued (i.e. capitalism), then, there remains little hope that continued theorization of urban ideology and everyday life will provide critical urban studies the necessary equipment to turn the tide.

The invocation a crisis-ridden critique is perhaps most adequately captured in Boltanski and Chiapello's (2005) *The Spirit of the New Capitalism*. In imitation of Max Weber's (1992 [1904–05]) *The Protestant Ethic and the Spirit of Capitalism*, Boltanski and Chiapello (2005) investigate how French society, known for its abundance of capitalist critique during the 1970s, has become remarkably silent on the matter only twenty years later. According to them justification of capitalism is always intrinsically bounded to its specific space-time context as justification (just as accusation) can only hold and materialize in concrete circumstances. Boltanski and Chiapello (2005) identify seven consecutive cultures, *or spirits*, of capitalism –

i.e. the different regimes of justification, or Cités, as they call them – from the industrial to the late modern epoch (e.g. bourgeois, Fordist and post-Fordist). Moreover, they analyze how these Cités respectively provided justification of the different modes of capitalism in face of various types of anti-capitalist critique throughout the past century (e.g. socialist and artistic).

Interestingly, rather than simply explaining the victory of capitalism by *exposing* its culture(s) Boltanski and Chiapello compare the manifold ways in which capitalism has been critiqued and legitimized throughout history. Instead of a critical sociology they develop a sociology of (post)Modern critique; hence considering critical sociology subject of enquiry (Latour, 1991: 44, 45). Against CUTs critique of ideology and everyday life, therefore, this research takes Boltanksi and Chiapello's analysis as a sign that rather than presupposing a particular relation between science and society to account for the triumph of capitalism (where knowledge is intrinsically mediated by the contradictory nature of capital and associated power imbalances) instead Modern critique itself – especially its conception of the relation between science and society (*the Spirit of Modernity*, so to call it) – should be the very object of critical inquiry.

2.4.3.3 Epistemological Conundrums

A more profound problem of CUT concerns the epistemological divisions between the various domains inherited from Modern sociology more generally. This problem is especially evident in face of the *ongoing (post-)modern and (post-)structural tensions* regarding a number of dualisms (see section 2.4.1). While these dualisms are maintained by the different methodologies CUT and TTUT, on the one hand, and the cultural approaches, on the other, respectively employ and by their respective presupposition of the *contexts-dependency of urban knowledge* (e.g. Leitner and Sheppard, 2015; c.f. Brenner 2013; Scott and Storper, 2016), nonetheless, the main source of disagreement concerns epistemology (*representation*).

Modern dualism: reduction and causality

While in response to these dualisms both strands accepts that explanations and definitions of urbanization can be ordered along a list of spectra, still, both fail to approach 'the urban' without reducing one end of these spectra to the other; or simply reversing causality. As such, the disputes between both strands demonstrate that urban studies so far has 'proven' unable to transcend the problems of *reduction* and *causality*. For example, while Storper and Scott (2016) affirm that the city is "an irreducible collectivity" – "a composite social, political, cultural and economic phenomenon" – their definition of urbanization is exclusively informed by spatial economic analyses of processes of agglomeration-cum-polarization (p. 1130). Similarly, Brenner. (2031) affirms that under planetary conditions urbanization has become amorphous – i.e. that its manifestations on the ground are place- and context-specific – but at the same time dismisses post-colonial claims of the context-dependency of urban knowledge by an appeal to "*the context of contexts*" so as to grasp capitalist urbanization in its totality (p. 92; Brenner et al., 2011). Conversely, while post-colonial urban theorists (at least implicitly) acknowledge that there is 'something' universal about cities (hence their commitment to urban theory) – just as CPE acknowledges the political economy (hence the name) – ultimately, both respectively prioritize the idiosyncrasies of cities and the role of belief systems, discourse, identity, or racial and gender cleavages at the expense of the generic and/or economic features of 'the urban' (Sayer, 2001; Jessop and Oosterlynck, 2008). Moreover, such epistemological squandering also compromises knowledge of the relation between urbanization and

inequality, and hence of *urban inequalities* (section 2.1.2). Here too, approaches, meanings, explanations of urban inequality pend between alternating reductions and reversed causalities.

Blind Fields

Almost fifty years ago in *The Urban Revolution* Lefebvre (2003 [1970] himself already drew on the problems that the context-dependency of human knowledge and ongoing sub-disciplinary specialization and bifurcation associated with the Modern dualisms posed to his search for a coherent and emancipatory urban epistemology. Lefebvre starts his analyse of this 'urban problematic' with the detection of three "fields" (or periods) in the historical transition from agrarian to urban society: "rural (peasant)", "industrial", and "urban" (p. 28). Following Lefebvre, in our search for an epistemology that enables us to grasp the emerging (planetary) urban condition our conception always remains compromised by the practices and theories produced during the previous field, the industrial epoch.

> "Between fields, which are regions of force and conflict, there are *blind fields*. These are not merely dark and uncertain, poorly explored, but blind in the sense that there is a blond spot on the retina, the center – and negation – of vision. A paradox." [...] "In the past there was a field between the rural and the industrial – just as there is today between the industrial and the urban – that was invisible to us" [...] "We focus attentively on the new field, the urban, but we see it with eyes, with concepts, that were shaped by the practices and theories of industrialization, with a fragmentary analytic tool that was designed during the industrial period and is therefore *reductive* of the emerging reality" (Lefebvre, 2003 [1970]: 29: emphasis in original).

Following Lefebvre, this paradox associated with the quest for a new urban epistemology "makes inter-disciplinary cooperation essential" (p. 53). In contrast, however, to (sub) disciplinary specialization – he names: "ecology" (Darwinian studies of the urban habitat), "phenomenological description" (linking city-dwellers –and sites), "empirical description" (centring on urban morphologies) and regional science ("representations of economic space and development") (p. 45-50) – which exactly produces blind fields by *separating* the urban into distinct, isolated parts, hence, *obscuring* the totality formed by planetary urbanization (p. xii). Following Lefebvre, such specialization has created an "academic Babel" (p. 54), where "the fragmentation of urban realities in everyday political- economic and cultural practice is being replicated relatively uncritically within the discursive terrain of urban theory" (Brenner, 2013: 92). In this light, cultural studies pose "a particularly problematic tendency" as, here too, rightful claims of "the field's decaying epistemological foundations" (p. 91, 92) are deployed to render "the urban phenomenon, taken as a whole", *invisible* (Lefebvre, 2003: 53). As Smith (2013) puts it, cultural takes on critical urbanism are "at best irrelevant and, at worst, a politically conservative attempt to move progressive international urban studies onto safer and less relevant ground" (p. 2292); They too, are ideological!

Unfortunately however, Lefebvre never solved the paradoxes his notion of blind fields denoted. Rather than proposing a trans-disciplinary urban science that would mitigate the ailments of sub-disciplinary specialization and enable dialogue across different modes of reasoning (e.g. economists, sociologists, natural scientists, political scientists etc.) Lefebvre's postulate to consider The Urbanization Question a *meta-theoretical/philosophical question* (section 2.3.3) resulted in a mono-disciplinary science of the contradictory nature of dominant socio-spatial relations under capitalism. After all, in Lefebvre's view the entire society was becoming an urban society (Brenner, 2013). Moreover, rather than addressing the paradox

associated with the constructivist nature of knowledge so as to detect the continuities and discontinuities between the agrarian, industrial and urban epochs, Lefebvre's elaboration of the urban phenomenon is exactly based on these fundamental breaks between industrial and urban, between past and present, between theory and practice.

Epistemological conundrums as a problem of modernity

Importantly, these dualists' disputes are not an exclusive property of urban studies but constitute a recurring problem in the social science, more generally, and can be observed in each of its sub-disciplines. The heterogeneous and fragmented ensembles that make up urban space and present urban problems "as collisions of elements that can simultaneously be called social, natural, cultural, economical, material, religious, spiritual and so on" (Tonkiss, 2011) pose scientific and social philosophical questions that cannot be adequately addressed by means of Modern epistemology. As argued in this thesis, it is exactly due to its reliance on the Modern social scientific coordinates that the field of urban studies has so far remained unable to catch up with the ever-evolving urban matters that simultaneously multiply epistemological divisions and exceed the boundaries of the resulting Modern domains. Cities, then, ought to be understood as *complex*, not because they voice the intertwinedness of realities traditionally understood as divided (idem), but instead because the scientific controversies surrounding these epistemological divisions demonstrate the un-tenability of these purified domains themselves. Just as climate change or the risk society do not simply voice the intertwinedness of society and nature but problematize the very notions of a pure social and a natural world (Beck, 1992; Latour, 1993 [1991]) so 'the urban' problematizes the very domains of, as well as divisions between, economy and culture, local and global, agency and structure, and so on.

The failure to approach urbanization and urban inequalities without reducing one domain to another or reversing causality demonstrates that the quest for a new urban epistemology (Brenner and Schmid, 2015a) ought to be questioned. Rather than importing 'old' dualisms from other social scientific disciplines or creating new ones itself CUT may benefit more from inquiring in these Modern domains themselves. That is asking, 'What makes one phenomenon economic and the other cultural?'; and, 'What are the implications of such categorizations and divisions in the first place?'. These questions, however, transcend the field of urban studies for it concerns the 'functioning' of the Modern (social) science *in toto*.

Accordingly, while in continuation of Lefebvre's (1991[1974]), Brenner (2013) argued that under planetary conditions *The Urbanization Question* no longer poses a *social (theoretical or philosophical question* but a *meta-theoretical* and *meta-philosophical question* – where exposing the contradictory socio-spatial relations of capitalism (i.e. capital circulation and accumulation, commoditization, and the associated re-institutionalization and subsumption of everyday) requires further theoretical abstraction to create a unity of theory between *fields* so as to grasp the interplay between a variety of Modern domains and their associated modes of reasoning – in light of the epistemological problems outlined above the *Urbanization Question* requires an inquiry in these epistemological divisions and Modern domains themselves. Accordingly, this thesis proposes to approach urbanization and the relation between urbanization and inequality by taking a step backwards and considering Modernity itself object of inquiry – especially its epistemological divisions between past and present, theory and practice, micro and macro, and its purified domains of industrial and urban, culture

and economy and so on. Perhaps, such an inquiry will bring us closer to develop a unity between a variety of fields, disciplines and modes of reasoning as Lefebvre's desired while also providing a more fruitful conception of the relation between science and society.

2.4.3.4 Specifying the requirements to overcome CUTs Modern limits

In sum, all the problems discussed can be traced back to the four sources of scientific disputes in urban studies. In particular, they imply that an inquiry in the nature of cities, the relation between urbanization and inequality, and the reciprocal relation between urban knowledge and practice requires an investigation in (the production of) Modern urban knowledge. As such, these problems underpin the need to consider Modern urban knowledge and, hence, Modernity themselves subjects of enquiry. More specifically these problems imply that an alternative approach that is both responsive facing the scientific and social philosophical problems of CUT and sensitive to the scientific and societal challenges and concerns voiced by the *Urbanization Question* and the hypothesis of *Planetary Urbanization* requires:

1. **Transcending epistemological divisions**
   So far CUT, in particular, and urban studies, more generally, have failed to address a list of epistemological dualisms without *reducing* one end of the resulting spectra to the other or simply *reversing causality*. As such, scientific disputes over what constitutes an adequate urban epistemology are never settled. Therefore, rather than attempting to bridge these dualisms CUT needs an approach that analyzes these epistemological divisions themselves.

1. **Transcending the context-(in)dependency of 'the urban'**
   Due to opposing presuppositions of the *context-(in)dependency* of urban processes CUT and urban studies fail to overcome the trade-off between the general features of cities (requiring further theoretical abstraction) and the empirical diversity – or *amorphousness* (Brenner, 2013) – of cities and urban processes fuelled by their specific space-time contexts. To overcome the resulting disputes about the *(in)commensurability* of cities CUT needs an approach that transcends assumptions about the *context-(in)dependency* of urban processes.

2. **Analyzing rather than opposing Modern domains**
   So far CUT has failed to catch up with the ever-evolving urban matters that simultaneously multiply epistemological divisions and exceed the boundaries of the resulting Modern domains. Cities are not *complex* because they harbor a range of realities normally viewed as divided (Tonkis, 2011; Brenner. 2013) but because the scientific disputes surrounding them demonstrate the un-tenability of these purified domains themselves (Latour, 1993 [1991]). Therefore, instead of viewing *The Urbanization Question* as *a meta-theoretical/ philosophical quest* for a mono-disciplinary science that grasps the interplay between all modes of reasoning at once (Lefebvre (1991 [1974]) instead CUT needs a *trans-disciplinary* approach that enables dialogue across these different domains and modes of reasoning. This entails asking, ‘What makes one aspect of urbanization economic and another cultural?’; and ‘What are the implications of such categorizations for our understanding of 'the urban'?’

3. **Reconsidering the context-(in)dependency of urban knowledge**
   Just as CUT, TTUT and cultural approaches hold their respective presuppositions of the context-(in)dependency of cities and urban processes each has its own presupposition of the context-(in)dependency of urban knowledge. Since CUT considers urban knowledge intrinsically mediated by its space/time-specific context of production (Brenner, 2009; 2011; c.f. Marcuse, H. (1990 [1960]; Lefebvre, 2009; Marx, 1976 [1845]), 1857) its attempt

(1) to alter dominant understandings of *what should* (not) of value for the articulation of pathways for a Just City, and (2) to approach 'the urban' as detached from the theories produced during the previous (industrial) epoch, always stumbles upon fundamental social philosophical breaks between *what is* and *what should*, past and present, theory and practice, rationality and power. Even (3) the triumph of capitalism is explained by recourse to the mediation of knowledge by that very same phenomenon. Therefore, rather than assuming a fundamental abyss between science and society instead CUT should inquire in the very (dis)continuities between knowledge and its context of production, between past and present, the urban and the industrial, the analytical and the normative, and so on..

2.4.4 Introducing Actor-network Theory to Urban Studies

Following the discussion of the Modern problems of CUT this section underpins the rationale for introducing ANT to CUT. Section 2.4.4.1 provides an overview of ANT-inspired urban studies and explains how these are initiated in response to the same Modern limits of CUT as well as ANTs skepticism of Modernity and Modern (urban) science more generally. Using the recent exchange between Brenner et al. (2011) and a group of Assemblage Urbanists led by Collin McFarlane (2011) as a case in point, section 2.4.4.2 assesses the recent attempts to advance the ANT-related notion of Assemblage in CUT. Hereafter, based on the receptions of Assemblage by critical urban scholars, section 2.4.4.3 provides an outline of the requirements of an adequate inquiry in the possibility of a joint CUT-ANT research approach and agenda.

2.4.4.1 ANT interventions in urban studies

Since the mid 1990s a considerable number of scientists has started to inquire in the potential contributions of ANT to urban studies. These scholars and the justifications for their attempts can be divided into two groups. *First*, and echoing the increased popularity of ANT in human geography[21] since the 2000s ANT has found increasing resonance among urban scholars who are fascinated by the idea how spatial processes unfold through, or are mediated by, heterogeneous networks of humans and nonhumans (nature, technology and animals) and consider ANT a powerful analytical means to cut through those dualisms that so prominently define current urban research (e.g. nature/society, economy/culture, agency/structure, local/global) so as to grasp their simultaneous articulation (Amin and Thrift, 2002; Gandy 2005; Farías and Bender 2009, Murdoch, 1997a, 1997b, 1998).

Amongst others, urban scholars have deployed ANT to demonstrate how heterogeneous associations of humans and nonhumans mediate, for example, the construction of discourse in the transformation of the urban form (e.g. Yaneva, 2012); urban design and architecture (Latour and Yaneva, 2009; Petrescu, 2012); urban ecologies (Hinchliffe and Whatmore, 2006; Swyngedouw. 2006; Gabriel, 2014), the agglomeration process (Zitouni, 2010, 2012); and market improvisation in social housing policy (Farias, 2014). Others have utilized ANT to describe how nonverbal speech acts (Austin, 1990 [1962]) perform the construction of distinct

[21] Since the 1990s ANT has been increasingly popularized in human geography (Whatmore, 2002; Hinchliffe 1996; Demerritt, 1996). Amongst others, ANT has been deployed as an alternative approach to: economic geography (Murdoch, 1995), human-environment relations (Whatmore, 1999; Murdoch, 1997a, 1997b); agricultural geography and rural sociology (Goodman, 1999; Jongerden, 2010; Lowe and Ward, 1997); Marxist geographies (Castree, 2002), and to draw on key geographic themes, such as, representation (Thrift, 2008); geopolitics (O Thuathail, 1998), globalization (Thrift, 1995), scale (Murdoch, 1998), the culture-economy divide (Whatmore, 2005), to name just a few.

urban imageries (e.g. conceptions of the 'goods and bads' of cities) (Doucet, 2012;), and even how practices of cartographic mapping are co-constitutive of the (re-)production of urban economies and natures (Gabriel, 2013). In addition, some have drawn on ANTs implications to social and political theory to develop an alternative understanding of political and social issues specific to cities and, accordingly, to re-distribute the meaning of 'politics' and 'society' in urban studies more generally (Amin, 2007; Farias, 2011, Blok and Farias, 2016). In addition, and in distinction to the aforementioned contributions, Trevor Barnes (2004a, 2004b, 2006) has deployed ANT to complement accounts on the history of regional science[22].

Second, also actor-network theorists believe ANT holds profound implications to geography and urban research. For example, Bruno Latour (1997, 2005) views contemporary geography as an obstacle to ANT; If not only because the prevalence of its definition of space in terms of Euclidean geometry and Cartesian metaphysics impedes ANTs definition of ontological hybrids in terms of 'networks' (which implies a different *type of* spatiality). For Latour (1997) human geography should not be *too* concerned with, what he calls, "the tyranny of distance", or equally with scale and hierarchy (p. 2)[23]. Moreover, he insists that geography should abstain from viewing spatial relations as performed by human agents exclusively (Latour, 200, 2014). Instead ANT suggests that space, place, territory, scale and network are accomodated and consolidated by heterogeneous associations of humans and nonhumans. This means that, despite its critique of geography's general conduct and terminology, conversely, questions about how phenomena are mediated by ontological hybrids that connect elements otherwise viewed as 'proximate' or 'distant' are central in ANT.

Against this backdrop, one strand of ANT research on cities underlines the agency of technological devices – found, for example, in (public) transportation systems, traffic control, communication and information technologies (e.g. Geographical information Systems), remote control, cadastral maps, the electrification of Western society – generally ignored in urban theory, though paramount to continued urban viability (e.g. Houdart, 2012; Latour and Hermant, 2006 [1998]; Latour, 1992; Hughes, 1983; November et al., 2010).

Another strand, centering on the notion of 'topology', focuses explicitly on ANTs conception of space by inquiring in the different types of spatiality that are constituted by the sciences and technologies (Mol and Law, 1994; Law and Mol, 2001). In urban studies topology has already been deployed to analyze the relation between traveling policies and their locational concretizations to describe how urban policies travel from regional centres to their respective

[22] Barnes' (2004a, 2004b, 2006) engagement with ANT is particularly interesting for he applies its ideas about ontological hybrids not to provide an alternative approach to distinct geographical themes or phenomena but to account for the (co)constitution and historic development of the entire field and its paradigms. As such, Barnes' application of ANT, in a sense (at least in my opinion), is located in greater proximity to the ANTs core subject-matter and foundational claims – respectively the sociology of knowledge and its radical account of scientific development stemming from Science and Technology Studies (STS). In other words, Barnes' contribution to the history of regional science can, at least partially, be considered an ANT-inspired sociology, or science study, of regional science.

[23] For example, in face of the local-global binary Latour (1993 [1991]) states that a railroad is neither local nor global. "It is local at all points, since [...] you have stations and automatic ticket machines scattered along the way. Yet it is global, since it takes you from Madrid to Berlin or from Brest to Vladivostok" (p. 117). The point being that, "[t]here are continuous paths that lead from the local to the global" (idem): provided that we follow these paths no *a piori* scaling is required.

recipients and, as such, why they are capable of acquiring ‘a sense of ubiquity (Allen and Cochrane 2007; McGuirk and Dowling 2009; McCann and Ward 2011; Prince, 2010a, 2010b, 2012, 2013 2014). The topological reading of urban space will be described in section 2.5.4.2.

2.4.4.2 Assessing ANTs contributions to (critical) urban studies

In light of CUTs theoretical and social philosophical problems and the recent popularity of ANT in urban studies since 2010 a considerable number of scholars has started to contemplate on the conjunctions and disjunctions between ANT and CUT. Besides some of the publications listed above an important reference point, here, is Farias and Bender's (2009) co-edited volume *Urban Assemblages, How Actor-Network Theory Changes Urban Studies*[24]. Another hallmark to the anticipated relevance of ANT to CUT can be found in the sheer of AAG (American Association of Geographers) conference sessions either directly exploring linkages between both paradigms or indirectly exploring these by calls for studies that combine concepts from both paradigms. However, the most compelling effort is the CUT/Assemblage Urbanism-debate[25] between Brenner et al. (2011; Wachsmuth et al., 2011), on behalf of CUT, and McFarlane (2011a, 2011b, 2011c) and a group of assemblage urbanists filling four issues in the journal *City: analysis of urban trends, culture, theory, policy, action*.

Despite this rich collection, however, so far explorations of the conjunctions and disjunctions between ANT and (critical) urban studies, more generally, and the search for a joint research agenda of ANT and CUT have not cut ice. Here, I focus especially on the criticisms levelled by (1) Brenner et al. (2011; Wachsmuth et al., 2011) and (2) Storper and Scott (2016)[26].

In response to McFarlane's attempt to explore a complementary research agenda Brenner et al. (2011) identify three type strands of Assemblage contributions to CUT. The *first* is "empirical" and depicts Assemblage "as a specific type of research object that can be analyzed through a political–economic framework and/or contextualized in relation to historically and geographically specific political–economic trends" (p. 231). Here, Assemblage is deployed to complement CUTs theoretical foundation of urbanization with empirical analyses of its *territorialized* – and, therefore, fragmented (*amorphous*) – configurations. The *second* uses Assemblage as a "methodological" approach that built upon CUTs political economy of urbanization "while extending and reformulating some of its core elements and concerns"

[24] Farías and Bender (2009) import a variety of ANTs concepts, approaches and ideas to urban studies by examining a number of heterogeneous associations pertaining to aspects of city life and urban transformation, such as, technological systems, architecture, infrastructure, urban imageries and virtual reality, leisure space, and urban ethics and politics.

[25] The notion of Assemblage as advanced by McFarlane and other Assemblage Urbanisists includes a large variety of poststructuralist-cum-posthumanist approaches based on the works of Deleuze and Guattari (1981, 1986), De Landa (2006), Latour (2005a), Law (1992) and Callon (1986), but at the same time extends these histories of thought. Within this versatile strand of Assemblage ANT presents just one, though clearly demarcated, tradition so that ANT approaches to cities can be categorized as Assemblage Urbanism but not *vice versa*. In dialogue with Brenner et al. (2011) McFarlane (2011a) considers the potential contributions of Assemblage Urbanism along his mapping of a wide variety of Assemblage traditions, including ANT. Other commentators in these four issues include: Dovey (2011), Simone (2011), Rankin (2011), Angelo (2011), Russel et al. (2011), Tonkiss (2011). Farías (2011) and Acuto (2011), Only the latter two authors explicitly explore conjunctions and disjunctions between CUT and ANT

[26] While these criticism are originally oriented at Assemblage Urbanism (including, but not exclusively denoting ANT) for sake of simplification I have teased out only those pertaining to ANT.

(idem); for example, by extending agency to nonhumans in the analysis of the (re-) production of dominant socio-spatial, urban arrangements. In the *third* strand – which is also the only strand of Assemblage pertaining to ANT (though not exclusively) – Assemblage is deployed "as an alternative ontology of the city" (p. 232). Here, CUTs search for an urban epistemology and explanatory device of 'the context of contexts' is entirely replaced by a descriptive approach in which historical and geographical specificity of the nature of capitalist urbanization is dissolved into a flat ontological landscape of heterogeneous associations which are to be re-assembled under the rubric of 'the urban' or otherwise.

Brenner et al. (2011; Wachsmuth et al., 2011) welcome the first two strands of Assemblage as they "have productively amended and continue to transform the research focus and theoretical orientation of urban political economy" (p. 233). However, they strongly oppose Assemblage as an alternative ontology of the city for the following reasons:

1. **Bypassing CUTS concern with 'the context of context'**
   Following Brenner et al. (2011) Assemblage Urbanism voices an analytical silence on urban processes and inequalities in relation to CUTs concern with capitalism, or what they call, the "context of context" (c.f. Brenner et al., 2010). On the one hand, its approach neglects CUTs key concepts of the s*patial practices* of urban political economy: capital accumulation and circulation class and stratification, property relations, land rent, uneven development, commodification, spatial divisions of labor and crisis formation, etc... In addition, it lacks a theoretical framework of the associated forms of *territorial regulation* mediating the conduits of *everyday life*, including: adoption of neoliberal, market-oriented growth policies; re-scaling of state power via decentralization, privatization and (de-) regulation and; integration of local and regional governance by new administrative bodies; mobilization of multi-scalar governance and planning procedures to channel (trans-)national investment/disinvestment; austerity; dispossession (Wachsmuth et al., 2011).

2. **Naïve objectivism**
   Brenner et al. claim that ANT invokes, what Sayer (1992) once called, "*naïve objectivism*" (p. 45), referring to the presupposition that heterogeneous associations can be treated as urban facts that are self-evident "rather than requiring mediation or at least animation through theoretical assumptions and interpretive schemata" (Brenner et al., 2011: 233). According to them, Assemblage Urbanism embraces (a) "*an unreflexive embrace of descriptive modes of analysis*" at the expense of explanatory devices that involve theoretical abstraction; and (b) "an overgeneralized insistence on the openness, contingency, malleability and indeterminacy of sociospatial forms" in isolation from (theoretical) concerns of their structural, contextually-mediated features (Wachsmuth et al., 2011: 742). They fear that in this way Assemblage Urbanism invokes, what Tonkiss (2011) in the same debate termed, "template urbanism", where Assemblage serves as a mold for recursive analyses that fits all urban processes and forms (p. 587-8).

3. **Absent specification of its "critical" content**
   Following Wachsmuth et al. (2011) while ontological variants of Assemblage Urbanism are claimed to function as alternative or complementary to current modes of critique they are presented "without specifying their distinctively 'critical' content or the ways in which such approaches might entail a reconceptualization of the latter (p. 742).

A fourth line of critique stresses "a failure to define the concept of assemblage with appropriate precision and, by consequence, its overextension to encompass a broad range of only partially connected meanings" (p. 742). Following Brenner et al. (2011), therefore, there is also "no coherence to arguing for or against the concept in general" (p. 233)[27]. Wachsmuth et al. (2011) explain that due to the broad and ill-circumscribed definition of Assemblage advanced during series of exchanges they were often unsure whether the topic of contention concerned grammar, concept, theory, realm, the nature of 'society', empirics, methodology, epistemology, ontology, social philosophy or the politics of knowledge (p. 743). In conclusion, they note that they "experienced the nagging feeling that the major contours of the debate remained amorphous" (idem). As such, they insist that "the power of the assemblage approach may be most productively explored when its conceptual, methodological, empirical and normative parameters are circumscribed rather precisely" (Brenner et al., 2011: 229).

On behalf of TTUT Storper and Scott (2016) argue that Assemblage Urbanism is "unable to detect urban dynamics, movement, change and causality in meaningful ways" (p. 1128). According to them, without attending to the underlying processes of structuration and theoretically informed interpretive schemata Assemblage provides no tools to "tease out significant relationships or to distinguish between the trivial and the important" (p. 1127) Given its favor to empirical induction, thick description and irreduction, similar to Brenner et al. (2011), Storper and Scott believe Assemblage engenders 'naive objectivism' (p. 1126). In addition, while they agree with the potential of nonhumans to exert influence over urban processes and urban environments they criticize Assemblage's indiscriminate attribution of agency to nonhumans and the associated "absence of concepts of human action" (p. 1127).

2.4.4.3 Towards an adequate inquiry in a joint research agenda

Despite these unfruitful exchanges, but conform the current popularity of Assemblage theory in urban studies and the prolongation of past and recent endeavors to inquire in the reciprocal interests and benefits of Assemblage and CUT, this thesis still appeals to the necessity to explore the (im)possibility of a joint ANT-CUT approach and research agenda. For example, despite pessimistic feedbacks from Storper and Scott (2016) and Brenner et al. (2011) both simultaneously confirm the relevance of such an inquiry.[28] However, this is only one side of

[27] A noteworthy exception in this respect is Wacshmuth et al.'s (2011) sympathetic reference to Farías' contribution in the same debate. In their view, Farías "most explicitly and systematically recognizes the need to clarify the ontological foundations and epistemological commitments that might crystallize around an eventual assemblage-theoretical approach to urban studies" (p. 745). By identifying four fundamental distinctions between ANT and CUT – "the style of cognitive engagement (inquiries or critique), the definitions of the object of study (cities or capitalism), the underlying conceptions of the social (assemblages or structures) and the envisaged political projects (democratization or revolution)" (p. 365) – among all contributors only Farías (2011) defends the ontological, epistemological and methodological commitments of each paradigm simultaneously and, hence, adequately values and confronts the opportunities and challenges of articulating a joint CUT-ANT approach and research agenda in face of their fundamental differences.

[28] By calling on Assemblage theorists to articulate a clearly demarcated concept of Assemblage so as to allow precise delineation of the major contours of the Assemblage/CUT-debate Brenner et al. (2011) simultaneously (at least implicitly) underpin the need for a consistent and systematic inquiry in the (im)possibility of a joint approach and research agenda. In considering Assemblage theory one "of three currently influential versions of urban analysis" also Storper and Scott (2016), on their part, view Assemblage theory at least significant enough to assess its relevance to urban studies, more generally.

the story. Simultaneously, and what constitutes the core research rationale motivating this appeal, is that the matter has not yet been adequately explored and investigated. These inadequacies in analyzing the mutual imbrications between CUT and ANT as well as their respective remedies, identified in this research, are cumulative and listed in sequential order.

1. **Deploying ANT instead of Assemblage**
   Since the notion of Assemblage, as advanced by McFarlane (2011), is not unilateral so far debates about a joint research agenda could not be settled. By deploying a single reading of Assemblage instead the scientific and social philosophical conjunctions and disjunctions with CUT can be delineated more precisely. Moreover, compared to the other distinct strands of Assemblage ANTs implications to social science have already been articulated extensively while its contrasts and connections with the different paradigms are demarcated more precisely (Müller, 2015). In addition, among all strands of Assemblage, only ANT is leading in its scientific field of origination (the sociology of knowledge and STS) and, thus, can be considered a more established paradigm more generally.

2. **Directing ANT at its appropriate target**
   While ANT has been deployed in urban studies to transcend the epistemological dualisms it has not yet been utilized to systematically confront the other three Modern problems of CUT – i.e. the context-(in)dependency of urban processes; the context-(in)dependency of urban knowledge and the Modern domains. Using ANT to simultaneously address all problems at once allows for a more adequate inquiry in its potential contributions to CUT.

3. **Articulate a coherent ANT concept to 'the urban'**
   A large deficiency of current attempts to advance ANT in (critical) urban studies is the absence of a clear concept of 'the urban'. Some of the undertakings disclose (aspects of) urban processes generally ignored in urban studies. Others denounce conceptions of space, society, economy or nature critical to distinct theories of cities. Again others dissolve the whole notion of 'the urban' into a flat ontological landscape of heterogeneous associations which are to be re-assembled under the rubric of 'the urban' or otherwise. Due to the absence of a distinct urban concept these attempts tend to be entirely divorced from the key disputes and debates about the nature of cities. Therefore, to adequately explore ANTs potential virtues to CUT, first, an ANT concept of 'the urban' has to be articulated.

4. **Ground clearing**
   The articulation of an ANT concept of 'the urban' also warrant a coherent and clearly delineated ANT approach to cities. This involves an overview of ANTs conception of Space, Society and Nature and its scientific (empirical, methodological, epistemological, ontological, social philosophical and normative) implications underpinning its approach to urban theory and research. Moreover, such a ground clearing will also clarify the contrasts and connections between the respective competing conceptions of Space, Society and Nature and scientific imperatives of ANT and the other urban paradigms under enquiry.

2.5 Actor-network theory

Explaining ANT is an arduous task as it offers a controversial approach to research more generally. Following Cressman (2009) describing "ANT in the abstract, divorced from particular case studies [...] presents a serious problem for a theory that is best understood as something that is *performed* rather than something that is *summarized*" (p. 1; c.f. Law and Singleton, 2000). According to Latour, ANT is not a 'theory' but a methodology for studying the social. In fact, in *Reassembling the Social: An Introduction to Actor-Network Theory* Latour (2005a) deploys his description of ANT as a "travel guide" and an "how-to book" (p. 17) for "science in the making" rather than a methodology textbook for "ready made science" based on clear-cut theoretical and epistemological, imperatives (Latour, 1987a).

Accordingly, this section cannot provide clear-cut answers on ANTs approach to 'the urban' at once but instead offers a set-by-step exploration by reviewing ANTs empirical, methodological, epistemological, ontological, social philosophical, political and normative imperatives with respect to its conception of nature, society, politics and space[29]. Section 2.5.1 describes ANTs approach to science and social philosophy more generally. Section 2.5.2 draws on ANTs approach to the social sciences. Section 2.5.3 describes ANTs implications to political theory. Finally, section 2.5.4 explores ANTs approach to (urban) space.

2.5.1 ANTs conception of science and the philosophy of science

This section discusses ANTs conception of science and the philosophy of science. Section 2.5.1.1 offers a *summary* of a book chapter of Hans Harbers (2003) that introduces ANT in face of 'the co-evolution of science, technology and society'. Sections 2.5.1.2 and 2.5.1.3 discuss the concept of the 'actor-network' and ANTs understandings of Modernity and history.

2.5.1.1 The co-evolution of science, technology and society

The internal and external functioning of science

First and foremost, ANT derives from an intrinsic critique of the Modern, realistic conception of science or, what Harbers (2003: 189) calls, "the conventional image of science" – i.e. of science as an autonomous (neutral) system of knowledge production, of facts as opposed to values, of truth as opposed to falsehood, and of validity and reliability (trust). Following Harbers, this image can be summarized along four principles at four levels of analysis (idem):

1. *Ontology*: concerns *the nature of reality* (or *what is*), where reality is an objective given and exists independent from the human observer (or subject).
2. *Epistemology*: concerns the 'adequate' theoretical and empirical precepts for acquiring objective knowledge of reality.
3. *"Methodology*: the rules of scientific method enable an internally controlled, rational learning process leading to increasingly accurate knowledge of phenomena.
4. *Social philosophy*: This rational learning process and the scientific progress it enables, are essential to societal progress, because they lead towards accumulation of true knowledge and therewith enable rational solutions to any problem; hence, scientific and societal progress, rationality and scientific knowledge are inextricably linked" (idem: 189: emphasis and numeration in original; c.f. Kunneman, 1986).

[29] Due to time constraints and exceedance of the word limit, unfortunately, this thesis will not explore ANTs implications to economics and its ramifications for urban theory.

This image of science generates a particular conception about the functioning of science and its societal role (Harbers, 2003). While ontology, epistemology and methodology concern the "internal functioning of *science*" social philosophy is about the "external functioning of science": the societal role and relevance of science (p. 190). Considering *the internal functioning of science* the core image of science rests on an idea of a "methodically regulated exploration" to an un-known, disclosed world, "which literally needs to be dis-covered" (idem). Theories and statements provide an *a priori* idea of objective reality but are only truth (*objective*) insofar they (can be shown to) adequately represent reality. Within this realistic conception of science the principal philosophical and epistemological question concerns *representation*; i.e. "the relation between the knowing-subject and the known-object, [...] between the scientific Word and the objective World it refers to" (idem).

Two ideas reign in the philosophy of representation: *rationalism* and *empiricism*. Empiricism holds that "the facts of nature decide over the truthfulness of scientific statements about nature" (idem). Here, empirical tests and case studies are considered the only adequate means to produce truthful representations of a phenomenon. Rationalism, conversely, holds that "the facts of nature cannot determine the truthfulness of theories", since what counts as facts depends on such theories in the first place. Following Richard Rorty, the ideology of representation (*of science and philosophy as a mirror of reality*) reigns in both rationalism and empiricism. Argum between both concern the manner in which objective facts are represented; not the idea of representation itself (idem; c.f., Rorty, (1979).

Following Harbers, this realist view of science "generates a specific conception of science and, hence, a specific task of the philosophy of science": while science is primarily considered "a collection of cognitions – statements, theories and ideas [...] the tasks of the philosopher of science is to examine how these cognitions can be justified" (p. 190). Truth, facts, validity and objectivity are exclusive properties of science while the philosopher of science evaluates whether a scientific endeavor complies to these criteria. The philosopher of science, thus, is concerned with the legitimacy of scientific knowledge – "*The context of justification*" (idem). "The manner and circumstances in which scientific knowledge is obtained" – "*The context of discovery*" – is the task of social scientists (e.g. economists, sociologists, historians) (idem). Harbers explains that in the philosophy of representation the validity of a given theory or statement does not depend on social factors: the validity of a knowledge claim does not depend on *who* makes the claim but on *what* is claimed (idem). As such, the conventional image of science maintains a clear distinction between *philosophy of science* – 'How should scientific statements be justified (cognitively)?' – and the *sociology of science*, which focuses on the social (political, economic) context of scholarship *(scientific practice*). As Harbers puts it, "where the philosopher of science justifies valid knowledge cognitively the sociologist of science can only explain falsehood socially" (p. 190)[30].

[30] Following the realist epistemology, philosophers of science can only account for propositions that are proven true (Stanford**; Steup, 2014**). Propositions that are proven false cannot be explained by philosophers of science because "knowledge requires truth" (idem). Explaining falsehood through means that can only assess its justification would be a *contradictio in terminis*. Sociologists of science, however, cannot explain the justification of true propositions as it only accounts for the circumstances in which scientific knowledge is produced; not for that knowledge itself. Still, they *can* explain the justification of falsehood by studying its spatiotemporal context of production.

Considering *the external functioning of science*, the conventional image of science entails the Enlightenment ideal of liberating mankind from occultism and primitiveness where science functions as the main engine of modernization and secularization or, what Max Weber (1992 [1905]), one of the founding sociologists of Modern society, famously called,. "the disenchantment of the world" (p. 24). However, for scientific progress to culminate in societal progress Weber argued that science ought to remain *neutral* (i.e. that science operates autonomously from politics and ideology) "as it is exactly its autonomy that guarantees its societal success" (Harbers, 2003). Only neutrality (*value-freeness*) of science (*Wertfreiheit*) could ensure the autonomy of science versus politics and ideology. To safeguard the neutrality of science Weber (1978 [1921]) advocated an epistemological division between facts (*what is*) and values (*what ought to be*) which he immediately linked to an *institutional differentiation* between a purely scientific and a purely political realm through his distinction between "instrumental rationality" and "value-rationality". Importantly, his postulate of value- and instrumental rationality did not only serve to guarantee the autonomy of science versus politics, as is often unilaterally assumed, but also to preserve the autonomy of politics versus science (i.e. to protect politics against *technocracy*) (Harbers, 2003). Free deliberation of *ends* ought not to be influenced by instrumental (or scientific) *means* while science should remain preserved from political, economical and cultural interests. Protecting science and politics against one another would *guarantee* the adequate functioning of both (idem; c.f. Weber,1973). Ironically however, this means that in Weber's sociology the appropriate *external* functioning of science depends on its adequate internal functioning.

Jürgen Habermas (1970) has criticized Weber's postulate of value-neutrality based on, what he calls, the "decisionist" and the "technocractic" models of the relation between science and politics. With the first model Habermas argues that a strict fact/value-distinction will reduce politics to an arbitrary matter of conflicting values, interests and ideals (Harbers, 2003). Habermas feared that institutionalizing this distinction would imply a politics without reason. Against this backdrop Habermas vowed for a *Rational Society* (1970), meaning that reason *ought not be* an exclusive property of science only but deserves a prominent position in society and politics as well. With the decisionist model Habermas insisted that goals and means cannot, and *should not*, be separated as politics (free deliberation of goals) then would become an arbitrary matter without rational deliberation of means. With the technocratic model Habermas sought to demonstrate that the decisionist model of the relation between science and politics is 'factually' obsolete: scientific and technological progress, on the one hand, and political and economic interests, on the other, are increasingly intertwined (Harbers, 2003). Following Habermas, an increased dependence on instrumental rationality implies that free deliberation over political goals will be subordinated to scientific and technological means rather than the other way around. In this way, decision-making would become an exclusive affair between scientific experts and administrative elites (idem).

Against Weber's ideals of value neutrality and technical rationality, Habermas (1984 [1981]) developed his "pragmatic model" of the relation between science and politics based on, what he called, "communicative rationality", which implies "regular and regulated communication between both [science and politics] – publicly, visible and controllable for all" (Harbers, 2003: 192). While his theory of communicative action proved a fruitful resource to undermine the purported neutrality of science, by "acknowledging that the separation between science

and politics is factually perverted Habermas normatively endorsed the distinction" (Harbers, 2004: 149). By insisting on a fundamental distinction between communicative and technical rationality Habermas defines the relation between science and politics so that both extremes – objective knowledge and subjective deliberation – remain autonomous. Moreover, in this way he reinforced a set of Modern dualisms: objectivity/(inter-)subjectivity, expert/lay knowledge, reason/morality, means/ends, system/ life-world, and so on.

Double hermeneutic and the duality of human knowing

Following Latour, Weber and Habermas's ideas of science and politics as differentiated and autonomous sub-systems within society offers an obsolete perception of both the internal and external functioning of science. His argument focuses, first, on the internal functioning of science. Latour is not the first to critique the conventional image of science. Karl Marx, for example, coined the terms 'bourgeois-science' and 'proletarian science' to underline an intimate relation between conventional knowledge and power struggles. Karl Mannheim (1936), founder of *the Sociology of Knowledge*, pointed at the "*Seinsverbundenheit des Wissens*". According to him knowledge is always mediated by social and cultural factors.

The conventional image of science has also been scrutinized in the social sciences for being a typical natural science model that neglects the peculiar characteristics of social scientific objects and, therefore, misconceives the content and problems of social scientific research. Some even argued that it would invoke social scientists to "emulate" the natural sciences (Flyvbjerg, 2001). One important argument underpinning the fundamental difference between the natural and social sciences – between epistemological realism and social constructivism – is provided by phenomenology and hermeneutics which point to the "double hermeneutics" (Giddens, 1982). In *Hermeneutics and Social Theory*, Anthony Giddens explains that two levels of interpretation are involved during scientific research. First, in both natural and social sciences hermeneutic processes play a role since research outcomes (objects) are interpreted along theories which are shared between scientists (subjects) – i.e. scientific interpretations.

However, in contrast to the natural sciences whose objects of study are considered passive (e.g. molecules do not interpret their own behaviour or the *situated context of activity*), social scientific objects of inquiry can be considered subjects as well: humans under study, for example, in behavioural studies on consumerism, *do* interpret their own behaviour. Here, besides scientific interpretations also the interpretations of the actors under study are decisive for what a certain phenomenon is. While natural scientific knowledge is only subjected to scientific interpretations social scientific knowledge, thus, also depends on actor-interpretations; hence, *double* hermeneutic. In the production of *social* scientific knowledge, therefore, "[i]nter-subjectivity cannot remain confined to scientists but extends over those 'investigated" (Harbers, 2003: 194). Accordingly, obtaining adequate representations of social phenomena at minimum requires "adjustment between scientific interpretations and actor interpretations" (idem). The notion of double hermeneutic implies that social scientific knowledge (*content*) by virtue depends on both the *context* of the activity under study and the *context* of research. In *The Order of Things*, Michel Foucault (1973) has argued that the double hermeneutic implies "the duality of human knowing" (i.e. a dual understanding of humans in social scientific research). Following Foucault social scientists treat humans simultaneously as "meaning givers" (who decide what counts as facts) and as "meaningless object of research" (for whom the scientist decide what counts as facts) (idem: 344-364).

The notions of double hermeneutics and the duality of human knowing seriously problematize the conventional image of science. Since subjects and objects cannot exist independently from one another the idea of *knowledge as a mirror of reality* no longer holds. The ideology of representation is compromised even further since actor-interpretations are not only capable of influencing scientific interpretations but the latter can also influence the former (e.g. a self-fulfilling prophesy): when an economists predicts the fall of a bank stakeholders and clients can quickly retreat their stocks and savings, accelerating bankruptcy. Thus, besides a matter of *interpretation* and *representation* alone science is also a matter of *creation* and *intervention* (Harbers, 2003). Following Harbers, the notions of creation and intervention do not only problematize the conventional image of the internal functioning of science (the philosophy of representation) but also the conventional image of the external functioning of science.

Importantly, according to both social and natural scientists the critique against the philosophy of representation only applies to the social sciences. The natural sciences do not need to worry about the double hermeneutic or the duality of human knowing as, contrarily to social science's 'soft' research objects, their research object are 'hard': molecules neither interpret their own behaviour nor act on their own behalf (idem). Mannheim and Marx's respective critiques, thus, only apply to the social sciences. The natural sciences are immune to 'the place-and time-dependency of knowledge' and 'class struggles' and 'power imbalances'.

Thomas Kuhn's radical sociology of scientific development

Latour objects to this compromise between natural and social scientists. Instead he devotes himself to demonstrate that also the production of natural scientific knowledge is not immune to social factors and that, therefore, also in the natural sciences the philosophy of representation cannot be, and also *factually* is not, maintained. He bases his argument on Kuhn's radical sociology of science and theory of scientific revolutions.

Following his historiography of scientific development Kuhn argued that the philosophy of representation (of constantly improving representations of a stable World) invokes "historical presentism" (or "*Whig-history*") – i.e. that the past is described as a preparation to the present (idem: 195). Everything in history that cannot be explained given the present understanding on the matter disappears from sight (idem). Kuhn (1970) initially understood the development of science in terms of *paradigm shifts*: of normal science, anomalies, crises and scientific revolutions; where a new paradigm replaces the old one. In line with the conventional image of science, Kuhn's conception of a paradigm shift can be understood as a changing representation of a passive world out-there: what changes during a paradigm shift are the Words the scientists use to describe the World (reality) (Harbers, 2003). Here, a paradigm shift simply constitutes a change in *perspective*: that reality itself does not change.

In later publications, Kuhn (1983, 1991, 1993) altered his conception of paradigm shifts in favour of a more *radical sociology of scientific development* in which a paradigm shift is not simply a different way of looking at things (*perspective*) but a different way of speaking, thinking and *acting*. Following Kuhn a paradigm shift implies a change in *vocabulary*, or *lexicon*, of the scientific community where, as Harbers (2003) explains, lexicon should not be understood in the passive sense (as a mere representation of the world) but in a more active sense, "as co-constitutive *for* that world" (p. 196: emphasis in original). Kuhn's theory of scientific revolutions (*theory of kinds*) is based on a theory of language that negates the

dualism between World and Word (i.e. between *what is* represented and *how it is* represented) and instead stresses an intimate connection between both. Language is not simply a *means* to represent reality (the "propositional aspect of language") but importantly also creates realities as it generates new practices (the "performative aspect of language") (idem: 196). Similarly, a scientific revolution does not imply a new representation of the World but rather voices the creation of a new world: After a paradigm shift, the world in which scientists live changes: "after Copernicus, astronomers lived in a different world", Kuhn (1970: 117) stated without, however, implying that Worlds completely depend on our Words (Harbers, 2003: 195-6).

Harbers illustrates the radical character of Kuhn's theory of scientific revolutions along John Searle's (1969) theory of speech acts which distinguishes between *regulative* and *constitutive rules*. Regulative rules regulate (already) existing activities. For example, the traffic rule system regulates an existing activity: also without traffic rules we know how to drive. Just as the rules of a ritual are not the ritual and a grammar is not a language, regulative rules are not the activity. As Anthony Wilden (1987) puts it, "the rules are not the game". Constitutive rules, however, define, and therewith create, (new) activities. For example, the rules of chess are constitutive of the game. Without those rules the game (activity) of chess does not even exist. In the case of constitutive rules there exist *an intimate relationship between rule and action*. As Harbers (2003) explains, this is how Kuhn wants us to understand a paradigm shift: after a scientific revolution "new constitutive rules are in effect, a new game is played, new actions have been defined, and new *practices* are constituted" (p. 197: emphasis added).

Still, while in case of the formal practices (such as chess) the constitutive rules of the game can be defined and issued explicitly, "in everyday practices, including scientific experimental (rules of) practice, this is not the case" (Harbers, 2003: 197). The constitutive rules of cycling cannot be written down in formal instructions. Rather one masters a skill, such as cycling, simply by *doing*. According to Kuhn, mastering a scientific profession works just the same. "Normal science takes place within a shared paradigm, and is thus based on *consensus* – regarding the nature of the problems, the domain of research, about the concepts, methods and theories applied in research, and even about the standards of good and bad research" (Harbers, 2003: 197). Consensus, here, is not only a matter of rationality, nor about following the rules of 'good' science, "but about becoming versed in scientific practice" (idem). Since a paradigm requires consensus among scientists within a scientific community, a paradigm (shift) is a collective process embodied by (new) scientific practices. The rules of a paradigm shift cannot be written in formal instructions of method since it implies a shift from one game to another. This also means that "science is not primarily a knowledge system – i.e. a collection of cognitions and methodical rules" (idem). Rather, the intimate relationship between rule and action (Word and World) implies that science is a "system of action" – "a collection of collective practice in which, amongst others, new worlds are created with words" (idem).

Social constructivism

This move from science as a *system of knowledge* to a *system of action* not only changes the conception of the internal functioning of science but also implies another conception of the role, method and process of the philosophy of science (its external functioning) (idem). *Empirical studies of scientific research* are not so much interested in the products of science (knowledge, statements, theories and concepts) as in the process of (scientific) knowledge

production: “how are scientific facts produced, controversies settled, claims accepted (or rejected), and what instruments are applied thereto?” (idem: 198). Following Harbers, Empirical studies of science do not prescribe how *science ought to be*, as the *normative philosophy of science* wants to have it but instead describe how science is actually practiced. As such, Science Studies abandon the philosophy of science as the highest court of 'the scientificness’ of knowledge and instead study scientific practice in all its complexity.

Science Studies have stricken root during the *empirical turn in the theory of science* in the 1970s. Their case studies mainly focused on *controversies* in scientific research, involving debates about the facts, theories and methods and even ‘scientificness’ of research. The key issues, here, always revolve around the questions whether, and if so, with what *means* (instruments), scientific controversies are settled. Their studies demonstrated that similar knowledge claims often can be interpreted and explained differently (Harbers, 2003: 198).

A key example here is Harry Collins' (1985) case study on the *controversy* around Joseph Weber’s gravitational waves. His study demonstrated that this controversy could neither be settled by means of *empiricism* nor *rationalism* as the philosophy of representation would have it. According to Collins, this is because knowledge claims are always prone to “interpretive flexibility” (Harbers, 2003: 198): the absence of an Archimedean point of view from which contrasting claims about nature (*empiricism*) or the appropriate scientific method (*reason*) can be settled. While such controversies are settled *in practice*, Collins explains that it are the social factors – reputation, reliability, dominance and personal and institutional interests of the actors involved in research (trust and power) – that function as the crucial *means* to break the vicious circle of interpretive flexibility (Harbers, 2003). Collins, thus, claims that scientific knowledge is not a representation of a reality outside us but a *social construct* – i.e. “the result of a process of generating and filtering of knowledge claims” (Harbers, 2003: 199). In other words, it is not *inside objects* that we find the means to settle a scientific controversy and can explain how knowledge is produced but *inside subjects*. "Only after the controversy is settled" [...] when the research outcomes are known, a scientifically adequate representation of reality exists" (idem). In that sense, we may concede with Rorty (1979) that, “Truth is what your contemporaries let you get away with” (p. 176).

If we follow Collins, the only question that remains is *which* social factors are decisive in scientific development. While Collins ascribes the production of knowledge to social factors within the scientific community proponents of the *Strong Programme*, in contrast, attempt to disclose causal macro-sociological explanations of knowledge production; dovetailing with the earlier traditions of Marx and Mannheim (Harbers, 2003). Still, both share the conviction that knowledge results from social action (*social constructivism*) (idem). Moreover, sociologists of science no longer confine themselves to falsehood (studies on the place/time dependency of non-scientific beliefs) but instead inquire in natural scientific research practices as well, including statistics, physics and mathematics. They insists that both truth and falsehood should be treated *symmetrically* as both are *equally social in nature* (idem).

Still, social constructivism has been scrutinized from the outset. One important line of critique stresses that it implies *relativism*: if knowledge is a mere social construct then scientific development is merely an arbitrary matter as it could always have been different given the social conditions at hand (idem). Following Rorty, however, this accusation only holds from

the viewpoint of the realist philosophy of representation. While Rorty agrees that social constructivism relativizes both *rationality* (reason loses its independence as it considered part of the scientific controversy instead of a solution to it) and *empiricism* (as paradigm shifts do not imply changing representations of but the creation of a new reality, the facts no longer speak for themselves) he denounces that it implies irrational or arbitrary science. According to him, those who do not need realism do not need to concern about relativism (Harbers, 2003)

2.5.1.2 Actor-networks and the Modern Constitution

Actor-networks

For Latour, however, Rorty's argument does not suffice. That scientific controversies cannot be settled by empiricism or rationalism does not mean that knowledge production should be explained by social factors. "*Epistemological reductionism*, then, is simply replaced by *sociological reductionism*: One philosophy of representation is replaced by another: the idea of knowledge as a mirror of nature by the idea of knowledge as mirror of dominant social relations" (Harbers, 2003: 201-2: emphasis added). Whilst the epistemological distinction between object (nature) and subject (society) remains social constructivism reverses the relation between them: "societal progress and development do not depend on the increasing growth of objective knowledge of nature, but the construction of (natural) scientific knowledge depends on social factors" (idem: 202). Latour rejects this thesis and, instead, proposes *a second turn in the theory of science*. While the first turn moved from the normative philosophy of science to the empirical sociology of science the second turn entails a complete dismissal of the distinction between epistemological realism and social constructivism. Latour bases his proposition on three arguments (Harbers, 2003).

The *first* argument stresses *logical consistency*. Those who argue that reality is a social construct cannot assume that social factors are independent variables. As if those factors – *Society* in short – are not themselves influenced by ongoing scientific developments (e.g. self-fulfilling prophesies); As if Society could be used as an *ex ante* explanation of a phenomenon (idem). Latour insists that, since Nature cannot be used as an explanation for scientific facts (social factors *do* play a role), Society cannot be used as an explanation either (that *social context* is also influenced by scientific development). In fact, both demand an explanation (idem). Following Latour, Modern sociology confuses the *explanans* (scientific practice) with the *explanandum* (scientific knowledge). For this reason, "wherever the sociology of science insists on *symmetry* (do not distinguish between truth and falsehood) Latour stresses *the principle of radical symmetry*: do not distinguish between the content of scientific knowledge and its context; the former cannot explain the latter or vice-versa; both result from the same process of construction" (Harbers, 2003: 202).

Latour's *second* argument derives from his *splitting-and-inversion-model* (Latour, and Woolgar, 1979): natural scientists design science and the description of scientific development so that it seems as if statements regarding the facts *alone* represent reality while, if approached as a historical process, one sees that behind these statements a whole process of (*social*) *construction* of facts is *black-boxed*. However, social constructivists, on their part, design the description of science so that it seems as if the construction of scientific facts *only* results from human labour (Latour, 1987a). If that would be true, Latour asserts, then, the realist philosophy of science would be right: scientific facts could only be subjective and soft.

However, based on numerous case studies in natural scientist' *laboratories* Latour insists that the development of science by all means is not soft since the construction of scientific facts requires a multiplicity of instruments, or what he calls *allies* or *actants* (Latour, 1979). These allies do not only consists of fellow researchers, but also theories, equipment, statistics, measuring instruments, money etc. It is the composition of these allies that form heterogeneous networks – *actor-networks* – that enable hard facts to exist. Thus, similar to the realist conception of science, also the sociological alternative *alone* cannot account for the development of science. Scientific development requires, what Harbers (2003) calls, "a multiplicity of means – of both human and nonhuman nature" (p. 203).

In *Pandora's hope: essays on the reality of science studies* Latour, (1999) illustrates the meaning of the actor-network along his anthropological fieldwork in the rainforest of Boa Vista, Brazil. Here Latour follows botanists, biologists and soil scientists who inquire in the border between the forest and the savannah. The main question reads 'Is the forest growing or retreating?' As field inspection does not offer conclusive evidence, the question can only be rigidly approached through scientific inqruiy that by means of selection represents both the forest and savannah so that a border becomes visible. Latour (1999) agrees that the gap between the rainforest (World) and the report published in his office in Paris (Word) seems immensely wide. However, he insists that this is an inadequate view of the relationship between the two. What misses from this view are the steps of "translation" that enable the report to be written and the border between forest and savannah to be understood. The translators applied are called "ontological hybrids" that simultaneously belong to Nature and Language (idem). For example, the "pedocomparator", which is used to collect and study soil particles from the field of investigation, is both an object and a scientific concept allowing for abstraction of continuous soil variations into orderly and quantified pieces of information (idem). Besides the pedocomparator there are numerous other translators at work. Together, these translators form a *series of translation processes* that stand on both sides of 'the gap'.

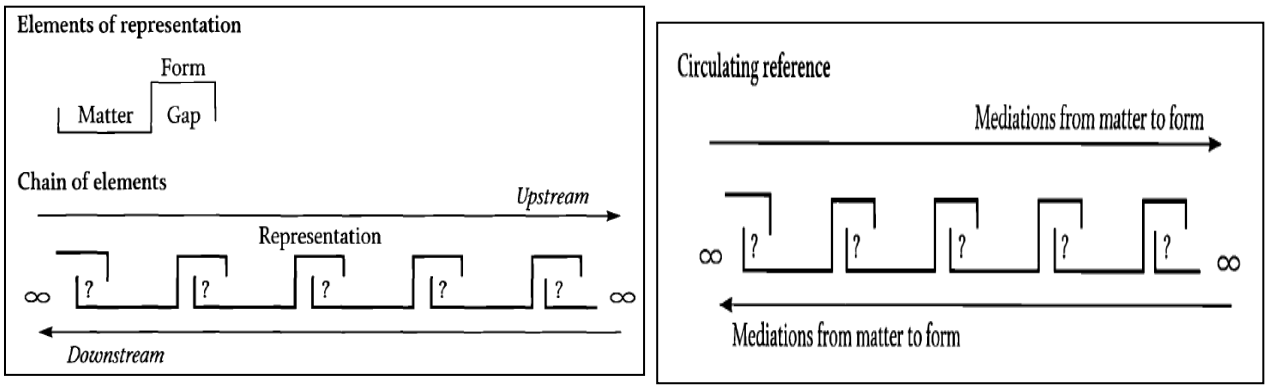


Figure 10a (left) + 10b (right): Elements of representation (above) comprise of both matter (Nature) and form (Language). Here the gap is surpassed. However, an experiment requires chains of elements (below), or references, that go in both ways. If the chain is broken, the truth ceases. If the chain is kept intact, the object-subject dichotomy has fallen, and truth is created.. Source: Latour (1999: 70, 73).

The key here is *representation*: together, the translators form "long chains of representations" – "plain of references" – where representations themselves become represented by other representatives: "a circulating reference" (figure 10a and 10b). Ofcourse in these chains something is lost along the way. Locality, particularity, materiality and multiplicity are narrowed. However, compatibility, standardization, text, and finally quasi-universalism are

obtained (idem). The crux of the splitting and inversion model is that when erasing all the steps of representation – i.e. the instances where World and Word are both "proposed" and "articulated" (see figure 11) – the result is the *object/subjec-divide*. Therefore, Latour (1987a) agrees with Kuhn critique of *historical presentism* that the modern philosophy of science erases the chaotic and complex history of knowledge production and instead rationally reconstructs this history on basis of our contemporary knowledge.

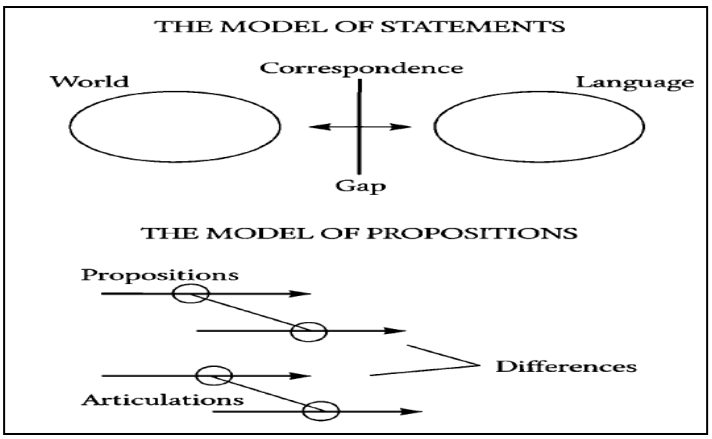


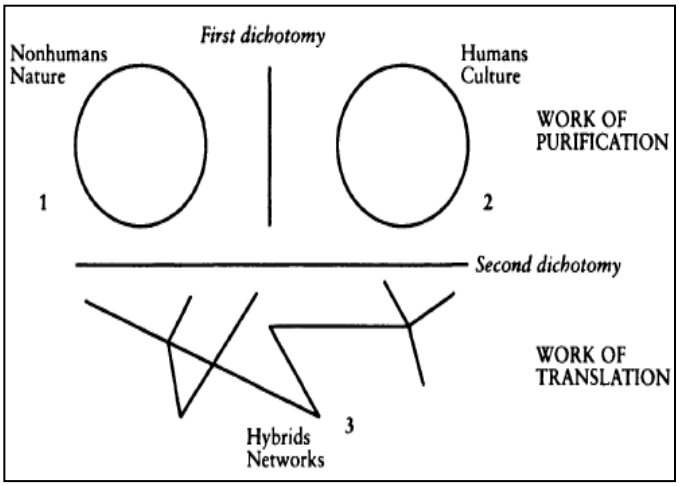
Figure 11: In the modernist model of science (see model of statements above) "reference is obtained by bridging the gap between words and world by sending a statement across the yawning abyss and assigning it the perilous task of establishing correspondence; but if we consider neither world nor words but propositions that differ from one another, we get another relation then correspondence; the question becomes whether propositions are articulated with one another or not" (see model of propositions below). Source: Latour (1999: 142).

The *third* argument concerns "the embedding of scientific knowledge in social practices", or what Harbers (2003) calls, the *co-evolution between science, technology and society* (p. 203). In *The Pasteurization of France*, Latour (1988a) describes how Pasteur succeeded to discover the cause(s) and remedy for anthrax. Following Latour, the Pasteurization of France not only resulted from Pasteur's microbiological research on ferments conducted in his laboratory in Paris but also from his simultaneous mobilization of a multiplicity of *allies* to intervene in French society. Proving the existence of ferments that inflicted anthrax and, especially, developing the means to prevents epidemics did not only require demonstration of ('hard') natural facts to the scientific community but also the *creation* of alternative ('soft') social practices. Pasteur, thus, recognized the interdependency of scientific development, on the one hand, and technological and societal change on the other: "the shifting out of one plane of reference to another" (Latour, 1999: 130). "Pasteur's intellectual translation and physical mobility – both called translation by Latour – moving from the farmers' problem to the laboratory and from the laboratory-solution back to the farm", demonstrates that science, technology and society are mutually dependent, and are co-producers in *the construction of new realities* (Harbers, 2003: 203). Latour's study of Pasteur demonstrates that no scientific development can occur without subjects while, in reverse motion, also no *social order* (let alone a Society) can be maintained without science and technology.

The Modern Constitution

Based on these three arguments Latour rejects both the Modern conception of the internal functioning of science and its Enlightenment ideals of *rationality* and *progress*; regarding the relation between science and society and, especially, between science and politics (idem). Moreover, he also criticizes the wider philosophical heritage in which this conception of science is 'embedded': *The Modern Constitution* (idem). Following Latour (1993 [1991]) Modernity rests on two interrelated paradoxes (p. 13-48). The first stresses that Nature is transcendent – it exists autonomously from human perception and action – while, at the same time, it "remains mobilizable, humanizable, socializable" (p. 37) – i.e. humans (re-)construct

nature in their laboratories and scientific and technological objects serve as a projection screen for dominant social relations. Conversely, the second paradox stresses that while Society is immanent to our actions (it is a social construct) it still appears to us as transcendent (e.g. the power of the state or the invincibility of capitalism). According to Latour, Moderns can only obscure these paradoxes by adhering to three "constitutional guarantees", or principles, that together, serve as the Modern Constitution.



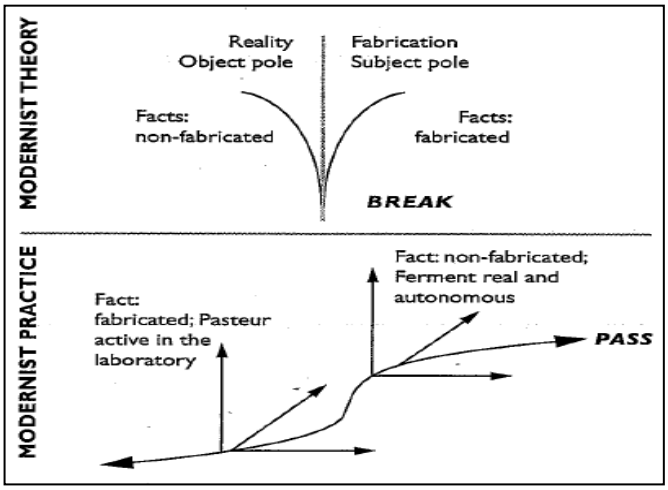


Figure 12a (left): The third guarantee of the Modern Constitution consists of two separations: the first between Nature (object) and Society (subject) (vertical line above). The second between Modern theory and practice (horizontal line in the middle) (Latour, 1993[1991]: 11). **Figure 12b (right):** While, in theory, Pasteur had to choose whether the ferments he discovered were autonomous (realism) or fabricated (constructivism), in practice, it was his very fabrication () that allowed the ferments to obtain autonomy (reality) (Latour, 2010: 19).

The *first guarantee* stresses that "even though we construct Nature, Nature is as if we did not construct it". Conversely, the second stresses that "even though we do not construct Society, Society is as if we did construct it" (p. 32). The first guarantee implies scientific domination over Nature by insisting on an image of knowledge production where the laws of nature speak for themselves and are literally dis-covered. The *second* implies political emancipation of mankind; where the relation between representatives and those represented is key. The reason why Moderns can maintain these internally and mutually assymetrical guarantees without appearing contradictory is because they add a *third guarantee* that stresses, first, a strict separation between both representative regimes – the division of all things into ontologically distinct domains of Nature and Society or, what Latour calls, "the work of purification" – and, second, a strict separation between *Modern theory* (purification) and *Modern practice* ("the work mediation and translation") (p. 11) (see figure 12). The first ensures that representations of nonhumans and humans are not mingled as that would lead to confusion between science and politics, facts and values, knowledge and power, nature and culture etc..The second ensures that Moderns can continue to construct scientific and technological objects without having to account for the production of hybrid networks of nature-cultures and the chaotic and complex history of knowledge production in their description of scientific development.

Importantly, however, while the Constitution renders the work of translation and mediation "unrepresentable" and "invisible", ironically, it does not limit this practice (p. 34). In fact, the work of purification enables mediation: "it lives on that blending" (idem). For Latour the greatest contradiction of the Modern Constitution is that it "*allows the expanded proliferation of the hybrids whose existence, whose very possibility, it denies*" (idem: emphasis in original).

It is exactly this “double-speaking” that *guarantees* that Moderns can “*de facto*” do – engage in translation and mediation – what is “*de jure*” forbidden: the triumph of Modernity is neither based on cumulative knowledge (as epistemological realists would have it) nor on a surplus of power (as politically sociological explanations of the superiority of the 'western world' have it) but rather on the connection between knowledge and power under its official denial (p. 205). Following Latour, therefore, Modernity is an 'illusion', though a very productive one.

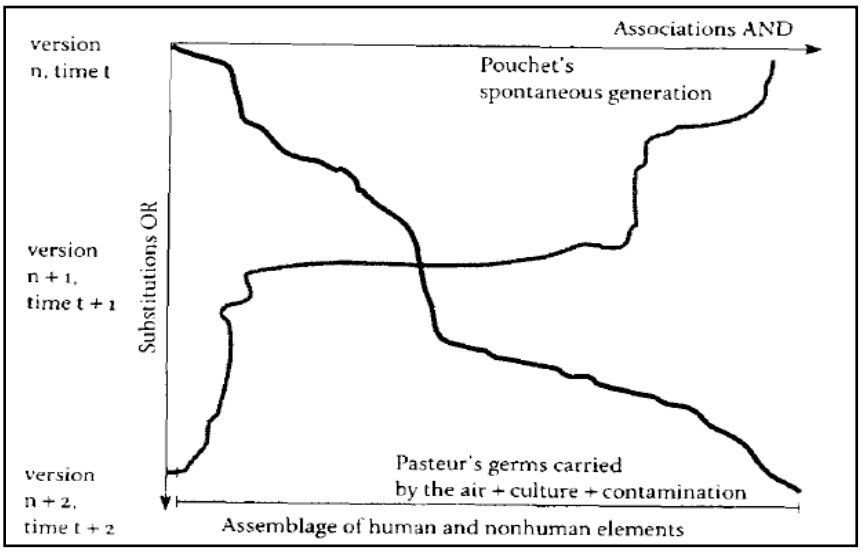
2.5.1.3 The historicity of things

Latour (2000 [1996]) argues that Moderns have riveted the Object/Subject-divide even further by granting *historicity* to social phenomena, technological artefacts and even knowledge claims of Nature while considering Nature itself *a-historic*. Latour notes that, considering claims about the (non)existence of natural objects, scientists "seem to be torn between two opposite positions" (p. 249). For example, in response to the question, ‘Did the ferments exist before Pasteur discovered them in 1964, or not?’, constructivist, which stress "radical anti-whiggish history", reject this question "as a meaningful sentence" since they consider the proof of their existence to be intrinsically bounded to its historic context of production, suggesting that the answer "should remain irretrievable in a past from which we are infinitely distant" (idem). Conversely, realism, which accepts "whiggism", stresses that the ferments must have existed before 1864 but that is was Pasteur who provided the 'final' and 'adequate' representation, therewith extending their existence both in the infinite past and future (idem).

To transcend both whiggish and radical anti-whiggish history Latour proposes a "symmetrical historicization" of objects and subjects, which requires "the thorough historization not only of the *discovery* of objects but of those objects *themselves*": an "intermediary" between history of science and science studies, on the one hand, and the ontological question raised by the science in question, on the other. (p. 251). To this end Latour relativizes the existence of objects, or what he calls, "relative existence": to come to an understanding where, unlike the realist epistemology, we do no longer need to choose whether a natural phenomenon has existed either "never and nowhere" or "always and everywhere" (idem).

Using the debate between Pasteur and Pouchet over spontaneous generation as an example, Latour explains that if we follow the realist epistemology, "Pouchet's spontaneous generation will have *never* been there *anywhere* in the world; it was an illusion all along [....] Pasteur's ferments carried by the air, however, have *always* been there, all along, everywhere, and have been bona fide members of the population of entities making up space and time long before Pasteur [lived]" (p. 252). Latour explains that while social historians of science, based on "the subjectivity and history of human agents", may provide appealing explanations for Pasteur triumph over Pouchet they do not account for "what makes up nonhuman nature" (idem). Conversely, realists, who only account for the objects in scientific development, cannot accept relativism – i.e. that both Pasteur and Pouchet's claims are mediated by their specific space/time contexts – because that would imply that both arguments "cannot be differentiated; each of them being able, given enough time, to revise the other into non-existence"; it would allow the possibility that Pouchet could be eventually right again (p. 255). Thus, for realism "demarcation" between truth and falsehood – i.e. "to withdraw from history and locality every fact that has been proven right and to stock it safely in a non-historical nature where it has always been and can be no longer be reached by any sort of revision" while leaving the

explanation of falsehood to sociologists and historians of science – is the only way to prevent relativism. Moreover, Latour explains that, "[i]n this demarcationist view, history [here, also meaning, relativism] "is simply a way for humans to access nonhistorical nature" [...] "a necessary evil", which, however, should never be applied to explain natural facts.



Figuur 13: Two-dimensional diagram mapping simultaneously Association (AND) and Substitution (OR). The first accounts for the amount of elements that cohere with an entity at a given time (t) (X-axis); the second accounts for the amount of elements that in a given association have to be modified in order to allow new elements to cohere with the entity (Y-axis). Pouchet's entity moves from the top-right to the bottom-left. Pasteur's entity moves from top-left to the bottom-right. (Source: Latour, 2000 [1996], p. 256).

Following Latour , this claim that demarcation is needed to account for the (non)existence of natural facts is "dangerous" as it neglects the "institutions" needed to maintain the existence of facts" (idem). Moreover, it is "inaccurate" as it is easy to differentiate between two knowledge claims on the 'same' object without separating truth from falsehood (p. 256). For sake of illustration, Latour returns to the notion 'circulating reference' (figure 10) to compare Pouchet and Pasteur's networks by documenting their associations and substitutions (figure 13). On the X-axis, "[a]n entity gains in reality if it is associated with many more others that are viewed as collaborating with it. It loses in reality, if, on the contrary, it has to shed associates". (p. 257). Pasteur's ferments carried by the air are becoming increasingly real as it is associated with many more entities: textbooks, theories, institutions, taxonomies, his laboratory in Paris, the Academy of Science, but also agri-business, Bonapartists etc.. Pouchet's claim, in contrast, gets weaker as his network loses more associates the more he modifies the ingredients making up his entity. The Y-axis, which captures historicity, "does not document travel *through* time of an already existing substance", but "documents the modifications of the ingredients composing an association of entities" (idem). An association has a history if at least one of its ingredients is modified. Thus, each version in the diagram represents a different network. Due to the substitutions Pouchet makes to 'tackle' Pasteur's claim of fermentation his entity of spontaneous generation becomes "a *different* entity" (p. 258).

> Pouchet spontaneous generation, for instance, is made, at the beginning, of many elements: commonsense experience, Darwinism, Republicanism, Protestant theology, natural history skills in observing egg development, geological theory of multiple creations, Rouen natural museum equipment etc.. In encountering Pasteur's opposition, Pouchet alters many of those elements. Each alteration, substitution, or translation means a move onto the vertical dimension of the diagram. To associate elements in a durable whole, and thus to gain existence, he has to modify the list that makes up his phenomenon. But the new elements will not necessarily hold with the former ones, hence a move through the diagram space that dips – because of the substitution – and may move towards the left because of lack of association between the newly 'recruited' elements" (Latour, 2000 [1996] p. 257-8).

Pasteur also has to modify a large number of ingredients to associate his entity with many others. While Pouchet's network loses more associates as a consequence of his modifications and cannot be kept "united" outside the confines of his laboratory, Pasteur's network becomes more durable the more he modifies his ingredients; 'eventually' it could be reproduced at many other scientific institutes and even in Lille's agribusinesses relying on fermentation.

Following Latour, this move from judgement about the (non)existence of natural objects to differentiation between the two documentations of associations and substitutions, or what he calls, "spatiotemporal envelopes", has three advantages (p. 259). First, natural objects are no longer considered radically different from their *context* as both result from the same process of construction. Pouchet and Pasteur simultaneously "define" different physical elements and social and historical contexts; "even the definition of Napoleon III is different" (p. 261). Second, after negating the truth/falsehood-divide the two spatiotemporal envelopes are no longer treated asymmetrically as if Pasteur discovered the hidden facts of nature while Pouchet had been searching for a nonexistent phenomenon all along. Both envelopes are equally local and temporal, and their extensions in space and time are equally empirically observable as both cannot escape their network of production. Third, after accepting the basic similarities between both envelopes it is easy to see that the "incommensurability" between both claims does not reside in the objects themselves, but "is itself the product of the slow differentiation of the two networks" (p. 261). Given that even Pasteur and Pouchet's own entities did not remain the same 'under' the modifications throughout their brief period in those hands it is easy to see that both are constructing different objects and different histories.

By rendering the two networks comparable we can *both* account for Pasteur's victory of over Pouchet *and* historicize the extension of 'final' realities in the future. Pasteur's network was extended by the Academy of Science and agro-industries which, since 1864, considered the phenomenon of spontaneous generation nonexistent and withdrew Pouchet claim from nature. However, proponents of Pouchet, not only at the time but even still today, similarly claimed that they had pushed Pasteur to the confines of 'official science'. Thus, both networks were extended to the future. We only believe that fermentation existed all along (and that spontaneous generation never existed) because we neglect "the mass work that still *has* to be done, daily, to activate the 'definitive' version of history" (p 254-5: emphasis in original).

Following Latour, realists and constructivists cannot accept this *historicity of things* as they assume that objects are more than series of spatiotemporal manifestations of heterogeneous associations. They imagine for ferments a "substance" that "resides *beneath* the series of its manifestations"; a "competence", or essence, that is not constrained by time and space (p. 262: emphasis in original). Latour, however, to the contrary, argues that with respect to extension in the future substance is more adequately defined along the sociological notion of "institution": "that which is *above* a series of entities and makes them act as a whole" (idem: emphasis added). It is "the supplement of solidity and unity given to a series of phenomena by their routinization and black-boxing" (p. 262). "When a phenomenon 'definitely' exists this does not mean that it exists forever or independently of all practice and discipline but that it has been entrenched in a costly and massive institution that has to be monitored and protected with great care" (p. 255). For example, Latour explains that if, up to this day, you reproduce Pouchet's experiment the network supporting Pouchet's claim of spontaneous generation still

appears, but that it would be rejected as "contamination" instead of prove as today's scientific and cultural practices have been co-constituted along Pasteur's network of fermentation:

> "If the collective body of precautions, the standardization, the disciplining learned in Pasteurian laboratories were to be interrupted [...] by a whole generation of skilled technicians, then the decision about who won and who lost would be made uncertain again. A society that would no longer know how to cultivate microbes and control contamination would have difficulty in judging the claims of the two adversaries of 1864. There is no point in history where a sort of inertial force can be counted on to take over the hard work of scientists and relay it for eternity. For scientists there is no Seventh Day! (p. 254).

Thus. rather than asking whether Pouchet or Pasteur is right, or which paradigm offers a more accurate representation of Nature (in the linguistic version of paradigm shifts), for Latour the appropriate question is in which world we live (in this Kuhnian sense of the term paradigm; where worlds are created) and which "institutional mechanisms" have been, and still are, at work to maintain the asymmetry between the two both claims?

Considering the work needed to extend Pasteur's network to the future, the question where the ferments were before Pasteur makes as much sense "as asking where Pasteur was before he was born" (p. 264). Still, however, just as objects can be extended to the future they can alsobe extended to the past. An example that Latour uses, is how, 3.000 years after his death, Ramses II was diagnosed with tuberculosis by French surgeons in 1976. Following Latour, a phenomenon can reach a *quasi* a-historic status; but only on the condition that the network that performs it is associated with an element *from* the past. In the case of Ramses II the 3.000- year-old mummy had to be brought into direct contact with the equipment and skills of the hospital. Thus, in order to impute a more recent, modern-shaped event retroactively in the past, that past itself has to be retrofitted with direct linkages to the material and practical setup able to *perform* the fact: "The always -everywhere might be reached, but it is costly, and its localized and temporal extension remains visible all the way" (p. 266).

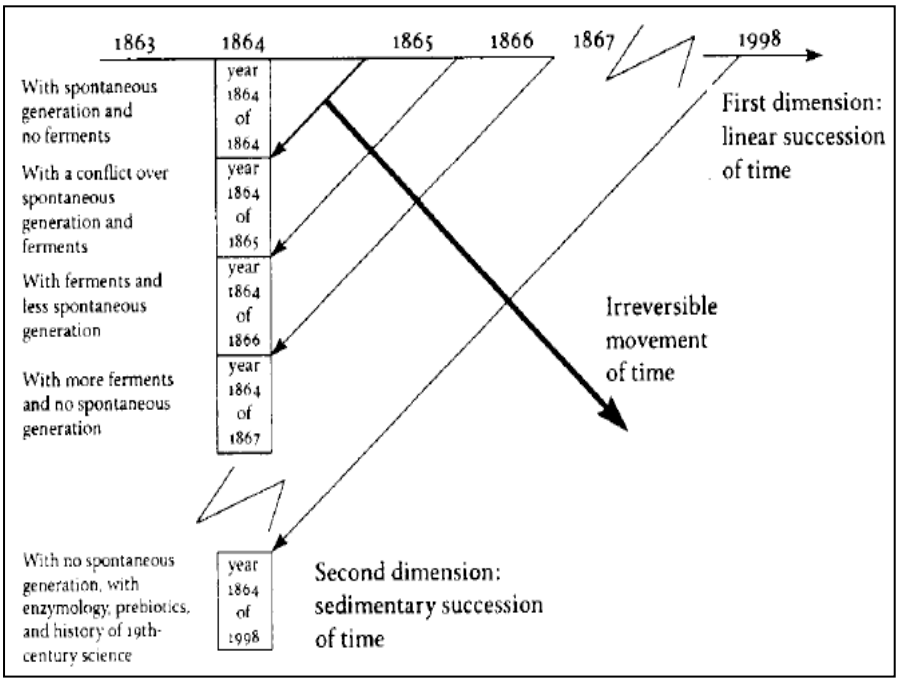


Figure 14: "Time's arrow is the resultant of two dimensions, not one". On the X-axis, the linear successions of time, time moves forward (the year 1985 comes *after* 1984). On the Y-axis, the sedimentary succession of time, time moves backwards (the year 1985 comes *before* 1984). "When we ask the question 'Where was the ferment before 1865', we do not reach the top segment of the column that makes up the year 1864, but only the traverse line that marks the contribution of the year 1865 to the elaboration of the year 1864. This, however, implies no idealism or backward causation, since time's arrow always moves irreversibly forward (Latour, 1999: 171)..

While, in the case of extension to the future, Latour re-defined 'substance' along the notion of "institution" (as that what is *above* the series of entities and maintains their association), with

respect to extending networks to the past, he re-defines substance as "the retrofitting work that situates a more recent activity as that which 'lies beneath' and older one" (idem: emphasis in original). For example, with his discovery in 1964 Pasteur simultaneously reinterpreted the faulty practices to control contamination in the years before as he could now retrospectively comprehend the mistakes that farmers and scientists had been making without being aware of it. Thus, in 1864 Pasteur had produced a new version of the years 1863 and 1862 in which farmers were – and still are! – considered to have unwittingly fought unknown microbes. According to Latour (1999), just as Christians "reformatted" the Old Testament as validation of the hidden preparation to the birth of Jesus, so Pasteur retrofitted the past with his own discovery. "[T]he year 1864 that was built *after* 1864 did not have the same components textures, and associations as the year 1864 produced *during* 1864" (p. 170) (see figure 14).

Following Latour (2000 [1996]) – facing the threat of relativism (i.e. that settling scientific disputes becomes an arbitrary matter) – realists had to strip matters of fact of their historicity, leaving it exclusively to human debates about those facts. At the same time, constructivists and historians of science – facing the realist threat that only temporally -and spatially- independent science can settle scientific disputes – had to ban matters of fact from their accounts of the history of science. They co nsidered "the plasticity of natural facts" a matter of *human* interpretation only. In their view, Pasteur and Pouchet have different interpretations about the facts of nature as those facts are "under-determined" (p. 263): rationality and empiricism cannot account for the victory of one knowledge claim over another). After all, matters of fact themselves could only be either "too underdetermined"– if considered a social construct the means to (the problem of interpretive flexibility) – or, even worse, *too determined*, as realism would have it (Nature consists of *a-historical* objects which ought to be disclosed). Ironically, however, in result both realists and relativist affirmed that historicity only pertains to human disputes over facts, not to those facts themselves.

> "The acquiescence of the two archenemies, social constructivists and realists, to the very same metaphysics for opposed reasons has always been for me a source of some merriment" (idem).

2.5.2 ANTs Implications for social theory

Latour's ideas about ontological hybrids, translation and mediation are better known as actor-network theory (ANT). While initially underscoring the *sociality* of matter since the 1990s ANT has started to focus more emphatically on the social sciences, contributing amongst others to sociology, economics, organizational studies, human geography, law, art and theology so as to illustrate the *materiality* of social activity. Sections 2.5.2.1 and 2.5.2.2 respectively review ANTs negation of Modern social theory and metaphysics and the alternative approach to sociology Latour has offered in response.

2.5.2.1 ANTs conception of Modern social theory

We Have Never Been Modern

In *We Have Never Been Modern* Latour (1993 [1991]) provides a first exploration of ANTs approach to social scientific phenomena, stating that, "the modern world has never happened, in the sense that it has never functioned according to the rules of its official Constitution alone" (p. 39). While the Constitution renders the work of translation and mediation "unrepresentable" and "invisible", ironically, it does not limit this practice (p. 34). In fact, it accelerates the work of mediation: "it lives on that blending" (idem). For Latour the greatest

contradiction of the Modern Constitution is that it "*allows the expanded proliferation of the hybrids whose existence, whose very possibility, it denies*" (idem: emphasis in original). It is exactly this "double-speaking" that *guarantees* that Moderns can "*de facto*" do – that is: engaging in translation and mediation – what is "*de jure*" forbidden (Harbers, 2003: 205).

As Harbers (2003) phrases it, "The triumph of Modernity is neither based on cumulative knowledge (as epistemological realists have it) nor on a surplus of power (as political-sociological explanations of the superiority of the 'western world' have it) but rather on the connection between knowledge and power under its official denial" (p. 205). By playing on the coupled transcendence/immanence of Nature and Society while not only taking Society and Nature as predicates of objects and subjects (i.e. purification) but also erasing the related work of mediation that realizes Natures and Societies as products of their networking Moderns could criticize pre-modern obscuration of nature, naturalization and scientific ideology while simultaneously accelerating the construction of heterogeneous associations and, thus, continuing that very pre-modern past they claim to have irrevocably broken with.

> "Just as the idea of Revolution led the revolutionaries to take irreversible decisions that they would not have dared take without it, the Constitution provided the moderns with the daring to mobilize things and people on a scale that they would otherwise have disallowed. This modification of scale was achieved not – as they thought – by the separation of humans and nonhumans but, on the contrary, by the amplification of their contacts" (Latour, 1993: 41).

Nonetheless, while it is exactly this double-speaking that guaranteed Modernity its success, eventually, the accelerated proliferation of hybrids associated it enabled, "has saturated the constitutional framework of the moderns" (p. 51). Following Latour, because the Constitution rejects the very activities of mediation (that give meaning to the work purification) and which it allows to proliferate, the constitution "does not permit itself to be understood" (p. 46).

> "When the only thing at stake was the emergence of a few vacuum pumps, they could still be subsumed under two classes, that of natural laws and that of political representations; but when we find ourselves invaded by frozen embryos, expert systems, digital machines sensor-equipped robots, hybrid corn, data banks, psychotropic drugs, whales outfitted with radar sounding devices, gene synthesizers, audience analyzers, when our daily newspapers display all these monsters on page after page, and when none of these chimera can be properly on the object side or on the subject side, or even in between, something has to be done." (p. 50-51)

Modern Social Theory: locating the Quasi-Object

To "accommodate" for those hybrids that the modern constitution both obscures and allows to proliferate, against Modern sociology, Latour proposes a Nonmodern approach to sociology that does not only unveils the work mediation beneath the work of purification but especially relates the former to the latter[31] (see figure 15). By studying both practices simultaneously

[31] Following Latour (1993 [1991]) there is a "huge difference" between Nonmodernity and Post-modernity. While first stresses that we have never been Modern as it *has never* functioned along the rules of its constitutional alone for the latter the Modern categories *have become* obsolete. "It [Postmodernism] lives under the modern Constitution, but it no longer believes in the guarantees the Constitution offers. It senses that something has gone awry in the modern critique, but it is not able to do anything but prolong that critique, though without believing in its foundations (Lyotard, 1979). Instead of moving on to empirical studies of the networks that give meaning to the work of purification it denounces, postmodernism rejects all empirical work as illusory and deceptively scientistic (Baudrillard, 1992). Disappointed rationalists, its adepts indeed sense that modernism is done for, but they continue to accept its way of dividing up time; thus they can divide up eras only in

Latour aims to "re-locate" social sciences' object of inquiry so as to define, what he calls, the "quasi-objects" (p. 51).

By treating social reality as a social construct (i.e. as the result of filtering knowledge claims rather than constantly improving representations of a world outside us) Durkheim established a distinctive domain for the social sciences – of (inter)subjectivity – far more complex then the natural sciences, whose objects neither interpret their own behaviour, nor act on their own behalf (Harbers, 1998; c.f. Giddens, 1982; Foucault, 1973). According to Durkheim, Modern sociology had to be engaged with Society as a *sui generis*. Social phenomena should not be reduced to natural phenomena (e.g. biology) nor to studies of individual behaviour and motifs (psychology), but should be explained by recourse to other social facts that could only be grasped through the categories collectively produced by Society. By treating social things as facts, Durkheim created, what Harbers, (1998) calls, an "ontological apartheidsregime" (p. 1), where objectivity is obtained through inter-subjectivity. Human (inter)action (e.g. norms, values, identity, intentions, meanings, institutions, professions) are considered the exclusive cement of society. Nonhumans (technological and natural artefacts), on the other hand, only appear as passive means in a social order or as projection screens for dominant social relations (e.g. as products for consumption and exclusive human behaviour of distinction).

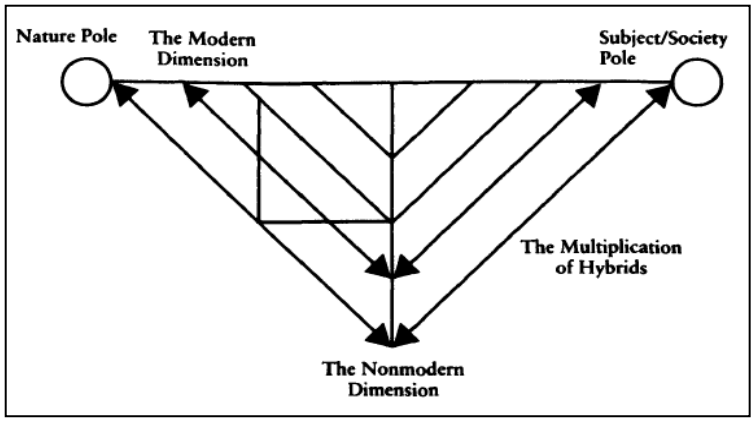


Figure 15: Latour's model, simultaneously depicting the Modern dimension (horizontal line) and the Nonmodern dimension (vertical line), illustrates how the accelerated multiplication of hybrids – enabled by the Modern separations between Nature and Society and between Modern theory and practice – has started to unsettle the constitutional framework of the Moderns; The multiplication of hybrids (mediators) exhausts the Modern world of purified objects and subjects (Latour, 1993 [1991]): p. 51).

Following Latour (1993 [1991]), social sciences' object of inquiry can be located along the denunciations of the first and second Enlightenment (see Figure 16). The first (i.e. the critique of *naturalization*) separates the elements of reality that belong to Nature from those that are to be explained by the functioning of Society (economics, language, collective consciousness). Here, sociologists denounce the belief that social phenomena – "the power of god", "the objectivity of money" – "come from some objective properties intrinsic to the nature things", since these Objects only offer an empty surface on which Society project "our social needs and interests" (p. 51). Modern sociology, thus, changes the direction of belief so that subjects are not determined by objective laws of Nature, but that these objects are, in fact, socially constructed through the categories produced by free subjects (see first scheme in figure 16).

The second denunciation involves a critique of *scientific ideology* to separate the 'real' scientific elements of the sciences from their political ones. Here, and after having purified

terms of successive revolutions. They feel that they come 'after' the moderns, but with the disagreeable sentiment that there is no more 'after'. 'No future': this is the slogan added to the moderns' motto 'No past'. What remains? Disconnected instants and groundless denunciations, since the postmoderns no longer believe in the reasons that would allow them to denounce and to become indignant" (p. 46).

Society from Nature's objects, the direction belief is reversed once more (scheme 2. Now sociologists denounce the belief that subjects "are free and that they can modify their desires, their motives and their rational strategies at will" (p. 52). Instead they point out that those subjects are, in fact, dominated by the causal and objective forces inherent to "the nature of things" (p. 53) – i.e. the laws of Nature and Society discovered by the sciences. After banning Nature from Society, "[n]aturalization' is no longer a bad word but the shibboleth that allows the social scientists to ally themselves with the natural sciences" (idem).

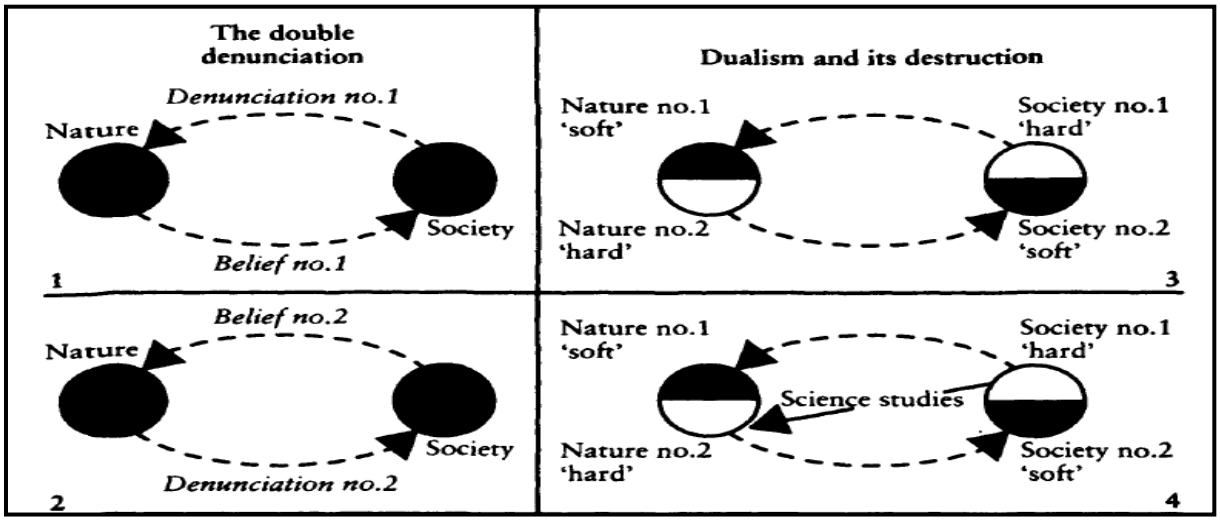


Figure 16: Location of the quasi object. Source: Latour (1993 {1991]: 52). Steps 5 and 6 omitted.

Taken both denunciations together a double role is allocated to Objects and Subjects. "Society is either too powerful or too weak *vis-a-vis* objects which are alternatively too powerful or too arbitrary.(p. 53). Following Latour, "Dualism" is the solution Moderns found to these two contradictions (see third scheme in figure 16). Nature is divided into "soft" and "hard" objects. The first includes the practices social scientists "happen to despise" (e.g. religion, politics, consumption) while the second "is made of all the sciences they naively believe in at the time – economics, genetics, biology, linguistics, or brain sciences" (p. 53-54). Similarly, Society is divided in hard parts, including "the *sui generis* social factors" – macro-processes, systems, structures, unintended consequences (e.g. institutions, social class, the world market) – and soft ones, "determined by the forces discovered by sciences and technologies" – micro-processes, individual subjects, ideology, intentions (consumption, popular culture) (p. 53).

Following Latour (1993 [1991]), as long as both denunciations were kept separate – Society's hard parts only applied on Nature's soft objects and *vice versa* – dualism could obscure the contradiction of the conjoined transcendence/immanence of Nature and Society. However, when taking both together, the double role sociology assigns to objects and subjects becomes *logically inconsistent*. First, if in the second denunciation the products of the sciences (Nature's hard objects) are considered social constructs, 'Can we simultaneously assume that the social factors, jointly making up Society, constitute an independent variable? 'Aren't these factors influenced by those same scientific products?' Second, if Society *is* mediated by ongoing scientific and technological development, 'Aren't those object its co-producers rather than passive receptacles of dominant social relations?' In other words, 'Why is the first belief in scheme 1 denounced? Third, if reality is taken as a social construct, 'How can the products of the sciences in the second denunciation be so powerful that they dominate our collective

categories of perception provided that they were constructed along those same categories?' In other words, 'Why is the second belief in scheme 2 denounced?'

It was the Edinburgh School of social studies of science that, in their attempt to provide a social explanation for the production of natural facts, inadvertently exhausted the virtues of dualism and revealed the contradiction of both denunciations (idem). While so far social studies of science had deployed Society's hard parts to explain Nature's soft objects, given the third concern (see above) that had grown in appeal among constructivists during the Science Wars, scholars of the *Strong Programme* instead used the *sui generis* social factors to explain Nature's hard objects (see fourth scheme in figure 16). "In short, they wanted to do for science what Durkheim had done for religion, or Bourdieu for fashion and taste" (p. 54). The problem of this move was that Society now not only had to account for phenomena both social and natural scientists deemed *historical* but also those social constructivists themselves considered to exist independently of human perception. Socializing modern epistemology by treating truth and falsehood symmetrically while leaving the Modern object/ subject-divide intact only resulted in *epistemological relativism* and *sociological reductionism* (see section 2.5.1)

> "By treating the 'harder' parts of nature in the same way as the softer ones - that is, as arbitrary constructions determined by the interests and requirements of a *sui generis* society - the Edinburgh daredevils deprived the dualists – and indeed themselves, as they were soon to realize - of half of their resources. Society had to produce everything arbitrarily including the cosmic order, biology, chemistry, and the laws of physics! The implausibility of this claim was so blatant for the 'hard' parts of nature that we suddenly realized how implausible it was for the 'soft' ones as well. Objects are not the shapeless receptacles of social categories neither the 'hard' ones nor the 'soft' ones" (Latour, 1993 [1991]: 54-55).

Therefore, where Collins and the Strong Programme's respective micro and macro-sociologies of science treat truth and falsehood symmetrically Latour stresses *the principle of radical symmetry*. "Just as the difference between truth and falsehood results from scientific practices rather than constituting its premise so too the difference between the free subject and the lively culture, on the one hand, and the transcendental object and determined nature, on the other, result from scientific practices where they are ascribed such qualifications rather than constituting intrinsic properties inherent to the nature of humans and things (Harbers, 1998: 6). After revealing "the terrible flaws of dualism" in Modern sociology, "[t]he double position of objects and society had to be entirely rethought" (Latour, 1993 [1991]: 54-55).

2.5.2.2 ANTs approach to studying 'the social'

Sociology of Association and Translation

Following Latour the big mistake Modern sociology has made is to treat social things as facts, therewith ignoring both the materiality of social relations and the sociality of matter. Because social interaction is increasingly mediated by technological and scientific artefacts, Society can no longer be defined in terms inter-subjectivity *alone* (i.e. as aggregates of shared subjective norms and values). Instead, nonhumans (i.e. nature and technology) deserve a place in social theory as well. For example, Latour's study on door closers shows how it corrects humans and makes doorkeepers redundant. Winners (1986) study on the Long Island bridge shows how this 'physical' constellation first discriminated the poor and then the rich. Besides these single artefacts there are also ANT takes on more complex, large-scale networks, such as, Pasteur's ferments (Latour 1988a) or the electrification of Western society (Hughes, 1983).

To recover sociology from social constructivism instead of treating social facts as things, Latour proposes *to treat things as social facts*, and bring nonhumans 'back' into social theory (Harbers, 1998). To this end, Latour (2005a) devices a 'metaphysics of associations', or what he calls, a "sociology of associations", devoted to *trace* how social (inter)action is *mediated* by nonhumans (p. 9). In ANTs sociology, nonhumans are not simply "passive, silent, closed, black boxes" (mere means for humans), but also *do* something (Harbers, 1998: 7). Things (e.g. technological artefacts, material objects, machines, equipment, statistics, procedures and standards) are not "*intermediaries"* that "transport" meanings and intentions but "*mediators*"; they are co-constitutive of social and political orders and "transform" meanings and intentions (Latour, 2005: 39). For example, without denying individualization or the collapse of classic social relations, groups and their identities, Knorr-Cetina (1997a) argues these trends can no longer – and also do not have to – be treated by recourse to social categories of Modern society as this loss of social cohesion "is compensated by a new form of sociality"; one where "objects accommodate for the social cohesion that has been lost between subjects" (Harbers, 1998: 10-11). Against Weber's bureaucracy as model for social relations during the industrial society, following Knorr-Cetina (1997b), in Late Modernity the laboratory functions as the model for, what she calls, the "epistemic" society (c.f. Harbers, 1998).

While, in terms of ontology, constructivism confuses the *explanans* with the *explanandum* as it assumes that the (social) *context* of science explains the production of scientific knowledge, in terms of method, Modern sociology confuses the two as it explains social phenomena by recourse to a sui generis Society instead of the other way around (Latour, 2005a: 63-4, 100). Accordingly, after proposing the principle of *radical symmetry* in Science Studies he stresses the "principle of irreduction" in his Nonmodern sociology (p. 107). Do not relate the existence of a phenomenon to a larger (or smaller) social context (e.g. Society, world market, capitalism, symbolism, local culture etc.): "action is always dislocated, articulated, delegated, translated" (p. 166). Society is hold together neither by structures smf systems nor by meanings and intentions (as micro and macro-sociologists respectively claim) as both are not stable (durable) enough for those *frames* to exist. Instead objects (hybrids of humans and nonhumans) enable those frames to obtain stability and make social, cultural and political ties durable. As such, any attempt to settle between structure and agency (e.g. Giddens' theory of 'structuration') is considered a compromise between two non-positions (p. 169).

Instead ANT aims to recover how hybrid mixtures of Nature-Culture, subject-object and local-global structure and subordinate themselves. The result is a "flat", or two-dimensional, ontological landscape that does not allow *a priori* hierarchies and dichotomies for studying "the social". As such, after "reversing" causality ("Society is the consequence of associations and not their cause") Latour eventually abandons the whole division between 'what explains and 'what is to be explained' altogether (p. 238). While noting that this reversal of causality "would be right in terms of ANT" Latour argues it still falls short of grasping both the work of mediation and purification at once (p. 238). Society is not an ether-like substance inherent to certain associations and not to others: "social is not a place, a thing, a domain, or a kind of stuff but a provisional movement of new associations" p. 238). In this sense there is even no such thing as a 'Society' to be explained. Only new associations to be traced.

Here, he deploys the term "collective" to denote "the project of assembling new entities not yet gathered together and which, for this reason, clearly appear as being not made of social

stuff" (mediation) in distinction to the Modern concept of 'Society', that only consists of "the assembly of already gathered entities that sociologists of the social believe have been made in social stuff" (purification) (p. 75). Only by traversing between the traces left by "new associations between non-social elements" – especially their "displacement" (or translations) – the social can be reassembled (p. 239). This, however, does not imply that the terminology of Modern sociology is entirely incorrect or obsolete. While ANT exactly applies to situations where the boundary, stability and enrollment of associations are uncertain or emergent and when their "shape, size, heterogeneity, and combination" should not be limited in advance, Modern sociology still offers useful analytical tools for stabilized associations (p. 11).

> "It's true that in most situations resorting to the sociology of the social is not only reasonable but also indispensable, since it offers convenient shorthand to designate all the ingredients already accepted in the collective realm. It would be silly as well as pedantic to abstain from using notions like 'IBM', 'France', 'Maori culture', 'upward mobility', 'totalitarianism', 'socialization', 'lower-middle class', 'political context', 'social capital', 'downsizing', 'social construction', 'individual agent', 'unconscious drives', 'peer pressure'" (Latour, 2005a: 11).

A Non-modern Social Theory: re-locating the Quasi-Object

To demonstrate how quasi-objects can be re-located Latour (1993 [1991]) returns to figure 15 that accounts for both the work of purification and mediation at once. Using Boyle's air pump as an example he draws five 'versions' of the vacuum (respectively A, B, C, D and E) in the same scheme (Figure 17). For each version the latitude (purification) denotes whether an object is (more or less) social or natural in 'essence' (respectively A', B', C', D' or E'). The longitude (mediation) functions "as a gradient that registers variations in the stability of entities from event to essence" (p. 85); indicating for each version of the object its extent of autonomy during the process of construction (respectively A", B", C", D" and E"). Following Latour, regardless whether we view Boyle's vacuum a representation of the laws of Nature (vacuum no. 5) or, alternatively, of dominant social categories (vacuum no. 4) so long that we do not historicize the trajectory of the air pump from 17th century event to a 20th century essence his object remains entirely unknown (p. 85). This is because, as figure 17 shows, "the ontology of mediators [...] has a variable geometry" (p. 86).

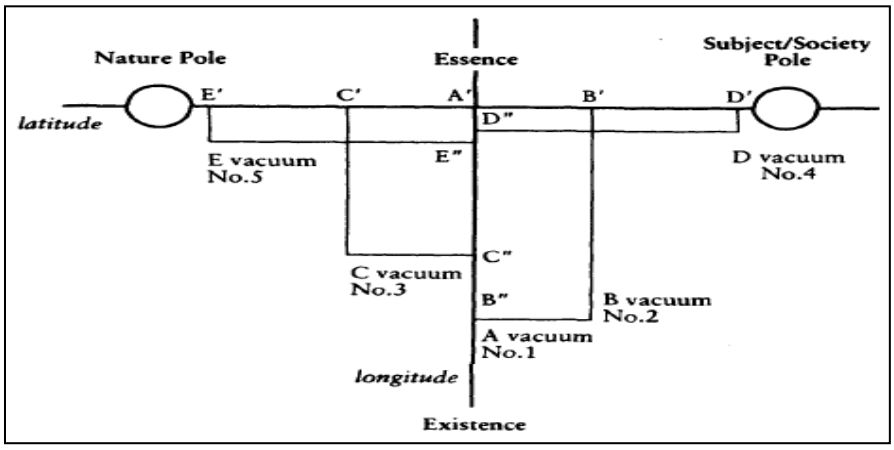


Figure 17: The variable geometry of the ontology of Boyle's air spring vacuum can be illustrated by deploying both dimensions of Modern theory (purification) and Modern practice (mediation) at once Source: Latour (1993 [1991]: 86).

Drawing on the partial existence of objects (section 2.5.2 History), each substitution in the list of elements making up Boyle's entity – each step of mediation and translation – constitutes an event where his entity becomes a different entity. As Latour states, the existence of nonhuman and human *actants* always "precedes their essence" (p. 86). At the same time, each version of

Boyle's vacuum increases or decreases in reality (autonomy) depending on the number of associates (actants) it gains (or loses) throughout the modifications (AND and OR). While the degree of stabilization of each version of Boyle's vacuum depends on the number of actants that can be viewed as collaborating with it, each is can qualified as (more or less) social or natural depending on, what Latour calls, the "unique signature" the particular actants associated to it possess. As such, "the essence of the vacuum" cannot be indicated by either of the positions in figure 17, but is "the trajectory that links them all" (idem): "Superpose all the signatures and you will have the shapes of what the moderns wrongly call, in order to summarize and purify, 'Nature' and 'Society'" (p. 87).

Thus, according to Latour, "we do not have to choose" whether Boyle's air spring constitutes a representation of the laws of Nature (vacuum E) or, alternatively, of dominant social relations (vacuum D), but instead "shall be able to choose between the two only once they are stabilized" (p. 86). For example, since vacuum A, the artificial product of Boyle's laboratory, is still very unstable it is impossible to say whether it is social or natural. However, the more his entity is associated with others and stabilizes as a consequence of institutionalization and black-boxing, the more it becomes identifiable as a social (vacuum B) or natural phenomenon (vacuum C). According to Latour, the variable geometry of the ontology of quasi-objects shows us that there are not four regions of being (i.e. the paired transcendence and immanence of nature and society) but three. First, "[N]ature and Society are not two opposite transcendences but one and the same growing out of the work of mediation" (p. 88). Both transcendences "correspond[s] to one single set of stabilized essences (p. 87). Second, the double immanence of Nature and Society convenes to "the instability of events" (i.e. the work of mediation). According to Latour, therefore, the modern Constitution is correct in the sense that "there is indeed an abyss between Nature and Society". However, as he continues, this third region is not an essence but "only a delayed result of stabilization" (p. 88).

2.5.2.3 Inquiry into Modes of Existence

From the previous sections it follows that in ANT, what is provisionally called, 'Society' does not only allow more 'space' for associations and entities, otherwise neglected, to be assembled but at the same time also occupies a more modest 'place' vis-à-vis other "modes of existence" (e.g. legal, economic, religious, political, psychological, moral, technical, organizational, scientific etc.) as considered by the Moderns (p. 239). The first point simply underlines that the scope of association considered 'social' can be extended to include non-social elements and nonhumans as well (Latour 2008 [1992]). The second, however, cannot be completely covered in this thesis but is nevertheless worth mentioning, to say the least, for it points to some limitations of ANT while indicating the ways that may help to overcome them.

Limits to ANT

Against Modern sociology's "meta-language" aimed at 'social explanations' with ANT Latour (2005a) provided an "infra-language" that "remains strictly meaningless except for allowing displacement from one frame of reference to the next" (i.e. flat ontology) (p. 30). While this infra-language enables us to follow heterogeneous associations between nonhumans and humans and to dissolve the Modern Power/Rationality-divide the problem is that it generates a "unification of all associations" (Latour, 2013: 64; c.f. Foster, 2014). As Latour states, while ANT "offered the great advantage of being a tool for moving from one domain to the next" {...] "it did not respect the differences between these domains" [....] to the point where it was

really a monomaniacal principle (Tresch, 2014: 203). In *Reassembling the Social* Latour (2005a) already noted that without specifying the various ways in which sociologists, scientists, economists, politicians, jurists etc. associate entities and assemble the collective these "other type of connectors" remain unexplored (p. 3, 238-240).

> "displacement yes, but of what? What does it mean to speak of legal, religious, scientific, technical, economical, and political 'ways' of associating? And how could this be comparable with the traces left by the calibrated definitions of social ties?" (p. 239)

However, as he explains, in *Reassembling* he only needed to stress this point "negatively"; simply to underline that we cannot trace associations so long that we do not abandon the purified domain of Society (p. 240; c.f. Tresch, 2013; Foster, 2014). In *An Inquiry into Modes of Existence: An Anthropology of the Moderns* (*AIME*) Latour (2013) goes a step further to address this question positively, therewith continuing the task set out in *We Have Never Been Modern* where he sought to define Modernity. In *AIME* he tries to identify the various ways of valuing inherited from Modernity (e.g. science, law, religion) and the specific "rationality" each of them involves in order to, ultimately, understand how we compose, what he calls, "the common world" (p. 5). This is a question of how different forms of justification clash – an example he uses is a debate between climatologists and industrialists on climate change – and how they may be reconciled without falling into the Modernist trap of "iconoclasm"; i.e. the conflicts resulting from a clash between reductionist claims (Latour, 2010). Following Latour such (social or economic) reductions may be valid and credible but only insofar the resources mobilized – and especially the different types of connectors employed – are not taken for granted. Against "modernizing" iconoclasm Latour (2013), therefore, opts for an "ecologizing" of metaphysics "by proposing a different system of coordinates" (p. 8, 10).

Comparing different regimes of validity and truth

This "ecologizing" can be summarized as follows. First, going beyond ANT, to overcome the unification of all associations Latour accepts that these associations may be differentiated through other modes of existence. Accordingly, *AIME* replaces the actor-network by the "network", which no longer offers the same infra-language for all entities but is just one of the form through which processes of associations may be traced and connected (Foster, 2014). Second, Latour (2013) detects the different types of 'valuing' – scientific, juridical, religious, economic etc. – and registers for each type how they come into existence, therewith allocating to each its own "rationality". In result, he identifies fifteen "modes of existence" – network, preposition, religion, attachment, law, fiction, moral, organization, reference (i.e. the redefinition of Science) etc. – and argues there can be many more. Each mode brings into being – institutionalizes – distinct types of associations between entities and actants along with "its own particular type of veridiction", entailing distinct conditions of "truth" and "falsity" which, in turn, allow us to assess whether an entity is well or badly made (p. 47). 'Value', then, does not refer to cultural constructions but to the "ontological tenor" of distinct forms of associating (Hebing, 2014). Different modes co-exist and there is not one fundamental mode. For example, from the perspective of the network mode of existence "all the networks resemble one another", while from the perspective of the prepositional mode of existence the network is just one way of associating entities (Latour, 2013: 63).

The inquiry departs from the issue that all objects can be simultaneously conceived natural, social, legal, economic, cultural and so on. According to Latour, while "we have never been

modern, because we have never lived in these separated domains", still, "the fact that there are heterogeneous connections doesn't mean that you cannot 'color' these connections" (Tresch, 2013: 308). With *AIME* Latour (2013) sets out a vocabulary that allows us to register the different types of "connectors" to which the associations of an entity are attached without reducing them to the purified domains. Rather than saying that an object is simultaneously natural, legal and cultural, for example, the goal is to register the various connectors of each association so that it can be said that one segment of the network belongs to law and another part of the association to Nature. As associations are always heterogeneous and "multimodal" it is important to make *visible* the "harmonics" between these modes. Because associations are far more refined as portrayed by the Modern domains accepting the plurality of modes of existence exactly forges a "more universalizable world" (p. 292).

> "Science studies has been very good at unfolding the diversity of the associations, but as long as there is not a successor to the notion of domains, we're stuck, because people will always fall back on this language. And they're right: because what they want is a way to register, to hear these distinctions, which are *there*... It's like having a nose with a very great ability to distinguish small differences and being speechless when you have to describe them. So my outlandish interpretation is to say that the Moderns have been able to detect all these values, but they have never actually spent any time determining what they were. And they enshrined them into domains: this is science, this is religion, this is law" (Tresch, 2013).

The different modes of existence are made visible through contrast. By comparing their "conditions of veridiction" Latour (2013) demonstrates how certain relations between actants are considered "felicitous" in one mode while considered "infelicitous" by the standards of another (p. 17). "Crossings" between different modes of existence, which happens when the practices concerned involve multiple modes, can create confusion and conflict. An example of crossing can be found in the field of economics, which glues together "attachment", "morality" and "organization". Following Latour so long that we do not properly register the different "connectors" to which associations of an entity are attached we will not be able to grasp the values Moderns have instituted. For example, science is poorly *registered* in theory as, in practice, "reference" – the *mode* Latour uses to denote 'science' – is not justified based on the object/subject divide. Accordingly, Latour finds that science is also poorly *instituted* as it excludes those *modes* that rely more on representation and mediation (Tresch, 2013).

Registering the modern's category mistakes

The inquiry departs from observing, what Latour (2013) calls, "category mistakes" (p. 48), These errs concern the confusion stemming from the failure to (adequately) register the contrasts between modes of existence; they are not made within the path of one "interpretive key" (an error of the *senses* so to speak) but concern the particular interpretive key chosen (an error of *direction*). Economics, for example, confuses "calculation" – i.e. "an operation of optimization and/or maximization" agents perform to "pursue their interested goals" (Latour and Callon, 2011: 72) – with reference, since reference, like distribution, is only one way of calculating. Besides inducing the naturalization of economic categories (idem), the exclusion of the *modes* attachment, organization and morality by the field of economics has reduced the multiplicity of valuing and reasoning within this domain to "the single bottom line" (Tresch, 2014: 310).This category error, like others, obstructs us both from registering the contrasting ways of valuing that come into being through different association and from re-instituting the values we cherish. For example, by equating calculation with science economics frames

economic questions as a matter of specialism only. As Latour argues, while, for example, debates about the number of galaxies are a matter of specialists the same can, and should not, apply when it concerns the distribution of goods and bads (idem) ssee also section 2.5.X)

2.5.3 ANTs Implications to political theory

This section describes ANTs implications to political theory. Section 2.5.3.1 explains how ANTs negation of the conventional image of science in face of the growing interdependency between science and politics also induces the negation of the conventional image of politics. Section 2.5.3.2 discusses ANTs alternative definition of politics Latour offers in response.

2.5.3.1 De-monopolization, Displacement and Dissolving Boundaries

The Modern constitution implies a strict division of tasks and responsibilities regarding science, technology and politics. Politics is concerned with the *goals*: the definition of issues or problems and the normative framework to deal with these problems are tasks belonging to the political realm (Harbers, 1988). Science and technology provide the *means* to reach those goals: by instrumentation and implementation. It is this *idealized separation* on which Weber's notions of instrumental -and value-rationality rely: science equipped with knowledge and technology to expose the (instrumental and mechanic) laws of nature; politics as collision of values and interests, equipped with constitutive and procedural protocols to deal with normativity, *human intentions*, and the good life. Both do not intertwine: technology and science cannot influence political deliberation; politics cannot influence the laws of nature.

However, the mutual inter-dependency of science and politics demonstrates that this Modernist ideal of exclusive scientific progress, on the one hand, and politics as an exclusive matter of human intentions and deliberation, on the other, has become obsolete. The ongoing co-evolution of science, technology and society has resulted in the "de-monopolization", "displacement", and "disemborderment" of both realms as well as the "hollowing out of their mutual relief mechanisms" (Harbers, 2003: 208 c.f. Beck, 1992, 1993).

First, science and technology should be regarded as intrinsic forms of politics rather than being a-political. For example, in our contemporary 'risk society', risks (e.g. ozone layer depletion) are products of scientific and technological developments (e.g. economic 'proliferation') while paradoxically societies rely on technologiy and scientific knowledge to detect and solve these 'problems'. Beck's (1992, 1993) account on the risk society illustrates that both natural and social science (climatologists and economists, technology and society are co-constitutive in the creation, observation and perception of risks. While in (modern) theory politics and science – values and facts – are separated, in practice there always exists a "double bond" between the two (Harbers, 2003: 208). Following Latour, scientific knowledge and technological artefacts are not simply instruments (means) made by, and for, people, but importantly themselves are co-constitutive of human identities and aspirations. Following Harbers (1998), therefore, we should consider Pasteur's work as "a form of politics, though advanced by different means" (e.g. knowledge, devices, statistics, procedures, etc) (p. 13-14).

New technological artefacts and scientific concepts carry, what Latour (2005a: 79) calls, "scripts": meaning that they embody social and political *intentions*. Therefore, our definition of politics cannot remain confined to a collision of interests, or process of collective formation of free will. Rather science and technology also deserve a place in political theory. Not simply

because scientific and technological artefacts sort out political effects but because they increasingly constitute *political agents* themselves (Harbers, 1998). As such, separating science from politics is itself a political action of the first degree (idem).

Second, where Latour argues that technology and science are intrinsically political rather than a-political in reverse direction he insists that politics and, for example, the State, are less political and powerful than portrayed by Moderns. Returning to Beck's example of the risk society, the assessment of risks is not an exclusive matter of objectivity (as is now commonly accepted in the social sciences) – i.e. of objective measurements and standards of the natural world provided by the natural sciences and maintained by (its) rational procedures (Harbers, 2003). Instead, today it is affirmed that perceptions and definitions of risks (*representations*) are deeply embedded in cultural and normative processes – i.e. that risks are *also* a matter of (inter)subjectivity. But when risk and risk perception are subjective matters, 'Who has the authority to decide what counts as a risk and which risks are taken and which are not?' 'The politician or the scientist?' 'Experts or lay persons?' Beck's (1992) notion of the risk society indicates that *uncertainty* has become to prevail over certainty. Also scientists and experts can hold opposing views (knowledge claims) of what counts as an actual risk. Yet again, politicians rely on expert knowledge in order to intervene adequately and responsibly.

The double bond between science and politics can result in a situation that Harbers (2003) has called, "organized irresponsibility" (p. 208). Because both scientists and politicians reject the politics 'inside' (scientific) knowledge and technology while at the same time insisting on the traditional political institutions' monopoly on politics both abstain from taking initiative. Beck's notion of the risk society demonstrates that the traditional division of tasks and responsibilities between these institutions does no longer suffice in the post-industrial society. In effect, what before was regarded a natural or physical danger now is increasingly perceived as a social danger. Since it has become uncertain who and what ought to be trusted and who should be regarded responsible the observation of new risks often results in mistrust (both towards scientists and politicians), organized irresponsibilit and can even pose a danger to social cohesion. It is this increase of mutual mistrust and irresponsibility of, scientists and politicians, what Beck et al. (2003) have called, "reflexive modernity".

While in Modernity, the internal functioning of science legitimized its external authority in late modernity science is losing its authority to separate truth from falsehood. Similarly, because the formerly accepted 'boundaries' between politics and science are dissolving, politics is losing its monopoly on free deliberation, the formation of collective will, and 'the good life'. Accordingly, politics can no longer live up to its exclusive position on normative issues (Harbers, 1998). It is in this vein that Habermas (1970, 1985) and Beck (1992) emphasized the *explosion* (displacement) of normative and political issues from political intuitions, such as, government and parliament, to other societal domains: hospitals, schools, bureaucracy and courtrooms, but also the scientific domain (laboratories, universities and faculties). Latour is not worried about the displacement of politics since, in his view, political institutions were never supposed to have a monopoly on normative issues. He is concerned, however, about how politics in these other domains (hitherto regarded as a-political) are conducted: contrarily to the classical political institutions these 'sub-political domains' are not (yet) equipped with the means (e.g. rules, procedures, participatory processes) to guarantee

democratic political conduct. Therefore, Latour insists on the democratization of these sub-political domains as otherwise a large portion of political life will remain neglected.

In extension, Duyvendak (1997) has argued that the displacement of traditional political realm to sub-political realms should not be understood in terms of communicating vessels – i.e. the assumption that if political action shifts to new sub-political domains, the traditional domain of politics becomes less political or powerful, and *vice versa*. Instead, he argues that the de-monopolization of the classical political realm implies *diffusion*, or *re-distribution*, of politics, rather than displacement. As Harbers (1998) contends, ironically the traditional political institutions (government, parliament) can, and factually do, also influence this process – e.g. through privatization and commercialization, planning laws and degrees etc.

2.5.3.2 ANTs re-definition of politics

With the diffusion of politics also its 'intrinsic' *qualities* have changed. This section discusses how ANT re-defines 'the political' along Latour's notions of 'Dingpolitik' and 'Cosmopolitics'.

Dingpolitik

Following Latour (2007), instead of criticizing its definition initially STS scholars attempted to 'bring science into politics'. This, he continues, could only be done in two ways. Either by "extend[ing] the *same* habits of thought that had been developed in parliaments and on streets to each and every one of those far-fetched new sites", or by "ask[ing] scientists and engineers to shrink back to the official sites of politics and render their activity accountable to citizens or their representatives" (p. 813). The first solution entails making everything political while leaving out an accurate re-scription of the "checks and balances of democracy", which logically resulted in the accusation of de-politization. The second entails a sort of uneasy mix of the public and experts. The problem is that both maintain an obsolete definition of the term 'politics': "[s]ince by now 'everything is political', the adjective 'political' suffers the same fate as the adjective 'social': in being extending everywhere, they have both become meaningless" (p. 812). In order to re-define politics Latour (2007) deploys John Dewey's (1954 [1927]) concept of pragmatism rather than the ones of Rorty or Habermas.

> "Politics is not some essence; it is something that moves; it is something that has a trajectory" .... [T]he various meanings of the adjective 'political' should now qualify certain moments, stages or segments in the complex and rather erratic destiny of issues. What pragmatism offers is to take politics not as an adjective that defines a profession, sphere or activity, but instead that which "qualifies a *type of situation*" [...] "Instead of saying: 'Define a procedure and then whatever will go through will be well taken care of', pragmatism proposes that we focus on the objects of concern and then, so as to handle them, produce the instruments and equipment necessary to grasp the questions they have raised and in which we are hopelessly entangled" (Latour, 2007: 814: emphasis in original).

Following Latour, however, here the term object is inadequate. For example, Dewey's term was "unexpected and unattended consequences of collective actions", and Marres' reinterpreted it as "issues and their trajectories" (idem; c.f. Dewey 1954 [1927]; Marres (2005, 2007). What Latour has in mind is to "make politics turn around topics that generate a public around them instead of trying to define politics *in the absence* of any issue, as a question of procedure, authority, sovereignty, right and representativity" (idem: 814-15). It is therefore that Latour restates Marres' forceful proposition, "No issue, no politics!", contending that "politics has been always *issue oriented"* (idem: 815: emphasis in original).

Besides the term ‘issue’, Latour also deploys the term ‘thing’, or *ding* (see Latour, 2004a, 2004b, 2005a, 2005b). In Modernity, politics – defined as the representation of interests and values and concerned with assembling the ‘righteous’ stakeholders around an object – is separated from the scientific and technological representations that point out what an object is or means for those stakeholders. The first representative regime defines the (right procedures for) assembly; the second defines the object, which is then brought into the assembly. The problem, here, is that both the subjectivity of objects (power, values, intentions) as, in reverse motion, the materiality of these values and powers are neglected. The shift from objects to ‘things’ designates the transition from a perception of society and politics that is founded on the idea that solutions will come from objective truths (*realpolitik*) to the perception of society where truths and political intentions are created by objects and where there exist a double bond between scientific means and political ends. With the definition of politics as *dingpolitik*, Latour (2004b) attempts to appose politics and science without, however, lumping them together so that both become meaningless. Latour asserts that thing “used to mean not an object thrown out of all assemblies (*Gegenstand*), but what brings together people *because* they disagree” (Latour, 2007: 815). Latour develops his argument of the thing by showing how Heidegger, who distinguished between thing and object, discriminated against the ‘thingyness’ of ‘objects’ (Latour, 2004a: 237). Latour explains that what people take simply as an ‘object’, an autonomous reality (e.g. a shuttle), can become a thing again at any time (e.g. a falling shuttle of which the causes of failure are controversial).

The shift from objects to things is to designate, what Latour calls, a shift from “matters of fact” to “matters of concern” (idem). As Blok and Jensen (2011) explain, matters of concern are things that have all the qualities ‘natural facts’ do not possess. They are artificial, complex, uncertain and surprising. But simultaneously their artificiality (re-construction) is what makes them real (objective) and undeniably political.

> "As opposed to "naturally given" facts, their place in the future collective world is never completely settled. On the contrary, different points of view, different life-forms, and different political practices will gather around the things in ever changing ways, thus creating a string of occasional public forums where their future will be negotiated” (idem: 86).

With the term 'parliament of things' (or *gathering*) Latour denotes renegotiable forums in which all participants assembled 'in' an object attend to (or gather around) the same matter of concern. An example is the “water parliaments” in his study on French local political forums where experts, stakeholders, administrative representatives, lay-people and local citizen gathered to discuss the sustainability of local water infrastructure. Blok and Jensen explain that the central message of Latour’s idea of the thing, or parliament, is that issues “call for new political institutions” where people are able to gather, disagree and consent around the same table “because they are all engaged in the same collective experiment” (idem).

> “Whatever the term one wishes to use – object, thing, gathering, concern – the key move is to make all definitions of politics turn *around* the issues instead of having the issues enter into a ready-made political sphere to be dealt with. First define how things turn the public into a problem, and only then try to render more precise what is political, which procedures should be put into place, how the various assemblies can reach closure, and so on” (Latour, 2007: 815).

Cosmopolitics: towards multiple meanings of the adjective 'political'

Latour (2007) extends the terms politics far beyond what is generally understood while he simultaneously narrows down the political to become issues-oriented. For Latour, the task is to assess how politics turn around issues. This requires "qualifying different moments in the trajectory of an issue with different meanings of the adjective 'political'" (p. 815). Latour contends that "[i]n the same way as stars in astronomy are only stages in a series of transformations that astronomers have learned to map, issues offer up many different aspects depending on where they are in their life histories" (idem). This implies that with respect to (its location in) the trajectory of a particular issue, different meanings of the adjective political may most adequately qualify this issue as "*a type of situation*" (p. 814). Thus, the *same* issue can be defined political in various meaning of the term. Latour provides five examples.

First, all objects "are 'political' in the sense that they produce new associations between humans and nonhumans (like all activities)" (p. 816). Latour calls this type of politics "political-1", vieweing it as the major contribution of STS to political theory while reviving one of Marx's earlier definitions of materialism. Every new connection between nonhumans and humans influences existing social, political and economic orders and creates a new circuit of conducts. However, objects can also be political in the pragmatic sense; For example, when they "entangle many unanticipated actors without [...] [scientists] having developed any instruments to represent, follow, take care of, or anticipate those *unexpected entanglements*" (idem: emphasis added). Inspired by Lippmann (1993 [1927]) Latour calls those instances in the trajectory of an issue where both scientists and politicians fail to take responsibility for the course of events and turn the public into the problem "political-2" (idem).

Another segment of the same issue, which Latour calls political-3, is "when the machinery of government tries to turn the problem of the public into a clearly articulated question of common good and general will" (idem). For example, by turning the issue into a matter of sovereignty (e.g. national culture and identity). Yet another segment in the trajectory of the issue conforms Habermas idea of deliberative democracy, which Latour calls, "political-4". Following Latour, here, "[f]ully conscious citizens, endowed with the ability to speak, to calculate, to compromise and to discuss together, meet in order to 'solve problems' that have been raised by science and technology" (idem: 817). Habermas' notion of deliberative democracy has often been ridiculed for its idealist view *both* of political practice (favouring consensus at the expense of conflict) *and* of humans (who are considered fully rational, calculative beings). While conceding that it is generally impossible and also undesirable to treat all issues as such (recall for example the right to political laziness) Latour insists that by all means this is no absurd way of dealing with issues, although it represents a segment in the trajectory of an issue that is often not reached.

Latour asserts that all of the different segments of these issues can be called political although the adjective political has a different meaning in each instance. He proposes to use the term "cosmopolitics" to include all possible meanings and that many more should be added to it.

2.5.4 ANTs implications to urban studies

This section discusses ANTs approach to 'the urban'. Section 2.5.4.1 reviews Latour's take on the city along his book *Paris: Invisible City* (Latour and Hermant, 2006 [1988]). In response

to the limitations of this approach section 2.5.4.2 introduces the concept of *topology* with direct reference to the internal architecture of ANT (Law and Mol, 2001).

2.5.4 1 The Invisible City of Paris

The city: reality versus representation

Latour and Hermant's *Paris: Invisible City* (2006 [1988]) does not intend to contribute to current debates in urban studies and never actively engages with questions about the nature of cities or the basic *raison d'être* urbanization. In fact, *Paris* is a kind of pocket version of *Reassembling the Social: An Introduction to Actor-Network Theory* where Latour (2005a) sets out ANTs approach to social theory (p. 1; see section 2.5.2.2). Nonetheless, their work is still relevant to urban studies as it provides a couple of insights in ANTs view on how space and cities – especially urban and spatial knowledge – should (and should not) be approached and understood. These insights are animated in light of the ways we are used to see, imagine, visualize, study and represent the city. With *Paris* Latour and Hermant offer a diverse repertoire of methodologies to investigate 'the social', and to render the multiple realities of Paris visible. In particular, their reflection of, and alternatives provided to, attempts to grasp the meaning, functioning and basic raison d'être of 'the city' of Paris *in toto* appears as a metaphor of attempts of 'sociologists of the social' to grasp Society as a whole.

The core message of *Paris* can be roughly summarized in two lessons. The first is a *negative* one, deploying numerous examples that demonstrate why no single perspective and image allows us to grasp the city in its totality. As Latour and Hermant (2006 [1988]) explain, "[t]he aim of this sociological opera is to wander through the city, in texts and images, exploring some of the reasons why it cannot be captured at a glance" (p. 1). They illustrate this claim through their critique of the "panorama" (bird's-eye view or satellite images). While seemingly enabling a view of Paris in its totally, in fact, panoramas leave us *blind* to the "countless techniques that make Parisian life possible" (idem).

Similarly to CUT *Paris: Invisible City* also delves into the reality/representation-problematic but does so in a radically different manner. Rather than questioning the adequacy of particular representations of cities – i.e. traditional, cartographic images and maps of urban space – it questions the philosophy of representation itself. Instead of asking whether a particular image constitutes an adequate representation of the city Latour is more interested in the construction process of these images and whether they play a role in the creation of new (urban) realities;.

> "you open the yellow pages of the Paris telephone directory to find a plumber, and you find one. But you have seen virtually nothing, apart from pages and adverts, even though in your hands you do have *all* the artisans and trades in Paris. The map is no different to the directory: it simply sets out lists of sites, by longitudes and latitudes, whereas the directory does so by alphabetical order, with trades and names. No one would consider the big volume of Yellow Pages to be Paris, so why consider the map of Paris to be the territory?" (Latour, 2012: 91)

Scaling: the whole and its parts

The traditional view of cities rests on the idea that they constitute a unified *whole* made up of different *parts*. Latour's (2012) objective is to demonstrate that we ought not to look at cities, or Society itself, in terms of parts, on the one hand, and a whole, on the other. Instead, he argues that "the city has to remain invisible, in the sense of neither the parts nor the different wholes into which they fit, being determined in advance" (p. 93). We can transpose Latour's criticism for attempts to capture both the parts of urban space – e.g. individual cities (London,

Amsterdam), or aspects of urbanization (neighbourhood effects, competition for land uses, CBDs) – and its totality (e.g. planetary urbanization, or, the urban land nexus) at once. Following Latour (2005a), similar to the notion of *scale* the problem of grasping phenomena in terms of *parts* and *wholes* is that it entails *a priori* framing (section 2.5.2.2; c.f. 2.4.1):

> "it is not the sociologist's business to decide whether any given interaction is 'micro' while some other one would be 'middle-range' or 'macro'. Too much investment, ingenuity, and energy is expended by participants into modifying the relative scale of all the other participants for sociologists to decide on a fixed standard" .... "Faced with such sudden shifts in scale, the only possible solution for the analyst is to take the shifting itself as her data and to see through which practical means 'absolute measure' is made to spread" ... "[F]raming things into some context is what actors constantly do. I am simply arguing that it is this very framing activity, this very activity of contextualizing, that should be brought into the foreground and that it cannot be done as long as the zoom effect is taken for granted. To settle scale in advance would be sticking to one measure and one absolute frame of reference only when it is *measuring* that we are after; when it is *traveling* from one frame to the next that we want to achieve. Once again, sociologists of the social are not abstract enough. They believe that they have to stick to common sense, although what demonstrates, on the contrary, a complete lack of reason is imagining a 'social zoom' without a camera, a set of rails, a wheeled vehicle, and all the complex teamwork which has to be assembled to carry out something as simple as a dolly shot" (p. 184-6: emphasis in original).

Rather than settling for scale in advance instead we ought to inquire how objects structure, subordinate and scale. A similar critique applies to the analytical trade-off between abstract, universalist, urban theory of the general, global features of urban space, on the one hand, and its empirical, situated, local differences, on the other. This is what Yaneva (2012) calls, "falling into the trap of culturalism" – i.e. the false assumption that "there is a unique, non-situated urban nature, which makes all cities have common features [....] Whereas culture is taken as variable, relative, situated" (p. 87). The point being that these local variations can only be considered as such insofar the claims of general nature of cities is accepted.

Oligopticon

Since for Latour the city in its totality remains invisible, ultimately, for him the notion of 'the city' refers to nothing more than an "imaginary whole", it remains an illusion (Lecomte, 2013: 469). The second lesson of *Paris*, however, is a *positive* one, devoted to demonstrate *how* – through which methods – they *can* render the multiple realities of Paris *visible* and illuminate how Parisian live is made possible. To this end, Latour and Hermant (2006) "move [...] from the entire Paris set in one view to the multiple Parises within Paris, which together comprise all Paris and which nothing ever resembles" (p. 4). Their book brings us to several places in Paris, such as, the schedule organizer at the École des Mines, the Ordinance Survey Department which is responsible for the referencing and naming of streets to the allocation of street sign, and the traffic and water supply control rooms.

In a reference to Plato Latour explains that the multiple realities of Paris are rendered visible not by direct our gaze outside the cavern (the panoramic view) but instead by descending into the darkness, by constructing "clever dioramas" that allow us to dominate our own gaze (p. 4). The term 'diorama' serves to overcome an absolutist distinction between the material and the virtual; fact and fiction. According to Latour, the virtual is not necessarily less real than the physical buildings of Paris. It are the countless computer dioramas, such as, those constructed by the weather station, that allow us to gain a bird's eye view of some particular situation and

manage our daily lives. Here, Latour (2005a) deploys yet another term: the "*oligopticon"* (p. 175). As Lecomte (2013) explains:

> "he [Latour] refuses the theoretical move that would allow one to talk about panopticism (i.e. the general diffusion of this model to many other institutions – the school, the army, the factory, the hospital… – and hence to the entire society). [...] "Defined in contra-distinction to the panopticon, the oligopticon defines all these separated rooms that control specific networks. From the organising charts of the École des Mines and the listing according to which streets are referenced and named, to the control rooms from which few agents supervise the traffic or water supplies and the computers helping to manage public transport systems, these oligopticons, Latour argues, can only see a little. [...] [T]hey can only act according to limited and specific means. But what they do, they do well. For Latour, panopticism is nothing more than the shared fantasy of megalomaniac leaders and their paranoiac critics. [...] The city is not a unified whole, it is not a context, but only the larger and stabilised spatial outcome of the connections between different sites" (p. 469).

What allows Latour and Hermant to render the multiple Parises visible is to describe the practices inside these oligopticons. Their illustrations of the construction of maps by the Ordinance Survey Department demonstrates that the map is equally real as the territory on which it facilitates movement of people and things. The map but is not similar to the territory; only situated inside the territory. By moving from one image to another and, especially, by connecting sites – from the old digitized map of Paris, a theodolite and topometry, to the unalterable landmarks, therewith losing most of its sight but gaining visibility of the new street that has to be assigned – The Ordinance Survey Department makes the map correspond with the newly created territory. This act of connecting is what they call "traversing" (Latour and Hermant, 2006: 14). As such, Latour shows how these oligoptica – at least for a small moment in a distinct space and time and provided we lose most of our sight (Paris as a whole) – allow one to bridge the artificial gap between representation and the 'real'.

Limits to ANT? Infinite regress and indefinite extension

Following Lecomte (2013) Latour's approach to the city also displays limitations. These revolve around "infinite regress" – i.e. "where things end in terms of causality" – and "indefinite extension" – i.e. "where things end in terms of geographical and spatial limits" (p. 463). As he states, "while ANT is very good at allowing more symmetrical accounts of humans' entanglements with science and technology, it may also end up dissolving the more structural, systemic and diagonal dynamics that may organise them" (idem).

> "Nothing is said for example about the type of economical rationality that increasingly applies to all domains: from education to health care, from the press to politics, and from architecture and urbanism to public transport" [...]; [or] "about the way Baron Haussmann completely transformed Paris, and according to what strategic ends its plans were designed" [...]; [neither] about the historical, economic and social dynamics that maintain a strong division between the rich west side of the city and the more popular and poorer east side" (p. 470).

While *Paris* is sensitive to the many urban realities and their complex construction it leaves questions of "convergence" – i.e. why contemporary cities, like contemporary airports, are becoming increasingly similar (p. 462) – entirely unattended. Against these claims Latour insists that it is not conservation and reproduction that defines existence but "that continuity is only established on top of many discontinuities and transformations" (p. 468). Lecomte, therefore, asserts that we might best conceive of ANT as a form of "reverse engineering": "[n]ot going from the project, from the construction traits, to the constituted object, but going

from the constituted objects to the many experiments, projects, constructions and models that compose not only the genesis of the object but its very existence" (p. 466; c.f. Harman, 2010). With respect to studying cities, however, this reverse engineering is problematic.

> "reversal engineering only works well once engineers have already assembled something. The definition of more complex trajectories is interesting and useful when the objects it focuses on need(s) to be unpacked. But when the things in question are already vaporous and complex entities with no clear imposed boundaries to question, Latour's framework suddenly seems all at once less helpful and more problematic" (p. 471).

For an ANT study to reach closure the 'chains of representations' (*plain of references*) have to be limited. However, in urban studies approaches the city as s a long-lasting phenomenon with systemic regularities. Accordingly, since there is seemingly no single actor-network but instead an unlimited number of actor-networks that hold the notion of 'the urban' together, the chains of references are often endless and cannot be inadequately linked. Accordingly, Latour's approach appears unable to account for the 'the urban' "in any other way than the implicit supposition that it is the assemblage of all assemblages" (Lecomte, 2013: 470). In this vein Harman (2009) has argued that ANT ultimately implies "infinite regress" (p. 119–49).

> "Because it cannot account for what an object is beyond its qualities and relations, his relational framework ultimately implies that there are no ultimate causes and dimensions" [...] "*Infinite regress* generally refers to a series of propositions were P1 requires the explanatory proposition P2, which itself requires a third proposition to be explained, and this to infinity". "Following this example, ANT could be ultimately compared to a hall of mirrors, where all entities, like so many Pandora's boxes, would endlessly open up to a series of other boxes, without ever finding any decisive criteria to stop this process" (Lecomte, 2013: 471-472).

Following Lecomte (2013), however, the problem is not necessarily that ANT cannot grasp the qualities of an object in isolation of its connections with other entities but that it has not yet convincingly demonstrated how its emphasis on mediation, innovation, complexity and uncertainty helps to gain understanding of the general and generic urban features and trends.

> "the problem is not to define what an object remains and fundamentally *is* beyond the relations it entertains with others, but rather to understand how a system that started by focusing on fragmentation, innovation and change against more static and structural accounts can actually be used to *differently address the question of continuity*. Contemporary urban space seems subjected to continuities that cannot simply be addressed in terms of extension. There are also continuities produced by systemic regularities, by movements of convergences that Latour's emphasis on specificity cannot grasp" (Lecomte, 2013: 472: emphasis in original).

Thus, instead of juxtaposing the realities produced by the site-specific mechanisms of the oligopticon (divergence) and the systemic regularities captured by the totalizing view of the panorama (convergence), the challenge is to grasp the articulation between both:

> "[c]ontrary to Latour, it must be argued that there is certainly more in these convergences than simple panoramic images floating over the differential specificity of each of these spatial products. And while the question is not to argue for any unique model of absolute control, there are transversal models that index global urbanisation in decisive ways. This indexation is partly due to the fact that standard norms, plans and materials continue to frame urban organisation according to deterministic and repetitive rules. But it is also effective through more emergent generic patterns and functions. These generic patterns and functions can be then translated into new standard formulas, but they could also very well provide new instruments to understand relations between planning and change" (p. 476).

2.5.4.2 A Topological Understanding of Urban Space

Mol and Law's (1994; Law and Mol, 2001) concept of *topology* exactly delves into this articulation between convergence and divergence. This sub-section discusses the background of this concept as rooted in STS and explores its relevance to urban studies by reviewing how Prince (2010a, 2010b, 2012, 2014) has utilized topology to address the diffusion of creative urban policy and the relation between travelling (mobile) policy and its local concretizations.

Immutable mobile

Before ANTs intervention in the sociology of knowledge scientific truths were considered a-historic and universal; They were more than global (Latour, 2004 [1999], 2000 [1996]). By disclosing how science, technology, on the one hand, and social and political contexts, on the other, are co-produced in the laboratory STS *regionalized* the sciences (Mol and Law, 2001).

But if scientific facts are not universal *where* and in *what type of space* are they located? (idem). By tracing how actor-networks that perform facts *travel* within the laboratory, between laboratories, and back and forth between the laboratory and actors utilizing these sciences and technologies (industries, households, governments) they found that transport needed for 'facts' to acquire a quasi-universal (or global) status is not cost-free as epistemological realism implies. To the contrary, this transport requires both *movement* and *stability* (or control). Scientific facts and technologies can only be transported if the apparatus producing the network *moves* with them (idem). After all, only if the network performing the fact travels along with it a facts produced in *laboratory a* can be treated as such in *laboratory b*. However, successful transportation requires the network performing both the scientific fact (*content*) and its (social) *context of production* to be held s while moving. Latour (1987) has captured this two-fold capacity of 'successful' networks with the notion of "immutable mobiles": that which moves through *regional space* while holding its shape in *network space*.

Law and Mol (2001) refer John Law's (1986) study on the Portuguese naval trade system in the 15th and 16th century as an example of ANTs understanding of space. As they explain, for the vessels to sail back and forth between Lisbon and Calicut a network – including: hulls, spars, sails, winds, oceans, sailors, stores, navigators, stars, sextants, Ephemerides, guns, Arabs, spices, and money – had to be performed. The production of this network is two-fold (Law and Mol, 2001): on the one hand, the network performing the vessels had to be heterogeneous and invariant to keep its shape within a web of relations. On the other, it also entailed the production of a distinct type of spatiality. To maintain a stable configuration in a network of relations the vessels also needed "a stable shape within a network space" (p. 611).

Drawing on the notion of topology we can see that network space is just one type of spatiality among many[32]. While the notion of topography presents a container-like image of space that indicates *what* happens *where* (in space) topology stresses that space does not exist independently of any other entities but is made up by these very entities. No entities, no space! Instead of understanding the difference between the proximate and the remote in terms of physical distance alone a topological reading of space emphasizes the ways in which ontological hybrids continuously unfold and refold distances between different entities.

[32] "Topology is a branch of mathematics which imagines different kinds of space. In particular, it invents spaces by thinking up different rules for defining the circumstances in which shapes will change their form or not" (Law and Mol, 2001: 612).

The network performing the vessels acquires its status as an immutable mobile by participating in two spaces: (1) network space and (2) Euclidean (metric), topographic or regional space (Law and Mol, 2001). The *immutability* of the vessel derives from its participation in network space where it holds both its *shape* and its *location* in that space; while moving along the X,Y and Z-coordinates in Euclidean space. Within network space the distance between Lisbon and Calicut is reduced to the series of network performances constituting the vessel (Latour, 1999). Here, the vessel is an "*immutable immobile*". If the network object would be displaced – i.e. if the entity making-up the vessel would no longer collaborate with the elements that together form the network (stars, sails, wind, stores) – then, the vessel would become a different entity (Law and Mol, 2001: 612). It would stop being a vessel (Latour, 2000 [1996]). At the same time, the immutability of the vessel as a network object and its immobility in network space grant the vessel its *immutability* and *mobility* in Euclidean space where the vessels covers long physical distances without falling apart or going astray. As Mol and Law (2001) explain, "it is the interference between the[se} [two] spatial systems that affords the vessel its special properties" (p. 612). The network object of the vessel performs two types of spatiality and, more importantly, links both spaces together.

By this example we can begin to understand that by exposing the similarities and differences between multiple types of spatiality while describing "interference" between them ANT identifies multiple spaces and histories (idem). Each network produces its own spatial and temporal interferences between different *types of* spatiality and temporality.

A topological take on policy mobility

Prince (2014) invokes the notion of topology in light of debates in critical urban studies on the proliferation of neoliberalism; a regime that, arguably in parallel to processes urbanization (section 2.3), is being disseminated at all spatial scales. These debates do not simply challenge the assumption that neoliberalism is ‘ubiquitous’ but rather culminate from more profound questions about the ‘nature’ of its ‘everywhereness’ (Prince, 2014; Brenner and Theodore, 2005; Peck and Tickel, 2002; Brenner et al., 2010). Similar to (post)structuralist and (post) modern quarrels over the allocation of agency to local or global actors (section 2.4.2) the key question here is whether Neoliberalism operates at the global level and remains a unified structure despite its variegated manifestations at the local scale. Or, conversely, whether there are only multiple local neoliberalisms that are only contingently connected to other sites.

Prince’s (2014, 2012) topological take on policy mobility offers a more nuanced account on the movement of urban policy, their localized substantiations and, as such, how they are capable of acquiring a sense of “everywhereness”. By ‘looking through’ taken-for-granted spatial constructs, such as, the city, the nation-state and the continent, while describing the "boundaries", "continuities" and "discontinuities" of the objects that give shape to their construction Prince (2012) provides a way to think differently about the object of urban space, and, in turn, about the relation between urban theory and policy (p. 320-1). Moreover, this work extends our contemporary conception of the more subtle and less visible geographies of power involved in the movement, mutation and adoption of urban and regional policy.

One important aspect of policies that helps explaining *how* – or, *what* makes – a policy move across space are their topologies. When we consider a particular urban policy in a given ‘city’ *topographically* we can say that it is simultaneously 'global' and 'local'. On the one hand, the

policy is *both* produced by agents whose reach exceeds the boundaries of the locality *and* embedded in a larger context of (competitive) cities across the globe. At the same time, policy adoption is variable, context-specific and engenders place-specific 'outcomes'.

Contrarily, the notion policy *topology* suggests that we abandon questions concerning how global or local a policy is and affirm that "the topographical connections through which policy can be seen to travel are wrapped up with multiple topological relations that shape that policy's movement" (Prince, 2014: 194). Rather than perceiving the policies as circulating *on* space policy topologies inform us about how the 'circuits' of policy create multiple spaces themselves. As such policy topologies explain us why certain policies seem to be everywhere, topographically, and how they can be contested or altered. Three topologies of Creative City policy that Prince (2014) teased out are discussed below: *regional*, *network*, and *fluid* spaces.

Regional and network topologies

"Regional topologies are composed of bounded areas that do not overlap [...] [but] can, however, be nested at different scales, and so contained within larger regions" (Prince, 2014: 194). Examples are the neighbourhood, the urban, the continental and the global.

> "Regional topologies inscribe boundaries between different regions at each of these scales, and they are often reproduced through the construction of administrative jurisdictions that are coterminous with the region. From this point of view, the nation-state is the most well developed regional construct of the last century. But regions are also reproduced through the collapse of variation within boundaries and its reconstruction *between* regions". (p. 195: emphasis in original).

In this way economic activity or socioeconomic status become observable regionally but not within these regions. Moreover, particular urban policies, such as the Creative City policy, do not necessarily require new topologies but often utilize existing ones.

> "Richard Florida's desirable 'creative class' was deemed to want to live in places that scored well on a variety of indices produced based on such measures as the size of the gay population and the physical fitness of the citizenry. These measures were aggregated at the level of the city. The regional topology of creativity policy, then, reinscribes existing regions as levels of policy action" (idem).

While regional topologies constitute making regions comparable requires a second typology: the network. "Network topologies can cut across regional boundaries, but are, paradoxically, central to their reproduction: (idem; c.f. Mol and Law, 1994). Comparing creative industries in different regions requires these regions to re-produce *the same* measurement technique. In this way, places from all over the world 'come together' on a "level space of comparison" (idem). Indexes and table charts, applied by Florida, represent such a space.

> "When we observe this space, the difference, and the distance, between two or more places gets reduced to their respective quantities on a series of metrics. The complexity 'behind' these metrics is rendered invisible. The aspirational policy-maker's task becomes deciding which metrics matter, who is performing better on them, and thinking about what could be learned from those 'better' performers. Even without such aspiration, the easy comparability enabled by these topological relations makes possible cross-jurisdictional conversation about policies that act on these metrics" (Prince, 2014: 195-6).

Following Prince, similar to regional topologies, network topologies also do not necessarily require the construction of new networks. Similar to how Creativity policies utilize existing

regions, the measures applied often rely on existing statistics, picking out the variables considered most important and, if necessary, gathering new ones. As Prince (2014) states, "the 'new' topological spaces of creativity policy are never entirely new. They build on and transform existing topological relations, with their existing policy channels, to produce a policy geography that is distinctive, and yet emerges out of prevailing configurations" (p. 196). It is for this reason that creativity policies are perceived as simultaneously authentic and simply complementary to existing urban trends, such as neoliberalism.

Fluid space

A third topology, *fluid space*, provides more clarity on policies' commensurability with existing policy networks and regions. Fluid spaces, are similar to networks in that they *traverse boundaries*. Yet, contrary to the network topology, which is based on the similarity between different points cutting through (e.g. by reproducing similar measurement methods), fluid topologies allow a certain degree of variation between them (Mol and Law, 1994). Three characteristics of fluidity can be distinguished. First, "the objects that occupy fluid spaces and which circulate within them tend to *not* have clear *boundaries"* (Prince, 2012: 321: emphasis added). For the sake of illustration Prince (2012) draws on Laet and Mol's (2000) example of the Zimbabwean bush pump – "a water pump that has penetrated many villages in the country, providing water, health, community and national identity in different measures in different places and times" (p. 321). Laet and Mol's study demonstrates that "[t]his fluidity of purpose is matched by a certain material fluidity, as the pump is adapted, fixed in new ways when it breaks down, and reconstructed according to the conditions. It is the fluidity of the bush pump that allows connections to be made across space through this object" (idem).

The second characteristics of fluid topologies is *mixing*. The point, here, is that an object's ability to mix with actants can vary along space and time. For example, Mol and Law's (1994) study on the identification and treatment of demonstrates that the creation of similar types of laboratories in Mozambique based on the Dutch model through the construction of network and regional topologies allows the performance in both regions to be comparable. Thus, in a topological sense the two laboratories are drawn into closer proximity. However, since the laboratories in Mozambique do not have access to the same resources (actants) to construct the object that enables identification of anaemia (here the blood test), they need to construct a different object (conjunctiva). In the strict ANT sense, the laboratories in the Netherlands and Mozambique do not perform the same network because both mix their objects with different sets of actants. Nonetheless, and similar to the mobility of creative city policy, the laboratories in both countries are still networked: both treat the same disease (a similar object) and the practices between both countries are compared by allowing the varying elements that constructed this object move back and forth between the two laboratories. Thus, both the *content* and the *context* of the re-construction process of anaemia are made stable across space and time. Prince (2012) explains that it are these characteristics that give fluid spaces their third characteristic, *robustness*: "[i]t does not fall apart just because there are some elements in one place that are not in another place, or because there may not be a centre that defines what is and is not in the space. It is the fluidity in the space that allows it to be enduring" (p. 321).

3. Methodology

This chapter outlines and motivates the research methodology and approach. Section 3.1 repeats the (preliminary) research objectives and re-establishes them based on the findings obtained from the literature study in Chapter 2. Hereafter, section 3.2 lists the main research question and sub-questions. Section 3.3 describes the research model outlining the overall strategy to integrate the conceptual elements and sub-questions in a logical and coherent manner. Section 3.4 discusses and motivates the research methodology and approach. Along a description of the type of research (paradigmatic inquiry, explorative), type of study (literature study) and methodological issues it explains why research deploys a qualitative, non-standardized and a descriptive approach[33]. Section 3.5 describes how empirical research is conducted in order to adequately exemplify the research questions, analysis and outcomes. It explains how a paradigmatic inquiry in how ANT changes the manner in which CUT approaches the relation between urbanization and inequality is borne out by a case study on urban issues in Diyarbakir, By outlining and motivating the selection of the case study type and site, case study design and empirical questions it underpins the internal and external validity of empirical research. Moreover, it lists the types of case study data and respondents.

3.1 Research objectives

At the most general level this research investigates how different paradigms in urban studies conceptualize the relation between urbanization and inequality. Moreover, it analyzes how the resulting analytical and moral conceptions of urban inequality respectively inform in urban practice – e.g. in the form of rough mediations, institutional transformations, or more concrete suggestions for urban (policy) intervention, governance or planning. However, since the respective meanings, approaches and explanations of urban inequality vary per particular urban concept deployed,(see section 2.1.4;) research primarily focuses on how different urban paradigms conceptualize and approach the city, urban space and urbanization.

As explained in the introduction, in continuation of my IRT *the initial goal of this research* was to identify the main theoretical obstacles in CUTs attempt to confront and address the *Urbanization Question* in times of *Planetary Urbanization*. This involved a theoretical inquiry in the virtues and limitations of CUTs approach to the relation between urbanization and inequality.which was translated into *four preliminary research objectives*:

1. Describe CUTs concepts of the city, urban space, and urbanization.
2. Analyze CUTs conceptualization of the relation between urbanization and inequality.
3. Analyze the moral conceptions of urban inequality that derive from CUTs theory of the relation between urbanization and inequality.
4. Describe and analyze CUTs implications for urban practice that culminate from its analytical and moral conception of urban inequality.

Importantly, because CUTs concepts of ‘the urban’ are not only grounded on an antagonistic relationship to existing urban practices but also to conventional urban knowledge (TTUT),

[33] A more detailed account of the research design and methodology is provided in Appendix C. Appendix C describes and motivates the methods of data collection (semi-structured, in-depth interviews) and analysis (narrative analysis). Moreover, it discusses ethical considerations, researcher 'positionality' and the limitations of the approach and design with respect to the research outcomes.

these four objectives cannot be analyzed in isolation from CUTs implicit criticisms of TTUT (see sections 2.2). Therefore a *fifth preliminary objective* of this research read:

5. Analyze CUTs conception of the relation between urban knowledge and urban practice.

In light of these five objectives sections 2.4.1 and 2.4.2 discussed two influential debates on 'the scope and limits of urban theory': *(post-)modern and (post-)structural tensions* and *the CUT/TTUT-debate on the nature of cities*. In response to these debates section 2.4.3 teased out three problems (or *limitations*) of CUT to confront the Urbanization Question: *Normative questions* (2.4.3.1); *The crisis of critique* (2.4.3.2); and *Epistemological conundrums* (2.4.3.3).

Section 2.4.3.4 argued that all these problems can be traced back to the four sources of scientific dispute in urban studies: *the nature of cities*; *urban epistemology*, *social philosophy* and *the moral (non)viability of contemporary urbanization under capitalism*. As such, these problems demonstrated that confronting the *Urbanization Question* does not require further theoretical abstraction as CUTs methodology implies. Instead, since the questions and concerns posed by the *Urbanization Question* and the hypothesis of *Planetary Urbanization* can no longer be grasped along traditional (post) Modern social scientific coordinates they pose a challenge to the social sciences *in toto*. In particular, these problems imply that an inquiry in the nature of cities, urban inequality, and the reciprocal relation between urban knowledge and urban practice requires an investigation in (the production of) Modern urban knowledge. As such, the theoretical framework underpinned the need to view Modern urban science, and hence Modernity, itself subject of enquiry. Moreover, it specified the requirements of an alternative approach to 'the urban' that is both responsive to the scientific and social philosophical problems of CUT and sensitive to the challenges and concerns posed by the *Urbanization Question* and *Planetary Urbanization*: (1) transcend epistemological divisions; (2) transcend the context-(in) dependency of 'the urban'; (3) inquire rather than oppose Modern domains; and (4) reconsider the context-(in)dependency of urban knowledge.

In response, section 2.4.4 explained how the current limits to Modern (critical) urban studies and the associated requirements for an alternative approach have already been used as momentum to popularize the notion of Assemblage in CUT. However, it also found that with respect to exploring the (im)possibility of a joint research approach and agenda the more elaborated and demarcated ANT offers a more adequate approach for this purpose. In this way, the theoretical framework underpinned the *rationale* for the main research objective:

Main research objective
Explore whether and, if so, how ANT can change the manner in which CUT approaches and addresses the relation between urbanization and inequality.

Sub-objectives
The main objective is divided into five sub-objectives:

Sub-Objective 1:	Define ANTs approach to, and concept of, the urban
Sub-Objective 2:	Explore how ANT evaluates CUTs concepts of, and approach to, the urban.
Sub-Objective 3:	Explore how ANT evaluates CUTs approach to the relation between urbanization and inequality.

Sub-Objective 4: Explore how ANT evaluates the manner in which CUTs understands the relation between urban knowledge (TTUT) and urban practice[34].

Sub-Objective 5: Explore how ANT evaluates CUTs implications for urban practice.

It should be kept in mind, however, that the questions and concerns posed by CUT might challenge ANTs approach to 'the urban' as well. Just as an inquiry in the (im)possibility of a joint research approach and agenda requires an exploration of what ANT may offer to CUT, similarly and in reverse motion, it should also ask 'What does CUT offer to ANT?' While adequately analyzing these questions goes beyond the limits of this thesis, still Chapters 6 (Conclusion and Discussion) will briefly reflect on the limitations of ANT with respect to the challenges posed by the *Urbanization Question* and the hypothesis of Planetary Urbanization.

3.2 Research questions

Main question: *How does ANT change the manner in which CUT approaches the relation between urbanization and inequality?*

Sub-questions

6. How does ANT approach and define the city, urban space, and urbanization?
7. How does ANT evaluate CUTs concepts of, and approach to, the urban?
8. How does ANT evaluate CUTs theory of the relation between urbanization and inequality?
9. How does ANT evaluate CUTs understanding of the relation between conventional, urban knowledge (TTUT) and urban practice?
10. How does ANT evaluate CUTs implications for urban practice?

3.3 Research model

The research model is designed as follows (see figure 18). *First*, research will articulate an ANT concept of the city (*sub-question 1*) by combining ANTs conception of Nature, Society, Politics and Space, on the one hand, and ANTs scientific (empirical, methodological, epistemological, ontological, social philosophical and normative) imperatives, on the other,. Hereafter, *second*, based on (1) ANTs conception of Nature, Society, Politics and Space, (2) its scientific imperatives and (3) the resulting ANT concept of 'the urban', it will analyze how ANT evaluates CUTs concept of, and approach to, 'the urban' (*sub-question 2*). Moreover, since CUTs concept of, and approach to, 'the urban' cannot be grasped in isolation from CUTs understanding of the relation between conventional, urban knowledge (TTUT) and urban practice, ANTs evaluation of the former also has to be informed by (4) ANTs evaluation of the latter (*see sub-question 4*). Hence, the dotted arrow in figure 18.

Because CUTs theory of the relation between urbanization and inequality is subjected to its concept of 'the urban', *third*, ANTs evaluation of CUTs theory of the relation between urbanization and inequality (*sub-question 3)* is indirectly informed by ANTs evaluation of

[34] Because CUTs concept of 'the urban' and approach to the relation between urbanization and inequality cannot be understood in isolation from its conception of the relation between urban knowledge (TTUT) and urban practice exploring ANTs evaluation of the former two also requires an exploration of how ANT evaluates the manner in which CUT understands the relation between urban knowledge and urban practice. – i.e. the relation between CUT and TTUTs concepts of the nature of cities (Object-1 and Object-2) (see section 2.4.3.3).

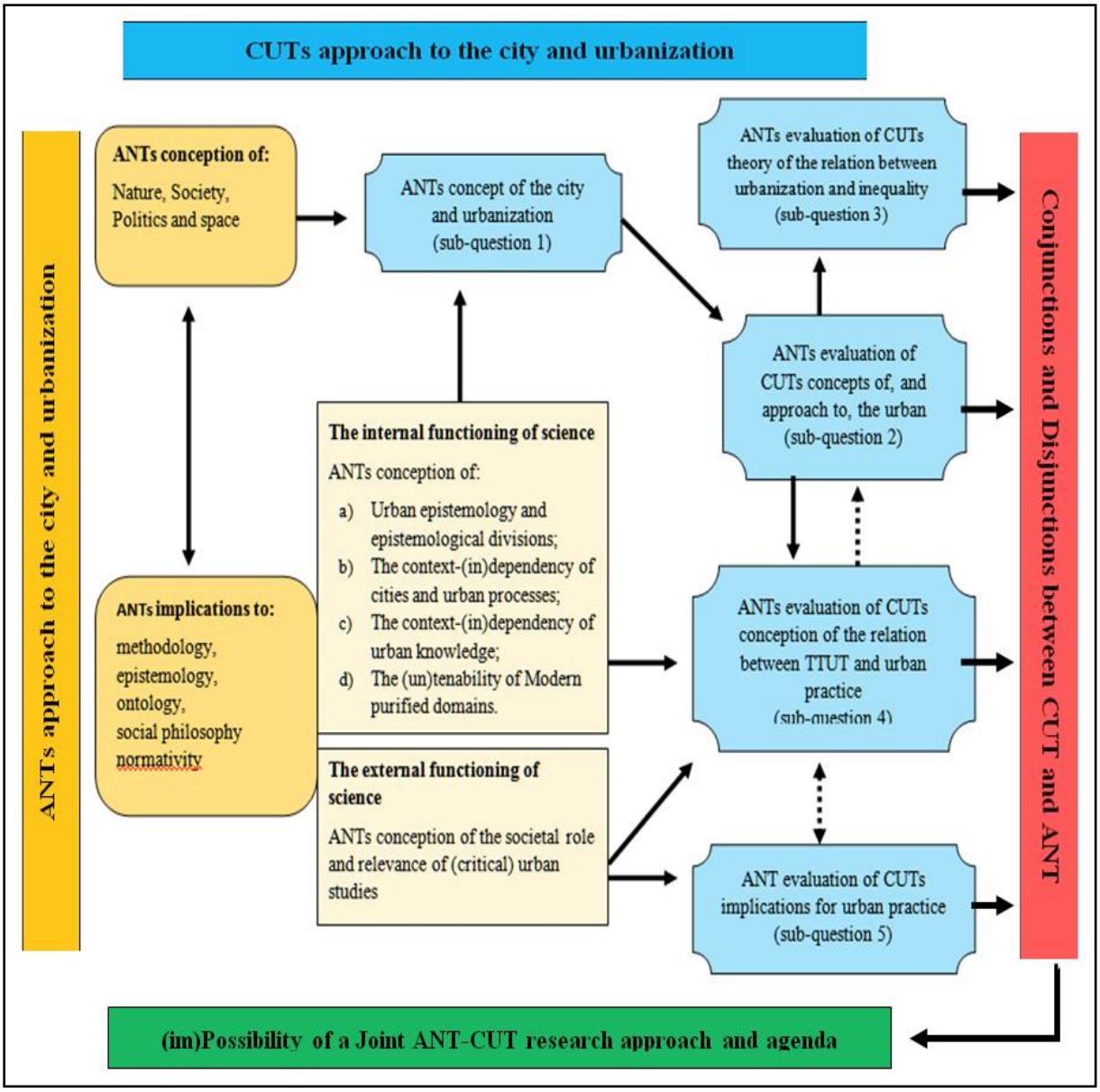


Figure 18: Visual illustration of the research model.

CUTs concept of, and approach to 'the urban'.[35]. *Fourth*, ANT evaluation of CUTs understanding of the relation between conventional, urban knowledge (TTUT) and urban practice (*sub-question 4*) is based on: (1) ANTs conception of (a) urban epistemology and epistemological divisions; (b) the context-(in)dependency of cities and urban processes; (c) the context-(in)dependency of urban knowledge; (d) the (un)tenability of Modern purified and (2) ANTs conception of the societal role and relevance of urban, and critical urban, studies. *Fifth*, ANTs evaluation of CUTs implications for urban practice (*sub-question 5*) is based on ANTs conception of the societal role and relevance of (critical) urban scientific knowledge in informing and guiding urban practice. Moreover, since CUTs implications to urban practice are implicitly (at least partially) informed by CUTs conception of the relation between TTUT and urban practice and *vice versa*, research is attentive to the fact that ANTs evaluation of CUTs implications for urban practice can indirectly influence, and be indirectly influenced

[35] This also means that ANTs evaluation of CUTs theory of urban inequality can indirectly depend on ANTs evaluation of CUTs conception of the relation between TTUT and urban practice.

by, ANTs evaluation of CUTs conception of the relation between TTUT and urban practice. Hence the two-sided dotted arrow in figure 18.

3.4 Methodology and approach

According to Silverman (2006) methodology refers to the "general approach to studying research topics" (p. 13). "A methodology refers to the choices we make about cases to study, methods of data gathering, forms of data analysis etc" (p. 15). It concerns the interaction between ideas and evidence and between theory and data. Importantly, since each paradigm holds distinct implications regarding the trade-off between data, theory and knowledge, the methodology is always subjected to the broader paradigm in which the inquiry is embedded.

This section discusses the type of research and the methodological issues that accompany it while motivating the methodology and approach devised to cope with these, in response.

3.4.1 Paradigmatic inquiry

Literature study: explorative, ground-clearing

Since this research investigates different paradigms in urban studies and their respective claims pertaining to urban (meta)theory, empirics, methodology, epistemology, ontology and social philosophy it mainly constitutes a (meta)theoretical and (meta)philosophical inquiry, or *paradigmatic inquiry*. The paradigmatic inquiry is primarily conducted by means of a comprehensive literature study; A large part of which is already discussed in Chapter 2.

Since this research embarks on largely unchartered or poorly excavated territories it should be primarily viewed as explorative with an emphasis on *ground clearing*; mapping out the competing conceptions and scientific imperatives underlying CUT and ANTs approaches to 'the urban' . Moreover, while the research questions appear straightforward overall research is rather abstract and complex. For example, while the research model in the previous section displays a distinction between ANTs conception of the internal and external functioning of science at the same time there also exist reciprocal relations between both. Of course, research aims to identify the contrasts between CUT and ANT rather precisely. However, with respect to exploring a joint research approach and agenda such a ground clearing will be open-ended, meaning that the key research outcomes mainly entail implications for further research.

Paradigmatic case study

Due to the abstract nature of the paradigmatic inquiry the questions, analysis and outcomes require further *exemplification*. Moreover, because a part of the inquiry consists of analyzing CUT and ANTs respective conceptions of the relation between urban knowledge and urban (policy) intervention, research has to be informed by 'actual' application of urban knowledge to cities and urban processes 'on the ground'. Therefore, the literature study is complemented with empirical research that serves as a metaphor, of the paradigmatic inquiry. Empirical research entails a *paradigmatic case study* centering on urban phenomena, or *issues*, in the recently established Metropolitan Municipality of Diyarbakir, Southeastern Turkey – in short: *the Diyarbakir city-region*. The case study is not deployed to exemplify (let alone disclose) true knowledge of the nature of cities (e.g. by testing the paradigms' respective truth claims against the urban phenomena observed in Diyarbakir). Instead it compares how CUT and ANTs approaches to 'the urban', the relation between urbanization and inequality, the relation between urban knowledge and practice and their implications to urban (policy) intervention

respectively apply to – i.e. inform, explain, motivate, legitimize or oppose – studies, conceptions of and interventions in a range of urban issues in Diyarbakir. In this way the case study serves as a metaphor of the contrasts and connections between CUT and ANT and illustrates the possibility of a joint research approach and agenda.

3.4.2 Paradigmatic incompatibility

Complexity of the research questions and analysis is substantially increased by the fact that CUT and ANTs methodologies are seemingly, diametrically opposed. One methodological issue this research faces, therefore, concerns paradigmatic incompatibility. For example, while, following Latour's (2005a) "principle of irreduction" (p. 107), ANT negates epistemological divisions and neither distinguishes between content and context of a phenomenon nor between methodology and ontology, conversely, all these distinctions underpin CUTs concepts of 'the urban'. The problem, here, is that while research can only adopt one methodology at the same time preventing paradigmatic bias requires an approach that analyzes both CUT and ANT, including their methodological imperatives, on their own terms. Moreover, because this research constitutes a paradigmatic inquiry the respective methodologies employed by both paradigms also need to be treated as object of research.

To articulate a coherent research approach that neither ignores the methodological incommensurability between CUT and ANT nor invokes paradigmatic bias the research methodology is devised as follows: (a) research type is descriptive; (b) the description of each paradigm is treated as data; and (c) a qualitative, non-standardized approach. These methodological choices are motivated in the following sub-sections (c.f. Appendix C).

3.4.3 Descriptive approach

A descriptive study enables research to compare CUT and ANTs approach to 'the urban' without *a priori* reducing the analysis of either of these paradigms to any fixed interpretive schemata. In this way research can, *first*, account for each paradigm on its own terms. After all, in contrast to an explanatory approach, a descriptive approach provides the necessary interpretive freedom to analyze both paradigms and, scientific imperatives underpinning them, from the perspectives of their inventors and their adversaries simultaneously. *Second*, since any fixed framework by nature favours (certain aspects of) one paradigm over (those of) the other, forestalling interpretive reduction enables prevention of paradigmatic bias. *Third*, contrary to explanatory approaches, description suits *the nature of the phenomenon* under enquiry. Although many paradigms depend on explanatory studies, similar to scientific evolutions, the origination of paradigms themselves cannot be explained by recourse to causal models (section 2.5.1). A descriptive approach, in contrast, allows research to treat CUT and ANT as research objects rather than interpretive frameworks alone. *Fourth*, a descriptive approach also responds more adequately to the illustrative objective of empirical research as it enables to link the urban issues to the urban paradigms without reducing the former to the latter or *vice versa* (see also section 3.4.4 and 3.5.2). The same interpretive freedom that description grants to the paradigmatic inquiry is also granted to the case study. Because description prevents reduction of the urban issues to any single interpretive framework it allows research to illustrate the different urban paradigms along each issue simultaneously. In this way, the resulting controversies surrounding each urban issue can become metaphors of the contrasts and connections between CUT and ANTs approach to 'the urban'.

3.4.4 Treating the description of CUT and ANT as data

Treating the description of CUT and ANT as tertiary data prevents paradigmatic bias with respect to the paradigmatic inquiry (as it impedes either paradigm to function as the dominant interpretive framework), on the one hand, while preventing *a priori* reduction of the case study findings to the outcomes of the paradigmatic inquiry, on the other (see also section 3.5.6). Moreover, treating the description of the paradigms as data also benefits the purpose of the descriptive approach and method of narrative analysis (see section 3.4.2).

3.4.5 Qualitative, non-standardized approach

The first two arguments for a qualitative, non-standardized approach derive from *the nature of the research object.* The paradigms of CUT and ANT, their urban concepts, and especially the scientific imperatives motivating their approaches, present phenomena that cannot be adequately grasped in quantitative, standardized terms. Following Silverman (2006), quantitative approaches study a phenomenon in terms of input and output, but in this way tend to by-pass the phenomenon itself. While strict definition of research objects in terms of variables "aid measurement they can lose sight of the way that social phenomena become what they are in particular contexts and sequences of action" (p. 44). A qualitative, non-standardized approach, however, allows research to delve deeper into the research object and to grasp the underlying scientific concerns that motivate CUT and ANTs approaches'. As such, it is more adequate to obtain knowledge of the nature of the contrasts and connections between them. Moreover, since these contrasts constitute a largely unchartered terrain (section 2.4.4), its propriety to exploratory research suits the nature of research (section 3.4.1).

The other motivations derive from *the nature of the case study object* and *the illustrative purpose of empirical research*. Since the contrasts and connections between CUT and ANT can only be analyzed by means of a qualitative, non-standardized approach the urban issues can only serve as adequate metaphors of the paradigmatic inquiry if they are approached in qualitative, non-standardized terms as well. Moreover, for sake of the empirical illustration research requires data on the urban practitioners' own conceptions of the urban issues. A qualitative approach can more aptly obtain knowledge of how urban practitioners construct meaning of urban issues, and how particular urban knowledge(s) respectively apply to their conceptions and interventions, in response. Moreover, qualitative research is generally understood to be less suggestive and is considered more appropriate to study "sensitive issues" and to "give voice to the issues of a certain study population" ((Hennink, et al., 2011: 10), As such, it helps the researcher to abstain from taking an authoritarian stance where s/he assumes to know the urban practitioners' motivations, aspirations and frames in advance.

3.5 Empirical Research

This section explains how an inquiry in how ANT changes the manner in which CUT approaches the relation between urbanization and inequality is borne out by a case study on urban issues in Diyarbakir. Section 3.5.1 explains *what* is meant by a case study in this thesis and *why* it constitutes an adequate empirical approach. Section 3.5.2 describes the meaning of a *paradigmatic case study* and motivates the selection of this *case study type*. Section 3.5.3 motivates the selection of the Diyarbakir city-region as *case study site*. Section 3.5.4 discusses the empirical research design. Section 3.5.5 lists the empirical questions that illustrate the research questions and section 3.5.6 draws on the case study respondents.

Sections 3.5.1 and 3.5.4 concern the *internal validity* of empirical research (i.e. the extent to which empirical research procedure minimizes systematic error or bias). In this research that is the extent to which procedure and conduct of empirical research (case study approach and design) warrant *valid* illustration of the inquiry in how ANT changes the manner in which CUT approaches the relation between urbanization and inequality. Sections 3.5.2 and 3.5.3 underpin the *external validity* of empirical research (i.e. the extent to which the outcomes of empirical research can be generalized across space and time). In this research that is the extent to which empirical research warrants *credible* exemplification of the paradigmatic inquiry across space and time (e.g. that the selection of another case does not induce fundamentally different outcomes regarding the conjunctions and disjunctions between CUT and ANT).[36]

3.5.1 Case study approach

Harré (1979) distinguishes between two general strategies to study social phenomena: an "extensive" and an "intensive approach" (p. 132–135). "In an extensive approach we collect information about the relevant properties of a large number of instances of a phenomenon. We draw our conclusions by putting together all the information and calculating and interpreting correlations between the properties of these examples" (Swanborn, 2010: 1). "Alternatively, in applying an *intensive approach*, a researcher focuses on only *one* specific instance of the phenomenon to be studied, or on only a handful of instances in order to study a phenomenon in depth" [...] "Each instance, or example, is usually called *a case*. Therefore, an intensive approach is generally called a 'case study' [...] The word 'case' originates from the Latin '*casus*' (*cadere* = to fall); it simply means 'event', 'situation' or 'condition'" (p. 2: emphasis in original). A case study approach "is not a methodological choice but a choice of what is to be studied" (Stake 2005: 443). Moreover, while it is often argued that case studies do not allow for generalization, instead Flyvbjerg (2001) insists that "[o]ne can often generalize on the basis of a single case, and the case study may be central to scientific development via generalization as supplement or alternative to other methods" (p. 77).

Three arguments motivate the selection of the case study approach. The *first* derives from *the comparative objective of this thesis* and the *paradigmatic incompatibility* of CUT and ANT. Whilst extensive approaches obtain data of (the properties of) a phenomenon across a wide range of exemplars (or cases) to test or develop a hypothesis this research instead requires an approach that can illustrate a comparison between different paradigms along a single case. An ostensive dilemma involved in illustrating how CUT and ANTs differ and connect lies in the fact that both paradigms hold contrasting conceptions of the position and relevance of the case study approach in research and of the local urban issues observed vis-à-vis the general concepts of 'the urban'. After all, both hold different assumptions of the context-(in)dependency of cities and urban knowledge (section 2.4.3.4). Therefore, one might say that

[36] Because empirical research aims to illustrate instead of explain or test, in this thesis the meaning of internal and external validity differs substantially from the more conventional definitions provided by the interpretive and positivist traditions in the social sciences. In fact, in this research the validity and credibility of the paradigmatic inquiry do not even depend on empirical research but on the extent to which the approach is logically consistent and representative of the paradigms under inquiry. Moreover, internal validity of empirical research is generally only discussed when research focuses on causal relations. Nonetheless, both are discussed here in order to demonstrate how the choices of empirical conduct warrants credible and valid illustration of the paradigmatic inquiry.

the selection of the case study approach, or the particular case study site, implies paradigmatic bias since *approach a*, or *site a*, may favour the knowledge claims of *paradigm a* at the expense of *paradigm b*. However, rather than problematizing illustration of the paradigmatic inquiry, here, not only the respective assumptions of each paradigm regarding the particular case selected but also the case study approach itself function as very elements of paradigmatic comparison themselves (see also 3.5.3).

The *second* argument concerns *the 'nature' of the research object*. Exemplification by means of empirical research will only be adequate if the empirical approach is attentive to the 'nature' of the phenomenon under study. Because identifying and categorizing the contrasts and connections between CUT and ANT are the very objective of the inquiry, empirical research cannot serve as an adequately illustration if the relevant properties of their 'nature' are selected and categorized in advance. In contrast to an extensive approach, an intensive approach does not require *a priori* categorization and standardization and, as such, allows empirical research to illustrate the complex 'nature' of the conjunctions and disjunctions between CUT and ANT.

The *third* stresses the *context dependency of human knowledge*. According to Yin (2014), a case study is "an empirical inquiry that investigates a contemporary phenomenon (the *case*) in depth and within its real-world context, especially when the boundaries between phenomenon and context may not be clearly evident" (p. 16). Because both the local urban issues 'on the ground' as studies and interpretations of these that serve as metaphors of the paradigmatic inquiry are (at least partially) context-dependent, the boundary between the phenomenon (urban knowledge of Diyarbakir) and its context of application (the city-region of Diyarbakir) can become fuzzy. Due to its sensitivity to contextual specificities, an intensive approach enables to distinguish more adequately between aspects of urban issues that illustrate the urban paradigms under study and those related to contextual factors.

3.5.2 Case study type

Generally, the external validity of the *case study type* depends on the extent to which it allows production of knowledge that is representative across space and time. However, since empirical research aims to illustrate the contrasts and connections between CUT and ANT, here external validity of the case study type depends on the extent to which it warrants valid exemplification of these contrasts and connections. Flyvbjerg (2001) distinguishes between four types of cases: "*extreme/deviant cases*" (which are useful to analyze exceptional phenomena); "*maximum variation cases*" ("[t]o obtain information about the significance of various circumstances for case process and outcome"); "*critical cases*" (to obtain "information which permits logical deductions of the type, 'if this is (not) valid for this case, then it applies to all (no) cases'"); and "*paradigmatic cases*" (serving as "a metaphor or establish a school for the domain which the case concerns") (p. 77-81). As Flyvbjerg explains:

> "since knowledge of human activity is always context dependent, "formal generalization is overvalued as a source of scientific development, whereas *the power of the good example* is underestimated" (p. 77). "Thomas Kuhn has shown that the basic skills, or background practices, of natural scientists are organized in terms of "exemplars" the role of which can be studied by historians of science. Similarly, scholars like Clifford Geertz and Michel Foucault have often organized their research around specific cultural paradigms: a paradigm for Geertz lay, for instance, in the "deep play" of the Balinese cockfight, while for Foucault, European prisons and the "Panopticon" are examples. Both instances are examples of

> paradigmatic cases, that is, cases that highlight more general characteristics of the societies in question. [...] It operates as a metaphor and may function as a focal point for the founding of schools of thought" (p. 80).

The paradigmatic case is selected as it is the only case type that allows empirical research to 'operate as a metaphor' for how different urban paradigms respectively approach 'the urban'. Although the case narratives are subjected to the contextual particularities of the site in question a paradigmatic case can exactly illustrate generalizable knowledge of the respective 'virtues' and limitations of CUT and ANT as well as the conjunctions and disjunctions between them. Moreover, similar to Foucault's example of the Panopticon, the case may 'function as a focal point for the founding of a new school of thought' on urban knowledge.

3.5.3 Selection of the case study site

Generally, selection of the case study site depends on the extent to which it warrants production generalizeble knowledge so as to guarantee the *external validity of research* (i.e. its *representativeness* versus other cases across space and time). However, since this research uses a paradigmatic case study, selection of the case study site is not motivated by the extent to which (an urban issues in) the city-region of Diyarbakir is representative of (urban issues in) other city-regions. Of course, empirical research will reflect on the representativeness of the case study site since the urban conceptions and interventions are generally informed by urban knowledge and comparisons with other city regions. Strictly speaking, however, here, external validity only depends on the extent to which the scientific debates and practitioners 'conceptions of the urban issues in Diyarbakir are illustrative of the paradigms under study.

Even further, the purpose of empirical research implies that selection of the case site is hypothetically inconsequential to valid illustration. For example, while CUT or TTUT may consider the city-region of Diyarbakir less illustrative of the nature of cities than, let's say, Amsterdam or London at the same time their conception of Diyarbakir as such still derives from the *same* knowledge claims. The same goes for *scale* (see section 2.4.1). Since CUT and TTUTs urban concepts are based on theories and observations of cities as embedded in supra –and inter-urban dynamics, they may consider a city-region more generally less illustrative of 'the urban' than the urban geography of Turkey or the transnational urban networks of Europe. Still, however, here too competing conceptions of the urban issues as embedded in these more general dynamics (or their functional relations with non-urban territories) derive from the contrasts between *same* urban paradigms. Rather than implying biased illustration, similar to the selection of a case study approach, also the selection of a city-region and the particular city-region itself serves as a very element of paradigmatic exemplification. Again the same goes for the context-dependency of different cities and urban knowledge(s) (section 2.4.2).

Moreover, selecting a city-region does not necessarily imply excluding other key features of 'the urban'. To the contrary. By describing how various urban conceptions and interventions in Diyarbakir are informed by knowledge of the relations they entertain with the more general (inter)national supra- and inter-urban dynamics, their functional relations with non-urban territories or through comparison with other city-regions also these aspects of the urban issues serve as exemplars of the contrasts and connections between CUT and ANT.

Still, this is speaking purely theoretically. In practice, however, selection of the case site can matter a great deal. While, of course, many other city-regions or other urban phenomena

could offer suitable exemplars, still, Diyarbakir is considered an especially adequate site for this purpose for a number of reasons. The *first* stresses that Diyarbakir's urban revolution is rather newborn. Since urbanization has neither (yet) completely effaced traditional lifestyles and modes of (spatial) development nor clearly separated the urban from the rural as such, the resulting controversies about the 'urban nature' of the issues can exemplify the tensions between CUT, ANT and TTUTs concepts of the spatiotemporal specificity of 'the urban'.

Related to the first, the *second* derives from Diyarbakir's unique position with respect to Modernity, which as a consequence including ANT in the inquiry forms a central tenet in this research. Urbanization is generally considered closely intertwined with the technological and societal transformations associated with modernity (Brenner, 2013; Scott and Storper, 2014). Moreover, it also refers to a profound transition in thought; Especially regarding the relation between (social) science and reality (section 2.5.1). Because the Modern/Pre-modern-dichotomies – e.g. between peasant and modern modes of production; traditional vs. modern life-styles – so prominently define competing conceptions of the urban issues in Diyarbakir, they offer an especially adequate metaphor of the tensions between CUT and ANT.

The *third* stems from Diyarbakir's unique political and administrative context. One problem in finding an adequate illustrative case is that urban (policy) interventions in most cities are almost exclusively informed by TTUT (at least, insofar they *are* informed by urban knowledge). In Diyarbakir, however, the constituency seems to align itself with knowledge(s) more proximate to the paradigms of CUT, post-colonial urban studies and perhaps even ANT. Simultaneously, the agencies under the command of the State are aligned with TTUT. Since the respective urban practices and mentalities in Diyarbakir are so clearly defined by these contrasts, they offer especially adequate exemplars to exemplify the paradigms of CUT, TTUT and ANT. Moreover, the local urban governance context is subjected to political tensions and profound power struggles related foremost to the Kurdish question but also to issues of social class and gender. Besides obstructing efficient and effective urban planning, these political tensions have transformed the administrative context of Diyarbakir into an antagonistic public space. While such antagonism often diverts attention from the (urban) nature of the urban issues at the same time the conflict-ridden urban practices and mentalities it engenders offer unique experiences and metaphors to illustrate the contrasting conceptions of the nature of cities; even if it only consists of taking alternative voices into consideration.

3.5.4 Case study design

The case study centers on *urban issues* in the city-region of Diyarbakir. The term ‘urban issues’ designates *a wide variety of phenomena understood as intrinsic elements of, or strongly related to, the nature of cities,* such as accelerated agglomeration-polarization of distinct land uses, the urban economy, urban-rural migration, congestion, sprawl etc.. The term also attends to the more global, supra- and inter-urban urban dynamics in which these urban issues are (arguably) embedded and the relation they entertain with transformations in modes of production, spatial development and thought generally associated with modernity.

Research deploys a wide range of urban issues because each urban paradigm advances its own concepts of the city and, as such, implies a different conception of the extent to which an issue is intrinsically urban in nature, related to it, or not. Thus, by including a wide range of urban issues research prevents paradigmatic bias.

In particular, the case study attends to the following urban issues:

- Accelerated agglomeration and polarization of distinct land uses
- Local and regional (urban) economic growth and development
- The relation between the city and its metropolitan hinterland
- Urban-rural migration
- The new urban governance of Turkey (state re-scaling: de- and re-centralization)
- The position of the Diyarbakir city-region in the new economic geography of Turkey
- Diyarbakir's urban history
- Urban and regional inequalities
- Diyarbakir's (cultural) urban policy
- Obstacles to urban governance and planning in the city-region of Diyarbakir

For every manifestation of urbanization that becomes *controversial* – hence an urban 'object' becoming an urban issue (section 2.5.3) – a variety of actors are involved. Urban practitioners – i.e. actors formally endowed with the task of formulating and implementing urban policy, strategy and concrete interventions (e.g. regional and local policy makers and planners, housing corporations etc.) – consult (or produce their own) urban knowledge: first, 'to make sense of' the particular issue at hand and, second, to intervene according to individual and collective needs and desires. Besides urban practitioners, a wider range of urban actors, including NGOs, civil and labour rights movements and individual citizen seek to intervene in the urban landscape in a variety of ways (e.g. via concrete projects, support programs, protest etc.). Since these actors and practitioners have diverging stakes and roles in the urban governance process and draw on different urban knowledge(s), the interventions they propose, in turn, can differ substantially. After all, different urban knowledge(s) imply varying explanations of the nature of cities and, as such, of the 'nature' of the urban issues observed.

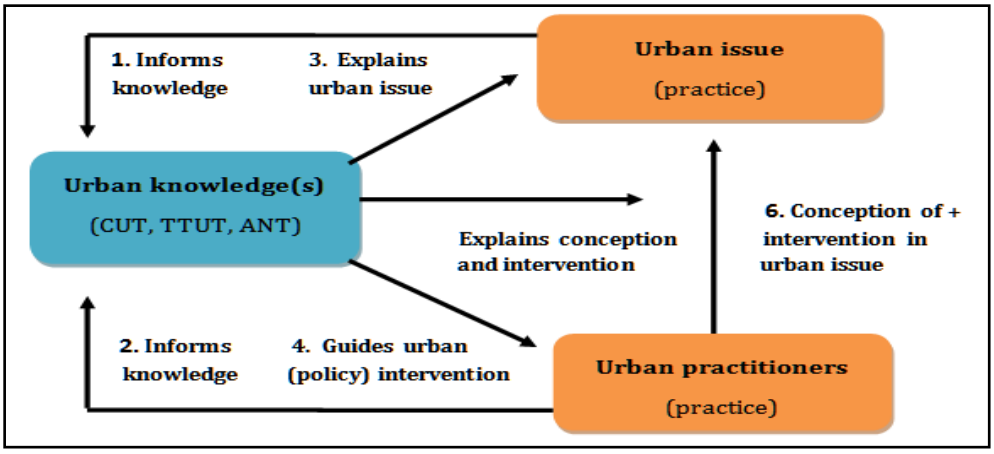


Figure 19: Model depicting the articulation between urban knowledge(s), urban issues and urban practitioners. Note that this model does not distinguish between 'urban issue' and 'urban inequality' as urban inequality is hence included as an urban issue as well.

Against this backdrop, the case study will describe how CUT and ANTs approaches to, and conceptions of, the city and the relation between urbanization and inequality respectively apply to (i.e. inform, explain, legitimize or oppose) urban practitioners' conceptions of, and interventions in, the urban issues in Diyarbakir. The case study design associated to this exercise is devised along articulation between urban knowledge, urban issue and urban practitioner (see figure 19). Each conception of, and intervention in, an urban issue serves as an illustration of either one or more of the urban paradigms' respective approaches to urban knowledge(s) – as derived from their approaches to the nature of cities, urban epistemology,

the relation between urbanization and inequality and the relation between urban knowledge and urban practice – or, conversely, critique of these (arrow 4 and 6 in figure 19). In the same manner, the case study will also describe how urban scientific studies and research-based urban policy guidance documents pertaining to the urban issues in Diyarbakir illustrate the respective approaches of the urban paradigms under enquiry. These studies and policy documents explain and/or assess both the urban issues themselves and local practitioners' conceptions of, and interventions in, these issues (see arrow 3 and 5).

In this way, *first*, knowledge can be obtained on: (a) how CUT informs in the nature of the urban issues in Diyarbakir; (b) how it relates these issues to (a form of) inequality and, (c) the moral conception of urban inequality that culminate from this particular analytical conception of urban inequality; (d) CUTs implications for urban practice; and, (e) how CUT informs in the relation between urban knowledge (TTUT) and urban practice in face of the urban issues. Hereafter, *second*, knowledge can be obtained on: (f) how ANT informs in the 'nature' of the urban issues in Diyarbakir; how ANT evaluates the manner in which CUT (g) informs in the nature of the urban issues; (h) relates these issues to inequality; and, (i) seeks to guide urban practice, in response; and (j) how ANT evaluates the manner in which CUT informs in the relation between urban knowledge (TTUT) and urban practice in face of the urban issues.

3.5.5 Empirical questions

The empirical questions that illustrate the research questions (section 3.2) are listed below.[37]

1. How does ANT inform in the 'nature' of the urban issues in Diyarbakir?
2. How does ANT evaluate the manner in which CUT informs in 'the nature' of the urban issues?
3. How does ANT evaluate the manner in which CUT relates these issues to inequality?
4. How does ANT evaluate CUTs understanding of the relation between urban knowledge (TTUT) and urban practice in the urban issues in Diyarbakir?
5. How does ANT evaluate CUTs implications for urban practice in face of these issues?

3.5.6 Case study data

Empirical research collects two types of data which are divided into four sets. Figure 20 visualizes the four sets of data along the articulation between urban knowledge, urban practitioners and urban issues (see Figure 20). First, *primary data* of the local urban practitioners' conceptions of, and interventions in, the urban issues and the knowledge(s) that inform them (arrow 4 and 6 in Figure 20) are collected by means of semi-structured, in depth interviews with a number of local urban practitioners and other urban actors (see section 3.5.7 for Case Study Respondents). Moreover, in order to complement primary data on the urban

[37] Note that the empirical questions cannot be answered without consideration of the preliminary research objectives. These objectives are translated to the following empirical questions;

1. How does CUT inform in 'the nature' of the urban issues in Diyarbakir?
2. How does CUT relate these urban issues to inequality?
3. What moral conceptions of urban inequality culminate from CUTs analytical conception of the relation between the urban issues and inequality?
4. How does CUT understand the relation between urban knowledge (TTUT) and urban practice in the urban issues?
5. What are CUTs implications for urban practice in face of the urban issues?

practitioners conceptions of, and interventions in, the urban issues and to develop data on how different urban knowledges explain the former, the case study also collects *secondary data*. Clarke (2005) summarizes the advantages of secondary data as follows: "it already exists (so it is cheaper and quicker to obtain than primary data); it provides the researcher with contextual material for his/her primary research; it is usually of proven quality and reliability; a very wide range of secondary material is available" (p. 57).

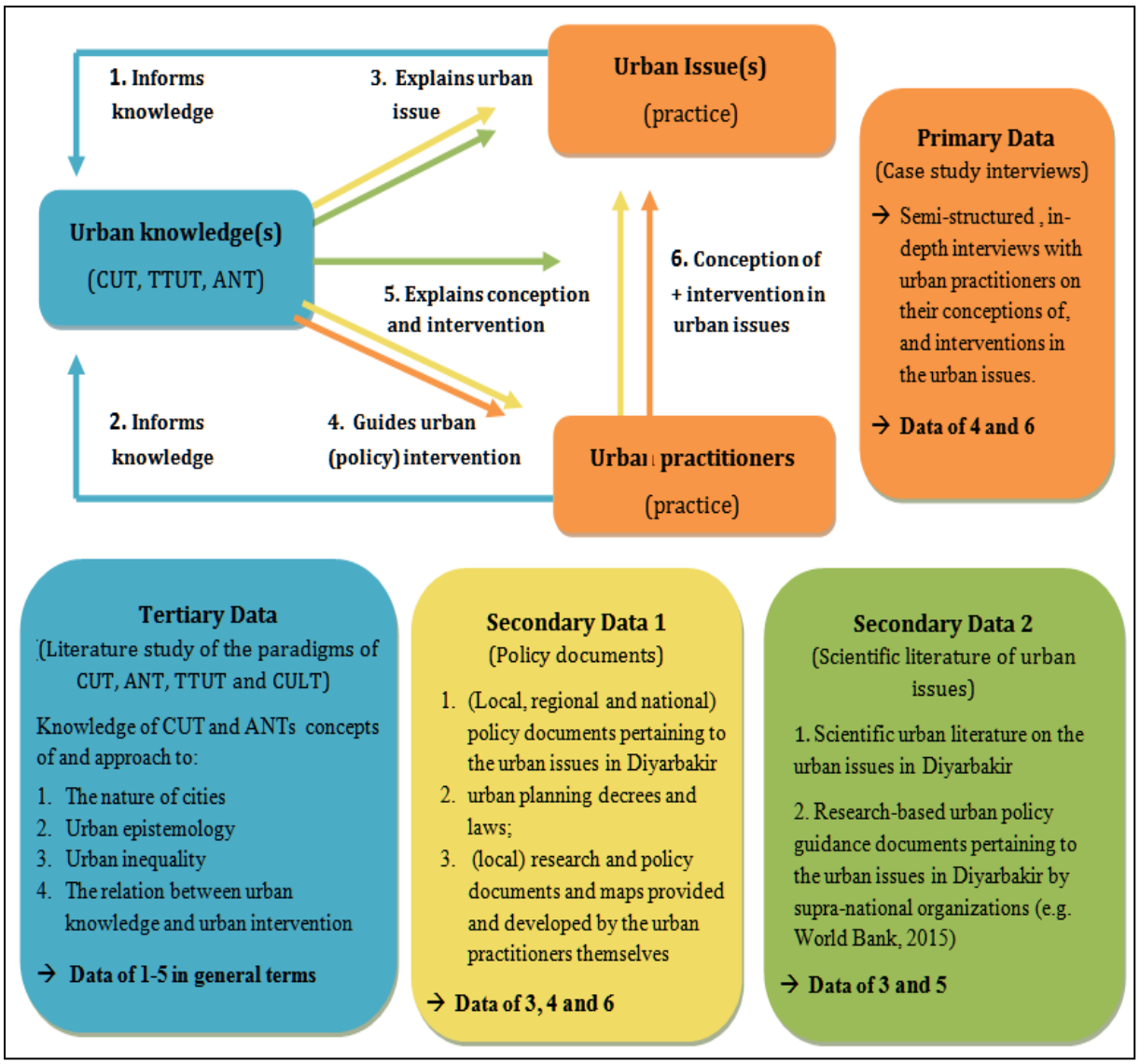


Figure 20. The four data sets visualized along the articulation between urban knowledge, issue and practitioner. Since, the descriptions of CUT, ANT and, in extension, TTUT and CULT are treated as *tertiary data* (see section 3.4.4) they are also illustrated accordingly in this figure.

The secondary data that is collected can be divided into two sets. The first includes: (local, regional and national) policy documents pertaining to the urban issues in Diyarbakir; urban planning decrees and laws; and research documents and maps developed by the local practitioners themselves. This data complements primary data on the urban practitioners' conceptions of, and interventions, in the urban issues and how both are informed by urban knowledge(s) while adding data on what (and how) urban knowledge(s) are deployed to explain these urban issues (hence arrow 4 and 6 + 3). The second comprises of scientific literature that explicitly addresses the urban issues in Diyarbakir and research-based urban

policy guidance documents developed by thirds (e.g. World Bank, 2015). Besides adding to the first set of secondary data on the urban knowledge(s) deployed to explain the urban issues simultaneously it provides data on how various urban knowledge(s) respectively explain the urban practitioner's conceptions of, and interventions in, these issues (hence arrow 3 + 5). Moreover, together, all three sets provide valuable background information on the domestic and local social, cultural, economic, political and administrative context of the urban issues.

3.5.7 Case study respondents

Respondents from the following five agencies and administrative bodies were consulted.[38]

1. Metropolitan Municipality of Diyarbakir (*Diyarbakır Büyükşehir Belediyesi*).
    a. Department of Housing and Urban Development
    b. Department of Local Economic Development
    c. Deputy Secretary General Technical
2. Regional Development Agency (RDA) Diyarbakir-Şanliurfa (*Karacadag Kalkinma Ajansi Diyarbakir*)Planning, Programming and Coordination Department
3. Diyarbakir's Chamber of Industry and Commerce (*Diyarbakır Ticaret ve Sanayi Odası*).
4. Regional Development Centre (*Kalkinma Merkezi*)
5. Union of Municipalities (*Güneydoğu Anadolu Belediyeler Birliği*).

The first three (and arguably the fifth) are the most influential formal organizations in local urban governance, planning and development in the city-region of Diyarbakir. Since the case study aims to describe how CUT and ANTs concepts of 'the urban' respectively apply to urban practitioners' conceptions of, and interventions in, a range of urban issues in Diyarbakir, the main criteria for selection are: (1) the organization's *tasks* and *responsibilities* with respect to urban planning and governance in the Diyarbakir city-region; and (2) their urban (policy) interventions and conceptions of the urban issues are informed by urban knowledge(s).

While, these organizations have a different outlook on the urban issues due to their diverging roles in urban planning and development, more generally, interestingly, they also align themselves with different urban knowledge(s). For example, while the urban practitioners of the Metropolitan Municipality seem to align themselves with urban knowledge(s) more proximate to the paradigms of CUT, post-colonial urban studies and perhaps even ANT, at the same time, the urban visions and strategies advanced by the Regional Development Agency (RDA-SA) clearly dovetail with TTUT (see section 3.5.3). Because the urban practices and mentalities in Diyarbakir are so clearly defined by these contrasts they offer especially adequate exemplars to exemplify the contrasts and connections between CUT and ANT – and, in extension, with reference to TTUT as well.

Further information on the agencies is provided in Chapter 4 (Caser study findings).

[38] See Appendix D for the list of respondent. Information on the selection and recruitment of the case study respondents is provided in Appendix C. Section 2.2.

4. Case Study Findings

Chapter 4 discusses the case study findings obtained during fieldwork in the city-region of Diyarbakir. The findings are obtained from on semi-structured in-depth interviews conducted with local actors and analysis of scientific literature, policy and policy guidance documents, and scientific articles. The goal of the case study was not to test the urban paradigms' respective truth claims against the urban phenomena observed in Diyarbakir. Instead, local practitioner's conceptions of, scientific studies and policy reports on, and actual (policy) interventions in Diyarbakir – covering a wide array of *urban issues*: accelerated agglomeration/polarization of distinct land uses; local economic development; relation between city and countryside; urban and regional policy; urban sprawl; segregation; and urban inequalities – are used as metaphors of the connections and contrasts between CUT and ANTs approach to the nature of cities in Chapter 5.

This chapter is divided into 5 sections.

Section 4.1 provides the elementary background for the case study findings along an overview of urban planning and governance in Turkey. It describes Turkey's urban planning and development history between 1920-1980 (4.1.1) and Turkey's post-1980s urban governance reforms and its ramifications to urban growth (4.1.2) while highlighting a number of institutional packages on the nexus of centralization/de-centralization of urban governance.

Section 4.2 describes Diyarbakir's urban development history and current urban revolution and urban issues (4.2.1) while highlighting its status in light of inter-regional disparities.

Section 4.3 discusses the urban conceptions and interventions of the Regional Development Agency Diyarbakir-Şanlıurfa (RDA-SA). It describes Turkey's urban geographical trends that inform the urban growth and regional development trajectories the Ministy of Development (2013) and the RDA-SA (2010, 2015) have articulated for Diyarbakir as well as the challenges and opportunities the RDA-SA is facing in this regard.

Section 4.4 describes the urban conceptions and interventions of the Metropolitan Municipality of Diyarbakir. After providing a brief overview of the advent of the BDP in local politics (4.4.1) it describes the recent urban developments as part of the BDPs cultural urban strategy (4.4.2) while discussing its obstacles to local urban governance (4.4.3).

Section 4.5 describes the urban conceptions and interventions of actors concerned with Diyarbakir's local economic development, including the Metropolitan Municipality's Local Economic Development Department (4.5.2) and the Development Centre (4.5.3). It also discusses the mobilization of the local economic elites (4.5.1) and Diyarbakir's urban revolution from the other side of the equitation: its countryside (4.5.4).

Each conception, intervention and scientific commentary in face of (one or a few of the) the urban issues in Diyarbakir serves a metaphor of either CUT, TTUT or ANTs approach to the four sources of scientific dispute, or conversely the respective paradigmatic approach they oppose. As such, in each sub-section the author of this thesis sits on a different chair so to speak. For example, because the urban conceptions and interventions of the RDA-SA are articulated conform TTUT exclusively, section 4.3 adheres to TTUTs vocabulary.

4.1 Urban planning and governance in Turkey

This section discusses Turkey's urban planning and governance context. Section 4.1.1 provides an overview of Turkey's urban planning history. Against this backdrop, section 4.1.2 discusses Turkey's post 1980s urban governance reforms following its accession to the global market. In particular, it focuses on the re-scaling of existing national and local urban governmental arrangements and the creation of a new form of territorial institutionalism, the metropolitan municipality. Hereafter, section 4.1.3 revises the acclaimed decentralization of urban governance and presents two examples displaying the opposite trend: the restructuration of the social housing sector and the Southeastern Anatolia Project.

4.1.1 Turkey's urban planning history

The 20th century in Turkey is often described as the age of modernization. Urban historian Ilhan Tekeli (2009) summarizes Turkey's urban planning history along three phases of political transition: "radical modernity" (1923-1950); "populist modernity" (1950-1980); "erosion of modernity" (post-1980s) (Tekeli, 2009a: no pagination). The establishment of the Turkish Republic in 1923 was followed by a multitude of legal, secular and socioeconomic reforms aimed at transforming the pre-industrial empire into a Modern and industrialized nation state. Instead of adhering to a "consistent or comprehensive political theory", leadership of the republic "conceived the construction of a nation as a socio-spatial process defined by four clear strategies" (idem). The first was to proclaim Ankara the capital city of Turkey as the leaders did consider the multi-ethnic and multi-cultural, port cities of Istanbul and Izmir unfertile breeding grounds for the creation of a 'new' national identity (idem). Moreover, the creation of a new urban centre enabled the formation of a new middle class that could function as an example for the whole country (idem). The second was to develop a railroad system connecting the port cities to the rural hinterland in order to integrate the national markets; a project that eventually backfired and led to the exploitation and colonization of the countryside (idem). A third strategy consisted of government-sponsored industrial programs to reduce national imports and increase export value (idem).

To guarantee the success of these three strategies a fourth strategy entailed a framework for urban development to create the conditions for industrialization, including the provisioning of public housing (*halkevleri*) to encourage rural-urban migration and to enhance livability in the new communities (idem). The idea that the Republic regarded urbanization as the key spatial process to modernize and industrialize the country is underpinned by the establishment of a new "Ministry of Construction and Resettlement (*İmar ve İskan Bakanlığı*), which functioned as a ministry of urbanisation," and the institutionalization of urban planning education (idem).

After the Second World War the strong appraisal of modernization and modern urbanism was interrupted by an era of "populist modernity" (idem). Industrialization and urbanization brought new challenges and problems to cities – such as, rapid population growth, a shortage of housing, unemployment, poor infrastructure, informal markets and poor living conditions – which could not be mitigated under the reforms of the previous era. Providing adequate infrastructure, housing and formal employment opportunities within the new monetary regime required high rates of capital accumulation that did not exist in Turkey at the time (idem).

This propelled various forms of "spontaneous action". Rural migrants that could not afford housing build their own neighborhoods on vacant land which resulted in cities being encircled

by informal settlements. A large segment of the middle class that could not keep up with the increasing land prices in cities developed a "built-and-sell (*yapsatçı*) strategy" (idem). This entailed sharing the cost of a single parcel of land with multiple owners: "small-scale developers would acquire land from landowners in exchange for a selected number of apartment units in the multistory housing to be built on the land. The units remaining after the allocation to landowners were put on the market [...]This led to the formation of residential areas with inadequate infrastructure and densities far higher than those foreseen in plans" (idem). Since local governments could neither supply adequate housing nor facilitate the necessary transport services they retro-actively allowed bottom-up initiatives (idem). An example is the passing of an amnesty law to tolerate construction of informal houses – called *Gecekondu* (meaning: 'built at night) – while partially integrating them in the housing market. Another is the institutionalization of the *dolmuş* – a privately operated minivan that serves as a shared taxi –to facilitate affordable transport to lower and middle income groups.

4.1.2 Neoliberal, urban governance reform

The post-1980s, or what Tekeli (2009) calls, 'the erosion of modernity', marks a shift from central state entrepreneurship, integrating national markets and encouraging import substitution industries (ISI) towards private entrepreneurship, opening the national economy to global markets, enhancing domestic competitiveness, flexible, non-unionized labor and eroding redistributive policies. The adoption of neoliberal policies and export-led growth strategies significantly transformed Turkey's economic geography. While space was hence considered a key element of political economic restructuring since the 1980s urbanization became the main spatial strategy to encounter capitalist contradictions and crisis tendencies (idem). The pace of urbanization accelerated further – Turkey's urbanization rate increased from 44% in 1980 to 77% in 2012 (Turkstat, 2012) – and big corporations became key players in this process. Accompanied by the construction boom and intensified speculation on urban land, cities expanded by means of large-scale projects, including industrial parks, warehouses, sites for specialized production, wholesale trading centers, free-trade zones etc. (Esen, 2009).

In turn, Turkey's cities have become competitors in a zero-sum game where export-led growth and cultural policies are deemed the most effective local strategies to foster economic growth (Yüksel, 2011). Cities with the resources to mobilize their competitive advantage (adequate physical and social infrastructure, existing accumulated local capital and a cheap and flexible labor force) have greater capacity to maneuver in global capital flows (idem). Complemented with institutional frameworks (subsidies, empowerment zones and state incentives) these resources directly influence the development paths local agents set out (idem). While large economic hubs, such as, Istanbul, Izmir, Ankara and Adana, witnessed significant growth in terms of population size and economic output, in particular, adoption of neoliberal and export-oriented policies fuelled a new wave of industrialization in a number of medium-sized cities in Anatolia, including Gaziantep, Şanlıurfa, Çorum, Denizli, Kayseri and Konya, also known as 'the Anatolian Tigers' (World Bank, 2015). The spontaneous growth of 'the Tigers' has fed popular acclaim among Turkey's policy makers over the potential of local empowerment and the mitigation of inter-regional disparities (Ministry of Development, 2013).

Re-scaling State and Locality

The adoption of neoliberal, export-led growth policies was also paralleled by a number of urban governance reforms. Similar to many countries, centrally directed urban development

became increasingly "redifferentiated" and "rescaled" "so as to correspond more directly to the (actual or projected) imprint of transnational capital's locational preferences" (Brenner, 2004: 16). One crucial element of Turkey's state re-scaling concerns the designation of well-performing city-regions as motors of the national economy (State Planning Organization, [*Devlet Planlama Teşkilatı*] in short: DPT, 1982). Another is the mobilization of local business associations by state ministries, including, KOSGEB (Small and Medium Industry Development Organisation) and TUSIAD (Turkish Industry and Business Association), to act as key players in local urban development (Bayırbağ, 2008; Çiçek, 2017).

Second, state re-scaling and the associated erosion of fixed scalar hierarchies have brought localities in new entanglements with the national and the global. On the one hand, cities find themselves entangled in broader fields of power and circuits of capital that transcend national boundaries. Through coalitions and alliances with NGOs and state institutions operating at different scale levels local actors in urban economies are able to equip themselves with new strategies and tactics so as to connect more aptly to global flows of capital and information while extending their spatial reach of influence (Yuksel, 2011). Moreover, cities have become subjected to new forms of institutional organization and political and economic coordination with the inclusion of supra-national organizations, such as, the EU and UNESCO. For example, as part of Turkey's candidacy for EU-membership the government has established Regional Development Agencies (*Karacadağ Kalkınma Ajanslari)* to act as a new layer of territorial cohesion (see section 4.3). Moreover, cities increasingly cooperate with EU-related institutions (domestically and internationally) while local elites attempt to secure (non)financial benefits provided by the EU through projects (Bayırbağ, 2008).

On the other hand, power-relations within cities have changed dramatically. With the creation and mobilization of local industrial and business associations urban agency increased substantially under leadership of the local bourgeoisie (Bayırbağ, 2008). For example, apart from pre-existing local capital, non-unionized labor regimes, infrastructure investments, state-initiated industrial programs and privatization of export-oriented enterprises, the growth of the Anatolian Tigers is closely related to associations of small –and medium enterprises (SMEs) run by local families and the emergence of political Islam and Islamic business institutions, such as, MÜSAID (The Independent Businessmen Association) and TUSKON (Turkish Confederation of Businessmen and Industrialists), that enhanced trust among local industrials and between local and national agents (Özcan, 2000; Buğra 1997; Yuksel, 2011).

The Metropolitan Municipality

Third, re-scaling of statehood was ratified with the establishment of a new form of municipal institutionalism: the 'metropolitan municipality' (*büyükşehir belediyesi*). In 1984 then prime minister Turgut Özal implemented a two-tier metropolitan municipal model extending the jurisdiction of municipalities with large populations to provincial boundaries[39]. Metropolitan municipalities, the first tier, are divided into district municipalities (*ilçe*), that are made-up of newly created urban districts and the smaller municipalities in the former province and function as the second tier. The rationale for establishing metropolitan municipalities is to

[39] The first municipalities to obtain a metropolitan status were Istanbul, Izmir and Ankara. Between 1986 and 1993 eleven municipalities were added, including Diyarbakir. In 2012 all provinces with over 750.000 inhabitants obtained the metropolitan status, expanding the number to 30.

increase local planning coordination, manage the urban footprint (i.e. preventing congestion and sprawl), enhance intra-local economic integration and reduce intra-local disparities (e.g. by adjusting developments in cities to their rural hinterland). Metropolitan municipalities are entrusted with the planning, programming and implementation of large-scale investment, delegated functions regarding water utilities and transport and manage the former provincial assets (World Bank, 2015). This has boosted their capacity to attract capital and firms, generate agglomeration economies and to align housing markets to labour markets (idem).

Following Yüksel (2011), the birth of the metropolitan municipality elevated the status of the metropolitan mayor to "a true entrepreneurial urban manager" bringing local administrations to the agenda of local interest groups (p. 439). In coalition with local bourgeoisies metropolitan municipalities have developed their own cooperative techniques to increase local competitiveness (e.g. by privileging investment in local industries at the expense of former business-oriented urban politics) (idem). Through new tactics for the transfer of private capital (e.g. via sub-contracting mechanisms for infrastructural projects and close cooperation with large real estate developers in the housing market) Metropolitan municipalities contributed to the increased circulation and accumulation of capital in cities (idem).

4.1.3 Decentralization vs. centralization

However, despite claims of decentralization Turkey's urban governance is still characterized by a centralized spatial planning system coupled with weak regional and local planning institutions[40]. State influence on local development is riveted further through the ministry-governor-mayor triangle[41]. Re-scaling of statehood and local empowerment did not simply entail the withering away of central planning (where statehood power shifts to localities as in communicating vessels) but rather changed the qualities of these ties. In fact, since the 1980s the state has crafted several institutions to enhance its grip on local development.

Restructuration of the real estate sector and the re-definition of TOKI

In order to respond to the rapid urbanization at the time, in 1984 the Özal administration provided the first state-led intervention in the housing market by passing the Public Participation Law (No. 2985) that provisioned finance for low income households at nominal rates and called for the establishment of a central housing agency: the Mass Housing Administration (TOKI). TOKI, established in 1990 with the aim to promote private sector supply of large-scale housing projects, developed a "wholesale" supply mechanisms to

[40] In 1991 Turkey signed the European Charter of Local Self-Government, but put restrictions on nine articles, meaning that local authorities cannot determine their internal organizational structure; have no increased access to financial resources; may not form associations with other local governments (inter)nationally; and have no right to judicial recourse when obstructed from exercising their legislative powers (ICG, 2012).

[41] Turkey's provinces have governors appointed by the central government and elected mayors from their constituencies. Ankara appoints the governors, police chiefs, judges, teachers, and heads of local administrative departments, such as education and media supervision. "Elected mayors and municipal councils have authority over water, sewage, garbage collection and local transport, but little say with regards to other core services, including health, education and major infrastructure" (ICG, 2012). While, in theory, the governor can only exert supervisory powers, in practice, the municipality requires his submission for every single decision, including the allocation of names to streets and parks. While, legally, the governor cannot block municipal and provincial plans, the court can block both for administrative reasons based on the input of the governor (idem).

provide affordable housing to low and middle income households (World Bank, 2015). Rather than supplying low income housing directly through the public sector the state used market mechanisms that encouraged real estate developers and contractors to enter the market by leveraging public land as a subsidy (idem). The emergence of TOKI as a powerful state broker that does not only finance housing projects but also mobilizes land by cutting red-tape and streamlining administrative procedures – thus wearing multiple hats – has substantially boosted Turkey's housing stock and enabled the housing supply market to scale up, making ample room for powerful real estate developers and contractors (idem).

Moreover, in response to municipalities' increased power over zoning of urban land, since 2002 the ruling AK-Party (Justice and Development Party) has implemented institutional reforms to restructure the real estate market. In 2004 the government made the construction of *gecekondu's* a criminal offense under article 5237. In addition, it passed a new Municipality Law (art. 5393) endowing district municipalities with the legal powers to implement urban regeneration projects in obsolescent and risk-prone areas in partnership with TOKI. While this enlarged metropolitan municipalities' jurisdiction it also reduced their maneuverability as TOKI appeared as "the most powerful real estate developer in the country" and is the only agency endowed with the regulation of zoning and sale of treasury land (Yüksel, 2011: 441).

While TOKI initially solely engaged in large-scale housing projects in urban peripheries and mainly acted as a facilitator for low income households, since 2000 it has been increasingly involved in urban regeneration projects and has become more oriented at encouraging entrepreneurship and generating profit. Between 2003 and 2010 it constructed 500,000 housing units, 432 trade centers and 137 hospitals. As TOKI was officially affiliated to the prime minister in 2003 and has become a fully self-financing organization that generates high revenues under market conditions, it "plays a formative role in the emergence of multiscalar modes of local governance" and "operates as a mediator between various socio-spatial scales and creates links between seemly distant subjectivities such as gecekondu populations and supranational financial institutions" (idem). However, TOKIs wholesale housing supply model, using revenue-sharing with real estate developers and contractors, forms a serious obstacle to providing affordable housing to low income households. Today, only 22% of its total housing stock accommodates low income households (World Bank, 2015: 6).

The Southeastern Anatolia Project (GAP)

Another institution that signals centralization of Turkey's spatial planning is the Southeastern Anatolia Project (GAP). GAP is a comprehensive, development project, mainly targeting the former provinces of Gaziantep, Şanliurfa and Diyarbakir, that aims for socioeconomic integration and highly modernized, agro-industrialization given the underdevelopment of Southeast Anatolia. In 1986 DPT united all projects under a 'GAP administration' that was established as a central government agency rather than serving under a regional government.

While, initially, the project consisted of a number of interrelated dams and hydroelectric plants on the Euphrates River to provide nation-wide energy supply and double domestic, irrigable farmland, during the 1990s GAP evolved into a macro-scope, multi-sector program, including energy, agriculture, transport, education and infrastructure. In relation to the adoption of export-oriented growth policies, the project gradually changed from a state-led, regional development plan to a market led, regulatory framework; a move that was paralleled

by the redefinition of GAPs goals in terms of sustainable development, equity, participation and social justice through the Sustainable Development Plan (SDP). These shifts proved a valuable strategy to attract funds from supra-national institutions, such as, UNICEF, UNDP, EU, FAO and World Bank. In 2010 total investments in GAP reached 32 billion US dollars.

Still, so far GAP has neither succeeded to transform Southeast Anatolia into a modern agro-industrial region nor fulfilled its goals of socioeconomic integration (Yüksel, 2011). Despite GAPs sub-regional project "Village Return and Rehabilitation Development Plan" (1998), the number of rural dwellers has nearly halved in the past decades. Only one fifth of the irrigation targets are met. Excluding Gaziantep, which harnessed the main bulk of export-led manufactures and dominates the Middle Eastern market, the other GAP provinces still have stagnant economies and did not witness a significant increase of its (export-oriented) industries (Bayırbağ, 2008). In addition, GAP has been fiercely criticized by local agents[42].

4.2 Diyarbakir's urban revolution

To provide the necessary content and context of Diyarbakir's urban issues this section describes Diyarbakir's urban development history over the past 100 years (4.2.1) and the current (local) urban and (inter-)regional disparities that characterize the city region (4.2.2).

4.2.1 Diyarbakir's urban development history

Diyarbakir's urban development over the past 100 years displays some notable deviations from Turkey's urban development history. Despite being Turkey's third economy based on workplaces in 1927 (DPT, 1972) until the 1960s the state provided little support to Diyarbakir's industries. Implementation of road and rail connections primarily intended to facilitate the exploitation of minerals, metals and agricultural products and, unlike Istanbul, Izmir and Ankara, electricity grids, sewage systems or service pipes were not installed. As agriculture remained the dominant sector in the region urbanization was virtually absent and Diyarbakir's urban morphology remained confined to the historic city centre (see figure 21).

At the same time, and similar to many other nation states and post-colonial governments, the state used modern architecture and urbanism as a way to implement its secular and modern ambitions. By the 1930s Turkey's initial strive for modernity was supplemented with a profound emphasis on nationalism (Güvenç 2011). An example of how modern, nationalist ambitions were inscribed in the cityscape is the *Dağkapı Square*.[43] Another is the construction of two military bases North and South of the city-walls that, besides militarizing Diyarbakir's urban space, still form large physical obstacles to urban expansion up to date (see figure 22).

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[42] Local administrations and NGOs claim that the dams have deteriorated the socioeconomic structure of the adjacent villages and displaced 25.000 people due to the flooding of about 90 villages while fearing for the loss of historic artifacts of Kurdish, Armenian and Assyrian habitation with the projected flooding of the ancient city *Hassankeyf*. Diyarbakir's municipal officials complain that while the power stations are located in their jurisdiction the electricity grid is run by the governorship, malfunctions and fails to provide equal access to electricity (ICG, 2012).

[43] In 1931 the governor of Diyarbakir decided to demolish a section of the historic city-wall as, in his words, "the city could not breathe", and replaced it by a long rectangle square dressed with a modern clock tower and a statue of Ataturk. On one end of the square, a poster of Ataturk and a Turkish flag are positioned on top of the citadel. On the other end, a large mural of Ataturk in military gear is painted on an 11-story building with the inscription, *'Those from Diyarbakır, Van, Erzurum, Istanbul, Thrace, and Macedonia are the children of the same race, the veins of the same one*'.

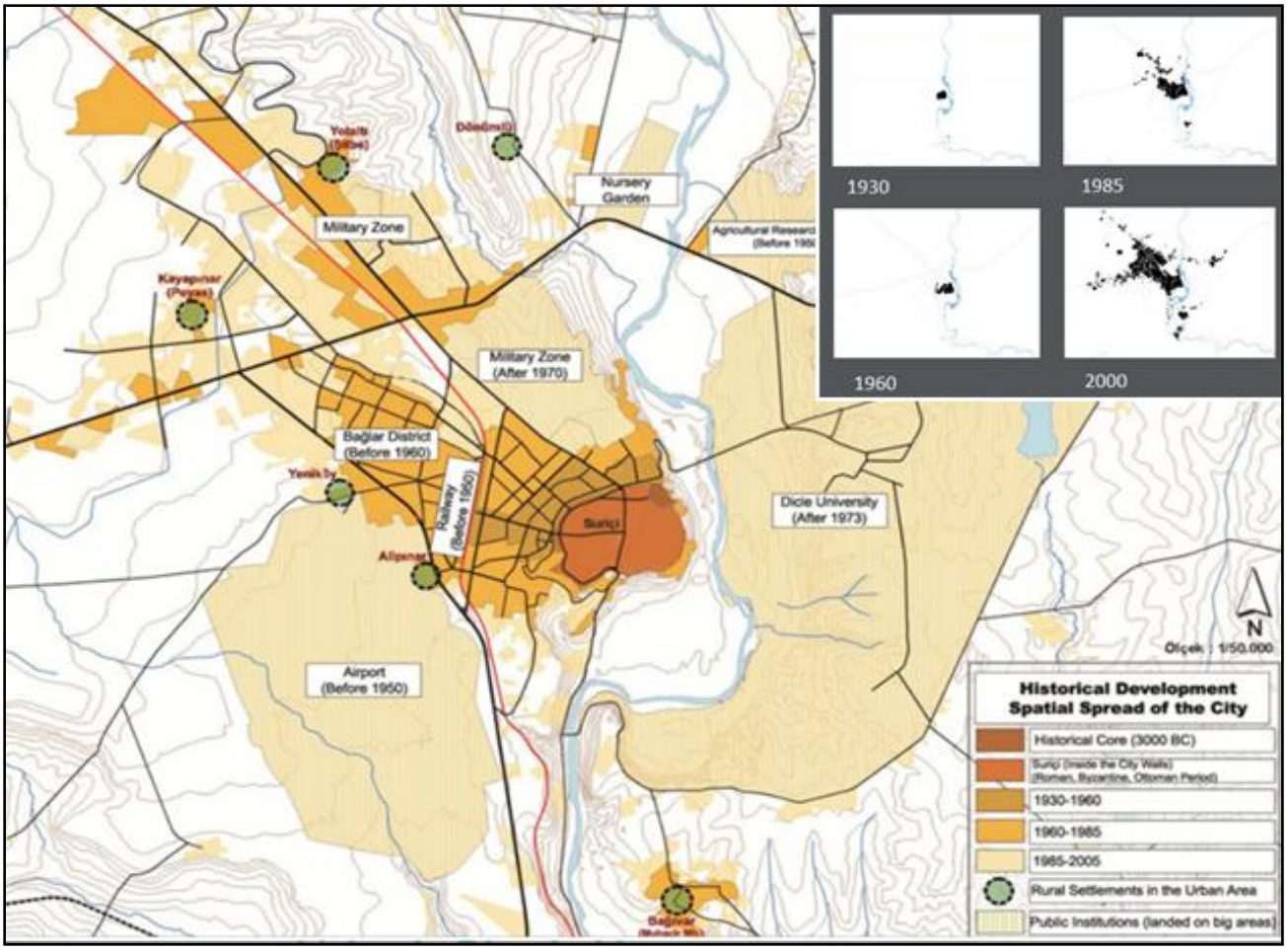

Figure 21: Historical evolution of the spatial morphology of Diyarbakir city (Source: Les Ateliers, 2011)

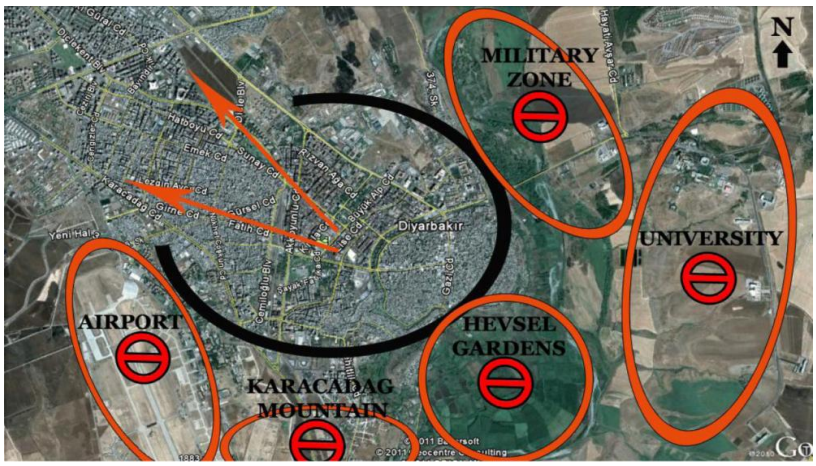

Figure 22: Photo image of Surici, the Hevsel Gardens and physical obstacles to urban expansion that direct urban growth to the northwestern axis (Source: Les Ateliers, 2011).

1950s-1970

During the period of popular modernity mechanization and Marshall help brought modernity to Turkey's country-side and initially its southeast. Basic amenities and resources, including, electricity, sewage systems and paved roads were installed in Diyarbakir. Rich farmers and land-owners from the surrounding country-side settled in the city. A process which sparked minor industrial development and commerce but could not revive Diyarbakir's earlier status as a regional center of production and exchange. By 1972 the province had fallen to 27th economy based on industrial output (DPT, 1972). Still, the city grew from 65.000 in 1956 to 150.000 inhabitants in 1970. To accommodate for the new urban dwellers the central

government allowed urban expansion north and northwest of Suriçi. However, due to a shortage of affordable housing most rural migrants settled in *Gecekondu*'s along the city walls. More affluent migrants as well as residents from Suriçi moved into modern apartment blocks in the newly realized middle -and upper-class neighborhoods of Yenishehir (*New-city*) and Ofis (*Office*). These neighborhoods, characterized by modern, offices and boulevards and squares, gradually became Diyarbakir's administrative and commercial center.

1980-2000

Between 1980 and 2000 the pace of urbanization accelerated further. The population of the city increased from 230.000 to 550.000 inhabitants, and while the urbanization rate had slowly increased from 30% in 1970 to over 40% in 1980 by 2000 the number exceeded 60%, therewith catching up with the national average which was set at 65% in the same year (Turkstat, 2012). The vast increase of Diyarbakir's urban population in this period is largely due to destruction and evacuation of about 3.000 villages in Southeast Turkey during the war between the State and the PKK in the late 1980s and early 1990s and the consequent forced migrations that affected an estimated 3 million people (Tezcan and Koç, 2006). Moreover, agricultural reforms had made life in rural settings economically untenable (Jongerden, 2010).

Rapid urbanization had profound impacts on the Diyarbakir's urban morphology and the socioeconomic conditions in the city. Due to strict zoning of urban land by state ministries between 1980 and 2000 the city expanded solely to the northwest. The *yapsatçı* (built-and-sell) strategy – the main provider of middle class housing – adopted a mass building model that did not only target dweller's needs but especially aimed at creating surpluses (i.e. profit through rent-seeking), which resulted in large scale construction of unplanned apartment units. Most rural migrants, who had lost all their possessions and productive assets during the armed conflict between the State and the PPK and did not have access to affordable housing, spilled into Suriçi and Bağlar (the latter houses approximately 400.000 resident today). High - and middle class residents of Suriçi and Yenishehir moved to the suburbs to evade poverty, congestion and crime that the IDPs (internally displaced persons) and rural migrants had brought with them. This propelled the fast devaluation of urban land and real estate in formerly affluent neighborhoods, such as, Yenishehir. In result, the city became increasingly marked by wealth disparities with rich suburban neighborhoods and poor downtown districts.

2000-preent

The 2000s marks the start of a period of relative stability in which civic organizations and NGOs became key actors to mitigate the effects of city's polarized urban 'fabric' (see section 4.2.2). Due to the ongoing influx of rural migrants the city witnessed a fourth wave of expansion, growing from 800.000 inhabitants in 2000 to 1.1 million in 2012. As a result of the Metropolitan Municipality Law, which enlarged its legal and financial capacities, the election of the BDP to the municipality, and the lifting of the Emergency Law (OHAL) in 2002, the Municipality of Diyarbakir gained control over the urbanization process (Yüksel, 2011).

The metropolitan municipality has undertaken various projects to transform Diyarbakir into a modern city. Besides the development of a new bus station, improving public transport and sewage systems and the construction of social service centers, it has put considerable effort in the preservation and re-construction of Diyarbakir's cultural and historic heritage via urban regeneration projects in the historic city centre (more on this in section 4.4.2). At the same

time, the municipality has put considerable focus on urban expansion, mainly centering on the district of Kayapinar on the northwestern axis. In the late 1990s Kayapinar, formerly belonging to the village of *Peyas*, was redefined as a *belde* (an inter-mediate zone between village and urban district) in order to accelerate the zoning of urban land (Yüksel, 2011). On par with the Ministry of Development, in 2006 the municipality implemented a Metropolitan Master Plan; a long-term integrated land use plan that addresses all major urban problems (i.e. the continuing influx of rural migrants and IDPs, low rates of industrial manufacture, lacking infrastructure and transport etc.) and includes designated zones for housing, commerce, industrial manufacture and ecological preservation. The urban expansion in Kayapinar was facilitated through the broadening of the Elazig-Urfa road to a capacity of twelve lanes. In result, Kayapinar became a construction paradise. Its population grew from 3.000 inhabitants in 1991 to 326.154 in 2016 while land prices increased 50-fold between 2005 and 2011.

These developments boosted Diyarbakir's construction sector. Between 2000 and 2010 the number of local construction companies tripled. In tandem with TOKI and the governorship the metropolitan municipality has coordinated land use transformations and the transfer of land to the private sector. This created ample space for large construction companies, such as, Ensarioglu Holding, AZC Holding and Bektas Yapi, to develop a number of 'chic' housing complexes – mainly luxurious gated communities (or *Cités*), such as, Gold Park, Misstanbul, Doga Park Houses, Mezz Residence, Palmiye Houses, Diamond City and Polat village, equipped with security personal, social facilities and parks – and wholesale centers, such as Nineveh Park and Ceylan Park. With the regeneration of Ofis, involving, the attraction of new commerce, coffee and film houses, book stores, trans-national franchises, such as Gloria Yeans, and the development of an art street, Yenishehir, hitherto plagued by depressed real estate values, has become the main attraction for the young and trendy (Gambetti, 2004).

While improved coordination of urban development by the municipality has enabled increased circulation and accumulation of private capital in urban space, the absence of a comprehensive, integrated urban planning regime and inadequate land valuation and pricing policies still form large obstacles to efficient land use and urban expansion. Similar to most Turkish cities, unregulated urbanization in the 1980s and 1990s resulted in horizontal bid-rent curves with declining real estate values in downtown districts and speculative rises in land and real estate markets in the suburbs (World Bank, 2015). As the city centre is completely utilized and faces severe problems of congestion the main bulk of Diyarbakir's manufacturing, construction and service industries prefer to locate in the suburbs – mainly along the Elazig-Urfa road. The recent proliferation of Ofis could be seen as a response to the resulting rent-gaps in the downtown districts. Moreover, speculative land prices do not only pose a threat to Diyarbakir's construction sector but also to its already compromised manufacturing and service industries as these may alter local firms' locational preference over time. Moreover, undervaluation of agricultural land has propelled excessive urban sprawl, which, creates a mismatch between the city's economic footprint and its administrative boundaries.

4.2.2 Urban and regional disparities

Diyarbakir is subjected to profound patterns of uneven development, displaying inequalities along a multiplicity of "cleavages" and "modalities". These inequalities and the processes that engender these, unfold through many layers of the social structure and spatial (urban) fabric.

Intra-local urban inequality

Diyarbakir could be described as a 'divided city'. Divided between the wealthy and the poor; modernity and tradition; male and female; formality and informality; extreme control and bureaucracy vs. a lack of institutions and illegality; urban and rural occupations and lifestyles. These divisions are also clearly expressed in Diyarbakir's urban topography.

Suriçi is characterized by a complex and dense physical structure – a maze of narrow alleys packed with street vendors and young men with handcarts filled with fruits – where historical buildings and sites intersperse with impoverished and squatted houses. Its manufacturing and service industries are confined to small retail and catering and ateliers that apply traditional methods of production. The shanty towns around Suriçi as well as the Bağlar district house the main bulk of rural migrants and IDPs who have adapted the buildings and 'privatized' the public space to their own needs and preferences (Gambetti, 2004). Problems of poverty, unemployment, a growing informal market, homelessness, street kids, child labour and crime are primarily concentrated in these neighbourhoods: unemployment in Suriçi exceeds 30% and 75% of the population in the adjacent informal settlements live under the poverty line (International Crisis Group, 2012). As 90% of the IDPs households' former basic source of income was agriculture and animal husbandry, lacking adaptation to the new urban economy turned these people into 'unskilled' workers with insufficient opportunities to integrate in the reformed labour markets (Development Centre, 2010). In fact, many have maintained their traditional life-styles and occupations (including, animal husbandry and poultry) in the city.

Kayapinar, on the other hand, characterized by 'infinite' series of monotone and neatly ordered, modern, multi-story apartment units, gated communities, large shopping malls and wide avenues packed with luxurious SUVs, reflects the global and regional aspirations of 'the new Diyarbakir' and associated social imageries of an affluent urban future. It constitutes a wealthy safe-haven to its inhabitants (secluded from the dangerous downtown districts) and offers a secure and prosperous climate for industry and commerce (Yüksel, 2011). Local councils and NGOs, however, are concerned that such developments will further reduce encounters between the vernacular groups (rural migrants, IDPs and traditional locals) and the new middle and high class populations. For example, most residents of Kayapinar do not visit Suriçi as they prefer the secure and comfortable shopping malls and international franchises over the latter's confusing alleys and presumed 'charlatan' shopkeepers. At the same time, Suriçi and Bağlar' residents are rather excluded from Kayapinar's facilities and activities.

A story of an architect at the Association of Municipalities about a community conflict in *Peyas* offers a small-scale example of Diyarbakir's segregated urban landscape After the development of Kayapinar the village of Peyas, mainly inhabited by 'traditional' farmers, found itself encapsulated by chic suburban apartment units. The new neighbors have already expressed their dissatisfaction to the district municipality about the cattle grazing in their backyard. The villagers of Peyas, in turn, complain about the lack of space for cultivation, husbandry and to conduct their daily social routines.

Inter-regional disparities

According to the municipality the endemic inequalities in Diyarbakir should be understood in the context of inter-regional disparities and the mass flow of IDPs to the city which severely unsettled the social and economic structure of the city. Despite popular acclaim about the

potential of regional integration and local empowerment, with the rapid growth of the Anatolian Tigers since the 1980s, in fact, inter-regional disparities have increased: nineteen cities alone account for 90% of total manufacturing workforce and production (Yüksel, 2011). The economies of the 22 provinces in East and Southeastern Anatolia, which have a majority Kurdish-speaking population, lag far behind (Ministry of Development, 2013) (figure 23) and half of the population lives under the poverty line (International Crisis Group [ICG], 2012).

Around the 1900s Diyarbakir was a polyglot city that constituted the largest textile industry hub in the Middle east and an regional centre for agriculture and mining (DTP, 1972). While Diyarbakir ranked third out of 81 provinces based on the number of employees in industrial production, today, it is one of Turkey's poorest provinces, ranking 61st (DTP, 2003). Diyarbakir has one of the highest unemployment rates in the country, around 15-20% (idem). In 2011 GDP per capita ranked below 6.200 euro, equaling to less than half of the national average, which was set at 13.600 (Eurostat, 2014). In 2009 income per capita was estimated below 1.500 USD (less than a fifth of the national average). Moreover, it ranks 73rd out of 82 provinces in education (RDA-SA, 2010).

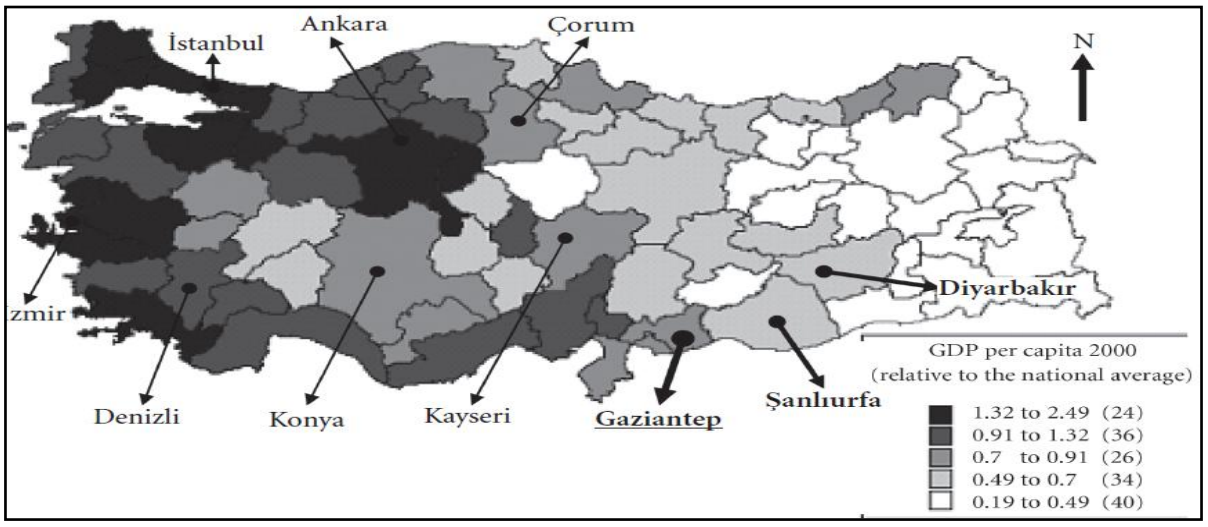

Figure 23: Uneven development in Turkey in 2001 measured in GDP at the provincial level (NUTS-3), the Anatolian Tigers and the municipality of Diyarbakir. (Source: Bayırbag, 2010: 365)

The underdevelopment of Southeast Anatolia and Diyarbakir's economic decline throughout the republic have been attributed to varying and disparate explanation, including the violent PKK-State conflict; corruption; erroneous governmental policies; destruction of assets; a disproportionally low rate of public investments[44]; and a lack of private investments and pre-existing accumulated local capital[45]. Some academics argue that the disparities should be understood in the context of a structural and violent process of assimilation of ethnic, cultural

[44] While East and Southeast Anatolia combined make up 26% of the total land mass and 16% of the total population between 1990 and 2010 it only received 8% of total funds. Six percent of total investments reached Southeast Anatolia alone. Excluding Gaziantep only 1.5% (ICG, 2012).

[45] The interview respondents demonstrate a remarkable opposition between central state organizations and local actors' explanations of Diyarbakir's economic setback. The RDA-SA blames the PKK for the mass flow of IDPs to the city and attributes the absence of integrated, comprehensive planning to the disobedient and activist attitude of the Metropolitan Municipality. The metropolitan municipality and local NGOs, on their part, attribute local economic decline to the central state's inability to alleviate inter-regional disparities and its unwillingness to support BDP administrations.

and religious 'others' aimed at creating an ubiquitous Turkish identity (van Bruinessen, 2013; Yüksel, 2011; Gambetti, 2008; Öktem, 2004; Yadirgi, 2014, 2017)[46]. Within this context, State interventions voice a structural dismay of the local economy. One key problem is that the local economic structure has been repeatedly torn-down and local economic elites were forced to resettle[47]. Such events were accompanied by the disappearance of local manufactures and agro-industries, absence of compensation efforts and disproportionately low rates of state investments in local industries and infrastructure.

A stepping stone for rural migrants and IDPs

Diyarbakir's economic stagnation and the structural underdevelopment of East and Southeast Anatolia also have profound demographic repercussions as it has turned the city into a stepping-stone for rural migrants. While the city of Diyarbakir is subjected ongoing rural-urban immigration (from the adjacent villages and provinces) at the same time a pattern of emigration (from East and Southeast Anatolia to the urban centers in Turkey's west and south) has been unfolding over the last three decades (Ministry of Development, 2013). However, and due to the high fertility rates in the province the overall metropolitan population has still increased from 778.150 inhabitants in 1980 up to 1.661.074 in 2015 (Deniz, 2013).

4.3 Regional Development Agency

This section describes the urban conceptions and interventions of the Regional Development Agency Diyarbakir- Şanlıurfa (in short: RDA-SA). Section 4.3.1 describes the founding rationale of Turkey's regional development agencies, in general, and the administrative unit and objectives of RDA-SA, in particular. Sections 4.3.2 and 4.3.3 describe Turkey's urban geographical trends that inform the urban growth and regional development trajectories the Ministy of Development (2013) and the RDA-SA (2010, 2015) have articulated for Diyarbakir as well as the challenges and opportunities the RDA-SA is facing in this regard.

4.3.1 A new layer of territorial governance

The Regional Development Agency (*Karacadağ Kalkınma Ajansı*) Diyarbakir-Şanlıurfa (from here on abbreviated to RDA-SA) is a regional planning agency founded in 2009 as part of a new system of Regional Development Agencies (*Karacadağ Kalkınma Ajanslari)* which are established on behalf of the Council of Ministers in 2006 to act as a new layer of territorial governance and urban and regional cohesion. "The crux of their founding rationale is to develop an institutional mechanism to implement the regional development policies at [the] local level'" (Karacadağ Kalkınma Ajansı, n.d./n.p.). RDAs are "established in order to accelerate regional development in accordance with the principles and policies envisioned in the national development plans and programs [...] and to reduce disparities in and among

[46] While each emphasizes different aspects, all argue that the state has used reforms, oppression and large-scale forced displacements to weaken Kurdish identity and catalyze the assimilation process.

[47] As a result of the post-World War 1 massacres in the region and the deportations of about 150.000 Armenian and Assyrian from the city a large portion of Diyarbakir's economic elite as well as a number of important manufacturing cluster, such as, the Assyrian silk weavers and the Armenian zinc welders, disappeared (Dumper and Stanley, 2007; Taşğin and Mollica, 2015). Roughly ten years later Diyarbakir witnessed a mass exodus of notable Kurdish families following the State's response to the Sheik Said rebellion in 1925 and the consequent freeze on economic activities. Other periods of forced displacements that deteriorated the city's economic structure occurred during the Post World War II, 1960-1970, late 1980s-early 1990s in response to various Kurdish uprisings.

regions" (idem). Together, they act as a new decision making model that "employs *locality* and *good governance* as a base in realizing regional development"[48] (idem).

Figure 24: Turkey's NUTS-2 Regions and TRC2 (Diyarbakir-Şanlıurfa) Region. Source: Karacadag Kalkınma Ajansı (2015:15).

Another rationale for establishing the RDAs derives from Turkey's application to accede to the European Union (EU). As part of its candidacy Turkey is included in the Nomenclature of Territorial Units for Statistics (NUTS)[49]. Turkey's NUTS-regions are appointed by the Turkish Statistical Institute (TurkStat) and the Ministry of Development jointly, and are classified on three levels: there are 12 NUTS-1 regions, 26 NUTS-2 (sub-)regions, and 81 NUTS-3 regions. The division of NUTS-3 regions corresponds to Turkey's provinces and Metropolitan Municipalities (see figure 23). RDAs operate on the level of NUTS-2. The region of the RDA-SA (TRC-2) comprises of the metropolitan municipalities Diyarbakir and Şanlıurfa (see figure 24) and is the only NUTS-2 region in Turkey with two regional centers.

One of the main tasks of the RDA-SA entails enhancing urban planning coordination between the central government (Ministry of Development and Ministry of Environment and Urbanization) and the Metropolitan Municipalities of Diyarbakir and Şanlıurfa. To this end, the RDA-SA has developed a Regional Development Plan and a Territorial Regions Plan (*Bölgesi Bölge Plan*) 2014-2023 (see Karacadağ Kalkınma Ajansı, 2010 and 2015). The objectives of these plans are defined in line with the national development plan set out by the Ministry of Development (*T.C. Kalkınma Bakanlığı* (2013). However, RDAs have no formal responsibilities: "in line with *Article 3194*, legally their regional plans are non-binding" (Respondent A). Therefore, urban and regional policy-vision and governance objectives would, in fact, be a more adequate portrayal than actual development plans.

4.3.2 Urbanization and Turkey's urban geography

The policy-vision and planning objectives of the RDA-SA are articulated conform a particular conception of the role and functioning of urbanization; and, hence, of the nature of cities.

[48] 'Locality' refers to more efficient utilization of local resources and local empowerment. 'Good governance' means that, apart from merely distributing grants, RDAs facilitate "cooperation and collaboration among public, private and non-profit sectors" (idem).

[49] Note that 'Turkey's NUTS-regions' are officially called "statistical regions", since the EU and Eurostat only define NUTS regions for its member states, (Eurostat, n.d.).

Thus, urban knowledge is a crucial element for how the RDA-SA understands (different manifestations of) urbanization in the city-region of Diyarbakir and informs and legitimizes its policy-vision, in response. Moreover, besides the application of urban knowledge, the RDA-SA also produces urban knowledge(s) itself. Within the RDAs Secretary General the Planning, Programming and Coordination Unit is concerned with the collection, analysis and monitoring of data in order to inform decision making at the national and local level.[50] Importantly, because Turkey's development plans work in a top-down manner, the policy-vision and planning objectives of the RDA-SA ought to be understood in the context of the national vision on urban and regional development.

Definition of urban space and settlement space hierarchy

Similar to Storper and Scott (2016) the Ministry of Development's (2013) territorial cohesion policy approaches the city as a self evident, empirically observable object and a bounded spatial unit corresponding to a particular settlement type (that, as such, can be distinguished from the rest of topographic space) and urbanization as the redistribution of people from rural to urban settlements. Conform State Planning Organization's (1982) hierarchical classification of settlement spaces, all administrations with over 20.000 inhabitants (regardless whether these are district centres, provincial centres, regional –or industrial growth poles) are defined as urban settlements. All administrations with less than 20.000 inhabitants are defined as "rural settlements". Moreover, specific economic activities are projected on both types of space. While rural space are considered to harbors functions related to agriculture only, urban settlements function as centers of commerce, industry and services (SPO, 1982; Öğdül, 2010).

Stages	Unit number	Property	Function
1	35.118	Rural Settlement	Agricultural production
2	1267 (+78)*	Village Group Center (Town)	Trade / Service / Agricultural Production
3	416 (+88)	Urban Central (County)	Trade / Service / Non-agricultural production
4	53 (+5)	Provincial Center (City)	Trade / Service / Industry
5	11	Regional Center	Sub-regional scale of Commerce, Industry and Services: ***Bursa, Eskişehir, Konya, Kayseri, Diyarbakır, Samsun, Sivas, Erzurum, Malatya, Elazığ ve Trabzon.***
6	3 (+1)	Regional Metropolis	Metropolitan Functions: ***Ankara, İzmir, Adana, (Gaziantep)***
7	1	Territorial Metropolis	National and Transnational Functions: ***İstanbul***

Table 2: Turkey's settlement space hierarchy as defined by SPO (1982) in seven stages. Source: Deniz, 2013: 7). Turkstat and the Ministry of Development (2013) have curtailed the list to five types of settlement space by combining stages 1-2 and stages 3-4. (c.f. figure 25)

Conform the first settlement space hierarchy published by the DPT in 1982, the Ministry of Development (2013) and TurkStat's (2012) have advanced a classification of settlement types

[50] This unit consist of urban and regional specialists (PhDs and post-graduates) who conduct both scientific and policy research on urban and regional trends and development in the TRC-2 region using regional data provided by TurkStat.

based on population size (TurkStat, 2012; c.f. Deniz, 2013) (see table 2 and Figure X). Settlements with a population below 20,000 inhabitants are defined "rural settlements". Settlements with a population between 20.000 and 50.000 are called towns. The distinction between rural settlements and towns marks the distinction between urban and rural space. Settlements with a population between 50.000 and 250,000, and between 250.000 and 500.000, are respectively small- and medium-sized cities. Settlements with over 500.000 inhabitants are called metropoles (idem). 'Urbanization' refers to the total sum of inhabitants living in settlements with over 20,000 inhabitants divided by the total population of a given area (e.g. Turkey or the TRC-2 region).

Turkey's urban geography

The Ministry of Development (2013) has set out the national development goals in the *Regional, National Development Strategy 2014-2023, 'Develop more Balanced and Altogether'*. In this report cities are portrayed as centres of economic production and exchange within larger systems of regional, national and international trade. Since the 1950s Turkey has witnessed a sharp increase in its share of urban population, which has radically impacted Turkey's economy. Between 1950 and 1980 the share of urban population almost doubled from 25% to about 45%. (World Bank, 2015). Concentration of capital and labour, pulling people, firms, households into closer proximity, has increased productivity. However, the most intensive growth of the share of urban population in Turkey has occurred in the last three decades growing from about 45% in 1980 to 75,5% in 2009 (RDA-SA, 2010). In this period, agglomeration economies have assisted the convergence of production and consumption markets. This has created beneficial conditions for the production of high-value goods and services and, accordingly, sharp increases in national economic growth. Between 1960 and 2013 the industrial share contribution to national GDP increased from 18% to 27%, while the share of the service sector increased from 26% to over 63% (World Bank, 2015). GDP per capita increased from 5,986 to 13,737 USD between 1980 and 2013 (idem). Patterns of firm location suggest that Turkey's first sixteen metropolitan municipalities account for about 60% of all registered firms (idem). Therefore, the Ministry of Development's (2013) *Regional, National Development Strategy 2014-2023* advances cities and urban growth as key engine of the national economic growth and (inter)national competitiveness. Moreover, it also underlines a potential socio-economic and cultural role of cities as agglomeration creates opportunities to enhance access to social amenities, health services and education, so as to increase rates of well-being and quality of life.

Inter-regional cohesion and local inclusive development

Initially, in Turkey the urban-rural distinction was only applied for classifying administrative units (municipalities) while territorial policies focused on regional development disparities. Since the 1990s, however, urban hierarchy in the domestic economy and regional centers have been considered key to spatiotemporal changes and differences in development levels (Öğdül, 2010). Conform EU member states' Spatial Development Perspective (ESDP) (ESPON, 2004), today leading institutions in spatial development and planning apply the urban-rural distinction in tandem with regional disparities in their territorial cohesion frameworks while reducing explanations of the latter to the former. The Ministry of Development's *Regional, National Development Strategy 2014-2023* advances urbanization as key to counter inter-regional inequalities and fostering inclusive development. It considers Turkey's cities to offer

the far better economic and social opportunities as well as standards of living for its residents as compared to its rural settlements.

In light of the proliferation of 'the Anatolian Tigers' since the 1980s, the Ministry (2013, 2014) argues that growth of its regional centres will facilitate *balanced* economic growth and socioeconomic development between regions. As such, further urbanization is viewed paramount to regional convergence. According to the Ministry of Development (2013), balanced economic growth of its regional centres requires an urban policy and governance regime that enhances local and inter-regional competitiveness by facilitating private entrepreneurship and local SMEs. Moreover, the desired spatial transition requires large-scale projects, especially regarding infrastructure, housing, industrial and energy. The establishment of Metropolitan Municipalities already presents one new form of territorial institutionalism to facilitate further concentration of people, firms, households, labor and capital in Turkey's main regional centers. However, to ensure balanced growth between regions, enhance local competitiveness and private entrepreneurship and, especially, enhance harmony between local and national spatial policies and actors establishment of the RDAs is critical.

4.3.3 The city-region of Diyarbakir in Turkey's urban geography

Diyarbakir in the urban age

Conform TTUT, the RDA-SA's (2010; 2015) *Regional Development Plan* and *Territorial Regions Plan 2014-2023* are informed by the empirical observation that more than 50% of its population lives in cities (see point 5) so that, similar to the rest of the globe, Turkey has become an urban society (Scott and Storper, 2014; Glaeser, 2011; UNFPA, 2007). Accordingly, for the RDA-SA the urban age presents an inevitable reality for Diyarbakir. Moreover, since it finds a significant correlation between growth of Turkey's urbanization rate and substantial increases in GDP per capita and shares of industrial and service sector contribution to national GDP, the RDA-SA considers urbanization of the city-region paramount to contributing to the national economic growth. Thus, for the RDA-SA past and continued urbanization presents both a *natural* and *appropriate* phenomenon for Diyarbakir and its key objective is to facilitate the city-region's adaptation to this new reality.

According to Zühal Deniz, a planner of the Planning, Programming and Coordination Unit of the RDAs Secretary General and PhD candidate, the key objective of the RDA-SA for the city-region of Diyarbakir is to "attract capital to the region" and "to reduce disparities within the region". The idea is that attracting capital is a prerequisite for realizing economic growth and, therewith, catching up with the more developed city-regions in Turkey (hence, reducing inter-regional disparities). Here, it views urbanization (i.e. the growth of the share of the population living in urban areas) the only spatial mode of development that can facilitate increased accumulation of capital. In addition, it considers urbanization a precondition for reducing local unemployment and increasing rates of well-being as it creates local trickle-down effects (e.g. job creation and increased access to social services, health services and education), thus, reducing intra-regional disparities.

Deniz explains that "the rationale of the regional development plans of RDA-SA (2010, 2015) can be traced back to the National Development Strategy of the Özal administration and the GAP project". In particular, she praises the large-scale housing and infrastructure projects

since the 2000s when the city expanded rapidly to the nortwest which has already enabled the increased accumulation of capital in the city-region. Moreover, with the new boulevards, housing complexes, shopping malls the city is now hosting is increasingly becoming not only a regional center for business but especially the middle and higher class.

Role of Diyarbakir in Turkey's system of cities

For the Ministry of Development (2013) it is important that each region devices spatial policies that accord to their regional center's respective strengths. Thus, each city has its 'own' role in Turkey's system of (inter-linked) cities. To this end, the Ministry's development report advances a specific classification of its main regional centers based on, amongst other, city size, economic (industrial) development and inter-urban and international location and connectivity (sea ports, border crossing, logistics) (see figure 25 below). In this classification Istanbul and Ankara are designated as "metropolitan centers" given their function as key economic hubs in the national economy. Izmir and Adana are designated as "metropolitan sub-centers while cities as Bursa and many of the Anatolian Tigers, including most notably Gaziantep are classified as "industrial growth center". These latter (third ranked) cities in Turkey's national urban hierarchy are display the highest annual increases in GDP per capita and gross economic output.

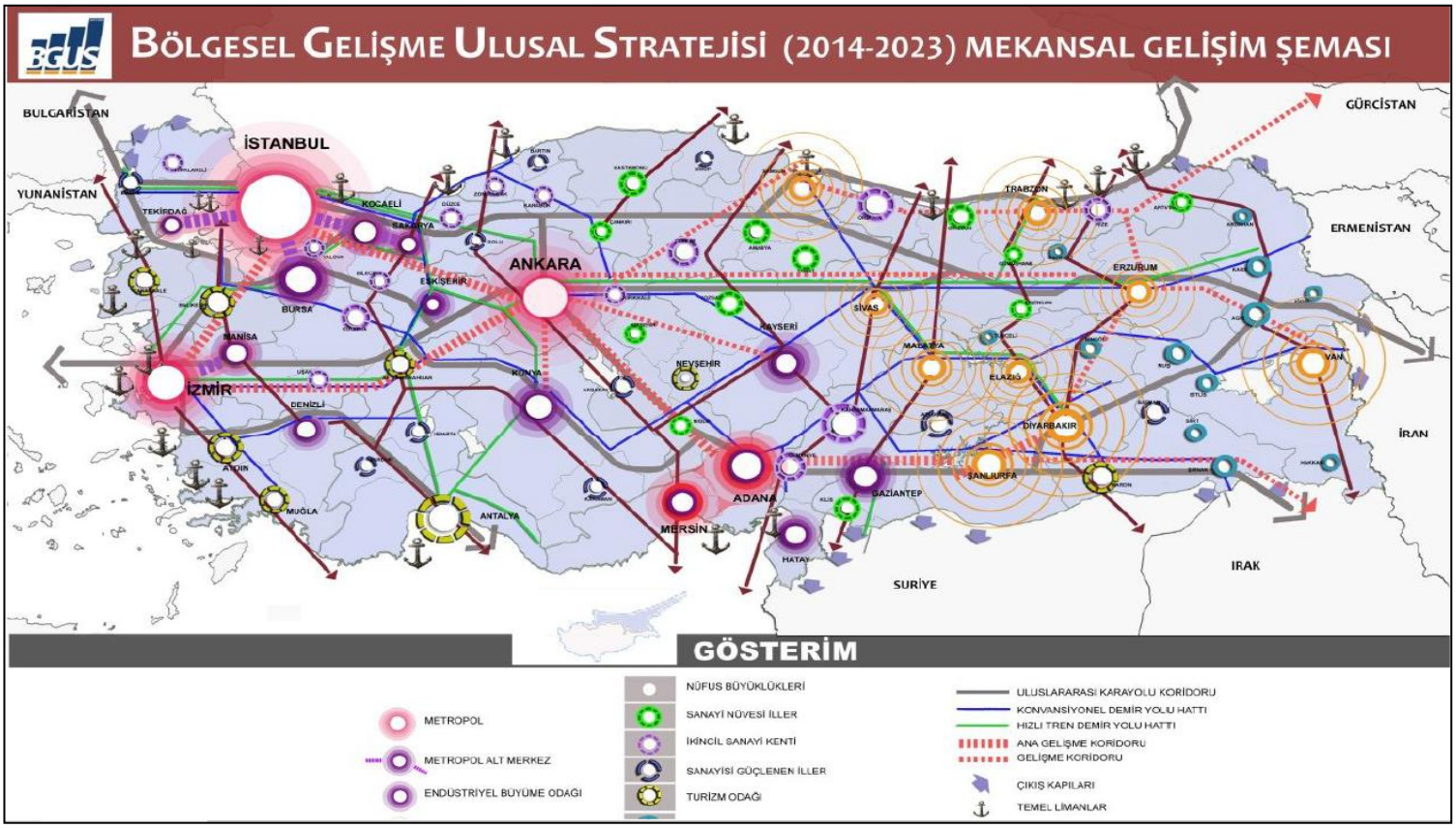

Figure 25: "National Strategy for Regional Development (2014-2023) Spatial Development Scheme" (Ministry of Development, 2013: 13).

The city of Diyarbakir has been labeled a "(regional) growth pole" as it is the largest city in its own former province and historically has been the economic, cultural and administrative center of the wider regions of Eastern and Southeastern Anatolia. The structural underdevelopment of the city-region of Diyarbakir and East and Southeast Anatolia

throughout the 20th century imply that industrialization, modernization and, hence, urbanization started roughly 50 years after Turkey's well performing regions. As a consequence of Turkey's entrance to the global market and the rapid rural-urban migration since the late 1980s and early 1990s, during the past 20 years the city-region has by-passed the early Modern industrial phases and associated modes of urban development and suddenly entered the urban age and global, post-Fordist economy. According to the Ministry (2013) and RDA-SA (2010, 2015), therefore, rather than short-circuiting the evolutionary stages of urban growth associated with consecutive modes of development (Storper and Scott, 2016), in order to contribute to the national economy, first, the city-region has to address the social, economic, demographic and institutional challenges related to the underdevelopment of the region (shifting from an agricultural to an industry -and service-based economy, modernizing agriculture, infrastructure, poverty, environmental degradation, migration etc).

Development challenges

While over the past 25 years the city-region of Diyarbakir has caught up with Turkey's well performing regions in the West as well as the Anatolian Tigers in terms of its urbanization rate as well as the city-size and population density in the city of Diyarbakir, it still displays poor development performances. Compared to the Anatolian Tigers, similar increases in its urbanization rate and city-size in the same period (1980-2012) have been paralleled by far lower increases economic development (read: GDP per capital, GVA and output Gross value added) socioeconomic development (joblessness, poverty, homelessness), education and infrastructure[51]. Low increases in (export-oriented) industrial manufacturing and innovation coupled with a sudden, rapid rural-migration the city of Diyarbakir has been transformed into a consumption-oriented local economy and a stepping stone for rural migrants and IDPs that is unable to compete with Turkey's major economic hubs or the Anatolian Tigers.

Apart from the structural underdevelopment of the city-region and surrounding province throughout the previous century, the RDA-SA attributes Diyarbakir's poor development performances primarily to the unprecedented rural-urban migration, political tensions and the PKKs armed rebellion, periods of unplanned construction and inability of IDPs, rural migrants and the poor to adapt to the new modern, urban economies and life-styles. For the RDA-SA the main problem regarding inclusive urbanism in Diyarbakir is that most IDPs and rural migrants have continued their traditional occupations and lifestyles in the city (especially in Suriçi and Bağlar) since they believe it modernization both of the rural migrants *and* of the city-region of Diyarbakir as a whole (see Deniz, 2012). Ultimately, therefore, the RDA-SA endorses TOKI's current urban regeneration which resettles these migrants to peripheral public housing complexes, such as those in Çölgüzeli. In this way, migrants' assimilation to Modern Turkey is catalyzed while the city no longer offers refuge to backward cultures and practices.

In order to catch-up with the well-performing city-regions in terms of economic growth and to enhance inclusive development within the region the RDA-SA (2010, 2015) aims to increase the metropolitan municipality's urbanization rate as the distinct functions projected on urban and rural space imply that urbanization will facilitate the attained shift from agriculture to service and industry and advance the position of Diyarbakir city in the national urban

[51] For time sake I have omitted the statistics underpinning this trend.

hierarchy. It is assumed that increased economic growth and increased wealth of a new industrialist or capitalist class will trickle down to the less fortunate population segments. At the same time, the RDA-SA also aims for growth of the city-region's district centers. Neither simply as it believes growth of these centers can accommodate for some of the development challenges of the city (which already faces severe congestion) nor only as it views the creation of district centers (turning rural into urban settlements) a necessary precondition to successful modernization of the country-side. But especially as it assumes that, just as the growth of regional centers reduces inter-regional disparities in the country, growth of district centers reduces disparities between districts in the region. Thus, the same mantra for balanced development through growth of a limited number of urban centers on the national level (Ministry of Development, 2013) and international level (ESPON, 2004; EC, 2010), is applied by the RDA-SA on the regional scale. Accordingly, the RDA-SA also aims for a (more) rigid (urban) settlement hierarchy in the city-region (Deniz, 2013).

Institutional challenges

In face of these aspirations Deniz also names a number of institutional challenges that currently obstruct good governance and local development, including poor cooperation with the Metropolitan Municipality of Diyarbakir. According to Denix, the municipality has taken a disobedient and stubborn stance against the Ministries of Development and Urbanization and Environment as well as the RDA-SA. While the RDA-SA seeks to empower localities she stresses that "local policy, planning and development have to be designed and implemented in harmony with the national and regional plans". The RDA-SA also faces disproportionally low state investments and subsidies. Deniz explains that the RDA Support Offices in other cities, including Şanliurfa, are substantially larger than the Support Office in Diyarbakir. In addition, she explains that the allocation of the TRC-2 NUTS-2 region is detrimental for effective urban and regional governance, policy and development in Diyarbakir. Not only as Diyarbakir is the only regional centre and metropolitan municipality that has been united with another regional centre and metropolitan municipality in one NUTS-2 region, which she considers a disadvantage. But also because she believes Diyarbakir would be better off if it had been coupled with the province of Mardin, with which it has strong cultural and historical ties.

Another important obstacle to effective regional governance and local empowerment is that Turkey's RDAs have formal tasks as concerns articulation of urban and regional policy formation, mobilization of entrepreneurs, building permits and finaincial support to businesses but no formal responsibilities. Moroever, given that the RDAs are *de facto* run by centrally appointed governours and device their policy and research conform the central state instiutions such as, TurkStat, the Ministry of Development and Ministry of Urbanization and Environment, the RDAs opeare more as a long arm and feelers (antennas) of the central government in its strive for territorial cohesion than an autonomous layer of urban and regional governancea.

4.4 Diyarbakir Metropolitan Municipality

4.4.1 Political context

Since 1999 the DBP (*Demokratik Bölgeler Partisi*. Democratic Regions Party) – originating from a collection of pro-Kurdish political parties and social movements that were not allowed

representation in the parliament – is running all provincial and municipal administrations in Southeast and East Anatolia after successive victories in the local elections. The BDPs *leitmotif* reads constitutional reforms that would enhance the protection of religious, cultural and ethnic minority rights, gender equality and freedom of sexual orientation, greater local autonomy (e.g. via the creation of a federal Turkish state) and the recognition of Kurdish as an official national language and its institutionalization in legal and educational systems. Within the polarized landscape of antagonism produced by, what is often called, 'the Kurdish question', in which no ideological middle ground between the PKK and the State seemed possible, DBPs election to the municipality was game-changer. Following Gambetti (2005):

> "The existence of a DEHAP municipality spatially united – while at the same time ideologically distinguishing – the various social and civic actors already involved in opening up niches for themselves in the polarized public space. The municipality metaphorically became the *agora* in which various new and diversified voices could be heard" (p. 53: emphasis in original).

Rather than conducting politics through strictly political means per, against powerful state institutions operating within the municipality (e.g. the governor, the police force, the military) the BDP has partially succeeded to transform the local political landscape through the "[t]he materialization of a new discourse, that of the social, cultural and urban needs of the population" (idem). Following Gambetti, this transformation was not accomplished through deliberative arrangements and dialogue but rather through "conflict and defiance". By using culture and the provision of social services (e.g. waste collection) to carry through conflicts with the state the municipality coerced new spaces for dialogue and deliberation (idem).

The position of the municipality versus the state and those represented is two-fold. Nationally, the BDP is an outsider that now finds itself within the legal framework of Turkish polity. Here, the DBP acts as a representative of the local (mainly Kurdish-speaking) population and social activists considered antagonists, illegal, or even terrorist by the state and popular media. Thus, the election of the BDP to the municipality provides a compelling case of the institutionalization of a social movement, or as Watts (2010) puts it, of "activists in office". Locally, by operating as an agent that is at the forefront of contesting oppressive material practices (e.g. discrimination, forced displacement, inequalities) and associated ideologies imposed by the state (e.g. the security rhetoric) the municipality has succeeded to unite a diverse public. Practices pertaining to identity, citizenship, religion but also economic development, hitherto illegalized or unthought-of, now have to be accepted by the state (Gambetti, 2005). At the same time, by acting as a mediator, settling conflicts between locals and the state, the municipality links the people of Diyarbakir, including 'distant subjectivities', such as, the squatters in Suriçi, to the state administration. Of course, apart from its institutionalization such links also require its moderation vis-à-vis state *dispositifs*.

4.4.2 Cultural urban strategy

In the zero-sum, inter-local competitive urban landscape the metropolitan municipality of Diyarbakir seems to have opted for culture rather than export-led, industrial growth as its urban strategy. On its webpage the municipality clearly outlines the city's ambition to become "The cultural and artistic capital city of the Middle East". Former mayor, Osman Baydemir, advanced Diyarbakir as "the brand city of art and culture". The purpose of this strategy is two-fold. On the one hand, culture is deployed to stimulate local economic development and mobilize international recognition. Through cosmetic interventions and urban branding tactics

the municipality attempts to create an urban image of a high quality of life and a prosperous business climate. Moreover, given the status as the informal capital of the Kurds that EU politicians granted to the city and the growing role of the BDP and local NGOs in international political networks, municipal officials aspire Istanbul-Ankara-Diyarbakir as a common trajectory for international delegates to the country.

At the same time, culture is utilized as an instrument to re-appropriate the city from the State's nationalist, spatial practices and ideologies. By embracing ethnic, cultural and religious diversity the municipality attempts to transform the city into a contested landscape of counter-hegemonic narratives (Gambetti, 2005); a space for concession and reconciliation; a peaceful break from a century of oppression, armed conflicts and economic recessions. Apart from the mobilization of civic organizations and NGOs this also entails a series of physical interventions. Boulevards, buildings and parks named after Ataturk, Gazi (*Veteran*) and Cumhuriyet (*Republic*) during the 1930s have been re-named by the musicality after famous Kurdish writers and poets in an effort to "de-nationalize" and "de-colonize" the cityscape (see Gambetti, 2008). Importantly, this cultural strategy ought to be assessed in light of the wider 'cultural diversity turn' on the agendas of the EU and UNESCO and the growing weight of these supra-national institutions on local development in Turkey.[52]

Regeneration of Suriçi

The regeneration of Suriçi offers an illustrative example of how this cultural urban strategy is materialized in practice. Since the BDPS election to the municipality the regeneration of the historic city centre and its transformation to a cultural and tourist centre has been one of its major objectives. To this end, the municipality has implemented a new land use plan for Surici, ('Suriçi's Protection Plan'). The first stage of the project has already been completed and entailed the restoration of the historic city walls. Amongst others about 500 buildings were demolished while the informal market stands and tea houses located along the walls were replaced by a park with benches[53]. Besides adding green spaces, overcoming congestion, and illuminating the historical and cultural significance of Diyarbakir, other important rationales were creating public spaces and enhancing gender equality.[54] The second stage, centering on the city centre itself, consisted of a number of renovation projects to protect historical and cultural heritage sites and to increase their utilization by protecting spaces of traditional handicraft production and associated commercial activities. Several buildings with iconic local architecture were turned into museums or restored as restaurants and cafés. Places of worships, such as, *Sheikh Matar Mosque* and its four-legged Minaret and *the Great Mosque of Diyarbakır* were renovated.

The regeneration of Suriçi into a cultural and recreational centre entails producing new spatial inscriptions and creating new user profiles. The land use transformation involves a shift away

[52] Cities with large migrant settlements, especially those in Southeast Anatolia, increasingly draw on EU institutions to attract funds. The recent entrance of UNESCO's heritage sites and heritage industries programs in the region further propels the popularity of culture as a means through which the municipality attempts to re-locate Diyarbakir in transnational flows of capital.

[53] The project was conducted in cooperation with the Suriçi district municipality and the NGOs Chamber of Architects, Chamber of City Planners and Association for Betterment of Diyarbakir,

[54] Before restoration the surrounding plots were mainly privately operated. The tea houses and shops were mainly accessible for males (Sinemillioglu et al., 2010).

from pure business-oriented urban politics in favor of a more long-term, integrated urban strategy that prioritizes investments in physical and social infrastructures to create conditions for sustained economic development. At the same time, by *exposing* the historical traces of different ethnic, cultural and religious groups that lived in the city the municipality reverses the official historical narrative of the state (Gambetti, 2008). Of particular relevance, here, is the restoration of the catholic *St. Mary's Cathedral*, *Syriac Orthodox St. Mary Church* and the Armenian *Saint Giragos Church*, which represents one of the pinnacles of the BDPs multi-cultural policy.[55]

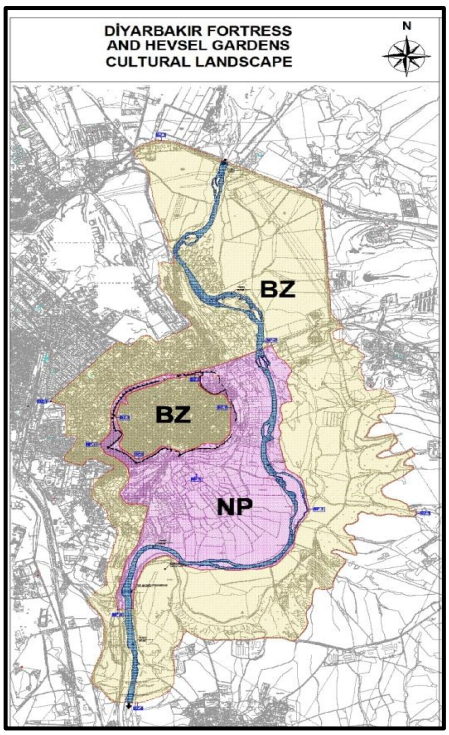

Figure 26: Diyarbakır Fortress and Hevsel Gardens Cultural Landscape, inscribed property (UNESCO, 2015)

The third stage involved the regeneration of two neighborhoods within the city centre: Alipaşa and Cevatpaşa. Together with TOKI, in 2008 the municipality demolished 250 houses, mainly inhabited by rural migrants, and replaced them by parks and houses built conform the historical architectural design. The fourth stage entailed the preparation of 595 registered historical buildings in Suriçi and the Hevsel Gardens for application to UNESCO's World Heritage List. In July 2015 their application bid succeeded and the historic city walls, the fortress and the Hevsel Gardens were added as nominated properties on UNESCO's Intangible World Heritage List. Suriçi and the river valley surrounding the Gardens were listed as Buffer zones (see figure 26). Municipal officials are convinced that the recognition as a World Heritage Site will significantly benefit Diyarbakir's tourist market and increase local potential for accumulation of private and human capital. Following a municipal architect involved in the preparations for the UNESCO bid:

> "Succeeding for the bid would mean that there is increased potential for Surici's residents to develop socially and economically. For example, through increased tourism, local businesses can prosper. Tours can be given. Children can learn English"..
>
> "These residents were farmers, and many of them are currently without a profession or have low-paid jobs. The Hevsel gardens, which lie next to the Tigris river, are a historical place for farming and still are. Therefore, another goal of the project is to provide and protect farming in the Hevsel Gardens. Specifically for biological/organic farming" (idem).

4.4.3 Obstacles to local urban governance

Despite these developments, local urban governance is still plagued by profound administrative disputes. While the inclusion of TOKI in the legal urban regeneration framework initially spurred the implementation of 'Suriçi's Protection Plan' the resulting gentrification that took place fuelled tensions between the municipality and TOKI. Conform the new Urban Regeneration Law (No. 6306) TOKI manages the concerns of the residents and property owners while the municipality has authority over demolition and construction of

[55] Related to policies directed against non-Islamic minorities and mass deportations of Christian populations the church had undergone a century of neglect. The restoration was assisted by an interfaith dialogue group named the Council of Forty initiated by the BDP.

housing units. The designation of areas for regeneration and for new housing complexes, including their planning and design, is undertaken by the metropolitan municipality and TOKI jointly. However, as TOKI not only supplies and prices urban land but also determines the values of the initial and new properties, generally, the latter by far exceed the former[56]. In AliPaşa and CevatPaşa this resulted in the mass resettlement of IDPs and rural migrants from Suriçi who could not afford the renovated accommodations. While a small portion of the residents moved in the newly built housing units TOKI assigned about 200 families to public housing complex in Çölgüzeli (about 20 kilometer from Suriçi). Most of the former residents have poor employment prospects and depend on their community and physical environment for necessary living conditions and livelihood; both of which the public housing complexes cannot provide. For the municipality it is critical that the demographic structure of the city centre remains intact. As a municipal urban planner explains:

> "We don't want the people in Surici, who often have cattle in their small gardens, to leave the area and move to a TOKI house outside the centre. That would be very problematic socially. We want to keep the people in their own environments" (Mustafa).

The establishment of the Ministry of Environment and Urban Planning in 2011, and its implementation of a new urban regeneration regime throughout Turkey under Article 6306, has further aggravated tensions between the municipality and the state.

> "We had an earthquake in 1999 in Marmara and in 2011 in the city of Van. Hereafter, the presidency established a new ministry called Ministry of Environment and Urban Planning. This Ministry has implemented a new urban regeneration Law – No. 6332 – that compels every building permit in earthquake-prone areas to suffice to new building norms.
>
> This Ministry does two things: either they tell the metropolitan municipality to designate the risk prone areas themselves; then the municipality examines itself and brings the results to the governor. Or the Ministry executes research itself and tells the municipality. which areas are risk prone and hence require a special building permit for construction or renovation.
>
> Ofcourse, we prefer the municipality to lead research and designation of earthquake-prone areas as we prefer to go from local to a wider area. But with the new planning laws the municipality has very little control over urban and regional matters. The Ministry has all the financial resources, The Ministry has all the rights to decide which plans will be approved and which won't..So we, as the municipality, cannot just decide which areas are risk prone, even if we strongly believe certain areas are, or are not" (Mustafa).

Moreover, while recent land reforms enabled the transfer of treasury land to metropolitan municipalities, land transfer and land use transformation have become a new source of conflict between the municipality of Diyarbakir, the governorship and the State. With the publication of the Metropolitan Master Plan the municipality aims to prevent sprawl and alter the current direction of expansion to the northwest by allocating unutilized plots within the city and across the Tigris river for housing, commerce and industry. However, most municipal requests for transfer and transformation of these plots were rejected by the governor. State ministries, in turn, developed plans for housing, manufacture and commerce in locations designated as preserved green areas and water management in the Master Plan. The ministry of Environment and Urbanization has planned housing within the buffer zone surrounding the

[56] Urban Regeneration Law (No. 6306) states that if the value of the property in the project area (a) minus the construction cost of the new property (b) is larger than 0, "the property right owner can be paid, is given another property from public properties or his development right can be transferred to somewhere else". However, the property right owner is obliged to pay the deficit to TOKI.

Hevsel Gardens. The ministry of Development has offered the lands in Talyatepe and along the DSI water trench (ten kilometre north of Kayapinar) as a subsidy to contractors and industrials, but municipal councils blocked these attempts as they argue that such peri-urban developments are unsuccessful. For example, Diyarbakir's Industrial Zone is underutilized due to lacking infrastructure while the distant housing complexes, as in Çölgüzeli, increased problems related to sprawl, transport and the provisioning of social amenities and services to lower income households. Moreover, while the local business chamber proposed to re-develop the old state tobacco factory into a textile and clothing factory that would employ 5.000 workers the state plans to turn it into an open-air prison (ICG, 2012).

> "It is very expensive for the municipality to buy land for construction. The ministry owns pockets of lands throughout the city and region but does not allow the municipality to buy them or plan housing there. We cannot even develop the lands that are in our jurisdiction, because treasury land is controlled by the ministries. If these lands would be sold to investors these investors could do something with these lands. But the ministry does not cooperate with us. The problems happen upstairs! Between the political factions nationally" ... "If they, in Ankara, would accept our local dominance they could support this region. We believe we could solve many of the socio-economical problems ourselves, but we do not get the chance".

Another obstacle to local urban governance concerns finance. Metropolitan municipalities "have limited or no own source revenues, including such functions as property tax collection", which makes them largely dependent on outside funding (World Bank, 2015: 7-8). Amongst all metropolitan municipalities Diyarbakir receives the smallest share of financial support from the Central Investment and Development Bank and the Ministry of Finance (Yüksel, 2011). In the last two decades the metropolitan municipality has been obstructed from obtaining loans and foreign credit as the state does not guarantee its debts (idem).

> "Looking at the political situation we cannot, and also do not, expect that we will be provided the economic and financial resources to deal with the problems we are facing here. For example, we would like to implement a tram-way in the city. We need to get a loan from another country, but the government needs to approve and financially support such a plan. And they do not allow us to do this. We cannot get loans from outside. In this way, we cannot do much, But then we try to get these loans in another way, and pay the companies back by surpluses we obtained from other projects".
>
> "We have seen similar planning projects in other countries in Europe. There they cooperate with each other. Here we wake up an suddenly the Ministry has started a project in our backyard. For example, one day we received a document from the government stating they would start a renovate the football stadium and turn it into a mall with accommodations. And we had never heard of this plan before.
>
> The Ministry has published a development plan in which the Hevsel Gardens have been reserved for housing. We told them we specifically planned this area to become a protected cultural landscape, In this way we don't have control over it and cannot protect it as a historical, green area. We have sued the ministry for violating our designated zoning plan.
>
> It is like a third eye is watching us. It is a chaotic environment.
>
> The ministry has even decided on its own, without consulting or communicating with us, that the whole area of Surici is designated as earthquake risk area. We would be notified about the exact plans for reconstruction within two years but they still have not told us. So we do not know how this will interfere with our contemporary plans.
>
> There have been many disputes in the city. The small political factions in our city are outraged that the ministry did not inform them about this decision."

4.5 Local Economic Development

Excluding construction and marble, which, according to the head of the EU Information Centre of Diyarbakir's Chamber of Industry and Commerce (DTSO), "operate successfully on their own", the local economy primarily depends on the domestic market and transactions with other cities. Following Yüksel (2011), "[t]he politically induced inability of business circles to effectively mobilize global and regional networks and the poor economic performance in the manufacturing sector, have led to a flow of capital into the construction sector" (p. 449). The local housing stock exceeds the number of households as rich farmers and townsmen from the region are investing in real estate in Diyarbakir. As "construction and related activities have become the locomotive of the local economy", real estate and land markets have become "strategic instruments of capital accumulation" and fuel the vast urban expansion (idem). Local exports chiefly depend on the Middle Eastern market which holds 80% of its total share of export revenues. Moreover, the establishment of Iraqi Kurdistan has enabled Diyarbakir's entrepreneurs to increase their spatial economic reach through FDIs and cross-border transactions: more than half of all locally-manufactured export products are consumed in Iraq while a growing number of local entrepreneurs have investments in construction companies, transportation firms and food industries in Iraqi Kurdistan (idem).

According to the official of the DTSO "the city and region of Diyarbakir have six strong sectors for contemporary and potential future growth: husbandry and cultivation, textile, tourism, logistics (due to our location), construction and marble". While he states that "there are plans for these sectors at the national and local level [but] these plans are not sufficient on their own" as Diyarbakir faces "important obstacles to further economic development concerning provisioning of infrastructure and coordination of land use management and transformation". Following the DTSO official not only "the [central] government should generally provide more financial incentives to this region as it is behind compared to the other regions", but also "the municipality here needs more support from the [central] government".

> "The incentives from the national to the local level are not oriented at the appropriate targets. There are incentives for industrial production but not for agriculture, for example. There are instruments for tax support and land allocation but they are not working properly".

According to the DTSO official, in order to further develop the local sectors that have a potential the instruments and incentives, especially those for SMEs, should be developed by national and local governments and actors jointly rather than in a top-down fashion.

4.5.1 Mobilization of the local bourgeoisie

Following Bayırbağ (2008), who compared Diyarbakir with two other GAP municipalities – Gaziantep and Şanliurfa – regional divergence in Southeast Anatolia is closely related to localities' respective performances in export-oriented, industrial manufacturing. While Şanliurfa witnessed significant economic growth it was Gaziantep that emerged as the victor; having four out of eight OIZs in Southeastern Anatolia, accounting for twice the amount of industrial employees and five-fold the export revenues of Diyarbakir and Şanliurfa combined (idem). Bayırbağ (2008) attributes these differences to their respective local forms of entrepreneurialism while placing "the emphasis on its political nature" (p. 363), conceiving it as "a mode of political mobilization of the local bourgeoisie [...] establishing local business associations as the institutional core of the emerging local governance structure" (p. 364).

Şanliurfa's bourgeoisie, consisting of Kurdish, Turkmen and Arabic tribal leaders, adopted, what Bayırbağ calls, "the loyalty option": aligning themselves with the State against Kurdish separatist movements (p. 378). Gaziantep's economic elites adopted the "voice option", advancing their city as "a smaller scale model of the country" and "scale of the country" by prioritizing local development at the expense of religion- and ethnicity-based urban politics (p. 381). These forms of political mobilization significantly boosted their localities' competitiveness. For example, Gaziantep's business associations were able to attract the first EU Information Office in a non-EU member country, the first pilot project of KOSGEB and The EU–Turkish Business Centre while Şanliurfa got GAPs regional headquarters (idem). Moreover, Gaziantep and Şanliurfa have obtained more sound representation in industrial and commercial institutions at the national level. Gaziantep's Chamber of Industry (GSO) has three representatives in Turkey's Union of Chambers and Stock Exchange (TOBB) while its Young Businessmen Association (GAGIAD) captured the presidency of Confederation of Young Businessmen of Turkey (TÜGIK). Also the RDA-ISOs in Gaziantep and Şanliurfa have larger financial capacity than the RDA-ISO in Diyarbakir.

Stories about the political mobilization of Diyarbakir's economic elites are less optimistic. Çiçek (2017) notes that most local entrepreneurs believe that the local economic recessions and stagnations are primarily caused by "the Turkish State's systematic discriminatory economic policies towards the region, and Kurdish economic actors" (n.p.) (motivated respectively in order to catalyze the assimilation process or over fear that a rich Kurdish region would be better equipped to separate from Turkey)[57]. Yüksel's (2011) ethnographic accounts reveal that most members of Diyarbakir Industrialists and Businessmen Association (DISIAD) faced fierce intimidation by the police and state security courts during the 1990s. Çiçek and Bayırbağ also highlight the State's "aggressive economic development" during the import-substitution period (1960-1980). For example, Gaziantep's industrialization was primarily initiated through its inclusion in the KÖY-regime (Privileged Development Areas) in 1968, its allocation as an export-hub via installation of package centers and related activities in export-oriented supply chains, and the implementation of infrastructure, hence, turning the city into a key between West Turkey and Aleppo, Syria.

The economically and politically motivated out-migration of industrial and commercial elites from Diyarbakir and the associated erosion of industrial and agro-manufacturers have left the city with an invisible local elite structure. No company on Diyarbakir's OIZ is older than 20 years, there are only four local companies that employ more than 1000 workers, and the total amount of employees at Diyarbakir's OIZ is smaller than that of an average domestic automobile manufacturer. Excluding Gaziantep, none of the top-500 companies in Turkey are located in Southeast Anatolia (Çiçek, 2017). As Diyarbakir has no large and old industrial and commercial holdings that have multi-sector investment portfolios, such as, Eczacıbaşı, Sabanci and Koç, there is no economic elite that has become a local bourgeoisie through the creation of its own culture, that witnessed the transformative potential of technology and capital and, as such, has more capacity to adapt to new regimes of capital accumulation.

[57] Amongst others, Cicek's (2017) fieldwork included interviews with key figures, such as, G. Esnarioğlu, former DTSO president and AKP deputy; M. Kaya, former president of DTSO and Tigris Community Research Centre (DITAM); and M. Odabaşı, leading member of an economically powerful family and president of Southeastern Industrial and Business Association (GÜNSİAD).

Following Yüksel (2011) Diyarbakir's economic elites claim that their investments in the city are rather motivated by emotion and place attachment (e.g. their strive to create employment opportunities, support the local economy and serve the common good) than reason. As "local politics and agenda are deeply intertwined with regional politics" (p. 378) and Diyarbakir's political elites derive their bargaining power from, what Bayırbağ (2008) calls, "the exit option" (p. 379), the industrial and commercial elites appear rather excluded from the institutional core of local urban governance. Both Yüksel (2011) and Çiçek (2017) underwrite tense relations between the municipality and local entrepreneurs as the latter argue the former takes an indifferent stance towards local economic development and the local economic elites. However, it remains unclear what relation the municipality 'exactly' maintains with the local elites and whether it has a notable influence on local economic development to begin with.

4.5.2 Local Economic Development Department

In order to mitigate the socioeconomic problems the metropolitan municipality of Diyarbakir has set up a Local Economic Development Department. While, legally municipalities are neither entrusted with local economic policy nor to determine their internal organizational structure, the metropolitan municipality has established a local economic department as "a voluntary initiative". According to the head of the department, who "strive[s] for autonomous municipalities", "this is the first local economic department in Turkey and the only economic department that is not regulated by State Ministries. This [what we do] is more democratic". According to the head of the department the main reason for the ongoing migration – from the country-side to the city and from Southeast Anatolia to West Turkey – and the socio-economic problems in Diyarbakir is that "the region is consuming but not producing".

> "The people that live in the city centre today used to live in surrounding the villages in the country-side. They had their own fields, assets, their own habits, for example regarding cultivation of the land. With rising urgency to migrate to the city these people's position in production and consumption markets changed. In the past they were producing their own products. But in the city centre they are only consuming, because they do not have the facilities to produce their own products nor to continue their own habits. It is also about the change of life-styles [...] "The main problem is that they don't have the ability to produce here in the city. When these people have money they just spend it to get by. So the problem for these people and, in turn, the city and the city centre is the lack of assets their inhabitants encounter".

"For the metropolitan municipality it is very important to establish improved relations between the city and the country side" as it wants "to change these migration patterns".

> "Our main policy is that we would like to provide opportunities to restart cultivation of the land. We would like to stop the state to use the land as a development sector, just to get profit. We want to use these fields for both productive and personal use. Moreover we want to direct the growth towards these fields; to reduce migration. As concerns the expansion of the city, most of the fields I talk about are situated in rural areas, but there also exist plots of arable land in close proximity to the city. We don't want the expansion of the city to unsettle these fields".

The department aims to increase employment by encouraging local cooperatives. Following the head of the department, "large-scale industries [he names textile and construction] can operate independently". He is not worried about potential changes in large commercial and industrial firms' locational preference: "They will come", he assures. The department prefers small businesses over big companies as it believes SMEs will increase local capacity to mitigate and reduce wealth disparities while encouraging the latter will amplify disparities.

"The reason why we try to encourage small local businesses is because the main policy of the Metropolitan Municipality is to empower local citizen. So they can stand on their own feet. So that they do not feel that their lives depend on others. We don't prefer the big companies for these jobs because these companies need cheap labor. If the municipality would facilitate more large industries, these industries would take advantage of the workers. By encouraging local SMEs and local cooperatives we can reduce the gap between the poor and the rich.

The department considers the current regional development framework as an obstacle to local economic development and socioeconomic integration. Moreover, apart from disputes with state ministries, the municipality also maintains a poor relation with the RDA-SA.

"The RDAs, in their core, should be more democratic; and they should work for the society. But the RDA-SA here is ruled by the governor who also governs Diyarbakir. So here is the problem. The RDAs should be more autonomous and set up their own development framework. But because the governor is the head of the agency all decisions have to be approved by him. First, then, the policies and laws over the RDAs should be changed so it can operate on its own. Also, there is a financial problem: these agencies don't have control over their own financial assets. [...] Normally, we don't need the help of this agency, we don't normally work with this agency. And even if they would offer us help we would not accept it anymore. Initially RDAs were formed to reduce differences between regions; just to equalize the levels of development between cities. But while the policies for all regions are the same the RDA here does not have the same financial capacity as other the RDAs elsewhere [in Turkey].

And there is a problem with the agricultural sector. If investors want to buy land, here, they cannot get a permit from the municipality but instead need to apply at the RDA-SA. This is not a good situation. The investors should be able to come to us, because we have the actual planners and architect that make the actual plans for the city and the surrounding region, not the RDA_SA. That's why I would like to encourage local entrepreneurs and investors to come to us. For example, recently, together with the RDA, we provided funds for some farmers who on paper owned land and cattle. But in the end it appeared they did not own these assets and, in turn, we lost the money. Regional planning, therefore, should be organized better".

While the department claims that their activities comprise different sectors their focus centers exclusively on agricultural development "as it is the main local industry here {in Diyarbakir]". Another reason for prioritizing agriculture is that the municipality has more expertise over agricultural development than over SMEs and industrial manufactures. After all, in contrast to water utilities, tasks and responsibilities regarding the preparation of regional development strategies, implementation of industrial and commercial projects and mobilization of local entrepreneurs are delegated to RDAs. Also the municipality has more influence over transfer and transformation of rural land as acquisition of urban land is more expensive.

In order to increase local productivity, mitigate intra-regional disparities and reduce rural-urban migration, the department has initiated a framework for "agricultural cooperation" projects. The department currently plans for collectively-owned and community-shared agricultural production cooperatives where (productive) assets are pooled and accumulated by members of the farm jointly. The head of the department highlights three aspects paramount to successful implementation. First, apart from providing the necessary physical resources and infrastructure (e.g. arable land, fresh water and irrigation pipes) "more crucial is to create the conditions for cooperation through strengthening social and economic ties". The aspired institutional change should be attained either through new land reforms (at the national level), or by allowing the cooperatives to be governed by (semi-)autonomous institutions and to operate parallel to (inter)national markets Whilst the department currently aims for local

implementation it desires a framework "across Northern Kurdistan [the Kurdish areas in Turkey]" and even has plans to coordinate with territories in Rojava {Kurdish areas in Northern Syria]. Second, "the department needs a local economical data-base of the resources and products each district can currently or potentially offer". The problem with contemporary data-bases in Turkey is that economic data are aggregated at the level of the province, and since the 2000s at the level of NUTS-2 regions, meaning that local administration do not possess knowledge over respective intra-local production, consumption, export and import trends and capacities. Third, is the re-development of local resource bases through re-appropriation and de-commoditization of objects (seeds, land, water) that are key agents in the ordering of production, distribution and appropriation of value in agricultural practices (see Van der Ploeg, 2012).

> "A crucial object of farming concerns 'seeds'. Today the seeds that are used, for example, for water melons come from Israel. The seeds that are used cause severe problems for our agricultural sector. We don't want the farmers to use these seeds any longer because they make the region dependent on the outside and because the seeds are for one time use only. After one harvest farmers have to buy new seeds. In this way farmers become more dependent and less self-sufficient.... Also the State is manipulating farmers to buy seeds that are for one-time use only. The farmers, in turn, owe a lot of money to public water, electricity services and for fertilization. In sum they become indebted. It is a negative spiral. We want the region to be less dependent on the outside and the farmers to be more self-sufficient. The seeds are a crucial objet in a vicious circle of dependency of farmers individually and the region as a whole".

4.5.3 The Development Centre

The Development Centre (*Kalkinma Merkezi*), established in 2004, is an independent NGO that undertakes poverty alleviation programs and conducts studies, research and concrete development and capacity-building projects, and training, mainly in Diyarbakir. Other objectives, include strengthening woman's rights, alleviating child poverty and labor, environmental protection and assisting EU-integration projects. While it understands that poverty, deprivation and underdevelopment will not be "radically solved in the near future" it foresees a considerable role for scientific and technological means to mitigate such issues as long as they are applied "on the basis of an equalitarian approach upholding the principles of social justice" (Development Centre, 2010). "By capitalizing on the co-existence of social and traditional structures in modern times and forms of organization", the Development Centre, "consider[s] it important to further develop areas of common use" (p. 103).

Most of the Development Centre's research on poverty centres on forced migration as it considers this phenomenon the main cause of poverty in Diyarbakir (p. 5). Although the director the Development Centre does not think it is realistic, or even desirable, to completely change past and present migration trends, he believes understanding its social, economic and mental aspects and ramifications are key to improving the socioeconomic condition in the region. Based on its surveys and ethnographic fieldwork on rural migrants and IDPs the Development Centre (2010) has published a research report, named 'Forced Migration and Diyarbakir', which assesses the extent of poverty and identifies over 70 obstacles to return to the original settlement. Key obstacles stem from continued forms of oppression associated with the forced evacuations and armed conflict between the state and PKK during the 1990s, such as, security-risks, existence of village guards, absent infrastructure and housing, deprivation of means of subsistence (land, livestock, irrigation) and education opportunities.

Still, the director underlines that there also exist other important reasons for the sharp decline of the rural population during the last decades, stemming from preference for urban over rural life-styles and agricultural land reforms related to Turkey's pro-EU accession policies.

> The poor that came in the 1990s, it became a kind of inherited poorness. At most 20 percent of the migrants could get out of poverty. It is a vicious circle: if you are poor, you cannot afford a good school; if you don;t go to university you cannot find a good jobs, and so these groups stay poor. But there is also a group of migrants that was not forced to migrate..To get a better understanding of migration in this region we should look at them as well. There is another process going on, where Turkey attempts to become part of the EU. When that process started the percentage of rural inhabitants was about 30 to 35 percent, and now it is about 20 percent. So now migration has some other reasons as well. Especially young people prefer the urban life over the country-side. Another reason is that the costs of agricultural production are rising, also related to Turkey's pro EU policies, so many people cannot afford to produce anymore.

While acknowledging the exponential growth of the construction sector and service sector (especially those related to the housing market), similar to the Local Economic Development Department, the director of the Development Centre insists that "production" will remain the most significant challenge for future regional development and reducing poverty.

> "Most of the products, agricultural products, are not processed in the region. They are sold as raw materials to the other regions. That is another problem. When we look at Diyarbakir, the service sector is growing quickly, but the production will prove to be a bigger challenge for the region, and could provide a solution to the socioeconomic problems.

4.5.4 Diyarbakir's urban revolution from the 'other' side of the equation

Against this backdrop the director of the NGO refers to Joost Jongerden (2010), a rural sociologist at Wageningen University, who in his study of rural development in Anatolia inquires in Turkey's urban revolution from the other side of the equation and, in this light, argues for conceiving "the spatial foundation of modern society as a historical coincidence" (p.2). According to Jongerden, modernization implied "the development of different worlds, with different (ideas about) economic activities and the attending social arrangements" (p. 16). Similar to how cities, after Wirth's *Urbanism as a Way of Life*, became understood as the 'natural' spatial unit of dominant economic activities (then the factory, now the CBD or inter-linked nodes of specialized production) and associated social properties (social heterogeneity, tolerance), so the rural and its associated settlement type, the village, became understood as the spatial domain of economic activities and social arrangements related to agriculture exclusively[58]. Following Jongerden (2010), the *geographical specificity* attributed to agriculture and industry "narrowed down possibilities for development": because the country-side was seen as the seat of agriculture, rural policy solely focused on agriculture (p. 16).

Jongerden (2010) also points to a second process of narrowing down concerning the *historical specificity* that was attributed to the rural "in which the basic production unit within the domain of agriculture was defined in terms of a division of labor, through which both reproduction of the production unit and agricultural production became market dependent" (p.

[58] "In 'The Principles of Rural-Urban Sociology', two of the founders of rural sociology, Sorokin and Zimmerman, argued that 'rural society is composed out of a totality of individuals actively engaged in an agricultural pursuit' (Sorokin & Zimmerman 1929: 15). Rural society, it was argued, usually does not transform grain into bread or cotton into cloths. Such occupational activities may be present, but they do not comprise the principal means of obtaining a livelihood" (Jongerden, 2010: 10).

16). Similar to how the factory was considered to have modernized the city so industrialization and mechanization were thought to bring modernity to the country-side. Importantly, this conception implied a vertical integration of village production units with the industries in the city as heavy machines placed near urban centers were unsuited for decentralized production, thus meaning that surplus value became primarily produced and appropriated off-farm. Peasants would be replaced by entrepreneurial farmers producing for large industrial and high-tech agro-industrial holdings (idem).

In the Marxist tradition the death of peasantry associated with the shift from agriculture- to industry-based societies is understood as "creation by destruction, or 'creative destruction'":

> "The destruction of the peasantry was considered as a prerequisite for the creation of a new class of farmers, which is characterized by market dependent production (as compared to self-created and managed resources), the production of profits (as compared to added value) and a strong division of labor, marked by externalization and commoditization of activities previously performed (such as seed production, production of fertility, processing)" (idem: 8).

The creation of market dependency and turning peasant into farmers implied "the automatic creation of dispensable and excluded individuals" (the unemployed, the displaced, and of course the peasant itself who became considered 'backward'). Both in neo-classical and developmental economics as in most Marxian approaches the death of peasantry is considered not only a result of modernization but, more importantly, an inevitable outcome of history: the becoming market dependent of village production and (re-) production of the production unit (especially the commoditization on the input-side of the production process) permanently broke modernity from tradition (i.e. past from present) [59]. For the moderns, therefore, a return to peasantry is not only considered impossible – as village production, such as, peasantry and cottage industries, would not be able to compete with market-integrated industrial production fuelled by technological innovation and economies of scale, and therefore be eliminated eventually – but also undesirable – as it entails a backward move (unhygienic, inefficient).

Considering the rapid decline of Turkey's rural population from over 60% in 1970 to below 25% in 2010, Jongerden refers to the work of Nusret Kemal Köymen who critiqued the idea of modernity as a process of industrialization-cum-urbanization and attempted to go beyond the associated modern, historic (agriculture/industry) and geographic (urban/rural) divides by bringing industry back to the village through his invention of a new settlement type, 'the Rurbans' (see Box X). According to Jongerdern (2010), Köymen's argument that the spatial foundation of modernity is "a historical coincidence" not only implies that urbanization-cum-industrialization is not the only spatial-economic format of progress and development but also hints at the possibility that it could be the 'wrong' one. Moreover, it highlights alternative concepts of and trajectories for (agricultural and industrial) development, including alternative socio-spatial arrangements and settlement types (idem).

[59] For all pre-modern industrialists production and, especially, re-production of the production unit were inextricably linked to conservation of the 'old' modes of production in unaltered form. Pre-modern industrial (re-)production required continuity between past, present and future (which was, amongst others, materialized, in distinct practices directed at conserving and strengthening the resource base). The subsequent, modern capitalist epochs, in contrast, are inextricably linked to continuous alteration of the relations of production and, therewith, the relations of society through the revolutionizing of the means of production (Marx, XXXX; c.f. Jongerden, 2010).

Box 2: 'Rurbans', bringing industry back to the village

Nusret Kemal Köymen (1903–1964), a Turkish rural sociologists and graduate from the University of Wisconsin who had adopted the surname Köymen (literally meaning *'village man'*) as he conceived the village as the superior unit of social and economic organization, argued that industry and agriculture coexisted in villages (integrated or not) while cities rather served as political, administrative and cultural centers. Whilst, with the realization of modernity, the term 'village' became considered analogous with agriculture, following Köymen "this was not the inevitable outcome of history, but a peculiar characteristic of development in Western Europe, in which urbanization coincided with industrialization" (Jongerden, 2010: 12). "It was not that village industry could not compete with the city, quite the reverse. Village cottage-industries, such as weaving in England, Flanders and India were so resilient that the looms of village-weavers had to be demolished before urban producers could find sufficient markets for their products – and even then the urban appropriation of production needed to be sanctioned with armed expeditions into (against) villages" (p.12). Köymen also refers to the excessive land grab via "the enclosure movement", which depleted village industries from their resource base and drove villagers to the city (often for seasonal work), and the consequent further industrialization during the 18th and 19th century which permanently condemned the rural population to urban centers (idem).

"According to Köymen, the de-industrialization of villages in Anatolia [however] was primarily an effect of the industrial revolution that had occurred in 19th century Europe (Köymen 1939). Prior to this change, agriculture and industry in Anatolia had been integrated, villages the sites of a variety of industries, and many 'towns' nothing but industrial villages. When the Industrial Revolution took off in England, however, handicraft production and exports had [already] collapsed in the Ottoman Empire" (p. 13). In contrast to the village industries in England and Flanders, the village industries in Anatolia could not compete with modern commerce and industry. Moreover, railroads, water turbines and steam engines, funded and constructed by British, French and German holdings, not only facilitated Turkey's industrialization but simultaneously disintegrated villages horizontally (from one another) and vertically (separating agriculture from industry). Disintegration was further amplified by the introduction of land reforms and taxes in rural areas which made village production economically untenable. "As result of these two developments, the rural population became all but entirely dependent on agriculture, and villagers were turned into peasants. In fact, what Köymen refers to here is not a process of turning peasants into farmers [...] but of turning villagers into peasants, and then into farmers." (idem: 13).

In order to reverse the simultaneous scattering and disintegration of villages industries associated with the modern geographical (urban/rural) and historic (agriculture/industry) separations Köymen (1940a, 1940b)) postulated a new settlement type, named '*Rurban*'. The main idea was to identify certain villages "as village-centers (*köy-merkezi*)", serving as connective nodes in a network of what had by then become disconnected and scattered settlements "by providing public and cooperative services" (idem). "The village-centers were imagined as collective facilities with communal resources. Basic tools such as hammers and chisels, planes and pliers would be available in each village-center, along with tap water, Turkish baths (*hamam*) and showers, plus a small medical clinic, meeting room, small shop and library situated near an administrative office" (idem). For Köymen the village center represented the superior synthesis between agriculture and industry (idem). He coined the term "village-industry [*köycü endüstri*]" to refer to the establishment of basic industries in villages – "from simple industrial forms that were essentially upgraded cottage industries to forms of craftsmanship with a more 'business-like' organization" – and to distinguish his 'Rurbans' from agro-industries (*agro-endüstri*), which imply a vertical integration of agriculture and industry (idem: 13-14). However, besides a populist proposal from prime minister Ecevit in the 1970s Köymen's concepts has never been applied in practice.

Jongerden (2010) goes a step further to argue that not only industry used to be integrated with agriculture in villages and, thus, "can be (re)introduced into the rural environment", but also that agriculture used to be integrated with cites and, thus, can "(re-)enter the urban" (p. 14). He uses Diyarbakir as an example of the wide variety of cities in which agriculture "is linked to (part of) the urban economic, social and ecological system" through linkages, including, "urban residents working as laborers, urban resources employed (recycled) for farming (like organic waste as compost and urban wastewater for irrigation), direct connections with urban consumers (e.g. through local cooperatives), [....] farms and plots competing for land with other urban functions" (p. 15). Similar to how Brenner claims that the urban cannot be separated from rural space as its constitutive essences have been universalized across planetary space, so Jongerden (2010) claims that the rural cannot be separated from the urban as its dimensions, or constitutive elements, are increasingly weaved into the urban fabric.

It should be noted, however, that both attempts to analytically negate the urban-rural distinctions not only semantically refer back to each domain, as Jongerden (2010) points out himself, but also normatively affirm the divide. If we project both negations of the urban/rural divide in the context of *The Urbanization Question* the respective outcomes – 'Rurbans' (integration of industry with agriculture in villages) and 'urban agriculture' (integration of farming with the urban economy) – resemble the inversely proportional equivalent of, what Brenner (2013) calls, 'planetary urbanization': "the ruralization of the world"[60] (see Krause, 2013). Köymen's 'Rurbans' and Jongerden's (2010) example of urban agriculture do not transcend the divide but express the need to 're-ruralize' the way we think and act.

[60] The notion of "the ruralization of the world" was opted by Krause (2013) in an attempt to relativize the proclaimed distinctiveness and centrality of urbanization in dominant social relations and socio-spatial arrangements while toning down, what she calls, "the intellectual imperialism of the urban" (i.e. the increased framing of social and spatial issues as urban issues) ..

Chapter 5. Analysis

The case of Diyarbakir confront us with a multiplicity of compelling understandings of its new-born, yet rapid urbanization process. This is because are exists a variety of ways to approach and analyze cities. Local practitioners' conceptions and interventions (*primary data*), policy documents (*secondary data 1*), and scientific studies on Diyarbakir's urban revolution (*secondary date 2*) are informed by particular urban knowledge(s) of distinct urban paradigms (*tertiary data*). In this chapter, each of these is used as an example of either one or more of the urban paradigms under enquiry or, conversely, critique of them. In this way, it both analyzes and illustrates the contrasts and connections between CUT and ANTs (and, if needed, TTUT and CULTs) respective approaches to the four sources of scientific dispute in urban studies: *the nature of cities, urban epistemology, social philosophy* and *urban inequality* so as to resolve *how ANT changes the manner in which CUT addresses the relation between urbanization and inequality*.

The analysis is structured as follows.

Section 5.1 illustrates TTUTs approach to the city while using the RDA-SAs policy visions and strategies, and national policies and scientific literatures underpinning these, as examples. This description serves as a crucial background to illustrate and contrast CUT and ANTs conception of the relation between urban knowledge and urban practice in the next sections.

Section 5.2 illustrates CUTs approach to the 'urban' by describing (1) how CUT informs in the urban issues in Diyarbakir; (2) how it relates these issues to (a form of) inequality and, (3) the moral conception of urban inequality associated to this relation; (4) CUTs implications for urban practice; and, (5) how CUT informs in the relation between TTUT and urban practice in face of the urban issues, therewith answering the preliminary sub-questions (section 3.3.1).

In response, section 5.3 illustrates the Modern limits to CUT (section 2.4.3). Moreover, it finds a third ontological fallacy in the distinction between CUT and TTUTs object of inquiry.

Section 5.4 describes ANTs approach to the four disputes about the nature of cities by deploying it as a methodological repertoire to study the production of CUT and TTUTs urban knowledges, in particular, and the development of urban science, more generally. In this way it teases out the fundamental contrasts and connections between CUT and ANT and, ultimately, reflects on the possibilities of articulating a synthetic CUT-ANT approach or jiont research agenda in face of the four srouces of scientific dispute in urban studies

5.1 TTUTs conception the city-region of Diyarbakir

This section illustrates TTUTs approach to the nature of cities using the RDA-SAs (2010a; 2010b; 2015) urban and regional strategies, policy visions, governance objectives and research documents as metaphors. The illustration is structured along 6 pointers.

5.1.1. Diyarbakir entering the urban age

Conform TTUT, the RDA-SA's (2010; 2015) *Regional Development Plan* and *Territorial Regions Plan 2014-2023* are informed by the empirical observation that more than 50% of its population lives in cities (see point 5) so that, similar to the rest of the globe, Turkey has become an urban society (Scott and Storper, 2014; Glaeser, 2011; UNFPA, 2007).

Accordingly, for the RDA-SA the urban age presents an inevitable reality for Diyarbakir. Moreover, since it finds a significant correlation between growth of Turkey's urbanization rate and substantial increases in GDP per capita and shares of industrial and service sector contribution to national GDP, the RDA-SA considers urbanization of the city-region paramount to contributing to the national economic growth. Thus, for the RDA-SA past and continued urbanization presents both a *natural* and *appropriate* phenomenon for Diyarbakir and its key objective is to facilitate the city-region's adaptation to this new reality.

5.1.2 Urbanization as a spatial economic phenomenon

Similar to TTUT, the RDA-SA views urbanization primarily as a spatial-economic object. By all means, it also acknowledges the distinct non-economic features of cities so that the city of Diyarbakir is, what Storper and Scott (2016) call, a "composite social, political, cultural and economic phenomenon" (p. 1130). For example, its *Regional Development Plan* views agglomeration as an opportunity to enhance social amenities, health services, education and promotes the city's unique local history and culture. In fact, the very rationale for establishing the RDA-SA derives from the necessity to respond more adequately to the political and social tensions specific to cities (competition for land uses, land use incompatibilities, congestion) and is tasked to increase cooperation among firms, between firms and administrations and between State ministries and local authorities accordingly.

Nonetheless, while the RDA-SA views these social, political and cultural phenomena as distinct properties of cities it does not consider them key to Diyarbakir's urban revolution. In line with the Ministry of Development's (2013) *Regional, National Development Strategy 2014-2023* the RDA-SA (2010; 2015) attributes the growth of Turkey's cities primarily to their role as motors of the national economy so that, conform Scott and Storper (2014), "the most basic *raison d'être* for cities [...] resides in their role as centers of economic production and exchange within wider systems of regional, national and international trade" (p. 6). The key objectives and performance indicators in the RDA-SAs *Regional Development Plan* and *Territorial Regions Plan* remain confined to spatial economic denominators – increasing local competitiveness; attract capital; number of firms, inter-regional differences in (growth of) GVA and GDP per capita; changes in relative shares of industry, service and agriculture etc..

5.1.3 Urbanization induces Rawlsian distribution

According to the RDA-SA inter-regional inequalities and inclusive development are inextricably related to urbanization. Similar to Storper and Scott (2016), for the RDA-SA cities offer the best standards of living for all compared to rural settlements up to the point that "even the urban poor are better off, on average, than the rural poor around the world" (p. 1114). In line with the Ministry of Development's (2013) *Regional, National Development Strategy 2014-2023*, the RDA-SA aims for reducing inter-regional disparities and inclusive development. The RDA-SAs main objective, therefore, is to attract capital to the region so as to catch up to other regions (hence, reducing inter-regional disparities). Here, it views urbanization (i.e. the growth of the share of the population living in urban areas) the only spatial mode of development that can facilitate increased accumulation of capital. In addition, it considers urbanization a precondition for reducing local unemployment and increasing rates of well-being as it creates local trickle-down effects (e.g. job creation and increased access to social services, health services and education), thus, reducing intra-regional disparities.

The moral conception of urban inequality that derives from TTUTs analytical conception of urban inequality mirrors John Rawls' (2001) *distributive concept of justice*. Similar to Rawls' "Difference Principle", TTUT relies on dominant concepts of utility, economic growth and wealth maximization so that societies' absolute wealth grows most steadily when those who are most productive have the highest earnings. However, while within this analytical model Rawls argued for a division of primary goods that is to the greatest benefit to the least advantaged group, TTUT explicitly assumes that urbanization by definition engenders such division 'naturally'; at least insofar it is related to inequality (point 7). Thus, without providing an explicit normative engagement with urban inequality, by advocating the urban age thesis under the explicit pretext that "even the poor are better of in cities", Storper and Scott's (2016) implicitly affiliate their urban theory to Rawls moral and political philosophy of inequality

5.1.4 Diyarbakir's urban revolution as a modern phenomenon

Dovetailing TTUT, the RDA-SA and Ministry of Development view Diyarbakir's rapid urban revolution as an intrinsic modern phenomenon. The idea that urbanization is inextricably linked to modernization has profound implications for their policy visions on (1) Diyarbakir's urban growth trajectory, (2) migration and (3) its rural population and migrants.

First, the growth trajectory the Ministry of Development (2013) set out for Diyarbakir – classifying it as a "(regional) growth pole" rather than an "industrial growth center" (Gaziantep, Adana) or a "metropolitan sub-center" (Izmir, Bursa) – exemplifies TTUTs concept of the city as an intrinsic modern phenomenon. In Turkey, industrialization and urbanization, as defined by TTUTs history of cities[61], started more than a century after Europe (section 4.1.1) and, in Diyarbakir again 50 years later (section 4.2.1). As a consequence of Turkey's entrance to the global market and the rapid rural-urban migration, during the past 20 years the city-region has by-passed the early Modern industrial phases and associated modes of urban development and suddenly entered the urban age and global, post-Fordist economy. According to the Ministry (2013) and RDA-SA (2010, 2015), therefore, rather than short-circuiting the evolutionary stages of urban growth associated with consecutive modes of development (Storper and Scott, 2016), in order to contribute to the national economy, first, the city-region has to address the social, economic, demographic and institutional challenges related to the underdevelopment of the region (shifting from an agricultural to an industry - and service-based economy, modernizing agriculture, infrastructure, poverty, environmental degradation, migration etc). According to them, similar to cities in the Global South its problems and prospects of can be compared with those of 19th century Paris (see Storper and Scott, 2016; c.f. World Bank, 2009, 2015). In order to prosper as a dominant urban center in Turkey's new economic geography *in the future, today*, Diyarbakir has to face its problems of the *past*: An urban development strategy that since the 1990s has already transformed the city into a consumption-oriented local economy and a stepping stone for rural migrants and IDPs but left it unable to compete with Turkey's major economic hubs or the Anatolian Tigers.

Second, the RDA-SAs conception of urbanization as a modern phenomenon has important implications for its vision on rural-urban migration. For the RDA-SAs Diyarbakir's urban

[61] Similar to Wirth (1969 [1938]) also Scott and Storper (2014) equate the start of urbanization with the entrance of the Modern era and the Industrial Revolution but complements it with an analysis of its respective stages associated with consecutive modes of development (see section 2.2.2),

revolution has created two fundamental breaks: the first temporal, the second spatial. First, it has separated today's modernized, urban and industrializing Diyarbakir from its non-modern, agricultural past (before 1960 or 1990). Second, it has separated the modern city from its non-modern country-side. In line with TTUT, here, the RDA-SA aligns the following oppositions: urban vs. rural; industry vs. agriculture; modern vs. traditional mode of commodity production and lifestyles; present vs. past; modern and non-modern. In this view, (most) rural migrants are 'naturally' pulled to urban areas (point 1) and an intrinsic element of modernity. Moreover, migration is considered a 'positive' trend; Not only as migrants will 'eventually' be better off in cities (point 3) but also because it catalyzes their adaptation to modern Turkey. Thus, it is a win-win situation: both the migrants and Turkey's society as a whole progress.

Third, equating Diyarbakir's urban revolution with modernity induces a conception of its rural migrants and country-side as backward. For the RDA-SA the main problem regarding inclusive urbanism in Diyarbakir is that most IDPs and rural migrants have continued their traditional occupations and lifestyles in the city (especially in Suriçi and Bağlar) since they believe it modernization both of the rural migrants *and* of the city-region of Diyarbakir as a whole (i.e. a lose-lose situation). Ultimately, therefore, the RDA-SA endorses TOKI's current urban regeneration which resettles these migrants to peripheral public housing complexes, such as those in Çölgüzeli. In this way, migrants' assimilation to Modern Turkey is catalyzed while the city no longer offers refuge to backward cultures and practices. The remaining villages, although heavily declined, form the last bastions of 'backwardedness'.

5.1.5 Definition of urban space

Initially, in Turkey the urban-rural distinction was only applied for classifying administrative units (municipalities) while territorial policies focused on regional development disparities. Since the 1990s, however, urban hierarchy in the domestic economy and regional centers are considered key to spatiotemporal changes and differences in development (Öğdül, 2010). Conform EU member states' Spatial Development Perspective (ESDP) (ESPON, 2004), today leading institutions apply the urban-rural distinction in tandem with regional disparities in their territorial cohesion frameworks while reducing explanations of the latter to the former.

Similar to Storper and Scott (2016) the Ministry of Development's (2013) territorial cohesion policy approaches the city as a self evident, empirically observable object and a bounded spatial unit corresponding to a particular settlement type (that, as such, can be distinguished from the rest of topographic space) and urbanization as the redistribution of people from rural to urban settlements. Conform State Planning Organization's (1982) hierarchical classification of settlement spaces, all administrations with over 20.000 inhabitants (regardless whether these are district centres, provincial centres, regional –or industrial growth poles) are defined as urban settlements. All administrations with less than 20.000 inhabitants are defined as "rural settlements". Moreover, specific economic activities are projected on both types of space. While rural space are considered to harbors functions related to agriculture only, urban settlements function as centers of commerce, industry and services (SPO, 1982; Öğdül, 2010).

The urban-rural divide, urban hierarchy and the role of urban centers in regional development are central to the objectives of The *Territorial Regions Plan*. RDA-SA aims to increase the metropolitan municipality's urbanization rate as the distinct functions projected on urban and rural space imply that urbanization will facilitate the attained shift from agriculture to service

and industry and advance the position of Diyarbakir city in the national urban hierarchy. However, the RDA-SA also insists on growth of the region's district centers. Neither simply as it believs growth of these centers can accommodate for some of the development challenges of the city (which already faces severe congestion) nor only as it views the creation of district centers (turning rural into urban settlements) a necessary precondition to successful modernization of the country-side. But especially as it assumes that, just as the growth of regional centers reduces inter-regional disparities in the country, growth of district centers reduces disparities between districts in the region. Thus, the same mantra for balanced development through growth of a limited number of urban centers on the national level (Ministry of Development, 2013) and international level (ESPON, 2004; EC, 2010), is applied by the RDA-SA on the regional scale. Accordingly, the RDA-SA also aims for a rigid (urban) settlement hierarchy in the city-region (Deniz, 2013).

5.1.6 Inequality as a problem *in* rather than *of* cities

A final similarity between the RDA-SA urban policy visions and TTUT concerns its conception of the relation between urbanization and inequality. In line with Storper and Scott (2016; c.f. Scott and Storper, 2014; World Bank, 2015; World Bank, 2009; EC, 2010; Barca, 2009; ESPON, 2004). the RDA-SAs (2010, 2015) approach to the relation between urbanization and inequality is two-fold. The first derives from its conception of inter-and intra-regional disparities and inclusive development as inextricably linked to urbanization (point 3) and of the domestic urban hierarchy and growth of regional (urban) centers to balanced regional development (point 5). Here, the RDA-SA assumes that, on average, Diyarbakir's residents are better off in urban than its rural settlements.

The second approach to inequality is framed along poverty rather than social class or stratification. The RDA-SAs (2010, 2015) policy visions, strategic reports and research reports (Deniz, 2012) clearly emphasize problems of poverty, observed especially in the neighborhoods of Suriçi, Bağlar and the *gecekondu's*. Nonetheless, similar to Storper and Scott (2016), the it treats poverty as a problem located *in* cities rather than a problem *of* cities in the sense that, despite the fact that "poverty has important urban dimensions" .. "it also has many substantive and relational manifestations that are not generated by the urban" as defined here (p. 1117) (point 5). Instead, dovetailing TTUT, the RDA-SA considers poverty to be "primarily engendered within a set of macro-social processes related to the level of economic development, the structure of overall employment opportunities and the availability of education and training" Scott and Storper, 2014: 9). As such, poverty and its causes are grasped as macro and regionally-specific contextual variables influencing urban development rather than *vice versa*. For example, the RDA-SA also considers war, migration, and the continuation of backward occupations and life-styles as important causes of poverty so that poverty is almost viewed as something the poor have inflicted on themselves (see point 4).

5.2 CUTs conception of urbanization in Diyarbakir

This section illustrates CUTs approach to *the four sources of scientific dispute* by analyzing how CUT: (1) informs in the ‘the nature’ of the urban issues in Diyarbakir; (2) relates these urban issues to inequality, and (3) the moral moral conceptions of urban inequality that culminate from this analytical conception of this relation; (4) approaches the relation between urban knowledge (TTUT) and urban practice in light of the urban issues; and (5) CUTs

implications for urban practice in face of these issues. The analysis consists of a description of how CUTs approach to 'the urban' and the relation between urbanization and inequality (section 2.3 and 2.4) respectively apply to – i.e. inform, explain, or oppose – scientific studies as well as urban practitioners' conceptions of and (policy) interventions in, Diyarbakir's urban issues (Chapter 4). In contrast to section 5.1, here, illustrations are not restricted to a certain (group of) actor(s), policy documents or scientific literature and policy guidance documents[62].

The illustration of CUT is summarized along eight points which are divided over three sub-sections. The first exemplifies Manuel Castells' and Davis Harvey's respective takes on the relation between urbanization and capitalism. The second illustrating Henry Lefebvre's (2003 [1970], 1974) [1991], 2009) approach to urbanization along Neil Brenner's (2013; c.f. Brenner and Schmid, 2014; 2015a, 2015b) *Urbanization Question* and the concepts of Implosion/ Explosion and the urban fabric. The third describes how Diyarbakir's urbanization illustrates the emerging planetary urban condition and the relation between urbanization and inequality.

5.2.1 The relation between Diyarbakir's urbanization and capitalism

1. Diyarbakir's Urban Question: an ideological construct?

The Municipality's Local Economic Development Department's conception of urbanization and cities in face of regional development (section 4.5.2) exhibits close affinities with Castells' (1977 [1972]) take on the matter in *The Urban Question*. Similar to Castells, the Department is confronted with a sudden explosion of Diyarbakir's agglomeration and increased framing of economic and social issues as urban issues. Moreover, dovetailing Castells, per Marxian fashion the department is primarily concerned with the condition of the working class, the farmers, the poor and the displaced in capitalist society.

In line with Castells (1977 [1972]), who distinguished between cities' "scalar" and "functional" aspects (Brenner, 2008: ii), the head of the department only finds collective consumption specific to urbanization. As he states, today, "the region is consuming but not producing". According to him this is mainly due to decline of the agricultural sector and the city's failure to provide meaningful economic and social alternatives. While in the countryside villagers could produce for the market and self-provisioning and maintain "their own life-styles" with their migration they lost both as they encounter a lack of assets and facilities in the city. Moreover, since "big companies" (the main source of employment in the city) "need cheap labor", the city does not provide 'real' opportunities for the working class to empower themselves. For these reasons he views Diyarbakir's urban revolution more a negative than a positive phenomenon and considers claims about its economic and social potency (e,g, RDA-SA, 2015; Ministry of Development, 2013) clearly exaggerated, and, hence, ideological.

In sum, the Department's conception of Diyarbakir's urbanization and its relation to inequality offers a striking illustration of Castells' concern over the legitimacy of urban studies' object of inquiry that has inspired Brenner (2013; c.f. Brenner and Schmid, 2014, 2015a) approach to *The Urbanization Question* (point 5). For the head of the department urbanization does, and will, not, add significant social or economic value to the region as, similar to Castells (1977

[62] Since CUT involves a critique of both existing urban practices and conventional urban knowledge (TTUT), urban conceptions, (policy) interventions, scientific studies and policy reports that exemplify TTUTs approach to the city can also exemplify the former two.

[1972]), for him the city does not play a significant functional role in society apart from collective consumption. Instead, for him the main causes of local economic decline and poverty have related to the deterioration and destruction of agricultural productive units. Moreover, while he believes that industrial enterprises may assist further development and, of course, will locate in the city, he does not consider industrialization a function of urbanization. In his view, therefore, urbanization will not facilitate local productivity or mitigate intra-regional disparities[63]. Instead, all efforts of the Department aim at reversing the current migration trend by restoring Diyarbakir's agricultural sector and ending the use of land solely for creation of surplus product, spearheaded by its plan for "agricultural cooperatives"[64].

2. Capitalist urbanization in Turkey and Diyarbakir

The second example consists of a number of urban scientific commentaries on Diyarbakir and Turkey that illustrate an "intimate connection [...] between the development of capitalism and urbanization" (Harvey, 2008: 24). In contrast to the previous example, these examples exactly underline the key role of cities in modern society.

Tekeli's (2009) account on how, since the formation of the modern Republic, industrialization has induced urbanization and how the State considered urban development paramount to political economic restructuring (section 4.1.1) illustrates Harvey's claim that capitalism is not simply a historical phenomenon but also has a distinct spatial dimension. By demonstrating how with successive modes of industrial development and associated changes in employer-employee conditions, divisions of labour and property relations over time the dynamics of urbanization changed as well, Tekeli (2009) underlines how more extensive modes of urbanization required increasingly sophisticated means of capital accumulation. Section 4.1.2 explains how, as a consequence of the wave of industrialization following its neoliberal reforms and globalization during the 1980s, urbanization has become the main spatial strategy to confront capitalism's contradictions and crisis tendencies as industrial capital has been increasingly tied up to large-scale urban projects: industrial parks, warehouses, sites for specialized production, wholesale centers, free-trade zones) . Moreover, various scientific commentators illustrate how the State aims to consolidate these "spaces of social reproduction and consumption" (Harvey, 2008). For example, by restructuring the real estate sector, redefining TOKI, empowerment of local business associations, establishment of metropolitan municipalities and RDAs and the inclusion of supra-national organizations (EU and UNESCO) in urban governance (Yüksel, 2011; Bayırbağ, 2008; Cicek, 2017).

The description of Diyarbakir's rapid urban expansion since 1990 (section 4.2.1) provides a more concrete example about this evolved relation between urbanization and capitalism. Similar to how Karl Marx (1975 [1862]) argued that the creation of surplus product depends

[63] In fact, apart from rejecting urbanization as a spatial mode of development, the head of the department also downplays any development knowledge that appeals to it. Even after repeatedly asking him about his vision on the prospects and challenges of the city with respect to economic growth during the interview, he would still immediately shift the topic towards agriculture.

[64] Despite its illustrative value some other pressing motives for the Department's antagonistic stance versus urbanization and plea for agricultural cooperatives are also related to (1) the legal, administrative and financial scope of the Metropolitan Municipality, (2) the local political landscape, (3) political tensions between the Metropolitan Municipality and state operatives in the city-region.

on separating use from exchange values and labour from capital, Diyarbakir's rapid urban expansion served the creation of surplus product through the transformation of use values of land into the exchange values of real estate (Harvey, 1978). This increased commoditization of space has been mainly enabled by allocating agricultural plots and treasury land around the city to suburban land uses. The establishment of the metropolitan municipality, creating new tactics to transfer land to the private sector (e.g. sub-contracting), restructuration of the real estate sector and the redefinition of TOKI (exlcusively endowed with zoning and sale of treasury land) have enabled increased *fixation* of capital within the built environment (Harvey, 2008). Moreover, Yüksel (2011) illustrates how a small group that forms the local capitalist elite (industrialists, commercialists and especially big construction companies and real estate holdings) have been able to secure most of the region's surplus product through large-scale projects (chic housing complexes, road infrastructure, industrial parks and shopping malls).

3. Diyarbakir's urbanization as uneven development

The case of Diyarbakir also illustrates Harvey's (1982) claim that urbanization implies "uneven development" as here too circulation and accumulation of capital from which it emerges relies on and engenders difference. On the intra-urban level, for example, the construction boom and land speculation in suburban districts in Kayapinar that enabled the vast accumulation of capital has been inextricably linked to undervaluation of surrounding agricultural plots and, at the same time, led to the devaluation of urban land and real estate in the down-town districts. The resulting flat bid-rent curves, in turn, fuel today's gentrification processes in the districts of Ofis and Surici, where the poor are expelled from potentially valuable land and transferred to distant public housing complexes (section 4.4.2 and 4.4.3). On the regional scale, several studies on the relation between the city of Diyarbakir and its country-side illustrate how capitalism entails the historical (re-)production of an unevenly developed landscape that combines industrial urban growth with the decline of agriculture (Gambetti and Jongerden, 2011; Jongerden, 2010, Gambetti, 2004, 2005; Yadirgi., 2014) (section 4.2.1, 4.2.2 and 4.5.4). In this sense, Diyarbakir's Metropolitan Master plan (section 4.4.3), in Hausmannian fashion, simultaneously entails the securing of surplus product for the (local) capitalist elite and suppression of the economic and social aspirations of the laborers and rural migrants by absorbing both in large-scale suburban housing and urban regeneration projects, industrial parks, commercial centers and new leisure spaces. An entirely new city equipped with wide boulevards, chic housing complexes, shopping malls, luxury shops, cafes and other facilities, but only functional to and accessible for a reserved upper class.

On the national level, sections 4.2.2 and 4.5 illustrate not only how increased accumulation of capital through urban development has produced an unevenly developed landscape with sharp differences between and within regions, cities, urban districts, sectors and sub-sectors, but conversely, also how continued accumulation is premised upon uneven development itself. Ongoing circulation of industrial and finance capital in Turkey required alternating historically and spatially specific process of capital fixation in one place and time (sector, city, neighborhood etc.) with the creative destruction of surplus capital in other space-times. Observing this constant (re-)territorialization of capital also illustrates how urbanization is central to crisis formation and capitalist restructuring. However, while in cities as Istanbul the creative destruction is often preceded by over-accumulation, conversely, in Diyarbakir it has rather been preceded by neglect, deterioration and physical destruction of its sectors and

landscapes of social reproduction and mediated by the State's ambition to divert (potential accumulation of) capital from regions primarily inhabited by Kurds to other parts of Turkey.

4. Diyarbakir's urbanization as un-equalization

As such, more than informing in forms of inequality in the city of Diyarbakir CUT illuminates how the (re-)production of its urban space can be understood as a process of un-equalization as it entailed: creation of scarcity of land, real estate and other commodities, dispossession, slum formation, gentrification, segregation, displacement, appropriation of public space (e.g. displacement of villagers and the local poor in Surici), the destruction of class power (by creating local labor excesses), and so on. Even further, the case illustrates how, at all spatial scales, spatiotemporally specific processes of circulation and accumulation of capital that engender urbanization are not only inseparable from the creation of disparities. but also how these disparities themselves are a necessary for sustained capital accumulation and circulation. As such, it inequality should be understood as both outcome and co-producer of a multi-scalar process of capitalist urbanization. Therefore, against Castells (and the Local Economic Development Department), the city should not be understood as a mere contingent site and spectator of contemporary class struggle. Instead, today, it is the city of Diyarbakir that poses fundamental questions regarding 'ownership' and 'basic human rights' and, as such, functions as an arena to encounter, resist and, finally, revolutionize society (harvey, 2008).

5.2.2 Lefebvre's approach to Diyarbakir's urban revolution

This section illustrates Neil Brenner's (2013; c.f. Brenner and Schmid, 2014; 2015a, 2015b) elaboration of the work of Henry Lefebvre's (2003 [1970], 1974) [1991], 2009). Similar to Harvey, Lefebvre also found a close relationship between urbanization and capitalism but turned the argument upside-down: while for Harvey industrial capitalism still dominates over finance capital, according to Lefebvre the latter re-organizes contradictions of the former into contradictions of the city (Smith, 2003). This illustration is divided into four pointers. The first illustrates Brenner's approach to the *Urbanization Question* while latter three respectively exemplify Lefebvre's concepts of *Implosion/Explosion*, the urban fabric and its dimensions.

5. Towards Diyarbakir's Urbanization Question

First, to exemplify CUT along the case of Diyarbakir we have to apply Lefebvre's (2003 [1970]; c.f. Wachsmuth 2014: 57) distinction between 'the city' as a "category of practice" (urban ideology), and 'the urban' "as a category of analysis" (actual capitalist urbanization). For Lefebvre traditional concepts of the city of Diyarbakir – e.g. Diyarbakir before the establishment of the Republic of Turkey (i.e. "the mercantile" and "political" city) – would constitute mere ideological representations of 'the urban'; a "thought" or "virtual object" (idem) as in these periods capitalism and industrialization were virtually absent in Diyarbakir. However, CUT also denounces present-day concepts of the city – provided by Wirth and utilized by the RDA-SA (2010, 2015) and Ministry of Development (2013) – as these derive from an empirical observation that cities exist, not an understanding why urbanization occurs.

For Lefebvre, instead, understanding Diyarbakir's urban revolution would be grasping (how it both contributes to and emerges from the re-organization of the contradictions of) world market expansion. Just as for Marx the rise of the World Market both entails the transformation of use values into exchange values and a shift from abstract labour (*the concrete*) to social labour (*the abstract*), Lefebvre equated urbanization with shift from use

values of land to exchange values of real estate (as Harvey did), but added to it a shift from cities in the plural to 'the urban' in the singular (Merrifield, 2013: 913). As such, Diyarbakir's urbanization process has to be treated as "a category of analysis" – i.e. grasped along "theoretical categories, not empirical objects" – as similar to the World Market "its demarcation as a zone of thought, representation, imagination or action can only occur through a process of theoretical abstraction" (Brenner and Schmid, 2014a: 163).

In this view the urban policy visions and reports of the RDA-SA (2010, 2015) and Ministry of Development (2013; c.f. World Bank, 2015) are based on ideological conceptions of Turkey and Diyarbakir's urbanization process, since the analyses and cartographic representations that inform these all are anchored by theoretical and methodological precepts that engender ideological conceptions of capitalist urbanization (section 2.4.2.1). As such, these conceptions obscure scientific and policy debates about the relation between its urbanization process and labour markets, housing, education, transportation, inequality, etc., because they neglect:

1. How Diyarbakir's urban configurations temporarily internalize and re-produce the socio-spatial contradictions related to world market expansion and capitalist restructuring (commoditisation, capital circulation and accumulation, uneven development, collective consumption) and associated forms of political *regulation* (representation, over-accumulation, dispossession) and *contestation* (class struggles, political control of surplus value).

2. How Diyarbakir's urban configurations are 'creatively destroyed' insofar they can no longer maintain their operational effectiveness in face of the conflicts generated through the former contradictions and what new urban formations and landscapes are (re)produced in its stead.

Simultaneously, Lefebvre found a close relation between the concrete and the abstract; While viewing traditional representations of 'the city' as ideological he found that, as a concept of reality, 'the urban' still shapes social practice. Therefore, dovetailing Castells, for CUT Diyarbakir's *Urbanization Question* departs from deconstructing ideological conceptions of its urbanization process. In contrast to Castells, however, this entails delineating the city of Diyarbakir's "distinct urban process" rather than as a specific spatial unit (Brenner, 2013:104).

6. Diyarbakir's urbanization = Implosion ←→ Explosion

The case also illustrates Lefebvre's claim that urbanization "contains two dialectally intertwined moments": *Implosion*/*Explosion* (Brenner 2013: 04). On the one hand, Diyarbakir's urbanization consists of the production of the built environment and socio-spatial configurations that temporarily internalize the socio-spatial contradictions related to the broader geo-economic and geopolitical context of worldwide capitalist restructuring by means of concentration/agglomeration, or *Implosion* (see figures 21 and 22 in Chapter 4; see point 2 and 3 above). At the same time, the case study exemplifies how its urbanization entails the re-configuration of similar types of socio-spatial arrangements constituting, and constituted by, *Implosion* but that not located in the agglomeration as such: *Explosion*. (Brenner, 2013: 103).

Various forms of *Explosion* in Diyarbakir's concern, first, the *inter and supra-urban flows of capital, labor, information and power*, including: the changing position of Diyarbakir's industrial firms in supply chains (Section 4.3), the growth of export-oriented business and industrial manufacturing, increased trade and FDIs to and from Iraqi Kurdistan (Yüksel, 2011; section 4.1.2), and the creation of new alliances and strategies to secure (trans-)national flows

of capital and information through the mobilization of local business associations that enable actors and firms to jump scales (Bayırbağ, 2008; Cicek, 2017; section 4.5.1).

Second, it entails *the functional relations* between the city of Diyarbakir and places, territories and scales usually defined as *non-urban* (see Brenner and Schmid, 2015a: 173), such as:

a) "[A] massive expansion in investments related to mineral and oil extraction", such as copper, basalt, and oil in the districts surrounding Diyarbakir city
b) Since the 1990s Diyarbakir has been witness of extensive public and private investments to "consolidate and extend long-distance transportation and communications infrastructures" (road and water infrastructure, GPS, 4G cellular broadband network and electricity grid) that extend the dynamics of agglomeration and world market to peripheral plots in its country-side and "reduce the transaction costs associated with the production and circulation of capital".
c) Moreover, Diyarbakir's agglomeration is premised upon and has concrete feedbacks on the transformation of its countryside via agricultural land reforms, commoditization of agricultural products and resource base (e.g. seeds; section 4.5.2), transformation of peasants into farmer and from farmers into rural migrants or seasonal workers (Jongerden, 2010; section 4.5.3 and 4.5.4), the creation of agro-industrial areas in the metropolitan municipality of Şanliurfa (RDA-SA, 2010). GAPs large-scale hydro-electric dam and irrigation projects, waste management etc..

Also in Diyarbakir it is clear how *Implosion* and *Explosion* (or "concentrated" and "extended urbanization") do not entail distinct morphological conditions but co-constitute one another as "dialectically intertwined elements of a historically specific process of sociospatial transformation" (Brenner and Schmid, 2015a 169). Just as the vast growth of Diyarbakir's agglomeration depends on socio-spatial transformations of extension, so do the latter depend on the former. Not simply in the sense that its agglomeration process required a decline of its rural population but rather that today ongoing internalization the contradictions of the world market through (re-)production of concentrated urbanization also requires internalization of such contradictions by ongoing (re-)production of extended urban space noted above. In fact, rural-urban migration already occurred before urbanization became central to re-organizing the contradictions of industrial capitalism by the secondary circuit (Lefebvre, 2003 [1970]).

Moreover, following Brenner and Schmid (2015a), Lefebvre's metaphor of *Implosion/ Explosion* is especially useful for "demarcating a *third, differential moment* of urbanization" (p. 168), denoting the process of *creative destruction* of inherited urban formation insofar these socio-spatial configurations can no longer maintain their operational effectiveness in face of the conflicts generated through the contradictions of world market expansion and their replacement by, or *re-production* of, new urban formations. Following Brenner and Schmid (2015a), while Marxian approaches have hence provided extensive accounts on the interaction between concentrated and differential urbanization (see point 2 and 3) the creative destruction of extended urbanization has remained a largely unknown territory. Therefore, rather than treating 'concentration' as the exclusive domain of Diyarbakir's urbanization– either as a *nominal essence* (e.g. RDA-SA, 2015; Ministry of Development, 2013; World Bank, 2015: c.f. Scott and Storper, 2014) or as a *constitutive essence* (e.g. Yüksel; c.f. Harvey, 1978, 1982)

– the examples of extended urbanization illustrate that it is more urgent to inquire instead (though not exclusively) in the (re-)production of Diyarbakir's 'extended urban landscapes'.

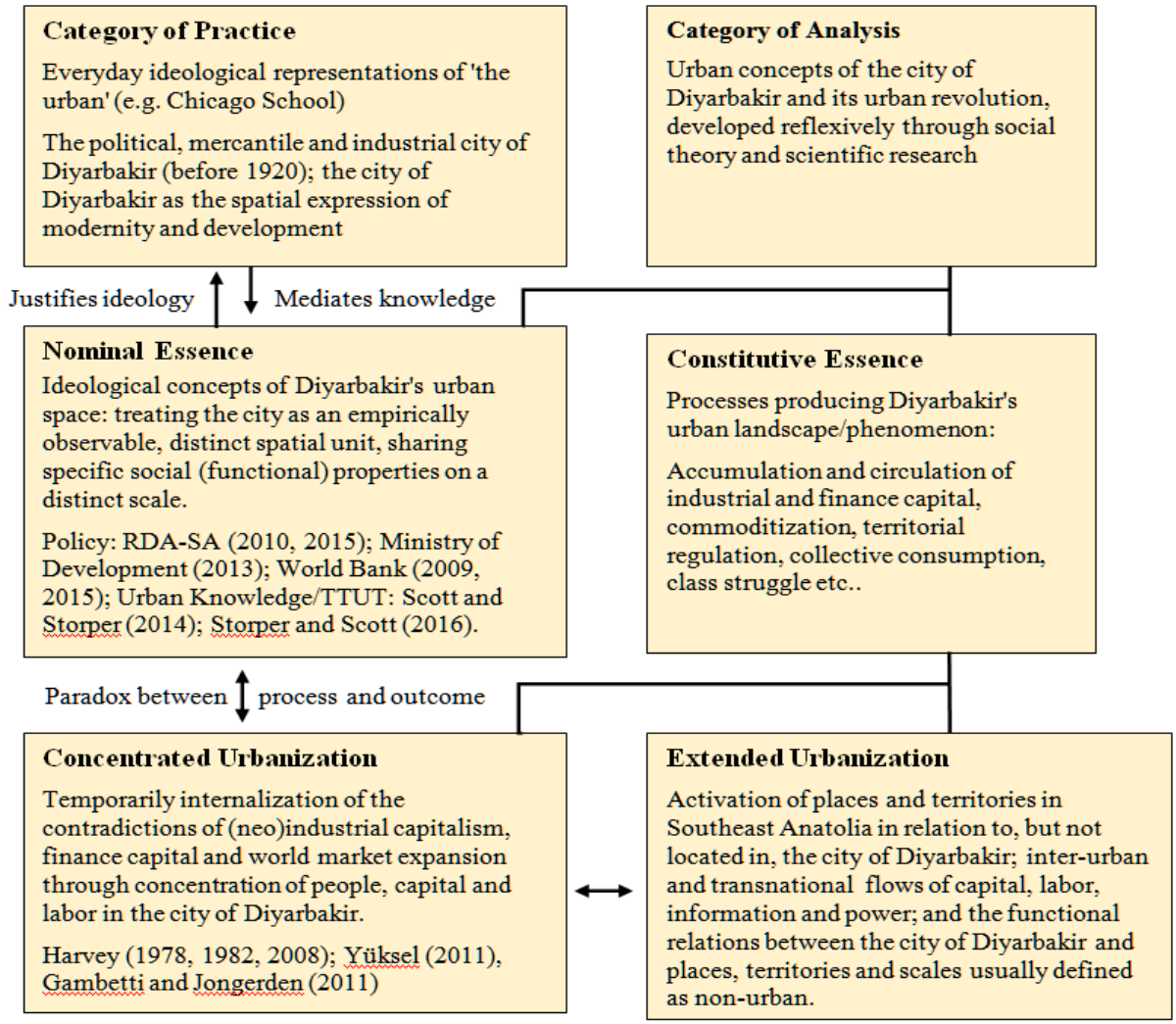

Figure 27 Applying the three distinctions that underpin CUTs approach to 'the urban' on Diyarbakir's urbanization process. Adapted from Brenner (2013: 96); see figure 6 in section 2.3.2.

7. Diyarbakir's Urban Fabric

The notion of *Implosion/Explosion* implies that we need to grasp 'the urban' as "a 'concrete abstraction' in which the contradictory sociospatial relations of capitalism [...] and associated forms of political regulation/contestation are at once *territorialized* (embedded within concrete contexts and thus fragmented) and *generalized* (extended across place, territory, and scale and thus universalized)" (Brenner, 2013: 95: emphasis added). However, in this way, it remains unclear what is *ontologically* 'urban' about Diyarbakir's urbanization other than that society as a whole has been urbanized. Against this backdrop, Lefebvre's (1991 [1974]) notion of "the urban fabric" helps us to approach and understand Diyarbakir's urbanization.

First, while its moments of *Implosion/Explosion* cannot be equated with its urbanization as these present mere temporary manifestation of ongoing socio-spatial transformation, at the same time, Diyarbakir's urbanization can only be *known* and *understood* by attending to the elements of these moments (the built environment, social heterogeneity, modes of urban governance etc.). Here, the notion of the "urban fabric" helps us to take 'the urban' is "a single,

indivisible substance whose attributes" [...] are all the formal expressions of what pervades it ontologically" (Merrifield, 2013: 913). Similar to Pollock's fractal canvas (figure 7) Diyarbakir's urban revolution presents "a formless form" (p. 915). Its underlying pattern can only be grasped if seen *in motion*, but conversely, the *expressions* of its movements (*product*) always appear amorphous as it is always *territorialized* (embedded within concrete contexts of socio-spatial change and modes of territorial regulation). Thus, any attempt to grasp what is specifically 'urban' about Diyarbakir's urbanization poses a "paradox between process and product, between movement and outcome, between urbanization and the urban" (p. 915).

Second, 'Diyarbakir's urbanization cannot be approached as an isolated phenomenon. Similar to the immense size and homogeneity of Pollock's fractal canvas, the notion of the urban fabric implies the extension and generalization of secondary circuit of capital "across place, territory, and scale" (Brenner, 2013: 95). Thus, Diyarbakir's urbanization has to be grasped as both outcome and co-producer of a worldwide, urban phenomenon and process.

Third, creative destruction in Diyarbakir's does not simply entail the replacement of old urban attributes by new ones – although, of course, inherited topographies and built environments have changed drastically as well. More importantly, new flows as immovable capital, new geographies of production and consumption, are being articulated to render new cycles of finance capital operationally effective in face of the conflicts generated through their former contradictions. In Lefebvre's terms, what can observed in Diyarbakir between 1990 and today is not the urban fabric being emptied and re-filled but it itself being entirely *re-woven*.

Fourth, creative destruction involves a process of *interweaving*. For example, between 1920 and 1990 Diyarbakir's witnessed successive periods of collapse of its strong local sectors (e.g. textile industry) due to various reasons (section 4.2.2 and 4.5). However, over the past 20 years new flows of finance capital have enabled a partial resurgence of these traditionally strong sectors as these are increasingly intertwined with (renewed) circuits of industrial capital. In addition, many of the new big players in local industry, commerce and construction today are former big landowners and/or have been able to accumulate capital quickly due to the vacuum created by the disappearance of the former local elites in the 1990s (Yüksel, 2011). The creative destruction of inherited urban formations and re-production of new concentrated and extended urban spaces in Diyarbakir clearly illustrates how Lefebvre grasped urbanization as new (trans-)national flows of (neo)industrial and finance capital that collide with and transform inherited circuits of industrial capital.

Fifth, the notion of interweaving also hints at *path-dependency* of socio-spatial configurations under capitalism – stemming from "the limits to capital" (Harvey, 1982) – that compromise the 'maneuverability' of urban development in space and time. Also in Diyarbakir it is clear how capitalism limits the creation of many new forms of economic and social activity, including those destructed in the past. This is also reflected in the urban growth strategies of most metropolitan municipalities which focus solely on construction, export-led industrial manufacturing and tourism (Yüksel, 2011). In this light, rural migrants' continuation of their traditional occupations and lifestyles in the city-center (section 4.4.2 and 4.4.3), the initiative for agricultural cooperatives (section 4.5.2) and the counter-hegemonic narratives of the HDP (section 4.4.1) are clear attempts to escape (the continuous weaving and interweaving of) the urban fabric and to create alternative trajectories for socio-spatial development and change.

8. The dimensions of Diyarbakir's urbanization

Following Lefebvre urban space is produced in three ways: as (1) a "social formation (mode of production)", (2) a "mental construction (conception)" and (3) "as lived" (Elden, 2007: 108-110). The first denotes *spatial practice*: social (inter-)activity or relations of production and exchange. The second entails *representations of space* (or discourses) on space; referring to theoretical regimes, spatial planning professions and expert knowledge that give an image to (signify) and, hence, define space. The third denotes an intimate relation between the former two. These *spaces of representations* (or discourses of space) "do not refer to spaces themselves" but "to the process of signification that links itself to a (material) symbol" denoting the world *as experienced in everyday life* (Schmid, 2008: 37). Brenner and Schmid (2015a) have reformulated Lefebvre's conceptual triad of (re-)production of urban space to identify three dimensions that together co-constitute the three moments of urbanization (see point 6): "spatial practices", "territorial regulation" and "everyday life" (p. 170).

The following paragraphs illustrate the respective spatial practices, forms of territorial regulation and everyday life along each moment Diyarbakir's urbanization (see Table 3).

Concentrated Urbanization

1. The *spatial practices* of concentration comprise the production of the built environment and socio-spatial configurations that internalize the contradictions of (neo)industrial capitalism, finance capital and world market through agglomeration. These have hence been thoroughly illustrated in point 2, 3 and 6 of this section (see also Table 3).

2. Various forms of *territorial regulation* to consolidate these concentrated spaces of social reproduction include: creation of non-unionized labor and eroding redistributive policies, creation of centrally empowered local business associations, restructuration of the real estate sector and re-definition of TOKI (Yüksel, 2011), urban zoning, Dissolution of DTP, Creation of a Ministry of Environment and Urbanization, dispossession of housing and productive assets in Surici via Urban Regeneration Law (Art. 6306) and Urban Hazard Law (Art. 6332), the Metropolitan Municipality of Diyarbakir, illegalisation of *gecekondu's* (Art. 5237).
Moreover, it also produced through construction and dissemination of distinct urban mentalities and expert knowledges, including: representations of the city as the dominant spatial expression and functional unit of modernity and the post-Fordist economy ("urbanization as the motor of the national economy") Ministry of Development, 2013); Diyarbakir as the brand city of culture and art (Metropolitan Mayor of Diyarbakir); and the urban and regional development knowledge(s) and rhetoric of the RDA-SA (2010, 2015).

3. Concentrated urban is also produced by distinct social routines, everyday practices, common sense and lifestyles generally associated with cities, modern life and modality that are contradictory articulated to traditional and collective forms of life of the proletariat (Schmid, 2008; Elden, 2007). Examples of these are: the cultural divide between the new higher and middle class in Kayapinar and 'vernacular' population segments in Baglar, Surici and *gecekondu's* (e.g. the community conflict in *Peyas* or the fact that most residents of Kayapinar have never visited the historic city center) (Association of Municipalities, 2015); continuation of traditional occupations and lifestyles in the city (urban farming) (Jongerden, 2010; c.f. ruralization of the world, Krause, 2013), smell of tear gas, idealization of village and farm. Moreover, these spaces also include forms of *political contestation*: attempts to de-colonize Diyarbakir and re-appropriate public space, creation of new forms of collective (re-) action and counter hegemonic narratives of NGOs and HDP (Gambetti, 2004, 2005; Gambetti and Jongerden, 2011; section 4.4.1 and 4.4.2); Local Economic Development Department

Extended urbanization

4. Spatial practices of *Explosion* concern the activation of territories and places in relation to Implosion through the stretching and uneven thickening of the urban fabric (see point 6).

5. The (re-)production of Diyarbakir's extended urban landscapes is consolidated by various form territorial regulation, including: the RDA-SA; GAP (energy, agriculture, transport, education and infrastructure); Ministry of Development; Agricultural land reforms; Metropolitan Municipality (extension of urban administrative procedures, including building permits, to country-side). Moreover, the production of Diyarbakir's extended urban landscapes involves: representations of the country-side as backward and non-modern; designation of the country-side as a development sector (Ministry of Development, 2013); urban and regional expert knowledge (RDA-SA, 2010, 2015) and so on.

6. The production of Diyarbakir's extended urban landscapes also involves the creation of new social routines and everyday practices in relation to those of *Implosion* and the broader stretching of the urban fabric, which are conflictually articulated to traditional, non-modern lifestyles and social routines of the countryside, including: introduction of new modern values and norms, increased mental distance between villagers associated with shift in modes of transaction from gifts (barter, reciprocity, acquaintance) to commodity exchange (capital, stranger), dependency on mobile phones and the *dolmuş*. Moreover, it also includes associated forms of political contestation: collective disobedience, maintenance of traditional routines and life-styles, idea of the city as foreign and unnatural, and the Local Economic Development Department's framework for agricultural cooperatives (section 4.5.2).

Differential Urbanization

7a. The spatial practices of creative destruction of Diyarbakir's inherited concentrated and extended urban landscapes have been partially noted under point 2 and 6. Examples of the relation between Diyarbakir's concentrated and differential urbanization include: devaluation of commercial and residential areas in Diyarbakir's down-town districts and replacement by new commercial, creative, and housing land uses (1990-2010); devaluation of agricultural plots around the city and their replacement by fancy suburban housing units that enabled subsequent speculation on land and real estate (1990-present); subsequent periods of destruction of local industrial manufacturing and commerce and disappearance of local capitalist elites (1920s, 1960s, 1990s) and consequent rise of new capitalist class and industrialists dependent on (trans)national flows of finance capital (e.g. construction)(1990-present) (section 4.2.1/4.2.2); regeneration of *Surici* involving devaluation of real estate and dispossession (gentrification) (2000-present) (section 4.4.2/4.4.3), destruction of class power through the creation of new forms of labor and creation of local labor excesses.

7b. Examples of the creative destruction of Diyarbakir's extended urban space include: appropriation, destabilization and destruction of land, assets from peasants and their established collectives engaged in non-commoditised economic and social activities and their replacement by exclusionary and profit-oriented land uses, re-configured to meet the global spatial division of labour and modes of exchange. destruction of class power by via automation, economies of scale and labour extensive modes of production (1980s-1990s).

Moments of Diyarbakir's Urbanization	Dimensions of Diyarbakir's Urban Space		
	Spatial practice *(l'espace perçu)*	**Territorial Regulation** *(l'espace conçu)*	**Everyday life** *((l'espace vécu))*
Concentrated Urbanization	Production of Diyarbakir's built environment and socio-spatial configurations that internalize the contradictions of (neo)industrial capitalism, finance capital and world market through agglomeration: accumulation and circulation of finance capital in large-scale housing and infrastructural projects via new sub-contracting mechanisms and urban zoning; speculation on land and real estate in new suburban and formerly devalued down-town districts; gentrification, uneven development, creation of local labor excesses, accumulation-by-dispossession (relocation of rural migrants and the local poor to distant housing complexes); capital flight to more affluent city-regions in Turkey.	Non-unionized labor; eroding redistributive policies; re-scaling of state and locality centrally empowered local business associations; restructuration of the real estate sector; re-definition of TOKI; Metropolitan municipality of Diyarbakir; RDA-SA; dissolution of DTP; Ministry of Environment and Urbanization; dispossession via Urban Regeneration Law (Art. 6306) and Urban Hazard Law (Art. 6332); illegalisation of *gecekondu's* (Art. 5237); Inclusion of supra-national organization (EU and UNESCO) in urban governance Rrepresentations of urbanization as the motor of the national economy; Ministry of Development, 2013), the city as a safe and prosperous business climate, Diyarbakir as the brand city of culture and art; RDA-SAs (2010, 2015) urban and regional development knowledge	Cultural divide between th higher and middle class in Kayapinar and 'vernacular population segments in Ba Surici and *gecekondu's* (community conflict in *Pe* continuation of traditional occupations and lifestyles city (urban farming); smel gas, idealization of village farm. Attempts to de-colonize th Diyarbakir and re-appropr public space; creation of n forms of collective (re-)ac counter hegemonic narrati mediated by NGOs and H Local Economic Developr Department
Extended Urbanization	(a) Expansion in investment in mineral; (b) increased consolidation and extension of electricity and road infrastructures to the countryside to reduce transaction costs; (c) transformation of the countryside: commoditization of agricultural products and the resource base, transformation of peasants into farmer and from farmers into rural migrants or seasonal workers, agro-industrialization, GAP etc.	RDA-SA; GAP; Ministry of Development; Agricultural land reforms and agricultural pricing policies; Metropolitan Municipality (extension of urban administrative procedures, including building permits to the country-side). Representation of the country-side as backward and non-modern; designation of the country-side as a development sector; hegemonic urban and regional knowledge	Increased mental distance villagers associated with s from gifts (barter, reciproc acquaintance) to commodi exchange (stranger); depe on mobile phones and the Continuation of traditiona routines and life-styles; id city as foreign, LEDD's framework for agricultura cooperatives

Differential Urbanization	*In relation to concentration:* Subsequent periods of destruction of local industries and disappearance of the local bourgeoisie (1920s, 1960s, 1990s) and consequent rise of new capitalist class and industrialists dependent on (trans)national flows of finance capital (1990-present); devaluation of agricultural plots around the city and replacement by suburban housing units (1990-present); regeneration of *Surici* (accumulation-by-dispossession, gentrification) (2000-present); creation of new forms of labor and local labor excesses.	Idem, added with: Intimidation of local bourgeoisie by police (1990s); absence of public investment in infrastructure (1920s-1990s), structural uneven development between regions (1920s-present).	See nr's 2 and 5
	In relation to extension: destabilization and destruction of land and assets from previously established collectives engaged in non-commodified economic and social activities and their replacement by exclusionary and profit-oriented land uses, re-configured to meet the global spatial division of labour and modes of exchange. diminishing of class power by via automation, economies of scale and labour extensive modes of product ion	Idem, added with: Conflict between State and PKK; evacuation and destruction of 3000+ villages (early 1990s) (dispossession and destruction of villagers' productive assets); representation of rural-urban migration as a natural process (neglect of its political dimension); representation of villages as exclusively agricultural (neglect of village industries)	See nr's 3 and 6

Table 3: Moments and dimensions of Diyarbakir's urbanization (adjusted from Brenner and Schmid, 2015a: 171).

5.2.3 Diyarbakir's planetary urban landscape

The description of Diyarbakir can also be deployed to illustrate how its urbanization process is becoming part of a generalized condition on a world – or in Lefebvre's (1991[1974]) words, a *mondial* or *planetaire* – scale. While its concentrated, extended and differential urban landscapes are *amorphous* (variegated because they are or context-specific) simultaneously these temporary manifestations of urbanization are produced by spatial practices, forms of territorial regulation and class struggles that are increasingly generalized across the globe.

On the one hand, Diyarbakir's planetary urbanization is "the cumulative product of the earlier *longue durée* cycles of urbanization" – all bei it more related to the successive periods of urbanization in Turkey closely associated to industrial capitalism (section 4.1.1) than the earlier stages of its own urban development as the absence of industrialization and urbanization in these periods suggests ((section 4.2.1). On the other, it emerged especially as a consequence of "the post-1980s wave of global neoliberalization" and the associated activation of extended urban landscapes (Brenner and Schmid, 2015a:176). Similarly to how TTUT implies that Diyarbakir suddenly found itself entangled in 'the urban age' (point 4 of section 4.1), for CUT the relation between the urbanization and the development of capitalism in Diyarbakir actually started with the advent of planetary urbanization. As such, its urban process might be more adequately grasped in relation to the continuous stretching of the urban fabric than the other way around; perhaps even considered a form of extension entirely.

For CUT, however, Diyarbakir's planetary urbanization neither illustrate that urbanism as a way of life has been universalized across the globe (Soja and Kanai, 2006: 26), nor that the

physical location of world problems has changed *per se* – although both of these trends can be observed in Diyarbakir too. More importantly, it illustrates how 'the urban', as Brenner and Schmid (2015a) phrase it, "has become a worldwide condition in which in which all aspects of social, economic, political and environmental relations are enmeshed" (p. 173). What Lefebvre anticipated is that the domination of finance capital and world market expansion over industrial capital and the associated stretching of the urban across the globe ultimately implies the transformation of the world as a whole. Because the modern domains along which space has been split up are increasingly subsumed by 'the urban', all societal challenges and prospects have been displaced in dominant social relations. To paraphrase Kostas Axelos (1979), a new *"system of systems"* is being articulated. The inquiry in Diyarbakir's urban formations illustrates a problematic we face in our attempts to understand the totality of the interplay of all systems (c.f. Merrifield, 2013; Lefebvre, 2009; Elden, 2008; Axelos and Elden, 2004; Berger's et al., 1972). In other words, Diyarbakir has been completely dissolved in Asimov's *Trantor*; It has become part of a continuously stretching and uneven re-woven urban fabric. part of Merrifield's *ecumenopolis*, but only as a semantic reference to the city

In this way, the case study illustrates that *The Urbanization Question* no longer poses theoretical or (social) philosophical questions – about the nature of 'the urban' and the legitimacy and validity of urban knowledge – but instead presents a meta-theoretical and meta-philosophical conundrum (Brenner, 2013; Merrifield, 2013). Since space has been split up across so many disciplines, disclosing the historically and geographically specific dynamics of creative destruction of Diyarbakir's urban formations requires a unity of theory between *fields*; one that cuts across a variety of disciplines and modes of reasoning simultaneously. In this sense, 'the urban has become "an ontological reality inside us [...] a *metaphilosophical* problem of grappling with ourselves in a world that is increasingly urbanized" (Merrifield, 2013: 911-12). What becomes planetary in Diyarbakir and elsewhere is not 'the urban form' (morphology) but "the urban as a question, as a theoretical framework, as a conceptual object of struggle" (Madden, 2012: 781). For Lefebvre (2009), questions about the production of social space in the world as a city are the central concern of today's world. "The problems posed by the modern city […] are worldwide problems" (p. 282).

5.3 Limitations to CUTs conception of Diyarbakir's urban revolution

CUT provides a series of compelling conceptions of the nature of Diyarbakir's urbanization process and its relation to inequality. Moreover, the description of it urban revolution illustrates that with the emergence of planetary urbanization the field of urban studies requires a new urban epistemology. At the same time, however, it remains unclear how the *Urbanization Question*, more generally, and the hypothesis of *Planetary Urbanization*, in particular, will exactly produce 'meaningful mediations to the realm of practice'. The description of CUTs take on its urbanization does not offer clear instructions *what* potential alternative modes of urbanization ought to be pursued in Diyarbakir – let alone, how such alternative modes of socio-spatial development could be attained in practice. While we could connect these account to the well-known intellectual endeavours that underline the importance of social resistance and mobilization for a revolutionary urban transformation (e.g. Merrifield, 2013; c.f. Harvey, 2008) no alternative forms of spatial practice (modes of production) and forms of territorial regulation (urban governance, planning, policy and strategy) are provided.

In section 2.4.3 it was argued that CUTs failure to produce meaningful mediations for the realm of practice derives from some intrinsic problems immanent to its own paradigm, including its approach to: (1) the moral (in)viability of capitalist urbanization, and (2) epistemology. The next two sub-sections illustrate these limitations with reference to CUTs take on Diyarbakir's urbanization process and its relation to inequality. Moreover, based on the analysis of the first two conundrums sub-section 5.3.3 teases out a third, ontological problem in face of the relation and distinction between CUT and TTUTs objects of inquiry.

5.3.1 Normative fallacies

The Local Economic Development Department's motivation for establishing agricultural cooperatives provides an illustrative example of CUTs theoretical and political problems of *justification* and *representativeness* of its general norms of critique that arise from taking the concept of social justice as immanent to the arenas of contestation under enquiry. Both the RDA-SA and the Department justify their respective local economic policies by appealing to the need for socioeconomic progress in the region. However, while justification of the former's socioeconomic policies is premised upon the development of society as a whole (section 5.1; point 3) the latter legitimizes its development plan by appealing to the historical socio-spatial processes that have inflicted social injustice upon the local villagers, rural migrants, IDPs and the poor. In theoretical terms, therefore, the Department's appeal to the moral in-viability of contemporary urbanization is considered both normative and unrealistic as it is premised upon the universalization of the experiences of one social group over the rest of Society (Barnett, 2012, 2013). Moreover, it illustrates that, in political terms, such approach to the moral (in)viability of capitalist urbanization risks inducing, what Kuymulu (2013) has called, "collective individualism" (p. 927). The Department's appeal is considered a mere derivate of the counter hegemonic urban mentalities and practices of the BDP – i.e. of conflicting political interests between the State and the BDP and between national versus local identities and aspirations (section 4.4.1). Ultimately, debates about this plea are reduced to opposing claims for national and local sovereignty (see ICG, 2012).

Second, CUTs take on Diyarbakir city illustrates that its combination of a problematization of *(in)justice* (a normative standpoint) with an analysis of capitalist urbanization *reduces* urban inequality to an analytics of spatially -and historically-specific urban processes induces *an insurmountable gap between urban theory and* practice. Implicit to CUTs argument is that a more just (or equal) mode of urbanization is *possible*. However, because for Lefebvre the concept of 'the urban' "contains the possible as an immanent and constitutive moment of the real" (Brenner et al., 2011: 235; c.f. Lefebvre, 2009; Marcuse, H. (1990[1960]), its definition of a Just City remains intrinsically bounded to its explanation of injustice. In theoretical terms, therefore, in demonstrating that Diyarbakir's contemporary urban formations under capitalism sustain structural forms of *social injustice* (section 5.2.1; point 3).its claim of the moral (in)viability of capitalist urbanization in Diyarbakir is reduced to a matter of deconstructing ideological conceptions of the nature of its urban revolution where the real sources of social injustice – i.e. the continuous (re-) production of its concentrated, extended and differential urban landscapes that internalize the contradictions of industrial and finance capital and world market expansion – are already known in advance (Barnett, 2011). Only the question, '*How? (through what historically specific trajectories?)*', remains open.

Moreover, in social philosophical terms, its *propositions* for a 'Just City' always remain pending between history (*the actual*) and present (*the possible*); between *what is* and *what should*; between urban theory and urban practice. Therefore, CUT fails to alter dominant conceptions of *what is* (not) to be of value when articulating alternative, just trajectories of urbanization. In fact, all studies on Diyarbakir informed by CUT (implicitly or explicitly) confront unequal nature of its urbanization process but abstain from proposing alternative trajectories for urban development, in response. The status of its object of urban inequality as an analytical-normative concept requires a reconsideration of its conception of the relation between science and society (the external and internal functioning of science) (section 2.1.4).

With the emergence of *Planetary Urbanization*, however, further complexity is added to this problematic, 'If urbanization now entails the (re-)production of both concentration and extension, 'What is specifically urban about (urban) inequalities in Diyarbakir? and', 'The right to *what* city has to be pursued?' In other words, we return to research rationale for inquiring in the relationship between urbanization and inequalities by focusing, in the first instance, exclusively on different urban concepts (section 2.1.4).

5.3.2 Epistemological fallacies

Epistemological dualisms

The various scientific studies on Diyarbakir's urbanization also illustrate that urban studies fails to overcome the epistemological dualisms (section 2.4.3.3 and 2.4.1). For example, 'Are the urbanization of Diyarbakir, more generally, the recent construction boom in Kayapinar or the inequalities in Diyarbakir, in particular to be grasped as (a function of) *local* or *global* phenomena?' (Yüksel, 2011). Do spatial practices (*economy*) or forms of territorial regulation (*culture*) dominate the production of Diyarbakir's planetary urban landscape?' 'Are the inter-regional *differences* in urban development in Turkey (e.g. between Diyarbakir and the 'Anatolian Tigers') to be explained by the *agency* of (local) actors (e.g. the local bourgeoisie, state operatives in the city, the HDP) or are these actors entirely subjected to the *structural*, though historically produced, socio-spatial contradictions of capitalism more *generally*?' (Bayirbag, 2008; Gambetti, 2004, 2005).

The 'solution' that Lefebvre found to this problem is to take 'the urban' as a *concrete-abstraction* in which "the contradictory sociospatial relations of capitalism" [...] (materialized in spatial practice, territorial regulation/contestation) "are at once *territorialized* (embedded within concrete contexts and thus fragmented) and *generalized* (extended across place, territory, and scale and thus universalized)" (Brenner, 2013: 95). In this way it can treat 'the urban' as economic (mode of production) and cultural (mental conception) phenomenon at the same time. Moreover, in this way different urban practices and mentalities in particular space-time contexts, as those in Diyarbakir, do not underpin the irreducible idiosyncrasy of all cities as post-colonial urban theorists argue (Ong and Roy, 2011; Amin and Graham, 1997; Robinson, 2006), but are, in fact, only temporary manifestations (*product*) of a general planetary urbanization *process*. Similarly, in line with TTUT, the RDA-SA attributes Diyarbakir's poor development performances to its unique local context so that these deviations are grasped as mere spatiotemporal variations on the nature of cities rather than

warranting a new urban epistemology[65] (Scott and Storper, 2014: 10). However, by this maneuver, the problems of *reduction* and *causality* remain unresolved in epistemological debates between CUT and TTUT, on the one hand, and the various cultural urban studies, on the other (section 2,4,1,3). Both fail to settle disparate claims on *embeddedness* and *disembeddedness* in Diyarbakir's urban revolution (Granovetter, 1985; Polanyi, 1944).

Diyarbakir as a blind field?

The various approaches to Diyarbakir also illustrate how, ultimately, the inability to settle epistemological debates about the context-(in)dependency of 'the urban' across space and time to the context of urban research itself – i.e. the context (in)dependency of urban knowledge. While for CUT the context-dependency of human knowledge does not imply that "no single urban theory of ubiquitous remit" can exist (see Leitner and Sheppard, 2015) it considers urban knowledge intrinsically mediated by urban practices and theories of the past. Lefebvre (2003 [1970]) himself already drew on the social philosophical paradox between history and present (between urban theory and practice) that the context-dependency of human knowledge posed to his search for a coherent, emancipatory urban epistemology. Moreover, he pointed to the problems sub-disciplinary specialization and bifurcation resulting from epistemological division and Modern dualisms pose in this respect as these fields *separate* the urban into distinct, isolated parts, hence, *obscuring* the totality formed by planetary urbanization (p. xii).

Together, the various approaches to Diyarbakir's urbanization divide the essence of 'the urban' into separate objects – where it is either conceived as a naturalized (the World Bank, 2015), phenomenological (Gambetti, 2004) or a spatial economic phenomenon (RDA-SA, 2010, 2015) and so on – rather than providing a more holistic conception of the nature of this process. Even so, CUT-informed conceptions of Diyarbakir's urbanization remain stuck in a vocabulary of city-centric models inherited from the previous epoch of industrial capitalism. While Lefebvre (2003 [1970]) called for a trans-disciplinary urban science the examples of how CUT informs in the nature of Diyarbakir's planetary urban landscape, in contrast, illustrate that treating *The Urbanization Question* as a *meta-theoretical/philosophical question* results in a mono-disciplinary science of the contradictory nature of dominant socio-spatial relations under capitalism. In this sense, the disparate attempts to grasp Diyarbakir's current urbanization process become a metaphor for, what he named, "blind fields" (p. 29).

5.3.3 Ontological fallacy

5.3.3.1 From epistemological fallacy to ontological fallacy

The debates between post-colonial urban theorists, on the one hand, and CUT and TTUT, on the other, do not only unveil an epistemological fallacy (as regards modern divisions and dualisms) in urban studies, more generally, and CUT, in particular, but also an ontological

[65] In fact, the RDA-SAs explanations for Diyarbakir's low development accord with Storper and Scott's (2016) "five basic variables" of contextual variation (p. 1116): (1) *overall level of economic development* of Southeast Anatolia; (2) poor adaptation to development frameworks deriving from the new *rules that govern resource allocations* of Özal's post-1980s neoliberal reforms; (3) *Conditions of political authority and power*: besides the war between the State and the PKK, the RDA-SA attributes Diyarbakir's economic stagnation to the disobedient stance of BDP-run local administrations; (4) *Culture*: the RDA-SA points to the continuation of 'backward' lifestyles and occupations in the city and countryside as they believe it hampers residents' adaption to the reformed (urban) labor markets and makes these areas nearly impervious to formal development attempts.

fallacy. Especially their respective approaches to the (*in)commensurability of urban forms and experiences across different space/time-conttexts* and *the context-(in) dependency of urban knowledge* obstruct their ability to delineate 'the urban' as a scientific object of inquiry

For example, post-colonial urban studies (section 2.4.1) appeal to the notion of context to highlight aspects and modes of urbanization neglected by Modern urban science (e.g. particularities of "ordinary" cities, the role of identity and culture in urban transformation and politics, slums, informal markets, infrastructure and forms of patriarchy and ethnocentrism involved in the construction of urban discourses) or to underpin the irreducible idiosyncrasy of individual cities, urban process and urban knowledge(s) across different space/time-contexts (Leitner and Sheppard, 2015; Ong and Roy, 2011, Robinson, 2006). Accordingly, in their attempts to articulate an alternative urban epistemology these studies deploy 'the urban' either as a pre-given site, 'acting' merely as an umbrella for urban-related topics, or in contradistinction to 'supposedly' universalist, economist, rationalist or developmentalist or modernist urban epistemologies of CUT or TTUT. However, in this way 'the urban' as a distinct object of inquiry itself is not adequately demarcated. 'What is exactly *urban* about post-colonial urban studies?'

Conversely, CUT deploys 'the urban' in the singular as its core object of research The *Urbanization Question* is treated as a meta-philosophical problem where ontology (*what is* urbanization') and epistemology (*what can be known* about urbanization) are considered inseparable and their interconnection can only be grasped through a 'reflexive' (meaning: epistemological) approach to ontology. However, in this way demarcation of the ontological boundaries of 'the urban' (of what is actually being studied) is reduced to a matter of urban epistemology (see also Walker, 2015).

5.3.3.2 The double object

This ontological problem is further entrenched by CUTs claim that 'the urban' "contains the possible as an immanent and constitutive moment of the real" (Brenner et al., 2011: 235; c.f. Lefebvre, 2009; Marcuse, H. (1990[1960]). In social philosophical terms, this claim, associated to the meta-philosophical position that our access to urban ontology is mediated by urban epistemology, amounts to a paradox between urban theory and practice (moment and process). In ontological terms, however, it creates confusion about the relation and distinction between CUT and TTUTs objects of inquiry. As will be explained with reference to *the CUT/ TTUT-debate on the nature of cities* (section 2.4.2), ultimately, CUTs concept of 'the urban' rests on two object of inquiry instead of one. This section will explain how CUTs problem of the 'double object' obstructs its attempts to expose (1) that inequality is an intrinsic feature of urbanization and (2) that TTUT simultaneously sustains and obscures this relationship.

CUT = construction + deconstruction

Figure 28 illustrates CUTs double object with reference to TTUTs object of inquiry in a visual template. The upper bar navigates between: urban paradigm, epistemological position and ontological position (or object of inquiry). The two objects can be located as follows.

First, Storper and Scott (2016) defend the construction of 'the urban' as an ontologically distinct scale of socioeconomic interaction and spatial unit versus the rest of topographic space by deploying an epistemological framework that combines the dynamics of

agglomeration-cum-polarization with the unfolding of an associated nexus of locations, land uses and interactions. The resulting object of inquiry undeprins the urban age thesis.and is indicated as 'Object-1' in figure 28. *Second*, Brenner and Schmid (2014) deconstruct Object-1 as it (1) does not adequately seperate the city from the rest of geographic space – i.e. mistreating the geographical specificity of 'the urban' – and (2) does not provide a coherent demarcation of 'the urban' as a distinct scale of human activity – i.e. mistreating the historical specificity of 'the urban'. Importantly, here, both Brenner and Schmid (2014) and Storper and Scott (2016) develop competing claims about the *same* object (hence, the two arrows respectively designating the construction and deconstruction of Object-1).

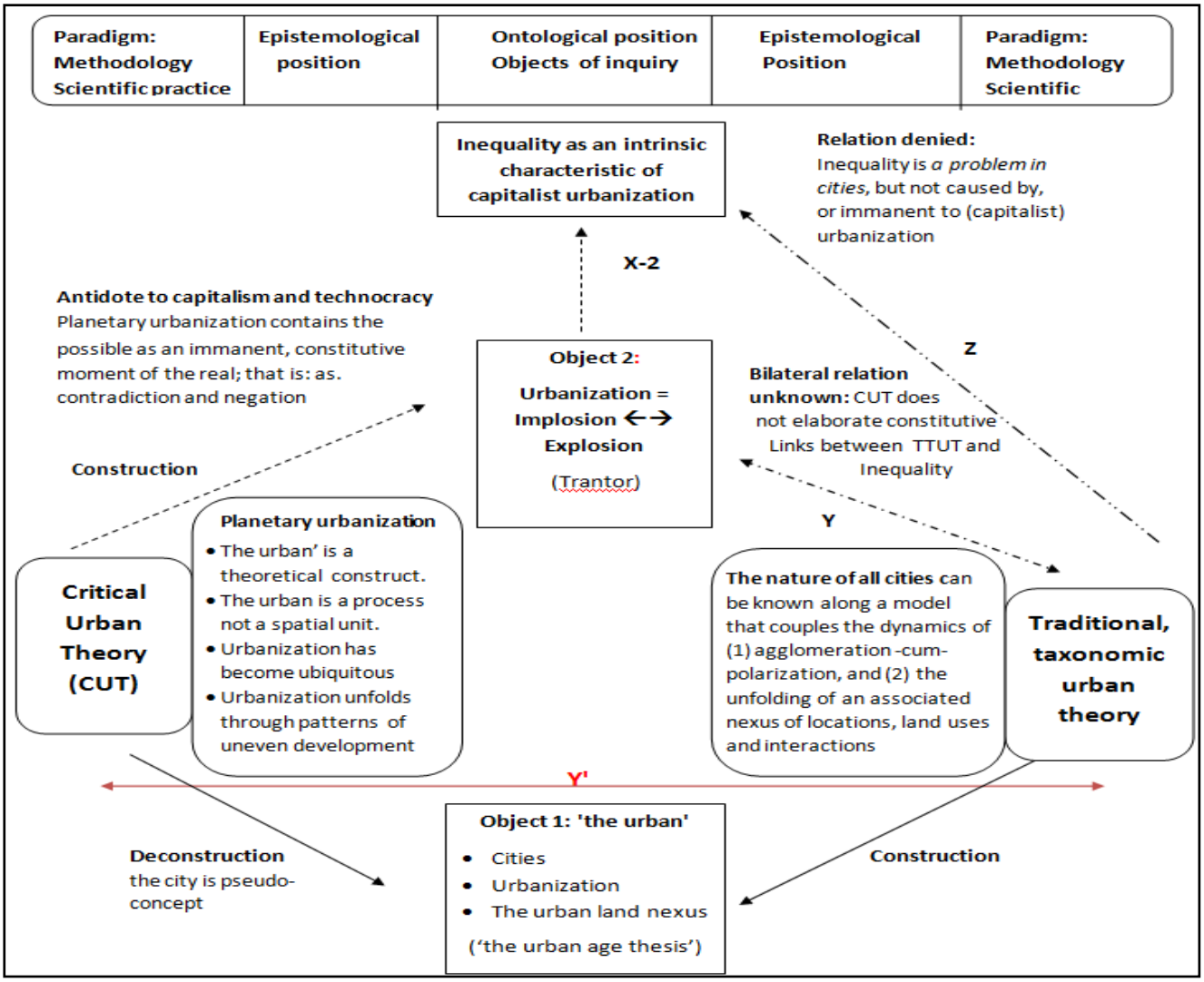

Figure 28: Visualization of the problematic relation and distinction between CUT and TTUT contextualized along 'the problem of the double object' (Source: author's own elaboration).

Third, based on their de-construction of Object-1, Brenner and Schmid (2014) articulate an new epistemology of 'the urban' by distinguishing between: (1) a category of analysis (vs. a category practice), (2) a constitutive essence (vs. nominal essence) (3) a dialectical process of *Implosion/Explosion* (vs. concentration), and (4) the different dimensions of the urban fabric. The result is the construction of another object: *Planetary Urbanization*, or Object-2'.

On the one hand, by moving from Object-1 to Object-2 CUT seeks to *expose* how 'the urban' unfolds through variegated patterns of continuously (re-)produced uneven socio-spatial

configurations that internalize/transform the contradiction of finance capital and world market expansion and associated formations of territorial regulation/contestation. This exposure, in turn, underpins the claim that inequality is an intrinsic feature of capitalist urbanization and, accordingly, serves to produce meaningful mediations to the realm of practice, in order to, *propose* alternative, more just trajectories of urbanization (see the evenly interrupted, vertical arrow X-2 and the upper box). On the other hand, by this move CUT seeks to expose how TTTUT simultaneously obscures and sustains contemporary processes of planetary urbanization and, hence, obscures the relation between urbanization and inequality.

The impotency of the double object

Storper and Scott's defence of Object-1 and their critique of Object-2 (section 2.4.2.2 and 2.4.2.3).demonstrate how the double object obstructs CUTs attempt to expose (1) the relation between urbanization and inequality and (2) that TTUT engenders *confusing and misleading conceptions of capitalist urbanization* and, hence (3) obscures and sustains this relationship.

First, while Storper and Scott are compelled to respond to Brenner's critique of TTUTs alleged mistreatment of the geographical specificity of 'the urban', for them, neither the appeal to (1) the supra and inter-urban interactions and networks nor to (2) the absence of definite and absolute boundaries between urban and rural space offer valid grounds to deconstruct TTUTs object of inquiry[66]. To the contrary, they explain that their approach to the city as an ontologically distinct scale of socio-economic interaction and identifiable spatial unit versus the rest of topographic space exactly helps to identify and *theorize* the specificity of cities in face of these socio-spatial dynamics and trends. Moreover, Storper and Scott (2016) explain that Object-1 does not even presuppose rigid boundaries between urban and rural space but instead stresses that they can be distinguished from one another by observing them along "a series of spatial gradations in which we move from the one to the other" (p. 1131). Thus, for them CUTs deconstruction of Object-1 is based on false premises as both arguments stressing TTUTs mistreatment of the geographical specificity of 'the urban' are *ignoratio elenchi*.

Moreover, it can be added that Brenner and Schmid's (2014) claim of TTUTs mistreatment of the historical specificity of 'the urban' – i.e. that Object-1 is logically inconsistent – is premised on the *continuum fallacy* (fallacy of the beard). In fact, since TTUT assumes a continuum of settlement types (from respectively less to more 'urban' and 'rural') its concept of the city will always remain subjected to the *sorites paradox* (paradox of the heap). It is also for this reason that Storper and Scott (2016) partially concord with Brenner's notion of extended urbanization. Not because it undermines the status of their object of the city as a process of concentration-cum-polarization but because it illustrates the impossibility to draw rigid boundaries between both types of space. As such, Storper and Scott (2016) can simply neglect Brenner and Schmid's (2014) claim that TTUT (via Object-1) engenders *confusing and misleading conceptions of capitalist urbanization* (see interrupted arrow Y in figure 28).

[66] Scott and Storper (2014) explain that "the *specificity of the urban* depends not so much on the crude ratio of its internal to external transactions, but on the contrasting qualities of these two sets of transactions and their locational effects" (p. 7). Moreover, they argue that the increasing functional relations of cities with places, territories and scales officially categorized as rural, do not problematize the notion of the city since "their effects are virtually always assimilated into the urban land nexus as such without destroying its integrity as a complex social unit" (Storper and Scott, 2016: 1131).

Second, Storper and Scott (2016) stance towards planetary urbanization (Object-2) is quite supportive. For example, they admit that Brenner and Schmid "are doubtless correct to refer to an integrated planet-wide socio-economic system" (p. 1128). However, they consider Object-2 irrelevant for the field of urban studies as it does not reveal anything specific about cities or urbanization (Object-1) at all, but instead refers to something what they would prefer to call "planetary capitalism" or "global space-economy" (p. 1130). Because planetary urbanization designates another phenomenon and, hence, *another object of inquiry*, Storper and Scott (2016) can simply neglect CUTs claim of how the process of continuous (re-)production of uneven urban constellations that internalize and transform the socio-spatial contradiction of capitalism is being reconfigured under conditions of planetary urbanization. Accordingly, since CUTs claim that inequality is an intrinsic characteristic of urbanization hinges on Object-2, Storper and Scott can simply reject this argument and maintain TTUTs claim that inequality is a problem *in* cities rather than a problem *of* cities (see the upper right interrupted arrow, interrupted arrow Z).

Third, combining this defence of Object-1 and critique of Object-2 illuminates that the double object also obstructs CUTs attempt to expose how (3) TTUT obscures/sustains the relation between urbanization and inequality. After all, CUT not only fails to demonstrate how Object-1 obscures/sustains Object-2 (on which CUTs theory of this relation is based) – as its deconstruction of Object-1 is premised on an *ignoratio elenchi* and a *continuum fallacy* – but also how Object-2 is relevant to any understanding of Object-1 other than that the latter misrepresents the former[67]. (arrow from object-1 to upper bos in the middle in figure 28).

Fourth, by arguing that CUTs "major blind spots and analytical distortions" [...] "are not only regrettable in their own right, but are notably disabling in a field where the need to frame viable policy advocacies in search of social justice has become more and more insistent", Storper and Scott (2016) reverse the argument (p. 1115): it is not TTUT but CUT that obscures scientific and policy debates related to urban poverty, urban labour markets, etc..

5.3.3.3 Unresolved matters in the CUT/TTUT-debate

In sum, Brenner and Schmid's (2014) intervention does not challenge TTUT. Instead, it is merely considered a pollution of the discussion. Since the construction of the double object results in a dialogue where both proponents of CUT and TTUT maintain their respective stances on different objects, at best CUTs critique of TTUT initiates a half-debate on the nature of cities.However, there are still some questions that remain unanswered in this debate. Some claims and refutations of both CUT and TTUT are not underpinned while others rely on arguments that seem contradictory. These questions and remarks are listed accordingly.

[67] Likewise, in no way Storper and Scott are inclined to respond to the allegations that Object-1 obscures: (1) "the historical construction and reconstitution of territorial boundaries at any spatial scale"; (2) "the historical specificity and political instrumentalities of territory as a form of sociospatial organization"; and (3) "the role of non-territorial sociospatial processes such as place-making, networking and rescaling that likewise figure crucially in the structuration of political-economic relations" (Brenner and Schmid, 2014: 744).

Contradictions and fallacies in TTUT

1. Logically inconsistent object of cities

While Storper and Scott agree with Brenner and Schmid's allegation that 'the rural' is underspecified in their urban/rural-distinction they do not respond to the initial critique that TTUTs object of 'the urban' is *logically inconsistent*[68]. While this contradiction is not resolved another question concerns the origination of this contradiction. 'What enables the construction of this logically inconsistent object of the nature of cities?'

2. Simultaneous reliance on empiricism and theoretical abstraction

In face of CUTs critique Storper and Scott defend the status of TTUTs object of the city as a scientific object of inquiry by appealing to its alleged 'nature' as an *empirically* observable, distinct spatial unit[69]. At the same time, against post-colonial critiques stressing that the context-dependency of cities and urban knowledge imply the irreducible idiosyncrasy of different cities and urban processes across space and time, their claim that the empirical diversities observed are in fact mere variation on TTUTs object of the city is based on the claim that this object as first and foremost a theoretical category[70]. 'How can TTUT maintain its contradictory approach to the nature of cities (Object-1) as a simultaneous empirical and theoretical phenomenon?' and, 'What is the origination of this contradictory approach?'

3. Embedding and distinction of cities versus the rest of social reality

The last unresolved issue concerns TTUTs inadequate conception of both the embedding and specificity of cities versus, what Storper and Scott (2016) name, the "global space economy" – referring to the "geographical anatomy of global society" (what Brenner names "planetary urbanization") – and of the embedding and distinction of cities in society as a whole (p. 1133). As Storper and Scott rightly conclude, TTUTs account on the nature of cities logically implies *the existence of the urban age in a primarily non-urban* society, and accordingly, that inequalities are a problem *in* cities, not *of* cities. As they explain:

> "even though we have affirmed that we live in an urban era in the sense that cities formally represent the principal geographic containers within which contemporary human society unfolds [...] not all aspects of life, perhaps not even most aspects, can be understood as being necessarily (that is, 'ontologically') urban phenomena" (p. 1117)

Still, however, this leaves unanswered the question how TTUT can imply that urbanization is paramount with respect to economic growth at regional, national and international scale levels and that the urban poor, on average, are better off in cities than rural poor (p. 1114-5) – thus suggesting that urbanization plays not only a significant but also a determining role in shaping

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[68] While the urban/rural-distinction serves as an epistemological model of socio-spatial restructuring in which changes in the distribution of population and *types* of human activity are argued to occur the definition of ontologically fixed urban/rural spaces implies that the nature of these spaces themselves cannot be impacted by that same ongoing process of socio-spatial change (Brenner and Schmid, 2014: 746).

[69] Storper and Scott (2016) theory of cities build[s] on the *observation* that *cities are everywhere* characterized by agglomeration involving the gravitational pull of people, economic activities, and other relata into interlocking, high-density, nodal blocks of land use" (p. 1116: emphasis added).

[70] As Scott and Storper (2014) argue, "*conceptual abstraction* actually helps the researcher to reveal *meaningful* levels of diversity and difference in basic observational data, just as it is an essential prerequisite for the construction of useful empirical taxonomies (p. 11: emphasis in original).

broader social outcomes (also with respect to inequality) – while at the same time imply that "not all, perhaps not even most" social phenomena, including inequality, are not intrinsically urban in nature (p. 1117) – thus suggesting that urbanization does not play a significant (let alone, determining) role in shaping social outcomes.[71]

If we concord with Storper and Scott that the nature of cities lies primarily in the process of agglomeration/polarization, then, the fact that "cities formally represent the principal geographic containers within which contemporary human society unfolds" (idem), of course does not make all these 'other' social activities in the city necessarily 'urban' activities because these activities themselves are not what constitutes (their) concentration/polarization (i.e. what makes them behave spatially). However, what is forgotten, here, is that by this maneuver, *first*, the rest of social reality can only have meaningful spatial (economic) repercussion insofar these aspects are unrelated to urbanization. An option that sits uneasily with the same premises underpinning TTUTs argument of the primacy of concentration/ polarization in (contemporary) modern society. Thus, apart from social processes pertaining to urbanization, social reality is rendered practically a-spatial. Inequality, like most social phenomena, simply circulate *on* space. They neither affect, nor are affected by space. Conversely, *second*, by this maneuver *the totality of the global space economy* can only have meaningful social repercussions insofar these are intrinsically related to processes of concentration or, conversely, extension. In other words, the planetary space economy is rendered practically a-historical. In this light we can also understand why, in attempting to demonstrate an intimate relation between urbanization and capitalism and, in extension, inequality, vis-a-vis TTUT, Brenner's thesis of planetary urbanization elaborates so much on the notion of "extended urbanization" in relation and contra-distinction to concentration.

Following up on the second implication, while (a) accepting the existence of a global space economy (planetary capitalism) and (b) understanding urbanization as embedded in, though ontologically distinct from, the totality of planetary capitalism – just as it considers intra-urban phenomena ontologically distinct from, though embedded in, the urban land nexus for that matter – by virtue of its approach to cities and urbanization, TTUT neither attends to *the historical specificity of the planetary space economy*, neither to the historically-specific linkages and distinctions between planetary space economy and the city. Accordingly, we can conclude that while TTUTs construction of Object-1 is inextricably linked to claims of its relation and distinction to Object-2 (see Figure 28) its specification of Object-1 versus Object-2 is one-sided. It registers the ontologically distinctiveness of cities versus the global space economy, but it does not do the same for the global space economy versus cities (neither for intra-urban phenomena). Thus, contrary to what Brenner and Sshmid (2014) claim, it is not just 'the rural' that remains a black-box in TTUT. It is the totality of the global space economy itself that is black-boxed altogether while simultaneously being deployed as a broader spatial economic context to disclose urbanization and intra-urban phenomena. In this sense TTUTs approach to planetary space economy, cities and intra-urban phenomena as different scales of

[71] Storper and Scott (2016) argue, "[i]n capitalist or market economies especially, poverty is not fundamentally caused by urban processes, but by the complex forces that shape income distribution in an economy marked by private property, competitive markets and wage labour" (p. 1117).

social and economic activity and interaction also does not hold. Without highlighting the constitutive links between them these scales, in fact, constitute merely different territories.

Following up on the first, TTUTs also inadequately defines the *specificity of the city versus society as a whole* as it does not attend to *the embedding and distinction of the totality of the planetary space economy versus society as a whole*. While TTUT considers inequality determined by larger social processes – which it simultaneously, though paradoxically, considers macro – because it renders the rest of social reality practically a-spatial, it leaves question about the geographical specificity of society as a whole (including inequality), either with reference to the city directly or to the planetary space economy itself, unattended. Accordingly, by virtue of its approach to cities, TTUT does not only alleviate the possibility to inquire in the geographical specificity of society as a whole but especially to investigate the relation Society as a whole, and inequality, may (or may not) entertain with urbanization.

Even further, the passage above betrays TTUTs ambiguity about this relation and distinction between cities and the rest of social reality to begin with. Whether "not all" or "*perhaps* not even most" social phenomena are intrinsically urban in nature practically leaves entirely open to interpretation whether 'almost every' or 'close no' social phenomenon is intrinsically urban in character compared to Society as a whole. In other words, Scott and Storper do not know. As such, if consistent with TTUTs conception of the distinction between cities and Society as a whole, they are in no position to make any claims about the existence, or equally non-existence, of this relationship between urbanization and inequality in the first place.

Contradictions and fallacies in CUT

1. Inconsistent and confusing reference to the urban and the rural

First, as Storper and Scott (2016) also remark, if Brenner claims that TTUTs concept of 'the urban' is incoherent and its concept of 'the rural' vacuous, these concepts cannot be useful metaphors for analyzing planetary capitalist restructuring (p. 1128). Second, even as a semantic reference alone the use of the urban/rural-divide to disclose *Implosion/Explosion* (i.e. socio-spatial processes of capitalist restructuring that traverse both domains at the same time, hence transforming them) is incoherent with its own deconstruction of these distinct spatial domains. While Brenner and Schmid (2015a) clarify that *Implosion/Explosion* does not equate with the distinct morphological conditions of "concentrated" and "extended urbanization", but serves as "a useful basis for demarcating a *third, differential moment* of urbanization", that still does not justify the invocation of this semantic confusion (p. 168).

Third, if Brenner and Schmid claim that, despite the incoherent concepts of urban and rural space, the increasing dissolving of the different distinctions (Nature/Society, Industry/ Agriculture, Modern/non-Modern) subsumed under both categories amounts to the urbanization of the world as, then, conversely, a similar case can be made for, what Krause (2013) calls, "the ruralization of the world" (p. 233). In fact, Köymen's (1939a, 1939b, 1940) identification of village-centers (*köy-merkezi*) provides an especially illustrative example of how, by the same token, this conceptual problematic can be conversely addressed from 'the other side' of the urban/rural-equation. Over 80 years ago, at the onset of the inauguration of the urban/rural-divide in Turkey's spatial planning regime, Köymen already problematized the, in his view, incoherent attribution of distinct types of social and economic activities to

both types of space and postulated "the rurban" as an alternative settlement type to restore the intrinsic industrial character of Turkey's countryside. Conversely, through his description of urban farming, the continuation of rural lifestyles in the city and the importance of seasonal workers in local labor markets, Jongerden (2010) has thoroughly accounted for the increasing rural and agricultural character of Turkey's cities in the contemporary epoch.

2a. Inadequate specification of urbanization versus planetary space economy

As discussed above, in light of the relation and distinction urbanization (Object-1) and the planetary space economy as a whole (Object-2) TTUT neither accounts for *the historical specificity of the global space economy* nor for the historically-specific linkages and distinctions it may or may not entertain with the city, so that historical specificity of planetary capitalism remains a black-box. Conversely, Brenner and Schmid make the same mistake but in reverse motion. They register the ontologically distinctiveness of planetary urban space versus urbanization but without specifying the distinctiveness of the latter versus the former. Here it are the notions of urban and rural that are black-boxed.

What makes the one-sidedness of Brenner and Schmid (2015a) to the relation and distinction between urbanization and the global space economy worse than Storper and Scott's one-sidedness is that their hypothesis of planetary urbanization exactly hinges on particular claims of this relation and distinction between Object-1 and Object-2 while Storper and Scott's concept of the nature of cities exactly hinges on treating both as distinct spatial economic phenomena, which are only related insofar they scale.

2b) Failure to address TTUTs inadequate specification of the global space economy

Accordingly, due to its overly reliance on deconstruction of Object-1 Brenner and Sshmid (2015a) overlook the fact that TTUTs alleged obscuring of the nature of planetary urbanization under capitalism and the intimate relation between urbanization and inequality lies not so much in its incoherent concepts of 'the urban' and 'the rural'. In contrast, it lies in TTUTs under-specification and black-boxing of the (historical specificity) of the global space economy (planetary capitalism), and the associated absence of the relation and distinction between planetary capitalism and urbanization, while simultaneously and contradictory employing it as the broader spatial economic context in which urbanization and intra-urban processes occur. Instead of exposing TTUTs inadequate specification of (the historical specificity) of planetary space economy and its relation and distinction to urbanization, by turning the urbanization question into a planetary urban question, Brenner and Schmid (2015a) collapse the totality of planetary space economy into a semantic reference to the production of urban and non-urban space.

3a. Collapsing Society as a whole into the global space economy

While TTUT renders Society as a whole practically a-spatial, by treating urbanization not only as the dominant spatial but also historical mode of capitalist development CUT collapses Society as a whole into planetary urbanization. Because planetary urbanization stresses the subsumption of all orders and modern domains by urbanization, it both obliterates the distinction between society as a whole and the totality of planetary capitalism and neglects the manner in which urbanization may be variably distinguished from both.

3b. Failure to address TTUTs inadequate specification of the city versus Society

For this reason, CUT, first, cannot account for the fact that TTUT, by rendering Society as a whole practically a-spatial by virtue of its own concept of the nature of cities, leaves question abo ut the geographical specificity of society as a whole (including inequality), either with reference to the city directly or to the planetary space economy itself, unattended. Accordingly, second, CUT fails to account of how TTUT (by virtue of its approach to the relation and distinction between urbanization and Society inherent to its object of the nature of cities) does not only alleviate the possibility to inquire in the geographical specificity of society as a whole but especially to investigate the relation Society as a whole, and inequality, may (or may not) entertain with urbanization. As such, it is also no coincidence that Brenner and Schmid (2014) neither account for TTUTs profound ambiguity about the extent to which Society is fundamentally urban in nature nor that, accordingly, TTUT cannot provide legitimate arguments about the relation between urbanization and inequality to begin with.

5.4 ANTs approach to urbanization

We could assess ANTs approach to 'the urban' by mimicking the now large tradition of ANT-inspired urban studies (section 2.4.4.1) and disclose how processes of concentration/ polarization (TTUT) or *Implosion/Explosion* (CUT) are mediated by heterogeneous networks of humans and nonhumans (nature and technology) and to cut through those dualisms that so prominently define urban research (e.g. nature/society, economy/culture, agency/structure, local/global) (Amin and Thrift, 2002; Gandy 2005; Farías and Bender 2009, Murdoch, 1997a, 1997b, 1998). For example, by analyzing how ontological hybrids mediate processes generally considered fundamentally urban in nature, such as, the construction of urban discourses (Yaneva, 2012; Doucet, 2012) urban design (e.g. Latour and Yaneva, 2009; Petrescu, 2012); agglomeration process (see Zitouni, 2010, 2012); and cartographic mapping (Gabriel, 2013 Alternatively, we could attend to the agency of technologies within cities and paramount to continued urban viability but generally considered irrelevant to understanding the nature of cities: e.g. transportation, Geographical information Systems, cadastral maps, electricity grids and ICT (e.g. Houdart, 2012; Latour and Hermant, 2006 [1998]; Latour, 1992; Hughes, 1983; November et al., 2010).

However, both types of endeavors by-pass CUTs concern with capitalism – 'the context of contexts' (Brenner et al., 2010) – *a priori* reject its urban epistemologies and do not specify its own critical content so that these cannot be effectively linked up to debates about the nature of cities (section 2.4.4.2). Therefore, in contrast to these endeavors, this thesis analyzes the potential contribution of ANT by *directing it at its appropriate target*; attending to the production of urban knowledge itself (section 2.4.4.3). In the spirit of Barnes (2006) who used ANT as an alternative methodology for studying the history of regional science, it deploys ANT to investigate how (critical) urban scientists settle the disputes about (1) the nature of cities, (2) urban epistemology, (3) the context of urban knowledge and (4) the moral (in)viability of capitalist urbanization. Thus, rather than taking CUT and TTUT as competing representations of an urbanizing world outside us instead it analyzes how these paradigms (Words) co-constitute contemporary urban realities (Worlds) (Harbers, 2003; Latour, 1987a, 1999; Latour and Woolgar, 1979; Kuhn, 1991, 1993).

Section 5.4.1 evaluates TTUT from ANTs perspective by re-locating TTUTs object of the nature of cities and accounts for the contradictions in TTUT. In the same way, section 5.4.2 offers an ANT evaluation of CUT. Section 5.4.3 compares CUT, TTUT and post-colonial urban theory's approach to urban historicity that further rivet the Nature/Society-divide on which their entities of the nature of cities are premised. Moreover, it draws, on the *Urban Constitution* to explain the proliferation of the field of urban studies as well as its demise. Section 5.4.4 provides an overview of the contrasts between CUT and ANT to underscore the impossibility of a joint CUT/ANT-concept and approach Against this backdrop, section 5.4.5 concludes that it is, however, possible to articulate a joint CUT/ANT research agenda while specifying the requirements of such an undertaking.

5.4.1 ANTs evaluation of TTUT

As explained in section 2.5.1 ANT understands different paradigms not simply as competing representations (Words) of an outside World that literally has to be dis-closed but instead as

competing networks that co-produce the world which we both try to understand *and* transform. In this sense, despite their longstanding debate about the true nature of cities TTUT and CUT do not necessarily develop competing claims about the same object but construct different objects of urbanization – including not only scientific but also societal practices to craft and maintain these objects – themselves. After all, in contrast to social constructivism and the realist epistemology, ANT does not so much consider science a knowledge system as a "system of action" (Harbers, 2003). To evaluate CUTs understanding of the relation between urban knowledge and urban practice from the perspective of ANT at a later stage of this analysis (sub-question 4) first we need to locate TTUTs object of inquiry.

5.4.1.1 Locating TTUTs object of inquiry

Put simply, the construction of urban (and rural) space requires a set of distinctions: between natural and social categories (natural/physical and social space) and between types of social and economic activity (industry, service trade vs. agriculture). In addition, both distinctions can be displayed on Cartesian (metric) space of X, Y Z coordinates. Accordingly, the construction of "regional" and "network topologies" (Prince, 2014, 2012, 2010a, 2010b: Law and Mol, 2001; Mol and Law, 1994). makes possible to, first, divide the Cartesian grid into separate regions and, second, differentiate between two types of regions by comparing the distinct economic and social activities they accommodate. In result different types of economic and social activity are respectively ascribed to these regions so that it becomes possible to distinguish between urban space (cities) and non-urban (rural) space (Figure 29).

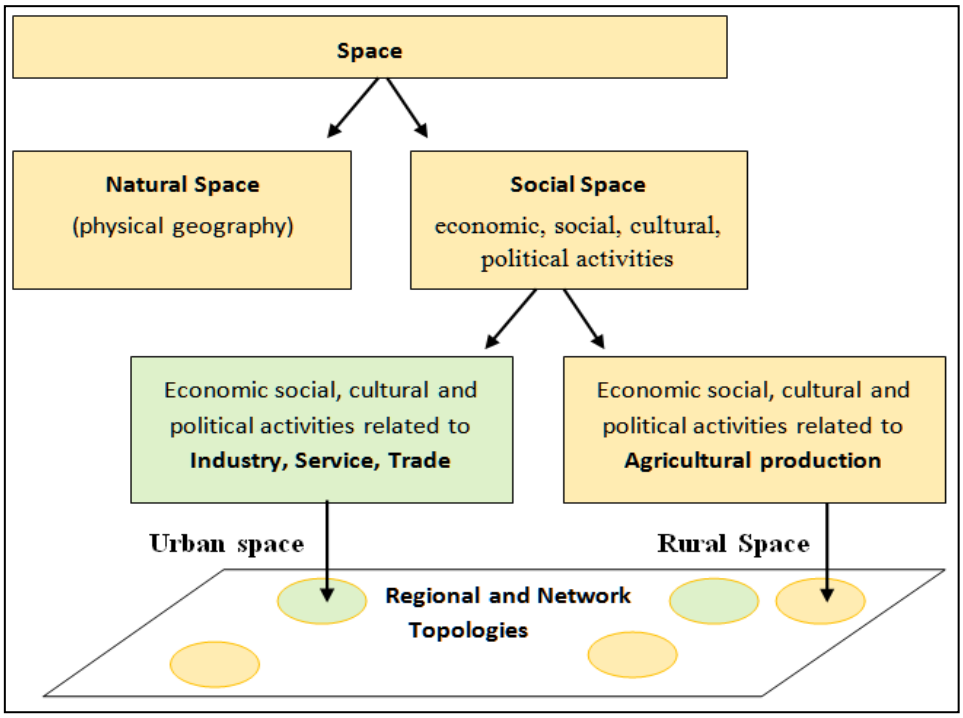
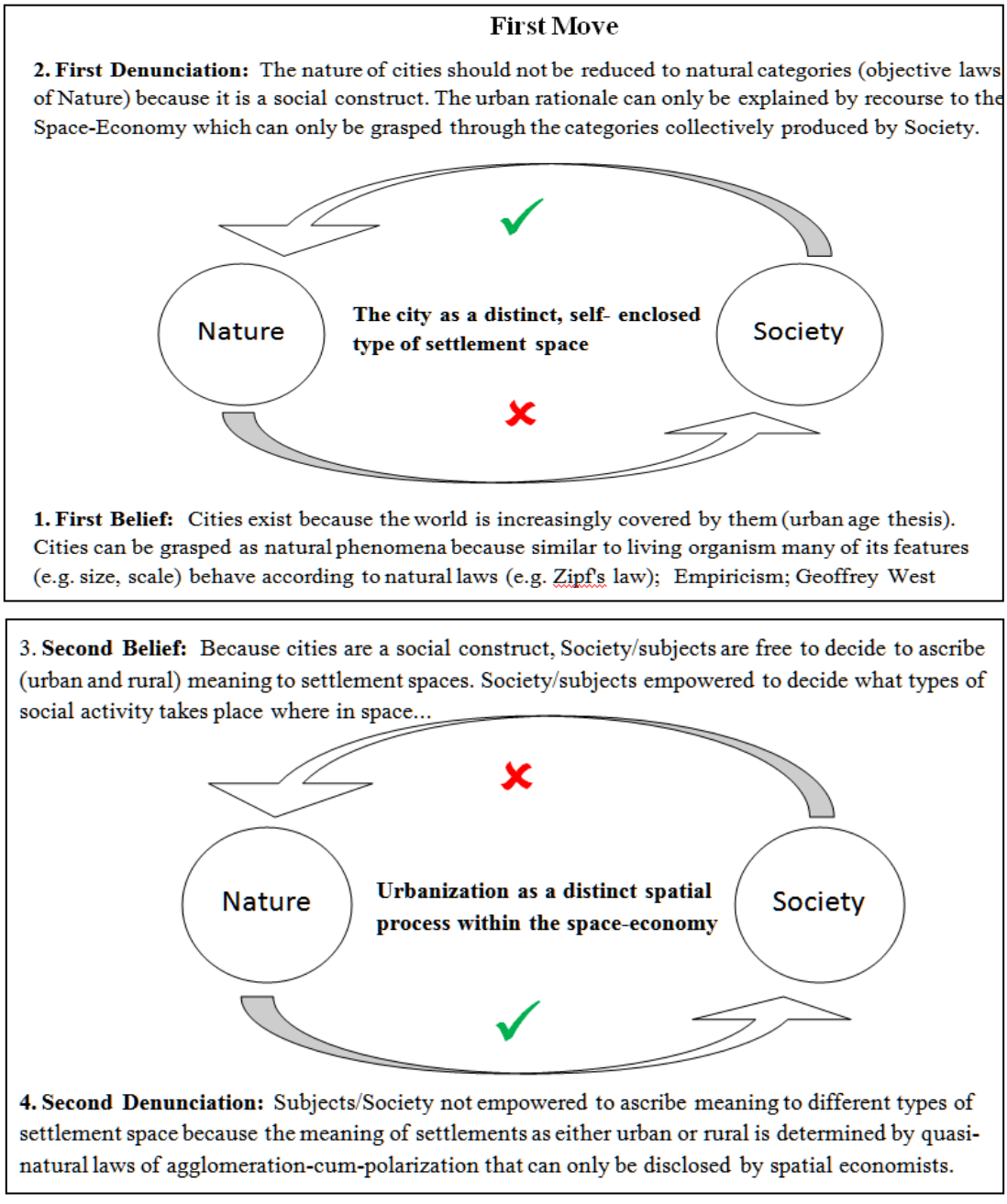


Figure 29: Visualization of the construction of urban/rural regional and network topologies.

In *We Have Never Been Modern* Latour (1993 [1991]) argues that social sciences' object of inquiry can be located along the denunciations of the first and second Enlightenment (see Figure 16). Similarly TTUTs construction of its object of the nature of cities can be described along two moves. The first entails a *critique of naturalization* – separating Nature from Society; natural space from social space (see figure 30a). The first move departs from the

belief that cities exist because the world is (increasingly) covered by them (e.g. urban age thesis). When approaching the nature of cities as such we assume that, together, all cities can be understood as natural phenomena because, similar to living organism, many of its distinctive features (e.g. size, scale) behave in accordance to natural laws (see Zipf's law). Here, cities as a distinct natural phenomenon can only be empirically observed. However, this belief is immediately denounced by the social constructivists appealing to social space: the nature of cities should not be grasped along natural categories because they result from human activity; cities are the product of *sui generis* social factors of what Durkheim called Society. One may approach cities as a living organism, but only insofar we add the premise of its intrinsic social complexity. In this way we can explain why, unlike natural organism (and even companies) cities do not die but remain to exist (This is the argument of Geoffrey West).



Figures 30a and 30b: First (above) and second move (below) in TTUTs object of cities. Adapted from Latour (1993 {1991], p. 52).

The second move entails a *critique of ideology* – separating (social) science from politics and society and, in extension, the social factors that influence Society from those that are influenced by it (or what Latour calls the "hard" and "soft" parts of Society). Again, we depart from a belief. But this time one that is conditioned by the first denunciation and in which the direction between Nature and Society is reversed: Because cities are social constructs we assume that Society and its subjects are empowered to ascribe urban and rural meaning to different settlement spaces itself. After all, not only the distinct economic, social, cultural and political interactions pertaining respectively to urban and rural space but also the very practice of ascribing these activities to distinct settlement spaces are intrinsic social phenomena because they results from human interaction. And again, this belief is denounced, but not by recourse to the transcendence of Nature. Subjects are not empowered to ascribe urban and rural meaning to different settlements at will because both the distinct social activities ascribed to each type of space and the location of these activities themselves are determined by quasi-objective, general laws of concentration and polarization that can only be disclosed by quasi-natural sciences of spatial economics (see Figure 30b). As Latour puts it: "[n]aturalization' is no longer a bad word but the shibboleth that allows the social scientists to ally themselves with the natural sciences" (p. 53).

Following Latour (1993 [1991]), the trick Moderns found to keep both moves separate so as to prevent the appearance of contradiction between the two denunciations is "dualism" (p. 53-54). Also in TTUT the Nature and Society poles are divided into soft and hard parts. In move-1, the first belief (cities as a natural, empirical observable phenomenon) is treated as the soft part of Nature and is denounced by appealing to the hard parts of Society (i.e. the *sui generis* social factors of the space-economy that give meaning to these distinct spatial units). In move-2, the second belief (that Society and its subjects are empowered to ascribe urban and rural meaning to different settlement spaces itself) appeals to the soft parts of Society. This belief is denounced by appealing to the hard parts of Nature; i.e. the products of the social sciences. In this case, the (quasi-)universal laws of agglomeration/polarization discovered by spatial economists and urban scholars alike.

5.4.1.2 Evaluating TTUT and its contradictions

Thus, TTUTs object of inquiry involves the simultaneous performance of two objects and two subjects. The first object and subject correspond the city as a distinct empirically observable, self-enclosed (bounded) spatial unit, or "urban land nexus" (Scott and Storper, 2014). The second object and subject refer to the process of urbanization. In line with Latour's account on social sciences' double objects, as long as both moves are kept separate – moment and process as related but distinct manifestations of the nature of cities – the construction of TTUTs object of inquiry holds. However, when joining both moves, which is exactly what Brenner and Schmid (2014) have done to deconstruct 'the urban age thesis', the argument becomes logically inconsistent (see figure 8 in section 2.4.2.1). After all, while the urban/rural-divide serves as an epistemological model of socio-spatial restructuring in which changes in the distribution of population and *types of* human activity are argued to occur – Move 1 – by its definition of ontologically urban and rural fixed settlement types – Move 2 – it *a priori* rejects the possibility that the specificity, discreteness and coherence of these settlements types are themselves impacted by ongoing socio-spatial restructuring (p. 746).

1. Logical inconsistency

For ANT this logical inconsistency originates from TTUTs reliance on Modernity's social tautology. While the first move underpins the city as a social phenomenon the social specificity of this phenomenon, however, lies in the *process* of agglomeration/polarization which is underpinned by the second denunciation in Move 2 (i.e. localizing-cum-globalizing effects). Conversely, while the second move underpins the nature of cities as a spatial economic process of concentration/polarization is underpinned by recourse to the first denunciation in Move 1 (cities as a distinct, self-enclosed type of settlement space). This leads to an ostensive paradox between essence and existence: Demarcating the essence of cities requires the identifying the existence of an urban process, but identifying the existence of this process, conversely, requires demarcation of the essence of cities. By performing both moves while simultaneously keeping both denunciations separate, similar to how natural scientist keep Nature in reserve, in TTUT – per Durkheim "ontological apartheidsregime", where social facts are to be explained by recourse to other social facts (Harbers, 1988) – Society is kept in reserve. After having underlined the essence of cities as a social phenomenon (Society transcendent; Nature immanent) Society is once more deployed, but now in terms of naturalized categories, to underline the existence of an urban process as a determining force on Society (naturalized Society of spatial economic laws transcendent, Society immanent).

2. Simultaneous reliance on empiricism and theoretical abstraction

Observing both moves simultaneously it also becomes visible how TTUT can appeal to the existence of cities as an empirical observation against CUTs critique of settlement fetishism, on the one hand, while insisting that the nature of cities can only be adequately grasped reflexively through theoretical abstraction in response to post-colonial critiques stressing that empirical variation amounts to irreducible idiosyncrasy of all cities, on the other. Indeed, as Latour (1993 [1991]) argues, one can continue to oscillate between both moves for eternity. It is also no coincidence that, when confronted with the question how to draw an exact boundary between urban and rural space, Storper and Scott (2016) make a u-turn once more from delineating the urban land nexus along theoretical categories to empirical categories. Suddenly, defining cities becomes a practical issue where no one-size-fits-all approach suffices but instead "follow[ing] the pragmatic rule of thumb" and working with the "available data" are the primary methodological imperatives (p. 1130).

3. (In)adequate specification of cities versus the rest of social reality

To understand TTUTs inadequate and ambiguous specification of cities versus the rest of social reality ANT considers the construction of its object of inquiry, as described and visualized above, not an autonomous exercise but a product of another construction process; that of the space-economy (Barnes, 2006). The space economy does not exist independently, but similar to Modernity's constructions is brought into existence by the distinct style of scientific engagement. Just as gravity, as we know it today, did not exist before Newton so the space economy did not exist before the establishment of the field of spatial economics. The construction of the space economy as a scientific object requires the performance of assemblages of humans and nonhumans – joining, amongst others, Cartesian geometry, statistical tools such as the regression line, survey data, concepts of utility, principles of maximization and equilibrium, GIS, faculties, money etc – to create diagrams of bid-rent curves, concepts and analysis of locational preference, transaction costs, and, finally and laws

regarding central place hierarchy, proximity, distance. transaction costs and so on. In this way, the field of spatial economics has created its own conceptions of time, space and the economy. A new history is created (Latour, 2000 [1996], 1999).

The construction of the space-economy as a world on its own enables the creation of new *types of* objects and evidence. More than only constructing the space economy as an independent object it simultaneously creates the criteria and tools for investigating it. The construction of the space economy entails the production of new modes of reasoning: "new regimes of truth" and falsehood (Latour, 2013). As such, its objects (of the urban land nexus and localization-cum-globalization) are inseparable from its criteria of evaluation. Both are brought into being by the same construction process. Accordingly, for ANT there is no specification of the space economy, and equally of the nature of cities, versus the rest of social reality to be provided to begin with. Following Latour's (2005a) "principle of irreduction" (p. 107), similar to all other assemblages, the space economy, and within it the urban land nexus and urbanization, constitutes a separate social (but also natural) reality that cannot simply be reduced to a larger context and vice versa.

For ANT, therefore, TTUTs ambiguity regarding the extent to which society as a whole can be considered urban or non-urban is not problematic in itself as this is inherent to the very construction of the space-economy that enabled the creation of its object of inquiry. However, TTUT reaches this conclusion for the wrong reasons. Apart from its inadequate specification of cities versus Society (which is rendered practically a-spatial), on the one hand, and the totality of planetary space (which is rendered practically a-historical), on the other, from the Moderns' perspective, from ANTs perspective such specifications are not to be provided to begin with since both rest on an act of *a priori* reduction; the former of cities to Society and the latter by scaling, which for Latour (2005a) both constitute acts of "framing" (p. 184-6).

4. Spatial economic or composite social phenomenon

By first, constructing its object of urban space by deploying two object/subject-sets simultaneously and, second, keeping both moves separate TTUT can maintain its approach to the city as both an exclusive spatial economic phenomenon (Move-2) and a composite social, economic, cultural and political reality (Move-1). Similarly, in this way it can maintain its contradictory approach to the relation between urbanization and broader societal outcomes, where urbanization is paramount to economic growth, innovation and reducing inter-regional disparities, on the one hand, while not related to inequalities, on the other.

5. Economism

In light of critiques of *economism* (Mould, 2015; section 2.4.1) rather than contesting TTUTs reduction of urbanization to (spatial) economics ANT instead suggests to affirm that TTUTs object of the city is a spatial economic construction exclusively. Against these post-colonial critique of urban epistemology, for ANT the question is not whether TTUT constitutes an adequate representations of urbanization but what urban reality and urban practices (in terms of governance and plannin) it co-produces in competition with others.

Remarks by ANT would stress TTUTs un-reflexive application of The Economy as an ostensive value-free knowledge system to studies of spatial relations of concentration. Its economic reductions may be valid and credible in their own right but only insofar the

resources mobilized – and especially the different types of "connectors" employed – are not taken for granted (Latour, 2005a: 3, 238-240). For example, TTUTs explanation of its construction of the nature of cities – and, hence, its explanation of the paradigm shift to TTUT – is neither informed by, what Latour (2013) calls, "conditions of veridiction" – referring to how certain relations between actants are considered "felicitous" in one mode while considered "infelicitous" by the standards of another – nor to "crossings" between different modes of existence, involved in the practice of separating economic relations from other social relations (p. 17). Accordingly, for Latour TTUT is culpable of a number of "category mistakes" stemming from its failure to (adequately) register the contrasts between the different modes of existence that the field of economics glues together (p. 48). The issue is not necessarily that by combining principles of maximization, transaction costs, topographic distance etc. TTUT reduces urbanization to economics. Rather, within its treatment of cities as a spatial economic phenomenon, it confuses calculations of spatial economists and economic agents with reference (natural science) as it does not distinguish between economics as a discipline and the economy it investigates (Latour and Callon, 2011). Thus, for ANT TTUT may not be economic enough. Even when approaching the nature of cities in terms of localizing-cum-globalizing effects alone the construction of this phenomenon involves more than TTUTs economic explanation of urban knowledge suggests.

6. Urbanization or localizing-cum-globalizing effects?

Moreover, ANT would suggests that, apart from its narrow focus on space (as topographic distance), economics (as reference) and time (as mono-dimensional and linear) the construction of the nature of cities in terms of a spatial economic dynamic of localizing-cum-globalizing effects constitutes only one assemblage through which we can make cities "visible" (Latour and Hermant, 2006 [1988]). For ANT cities are made up of a multiplicity of assemblages, most of which have not (yet) been re-assembled. Thus, apart from neglecting the materiality of its own social construct, TTUT also neglects the sociality of matter – i.e. the accommodation of social, economic, cultural and political activities and interactions by a whole range of other ontological hybrids that make urbanization and urban life possible, whether in relation to what Storper and Scott terms agglomeration/polarization or otherwise. In this sense, TTUT is culpable of ontological and methodological overreach.

7. Specifying 'the rural' paramount to urban studies?

Moreover, in contrast to both Brenner and Schmid (2014) and Storper and Scott (2016), ANT does not consider TTUTs under-specification of 'the rural' problematic. The fact that, through the creation of the space economy, it constructs the object of cities does not necessarily imply that it has to account for all other spatial economic phenomena as well. Rather the opposite applies here. The conviction that 'the rural' has to be adequately specified, however, derives from its ontological distinction between urban and rural settlement space which implies that one cannot adequately specify the one without adequately specifying the other. The same goes for the assumption that specifying the urban land nexus as a discrete scale of interaction within planetary space as a whole requires rigid delineation of the historical specificity of both planetary space and intra-urban phenomena as well. Therefore, ANT would suggest abandoning treatment of cities as settlements (Move-1) in favor of its process (Move-2).

5.4.2 ANTs evaluation of CUT

Similar to its evaluation of TTUT, an ANT evaluation of CUT departs from the conviction that this paradigm does not so much constitute a competing representation of the nature of cities but rather constructs its own history of cities and urbanization. To evaluate CUT from ANTs perspective we have to locate its object of inquiry.

5.4.2.1 Locating CUTs object of inquiry

Similar to TTUT, the construction of CUTs object of urbanization entails two interrelated moves. The first move entails a simultaneous critique of naturalization *and of* ideology (see figure 31a). The first belief in the construction of CUTs object corresponds to the second denunciation in TTUTs object (see figure 30b). However, this belief is denounced on the grounds that it hinges on a a naturalized category of the city an empirically observable, self enclosed, discrete spatial unit, TTUTs first move (i.e. critique of empiricism and methodological territorialism). For CUT this traditional concept of the city presents an ideological representation of urbanization under capitalism (i.e. an urban effect) since it is, in fact, a mere projection of dominant social (read: capitalist) values on a passive object. After all, for CUT the concept of the urban is logically inconsistent (over-specified) while the notion of the rural is underspecified (vacuous) (see section 2.4.2).

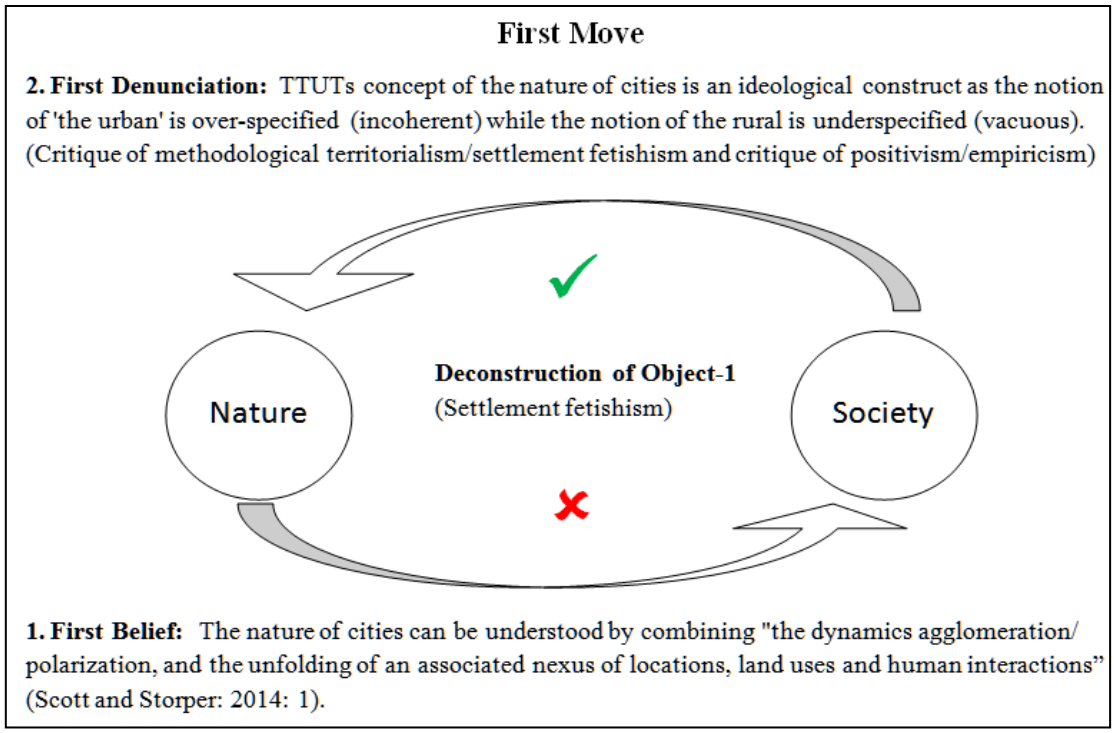


Figure 31a: First move in CUTs object of cities. Adapted from Latour (1993 {1991], p. 52).

The second move, again, originates from Modern sociology's critique of scientific ideology. However, this time it is not TTUTs urban concept that is denounced but the transcendence of Society. Here, the conviction that, because urbanization is a social construct, Society and its subject are empowered to modify the nature of cities at will and are free to shape the trajectories for urban change and development, including the ascription of (urban/rural) meaning to socio-spatial processes and settlement spaces. This second belief is denounced on the grounds that urbanization is instead determined by (quasi-)universal/natural, though

historically and spatially specific, processes of capitalist restructuring, neo-industrial capitalism and finance capital (see Figure 31b).

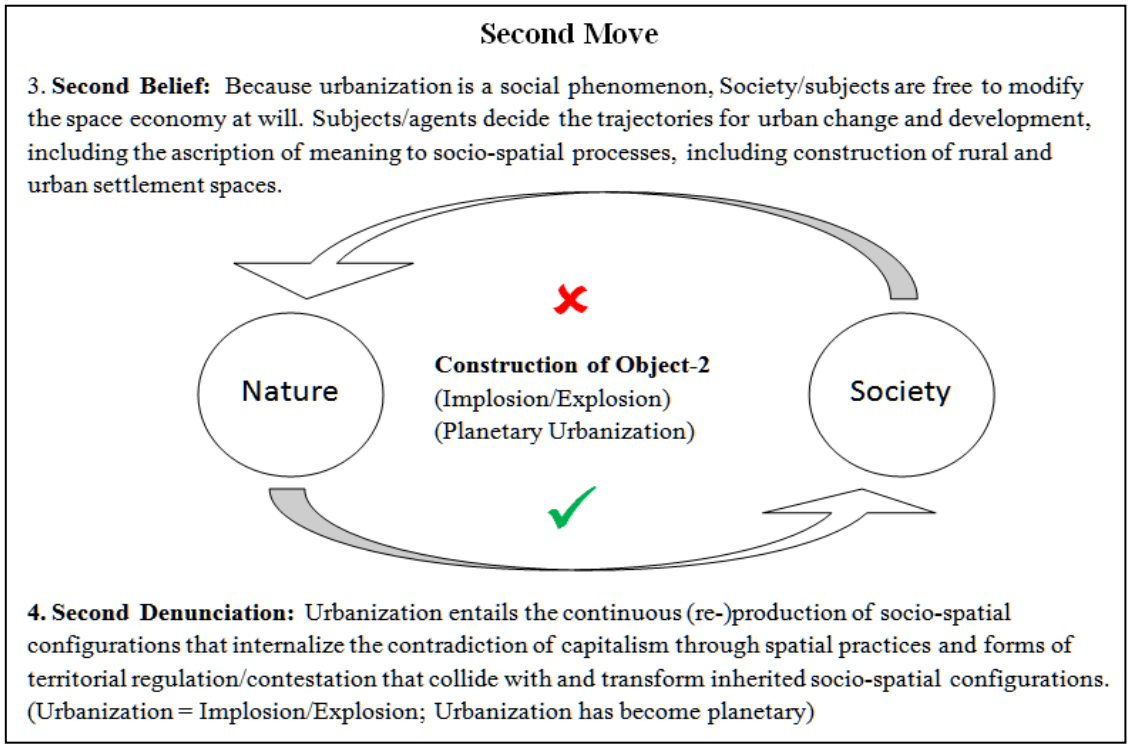


Figure 31b: Second move in CUTs object of cities. Adapted from Latour (1993 {1991], p. 52).

5.4.2.2 Explaining CUTs fallacies and contradictions

Trialectic

Similar to TTUTs double object CUTs double object entails, first, the simultaneous transcendence/immanence of Society and Nature and, second, the separation of both denunciations. Moreover, third, and in contrast to TTUT, CUT implicitly stresses an intimate relation between both denunciations of TTUT. After all, since in TTUT the processes of agglomeration/polarization and the urban land nexus are inextricably related – the one cannot exist without the other – CUTs first denunciation does not only concern the second but also first denunciation of TTUT. By the creation of this feedback loop it can approach urbanization as the continuous (re-)production of socio-spatial configurations that internalize the contradiction of capitalism while still (semantically) refer to cities as mere temporarily manifestations of this process, therewith establishing a paradox between moment and process (Lefebvre, 2003 [1970]; Wachsmuth, 2014).

Fourth, by also adding an intimate relation between its first and second denunciation it creates a second feedback loop: between urban ideology and 'the urban' (space "as perceived" and space "as conceived") (Lefebvre, 1991[1974]; Elden, 2007). Taken all moves together, CUT can approach urbanization as the continuous (re-) production of socio-spatial configurations that internalize the contradiction of capitalism that does not limit itself to spaces traditionally labeled as cities but is extended to places, territories and scales traditionally labeled as rural – *Implosion/Explosion*. – and, finally, that it has become "planetary". Hence, the repetition of the semantic reference to cities ("concentrated urbanization") originating from CUTs first denunciation, but now added with a semantic reference to the rural ("extended urbanization")

as well. After all, the second feedback loop links the second denunciation of CUT via the first feedback loop to the first and second denunciation of TTUT.

The result is an approach to urbanization as a double dialectic, or trialectic (Lefebvre 2009). The first stressing an intimate relation between urbanization (process) and cities (outcome), which Lefebvre (1991 [1974]) attempted to grasp through the notion of "the urban fabric"; And the second between spatial practice and representations of space, which he attempted to grasp by dividing the urban fabric into three dimensions (see table 1).

Object of inquiry: Cities or capitalism?

Thus we arrive at an alternative formulation of the same three distinctions that inform CUTs approach to urbanization (Figure 32; see also figure 6 in section 2.3.2 and figure 27 in 5.2.2). However, now that we have "registered" both CUT and TTUTs denunciations of and CUTs two feedback loops that relate CUTs two denunciations to those of TTUT we can immediately account for CUTs (1) *inconsistent and confusing reference to the urban and the rural*; (2) *Inadequate specification of urbanization versus planetary space economy* and, in extensions, its *failure to address TTUTs inadequate specification of the global space economy*; and (3) *collapsing of Society as a whole into the global space economy* and, in extension, *failure to address TTUTs inadequate specification of the city versus Society* (see section 5.3.3.3).

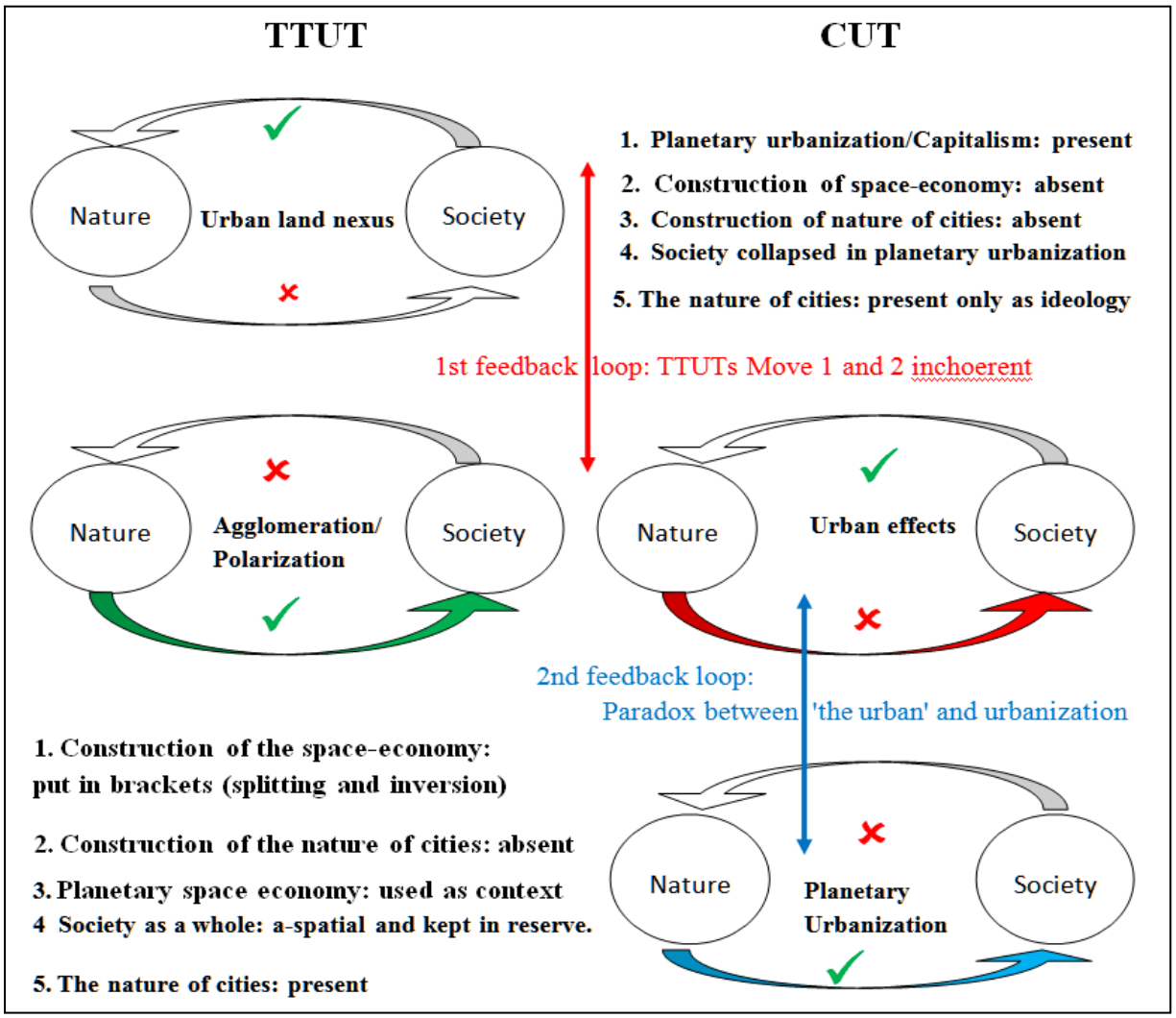


Figure 32: Alternative formulation of CUTs trialectic of planetary urbanization

The creation of the space economy enables TTUT to construct its object of the city by putting the construction of the space economy in brackets – "splitting and inversion" (Latour and Woolgar, 1979) – it does not have to account for the specificity planetary space economy and the historical embedding and distinction of cities from it. Moreover, its construction of the space economy Society as a whole is rendered practically a-spatial while the construction of the double object of the city enables TTUT to keep Society in reserve. By deconstructing TTUTs object of the city, however, CUT renders both the construction of city and of the space-economy absent. Moreover, by constructing its own object of planetary urbanization it collapses Society as a whole into planetary urbanization. As such, CUT completely detaches itself from the (construction of) TTUTs, and even urban studies', object of inquiry as well as the construction of the space economy in favor of its own object of Planetary Urbanization. In other words, CUTs core object of inquiry is not the city but capitalism (see figure 32).

5.4.3 Reproaching TTUT, CUT and Post-colonial urban theory's rapprochement

5.4.3.1 The historicity of the urban

By now it is clear that both CUT and TTUTs respective objects of the city, their contradictory specifications of the nature of cities and CUTs failure to account for those of TTUT derive from the Modern Object/Subject-divide and the division of both into soft and hard parts.

The asymmetric historicity of 'the urban'

In his account on the *historicity of things* (section 2.5.1.3) Latour (2000 [1996]; 1999) argues that modern Nature/Society divide is further riveted by the modern distinction between "the historicity of subjects" and "a-historicity of objects". In urban studies we witness the same entrenchment of this distinction. Just as social constructivists and epistemological realists agree that social phenomena, technological artefacts and even knowledge claims of Nature are historically-specific – because they are mediated by the social context of construction – while natural facts themselves are a-historic (universal) – because they already existed before the social process of discovery; i.e. knowledge requires truth (Steup, 2014) – so in CUT and TTUT the Nature/Society-divide is further riveted by granting historicity to the Society pole in the two denunciations of their respective double objects while treating Nature as a-historic.

For example, in TTUTs account on the history of cities (both *before* and *since* modernity) the essence of cities, residing in agglomeration/polarization (Move-2), is treated as historically-specific. Simultaneously, however, this conception of the essence of cities (urbanization) requires an affirmation of the existence of cities as an empirically observable distinct spatial unit (Move-1), which is considered a-historic. In this way, TTUT can argue that cities have always existed – even before industrial urbanization (see below) – but that the 'nature' of this process is historically specific (e.g. early industrial, Fordism, and post-Fordism). Also CUT affirms that 'the urban' exists since the mid 19th century but that its essence has changed over time (from concentrated urbanization to Implosion/Explosion and finally Planetary Urbanization). Conversely, facing empirical variations CUT and TTUT treat urbanization as a-historic while treating individual cities as historically -and temporally-specific (or historic).

CUT and TTUTs dual urban historicity before and since Modernity

In *We Have Never Been Modern* Latour (1993 [1991]) argues that Modern Constitution implies a strict separation between the practices, ideas and knowledge of the non-Modern past

and those of the Modern present (p. 35-6). This temporal divide is mimicked by CUT and TTUT. In fact, the historical timelines of cities provided by both is similar. Both argue that urbanization started at the beginning of the Industrial Revolution with the shift from peasant and agriculture-based societies to industry-based societies (Scott and Storper, 2014; Brenner, 2013; c.f. Lefebvre, 2003 [1970]; Wirth, 1969 [1938]). As such, the nature of cities as we know it today cannot have existed before Modernity. At the same time, both paradigms affirm the existence of cities before Modernity. Lefebvre treated the ancient cities more or less as Nature and observes an increased blending of this phenomenon with quasi-(not-yet-purified-) social properties over time with the subsequent emergence of the religious, political and mercantile city. On behalf of TTUT a similar history of cities before urbanization is provided by Scott and Storper (2014) who approach the historic cities as cultural, political, religious, administrative and military centers (antiquity), as a result of transcending the Malthusian trap (middle ages) and as important nodes of long-distance trade (16th and 17th century). By this entrenchment of the Nature/Society-distinction through the asymmetric attribution of historicity to objects and subjects we can understand how both CUT and TTUT can claim that cities already existed before Modernity but that urbanization only exists since Modernity.

Nonetheless, CUT and TTUTs simultaneous coupling of the a-historicity of cities (or natural space) with the non-existence of urbanization (or social space) *before* modernity and of the a-historicity of urbanization with historicity of individual cities and urban processes across different space/time-contexts *since* modernity is *logically inconsistent*. For example, if TTUT insists that urbanization could only have existed *after* Modernity, then, the city in Move-1, whose essence as urbanization is disclosed in Move-2, could not have existed *before* Modernity. After all, existence requires essence. Conversely, if TTUT insists that the city must have already existed *before* modernity, then, urbanization – that constitutes the essence of cities – must have already existed *before* modernity as well. Both options are incommensurable with TTUTs concept of the nature of cities which couples the always-and-everywhere of cities *before* and *after* modernity with the always-and-everywhere of urbanization *since* Modernity and the never-and-nowhere of urbanization *before* Modernity.

Context-(in)dependency of 'the urban': urban historicity reversed

Another but related contradiction arises in face of CUT and TTUTs approach to the context-(in)dependency of different urban manifestations and urban knowledges across space and time (see ongoing (post)Modern (post)structural tensions in section 2.4.1). In order to claim that urbanization in virtually every place in the world can be grasped along the same principles – of either agglomeration/polarization or planetary urbanization – CUT and TTUT have to grant historicity to individual cities and urban processes while banning it from the nature of cities (urbanization). In this way, these paradigms can insists that despite the empirical diversity of cities and urban processes across space and time these are all variations on the same object of urbanization so that cities in the 'Global South' can be said to exhibit the same urban growth trajectory as those in the 'Global North' but lack behind (e.g. comparing Diyarbakir today with London and Paris in the 19th century). The same goes for the context-dependency of urban knowledge. To maintain their objects of the nature of cities despite the mediation of urban knowledge by different space/time contexts CUT and TTUT have to ban historicity from the nature of cities while granting it to the production of urban knowledge exclusively.

However, also CUT and TTUTs treatment of the context-(in)dependency of 'the urban' and urban knowledge is logically inconsistent. To construct their entity of the nature of cities both have to ban historicity from the city (Move-1) while, conversely, in defending it against post-colonial claims of urban incommensurability they have to grant historicity to individual cities and urban processes in different contexts while banning it from urbanization. In other words, CUT and TTUT have to switch between constructivism and epistemological realism constantly in order to keep their respective objects of the nature of cities intact in face of the history of cities before modernity (cities a-historic)), on the one hand, and the context-dependency of 'the urban' and urban knowledge (urbanization a-historic), on the other .

Towards a symmetrical history of the history of cities?

To overcome the abyss between the historicity of social phenomena, and knowledge claims of Nature (constructivism) and a-historicity of Nature itself (realism) in face of the scientific dispute between Pasteur and Pouchet over spontaneous generation Latour (2000 [1996]) abandoned competing claims about the (non)existence of nature in favour of differentiation between the two documentations of associations and substitutions that make up their respective entities. He found that the "incommensurability" between both claims does not reside in the objects themselves, but "is itself the product of the slow differentiation of the two networks" (p. 261). In this way, Latour demonstrated that the asymmetric attribution of historicity to objects and subjects in the explanation of the production of knowledge is "inaccurate" as it is, in fact, possible to differentiate between different knowledge claims without a priori distinguishing between truth and falsehood (p. 255). Moreover, he showed that such a conception of paradigms shifts is dangerous as it neglects the "institutions" needed to maintain the existence of natural facts as universal and a-historic (idem).

The same understanding of mediation can be applied to CUT and TTUTs object of inquiry. To overcome this Modern abyss between the historicity of urbanization and a-historicity of cities in face of the history of cities (*before* modernity) and, conversely, the a-historicity of urbanization and historicity of cities in face of empirical variations (*since* modernity) we have to account for the production of urban knowledge itself. When approaching CUT and TTUT as competing networks each constituting rather than representing a distinct urban reality (and history) we can say that their respective entity gains in reality if it is associated with many more others that are viewed as collaborating with it [...] and loses in reality, if, on the contrary, it has to shed associates". (p. 257). Both CUT and TTUT have modified their respective entities of 'the urban' – "Substitution" – in order to "associate" it with many others – faculties, statistical tools, data, Cartesian space, topologies, funds, research programmes, concepts of utility and wealth, other scientific disciplines and so on (see Figure 13 in section 2.5.1.3). Who's knowledge claims wins – i.e. in which urban reality we live – depends on the relative success of each paradigm to increasingly associated their entity with many others throughout their modifications. For example, from observing urban research and education programs, policy papers, planning practices and so on, we see that TTUT has been more apt than CUT to associate its entity (performing the nature of cities) with many other entities.

Considering the work of mediation needed to maintain their object of urban knowledge in the present and extend these urban facts to the future – or, what Latour (2000 [1996]) names, "institution": i.e. as that what is *above* the series of entities and maintains their association) to

replace the inadequate notion of (a-historic) substance – it make little sense to inquire in the history of cities before modernity. After all, the disclosure of certain (TTUT), or all (CUT), social facts as urban facts has been enabled by TTUT and CUTs construction of the nature of cities. Before CUT and TTUT there was no urban reality or history to begin with.

CUT and TTUTs dual urban historicity revised

Still, however, both CUT and TTUT are able to extend their urban realities to the past (see Figure 33). According to Latour, a phenomenon can reach a *quasi* a-historic status; but only insofar the network that performs it is associated with an element *from* the past – or what he refers to as "the retrofitting work that situates a more recent activity as that which 'lies beneath' and older one" (p. 266: emphasis in original). For example, in the case of Ramses II the 3.000- year-old mummy had to be brought into direct contact with the equipment and skills of the hospital (see section 2.5.1.3). In case of TTUT and CUT such retrofitting work has been applied to bring into existence different modes of urbanization (or natures of cities) over subsequent periods *since* Modernity. In this way both CUT and TTUT can treat all cities since Modernity as distinct urban phenomena while distinguishing between different *urban rationales* of each distinct (Modern) period of urbanization. For example, by retrofitting the early industrial cities with direct linkages to the material and practical set-up to perform their respective urban facts both CUT and TTUT are able to impute their more recent Modern-shaped objects urbanization in the past (see the two green arrows in figure 33). As such, CUT and TTUT can hold different conception of the nature of capitalist urbanization over the same periods – e.g. concentrated urbanization (or early industrial urbanization), urbanization under Fordism, and urbanization as globalization/localization (or Planetary Urbanization).

Moreover, CUT and TTUT have attempted to apply this retro-fitting work to bring into existence cities *before* Modernity (see the red arrows in Figure 33). However, to impute their objects of nature of cities into the past they have to reverse the roles attributed to Nature and Society. To disclose the existence of cities before modernity TTUT has to shed all associates making up its entity of the essence of cities. Thus, shifting "plains of reference" from Move-2 to Move-1 (Latour, 1999, 70, 73). To disclose the existence of cities before modernity CUT not only has to shed all associates making up its entity of the essence of capitalist urbanization (Move-2) but also those making up traditional representations of the city as urban ideology (Move-1). Thus, while both paradigms are able to grant cities a quasi-a-historic (universal) status by treating them as non-urban, the respective association making up their entities of the nature of cities themselves cannot be extended to the periods before modernity. As Latour (2000 [1996]) states, "[t]he always-everywhere might be reached, but it is costly, and its localized and temporal extension remains visible all the way" (p. 266). In the case of CUT and TTUT the creation of the always-everywhere of cities appears to be too costly. Either the history of cities cannot go further back than Modernity (because urbanization which gives the city its essence did not exist before modernity) *or* urbanization as we know it today (since Modernity) must have already existed before Modernity as well.

In order to keep their respective objects of the nature of cities intact in face of the history of cities before modernity (cities a-historic, urbanization historic), on the one hand, and the context-dependency of 'the urban' and urban knowledge (urbanization a-historic, cities historic), on the other . CUT and TTUT have to sail on two diametrically opposed approaches

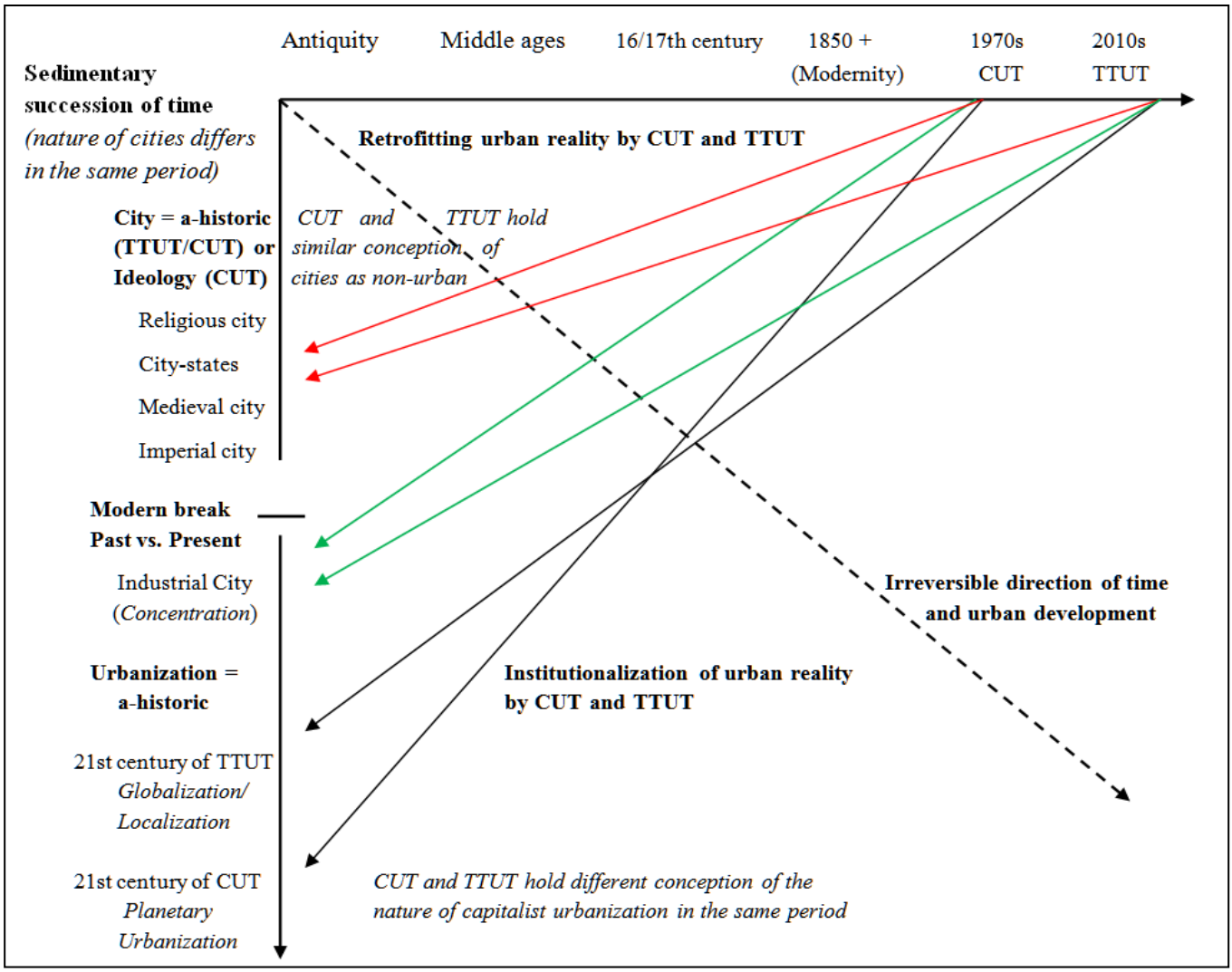


Figure 33: The historical time-line of cities provided by CUT and TTUT is the resultant of two dimensions of time instead of one. The X-axis denotes the linear succession of time. The production of urban knowledge in time moves forwards. The Y-axis denotes the sedimentary succession of time. The attribution of existence (or non-existence) of urbanization entails a backwards direction of time. At the same time, the direction of time itself remains irreversible.

to historicity at the same time. While epistemological realism implies that either cities must have existed always and everywhere since human existence or never and nowhere all along constructivism implies that cities can only have existed *since* Modernity. Conversely, while epistemological realism implies that either urbanization must either have already existed *before* Modernity or never all along constructivism implies that urbanization can only have existed *since* Modernity. The trick lies in entrenching the articulation of the two object/ subject-sets underpinning their objects of the nature of cities by the asymmetric attribution of historicity to Nature and Society while not only separating both sets but also reversing the direction between the Nature and Society pole by recourse to the division between the modern and pre-modern era. By switching between coupling the a-historicity of cities with the historicity of urbanization and coupling the a-historicity of urbanization with the historicity of cities while simultaneously separating both couplings by appealing to Modernity, which irreversibly separated the modern present (the second coupling) from the pre-modern past (the first coupling), TTUT and CUT can have their contradictory urban historicity and eat it too.

Context-(in)dependency of 'the urban': the reversed urban historicity revised

The same mantra of temporal diversity (the *same* city in different Modern periods) and temporal incommensurability of urbanization (i.e. the *same* city *before* and *after* modernity) applies to space. But now we depart from the reversed roles attributed to Society and Nature: cities historic and urbanization (quasi-)a-historic. For the purpose of the argument, here, spatial diversity is simplified to refer to different cities and urban processes within (the same period in) the Modern epoch only. Here too, only two options are possible. *Either* urbanization exists in virtually every city across the globe as CUT and TTUT claim. *Or* TTUT and CUTs respective urban entities cannot be extended to those distant locales (e.g. cities in the Global South, Diyarbakir) so that urbanization as defined by either paradigm cannot be considered existent in these cities. In this case, urban studies remains confined to a small and limited portion of cities that can be made to perform urbanization as defined by CUT or TTUT; This is Ong and Roy's (2011) critique of ethnocentricity. Or, even further, urbanization does not exist anywhere in the first place because not all cities can be made to perform the *same* fact of urbanization. This argument of urban incommensurability amounts to Leitner and Sheppard's (2015) claim that "no single urban theory of ubiquitous remit" can exist (c.f. Amin and Graham, 1997).

In this light, it becomes clear why for both CUT and TTUT demarcation between truth and falsehood – between the a-historicity urbanization and historicity individual cities and urban knowledge – is considered the only way to prevent relativism. Similar to how realists, in their description of the discovery of natural facts, have to treat Nature as a-historic and a-spatial so that the true laws of nature have existed all along and cannot be modified (because knowledge requires truth; Steup, 2014) while leaving the explanation of falsehood to sociologists and historians of science (Harbers, 2003), so TTUT and CUT have to grant a-historicity to the nature of cities while leaving explanations of empirical variations (or *amorphousness* of) 'the urban' to relativists. Interestingly, not only urban scholars adhering to the cultural turn but also Lefebvre (2003 [1970]); "blind fields") and Scott and Storper (2016: 1122) themselves appeal to relativism (historicity) to account for the construction of urban knowledge. Thus, similar to epistemological realism, also for CUT and TTUT relativism (historicity) is "a necessary evil" Latour (2000 [1996]) .Post-colonial and cultural urban studies' relativism (Kuhn, 1970; Foucault, 1973; Haraway, 1988) simply offers a way to access the mediation of urban processes by gender (Massey, 1991) and ethnocentricity (Robinson, 2006), construction of urban discourses (Jessop and Oosterlynck, 2008), the particularities of individual cities (Amin and Graham, 1997), urban institutions (Zukin, 1995), limits to secularity, rationality (Beaumont and Baker, 2011), and modernity (Soja, 2000) etc, and, of course, the construction of urban knowledge itself, but should never be applied to explain 'the urban itself.

Post-colonial urban theorists, on their part, in order to claim that no urban theory of ubiquitous remit can exist because not all cities can be made to perform CUT or TTTUs urban fact, contradictorily, approach the city is a universal entity. They too reverse the direction between Nature and Society: urbanization historic, cities a-historic. But not to extend their object of the city to the past before Modernity but extend the incommensurability of 'the urban' and urban knowledge across space and time (both before and since modernity). The problem, here, is that in this way universal realism is simply replaced by universal relativism

(Scott and Storper, 2016[72]). As Brenner et al. (2011) state, "in its determination to avoid any kind of structuralist foreclosure, this approach runs the risk of positing an equally overgeneralized, if not ontologically predetermined, analytic of local diversity, variability, mutability and contingency" (p. 202)

Rapprochement of CUT/TTUT and Post-colonial urban studies' urban historicity

Fearing the relativist threat that the explanation of the nature of cities becomes an arbitrary matter (i.e. Nature's hard parts reduced to Society's hard parts), after having separated Society from Nature, CUT and TTUT have to strip the hard parts of Nature from their historicity so that only empirical variations and the production of urban knowledge (i.e. the hard parts of Society) are historic and can be explained by post-colonial urban theorists and cultural urban studies alike. Conversely, fearing the realist threat that only the nature of cities can account for the idiosyncrasies of individual cities, context-specific urban processes and the production of urban knowledge (i.e. the hard parts of Society reduced to the hard parts of Nature), after having separated Society from Nature, post-colonial urban scholars have to grant historicity to their explanation of these empirical variations and urban knowledge (the hard parts of Society) while banning it from the nature of cities (the hard parts of Nature) itself.

Post-colonial urban theorists consider the *debates about* the nature of cities and, equally, empirical variations (TTUT) – or the amorphousness of urban outcomes (CUT) – a matter of social factors (historicity) *only*. In their view, CUT and TTUT disagree about the nature of cities due to the absence of an Archimedean point of view from which contrasting claims about nature (*empiricism*) or scientific method (*reason*) can be settled (i.e. the problem of interpretive flexibility). For post-colonial urban theorists *disputes about* the nature of cities (nature's hard parts) can instead, only be settled by social factors. As such, from their point of view the nature of cities itself (i.e. a-historicity) has to be banned from the explanation of (context-dependent) individual cities and urban knowledge. After all, the nature of cities (Nature) can only be either *too arbitrary* – if considered dependent on specific space/time-contexts exclusively (relativism) – or *too determined* – as CUT and TTUT (epistemological realism) would have it. Thus, ironically, both CUT, TTUT, on the one hand, and post-colonial urban studies, on the other, adhere to the same social metaphysics for exactly opposite reasons. Both agree that historicity should be granted to explanations of individual cities and urban knowledge *only* while being banned from the explanation of the nature of cities itself.

5.4.3.2 We have never been urban

Nonetheless, all options that Modern (CUT/TTUT) and post-colonial urban studies provide to settle the disputes about the spatiotemporal (in-)commensurability of the nature of cities (or planetary urbanization) seem highly unrealistic given the extent of continuity we find not only between the same city in different Modern periods and between different cities in the same Modern period but especially between cities before and after modernity.

[72] While Storper and Scott (2016) agree with post-colonial urban theorists about "the absence of any Archimedean point from which knowledge claims can be fully and finally adjudicated. [...] [so] that knowledge is always provisional and motivated by human interests", they insist that, "[i]t by no means follows, however, that ideas can never attain to universal value, or, more simply that an idea developed at place *a* must *invariably* fail when transferred to place *b*" (p. 1122: emphasis in original).

The Urban Constitution

In *We Have Never Been Modern* Latour (1993 [1991]) explains that "the modern world has never happened, in the sense that it has never functioned according to the rules of its official Constitution alone" (p. 39). While the Constitution renders the work of translation and mediation "invisible", ironically, it does not limit but exactly accelerates the work of mediation (p. 34). For Latour the greatest contradiction of the Modern Constitution is that it "*allows the expanded proliferation of the hybrids whose existence, whose very possibility, it denies*" (idem: emphasis in original). It is exactly this "double-speaking" that *guarantees* that Moderns can "*de facto*" do what is "*de jure*" forbidden (Harbers, 2003: 205).

The same applies to urban studies and TTUT particularly so that we may speak of an *Urban Constitution*. This constitution capitalizes on the simultaneous transcendence/immanence of Nature and Society – urbanization and cities both historic and a-historic – while not only treating Nature and Society as predicates of natural and social space but also erasing the work of mediation in its description of the production of urban knowledge that realizes urbanization and the space economy, on the one hand, and their social context, on the other, as products of their networking. In this way, TTUT can relegate cities before modernity to a distant, non-urban, backward past, debunk conceptions of cities as a natural phenomenon (*critique of naturalization*) and separate out the true social (spatial economic) ingredients making up urbanization from those influenced by (or unrelated to) it (*critique of scientific ideology*) while simultaneously accelerating the very work of mediation that it claims to have surpassed.

The Triumph of the City... and its Demise

However, while the *Urban Constitution* has allowed the field of urban studies to continue a range of (scientific and societal) practices pertaining to the pre-Modern work of mediation. simultaneously, it disabled urban scholars to grasp the continuity that exists between their practices and the pre-modern cults that blended natural and social orders. Harbers (2003) explains that "The triumph of Modernity" should neither be attributed to "cumulative knowledge (as epistemological realists have it)" nor to "a surplus of power (as political-sociological explanations of the superiority of the 'western world' have it)" but is instead based on "the connection between knowledge and power under its official denial" (p. 205). Similarly, the establishment of urban studies as a distinct scientific discipline, or *The Triumph of the City*, as it could be called – not to be confused with, though related to, Glaeser's (2011) celebration of contemporary urban centrality (see below) – should neither be attributed to the accumulation of objective knowledge of an increasingly urbanizing world or space economy outside us (TTUT) nor to the increased subjection of modern society to capitalism (CUT) or, alternatively, 'western' ethnocentrism, economism etc. (post-colonial urban studies). Instead, its triumph lies exactly in the increased blending of Nature and Society that enabled purification of the nature of cities separated from the natural world and carefully distinguished from other social elements of society (either viewed as determined by or irrelevant to it).

For ANT, therefore, the *Urban Constitution* (or TTUT for that matter) does not resemble false consciousness as CUT implies. Similar to Modernity the urban constitution and, in extension, the nature of cities, is "much more than an illusion and much less than an essence" (Latour, 1993 [1991]: 40). Just as the Modern Constitution "provided the moderns with the daring to mobilize things and people on a scale that they would otherwise have disallowed" (p. 41), the

urban constitution enabled urban researchers and theorists to increasingly modify and associate their entity of the nature of cities on a scale that they otherwise would not have validated. This increased modification and association of its entity, however, has not been realized through the increased separation of Nature and Society as is assumed but, in contrast, by accelerating their interweaving. For example, TTUTs object of the nature of cities has been constructed by increasingly mixing human and nonhumans elements: Cartesian geometry, statistical tools (e.g. the regression line), survey data, cartography, concepts of utility, principles of maximization and equilibrium, diagrams of bid-rent curves, concepts and analysis of locational preference, transaction costs, GIS, spatial and social science faculties, epochalism, urban research programs, education, money and so on.

While, initially, its double-speaking insured the Triumph of the City the increased generation of ontological hybrids the Urban Constitution enabled, however, has "saturated" urban studies' constitutional framework. Following Latour (1993 [1991]), because the Modern Constitution rejects the very activities of mediation (that give meaning to the work purification) and which it allows to proliferate, the constitution "does not permit itself to be understood" (p. 46). The same applies to urban studies. The more it separates Nature from Society the more nonhumans become involved in the production of urban knowledge; the more factors it employs to separate urban from rural space the more fuzzy this boundary becomes; the more it separates the natural order from the city's social character the more urbanization shapes nature and the more nonhumans are involved in urban development; the more it separates the (spatial) economic activities constituting the urban rationale from those considered not fundamentally related to urbanization the more urban scholars appear to demonstrate the irrational decisions of agents and cultural practices (norms and belief systems) driving urban change and development, the more urban studies separates out explanations of the (quasi-) natural laws of urbanization from its social context of production the more urban scholars appeal to the mediation of urban knowledge by the sui generis social factors of Society.

We Have Never been Urban

With the growing number of nonhumans to perform the nature of cities as a social fact (Prince, 2012, 2014; Barnes, 2006; section 5.4.1 and 5.4.2.3), the increasing fuzziness of the urban/rural-boundary (Benner and Schmid, 2014; Storper and Scott, 2016), the growing number of epistemological divisions along which the nature of cities is increasingly partitioned (Mould, 2015; Ribera-Fumaz, 2009; Amin and Thrift, 2002; Murdoch, 1997a, 1997b, 1998), the amplified confusion between modes of reasoning that the field molds together and, associated to this, the increased proliferation of sub-disciplinary specialization and sub-divisions (Latour, 2013; Lefebvre, 1991 [1974]; Merrifield, 2013; Madden, 2012; Axelos and Elden, 2004), the increasing amorphousness of 'the urban' (i.e. particularities of individual cities and mediation of urban processes by different space/time-contexts) (Brenner, 2013; Merrifield, 2013; Robinson, 2006; Amin and Graham, 1997), increasing claims of the mediation of urban knowledge (nature) by society (Ong and Roy, 2011; Leitner and Sheppard, 2015), the growing number of nonhumans to accommodate urbanization and urban viability (Farías and Bender 2009; Latour and Hermant, 2006 [1998]; Zitouni, 2010, 2012), the intensifying relation between urbanization and Nature (e.g. climate change, urban hazards) (Lectome, 2013; Ministry of Urbanization and Environment) the Urban Constitution is

witnessing its own demise. The modern limits to CUT (section 2.4.3.4) appear to be limits to (post) modern urban knowledge, including TTUT and post-colonial urban theory, as well.

Against this backdrop, ANT would conclude that 'We Have Never Been Urban. Not that cities and urbanization do not exist. Rather, just as Latour (1993 [1991]) states that, "the modern world has never happened, in the sense that it has never functioned according to the rules of its official Constitution *alone*" (p. 39), so urbanization has never happened in the sense that its disclosure and construction as a distinct object of inquiry has never happened conform the Urban Constitution exclusively. While the field of urban studies (and TTUT) engages both in the work of purification and mediation to construct the nature of cities, in its description of the production of urban knowledge, it only credits the former practice. In arguing that the Urban Constitution does not permit 'the urban' to be understood and underscoring the need to *reveal* the practices of mediation that enable the field of urban studies to increasingly separate and specify their object of inquiry versus the rest of (social) reality, however, ANT neither proposes a new kind of critical urban theory nor heralds the beginning of a post-urban era.

For ANT, debunking the Urban Constitution (just as how CUT deconstructs CUT), first, owes to much credit to The Urban Constitution as an *illusion* that hides a true urban *essence* which it is neither (see above) and, second, falls in the same pitfalls of social tautology due to its similar reliance on the two denunciations underpinning its double object (see section 5.4.2.1)

A post-modern approach to cities (as provided by post-colonial urban theory), on its part, does not believe in the guarantees of the Urban Constitution as it assumes Modernity's categories of Nature and Society along which urban knowledge (and urbanization) are explained, have become obsolete but neglects the work of mediation. Following (Latour (1993 [1991]) post-modernity obliterates Modernity by showing its constitutional guarantees are outdated but disperses rather than re-assembles the elements grouped under Nature and Society. Similar to how constructivists of the Edinburgh inadvertently exhausted the virtues of dualism and revealed the contradiction of both denunciations by using the *sui generis* social factors to explain the products of the sciences (section 2.5.2.1), so post-colonial urban studies exhaust CUT and TTUTs modern dualisms by using the *sui generis* social factors that underpin the nature of cities as a social phenomenon in the first denunciation (Society's hard parts) to explain the nature of cities (Nature's hard parts). The problem of this move is that the spatiotemporal context now not only has to account for the historicity of individual cities and urban knowledge but also for the general and generic features of cities both CUT and TTUT, on the one hand, and post-colonial urban theory itself, on the other, consider a-historic. Whilst from ANTs viewpoint post-colonial urban theory is correct to reject naturalization in TTUT and CUT (i.e. its critique of universalism, economism, rationality in CUT and TTUT) it is wrong to leave the fundamental incommensurability between Nature and Society intact since, then, the nature of cities is reduced to language and social context entirely.

Moreover, while, from ANTs perspective, post-colonial urban theory is correct to denounce Modernity's conception of a linear progression of time it is wrong to belief in a fundamental break between modernity (which it considers outdated) and the pre-modern past, thus continuing Modernity's division of time in subsequent epochs. Following this thread while we have once been urban as defined by CUT or TTUT in certain places and time periods as the pre-urban past has been surpassed, today, however, we would have entered a post-urban

epoch. While post-colonial urban theorists themselves have not (yet) embraced the notion of 'the post-urban' an ANT categorization of this urban theory as such seems spot on given the total (in)commensurability of all cities across space and time that arises when reducing the nature of cities to language (constructivism) and context entirely; Hence the earlier question in section 5.3.3.1, 'What is actually 'urban' about post-colonial urban studies?

5.4.3.3 ANTs non-Modern approach to the nature of cities

In contrast to CUT, TTUT and post-colonial urban theory, the "non-modern" (or "a-modern") approach, Latour (1993 [1991]) proposes, attends both to the work mediation and purification constituting scientific objects at once while attending to the relation between both practices (p. 47). In this way, it demonstrates what the Modern Constitution rejects and allows, clarifies and obscures. With respect to Modern knowledge, more generally, by bracketing off the construction of hybrids needed to perform (social or natural) facts, the Constitution allows the increased proliferation of these hybrids that enable moderns to increasingly disclose the laws of nature and social orders while keeping both separate.

Urban paradigms stretched over the Nature/Society-divide

Figure 34 illustrates ANTs non-Modern approach to urbanization (crediting both halves of the Urban Constitution) vis-à-vis TTUT and CUTs Modern approach and post-colonial urban theory's post-Modern approach to urbanization (that only credit its upper half) transposing the two halves of the *Modern Constitution* (figure 15; section 2.5.2.1), in general, for both halves of the *Urban Constitution*, in particular. It demonstrates a two-fold paradox in the latter's strategies to account both for the Urban Constitution and the hybrids that it allows and forbids. First, the more ontological hybrids are employed to ever more precisely demarcate the nature of cities as an object of inquiry the greater the Nature/Society-divide becomes. Second, because of course all these paradigms are non-Modern as Modernity has never been achieved each addresses the same problem ANT addresses (Latour, 1993 [1991]). However, each aims to reconcile the two poles by multiplying quasi-objects without having to accept them so as to maintain the divide between Modernity and pre-Modernity. Thus, with these successive attempts to reconcile both poles – i.e. the nature of cities with its social context, economy with culture, local with global, structure with agency – this abyss expands.

With the establishment of the Chicago School of Urban Sociology and Louis Wirth (1969 [1938]) *Urbanism as a Way of Life* the first emulation of Kant's Nature/Society- distinction and Durkheim's "ontological apartheids regime" (Harbers, 1998: 1) (section 2.5.2.1) in studies of large (urban) settlements became a fact. However, because Wirth did not inquire in the *urban rationale* specifically but instead took the existence of cities as a given in modern society (section 2.2.1), his theory did not employ the Nature/Society-divide as a full-blown separation but rather as a distinction along which cities ought to be identified versus non-urban (or rural) space. Certainly, Wirth's theory took the city as a distinct social as opposed to natural phenomenon. Nonetheless, explanations why cities grew at the time were left to pre-modern-like mixtures that blended the imprints of social (tolerance, heterogeneity) with natural factors (availability of natural resources, technological innovations) 'on' space.

Short-circuiting the historical evolution of the field of urban studies, with the construction of the space-economy in regional science and the increased application of spatial economic

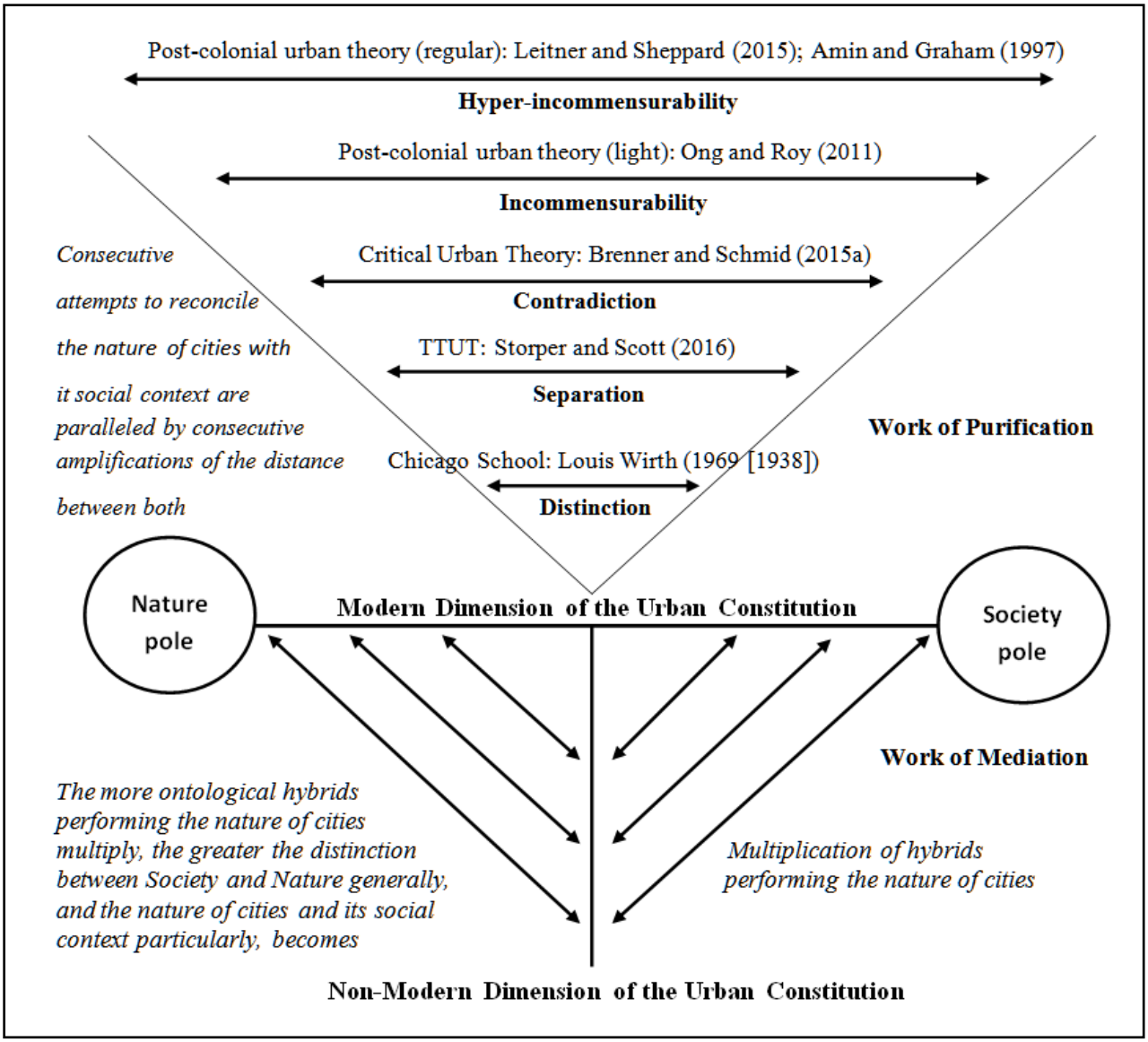


Figure 34:: Comparison of ANTs non-Modern approach to the nature of cities crediting both halves of the Urban Constitution and TTUT, CUT and post-colonial urban theory crediting only the upper half of this constitution. The more ontological hybrids are employed to perform the nature of cities as a scientific fact the greater the distinction between Nature/Society becomes. The more consecutive urban paradigms attempt to reconcile explanations of the nature of cities with its social context and, equally, the Nature/Society, Economy/Culture, Urban/Rural, Micro/Macro, Structure/Agency distinctions the larger these abysses become. Adapted from: Latour (1993 [1991]): p. 51; c.f. p. 58)

theories to urban studies since the 1960s, today, mainstream urban theory or TTUT, defended by Storper and Scott (2016), presents an ever more sophisticated entity performing the nature of cities as an object of inquiry. With the increased proliferation of ontological hybrids performing the nature of cities as a distinct social fact, compared to the Chicago School, here, the divisions between Nature and Society, urban and rural, the nature of cities and its social context, economy and culture (the list goes on) have become full-blown separations. Moreover, the mediators (statistical tools, cartographic maps computers, concepts of utility, etc.) that enable TTUT to move back and forth between Kant's objectivity and Durkheim's inter-subjectivity remain evident. However, rather than being given an ontological status these

hybrids are only accepted as mixtures of purified Nature and Society and are, thus, merely treated as intermediaries that transmit meaning from one pole to the other.

CUT fully devotes itself to resolving both contradiction of the *Urban Constitution*. It claims to attend both to the contradictions between Nature and Society, on the one hand, and between the pre-modern practice of mediation and modern practice of purification, on the other, However, similar to Marx's (2005 [1852]) dialectics, more generally, which by equating the Object/Subject-divide with an irreversible break between pre-Modernity (which blended labor and capital in productive pursuit) and Modernity (which conversely implied a strict separation between capital and labor) dissolved the second contradiction in the first, so CUT has dissolved the first contradiction between the pre-capitalist non-urban society and the Modern, capitalist urban society in the second contradiction (between the nature of cities and its social context, process and outcome, spatial practice and representations of space, urban ideology and urbanization, etc. (Brenner and Schmid, 2015a, 2015b; Brenner et al., 2011: 235; c.f. Lefebvre, 2009; Marcuse, H. (1990 [1960]). While it believes it has surpassed the Object/

Subject-divide by combining its critique of naturalization (Society transcendent) with its critique of scientific ideology (Nature transcendent) (section 5.4.2.1) and further addressing the paradoxes between both through the creation of ever more feedback loops – between between moment and process (Lefebvre, 2003 [1970]; Wachsmuth, 2014).and between urban ideology and 'the urban' (space "as perceived" and space "as conceived") (Lefebvre, 1991[1974]; Elden, 2007) (section 5.4.2.2) – contrarily, it further rivets the separation between the two poles. After all, while CUT claims to adhere to the work mediation – of the relation between spatial practice and territorial regulation by lived space; of the relation between concentrated and extended urbanization by differential urbanization; of process and moment by 'the urban'. (Brenner and Schmid, 2015a) – its mediators only transmit instead of modify purified ontology's: passing transcendent belief systems onto passive Nature (the city as an empirically observable entity is merely capitalist ideology) or transcendent natural laws of capitalist urbanization onto an immanent Society/Subjects Thus, what became a distinction with the Chicago School became a separation with TTUT and has been turned into a full blown contradiction in CUT.

Lastly, just as the post-moderns, in contrast to the moderns, solely focuses on the mediating role of language or discourse instead of only attending to the two purified extremes of Nature and Society, so post-colonial urban theory, in contrast to TTUT and CUT, limits itself to the mediating role of (social) context alone in its account of the nature of cities at the expense of the two purified extremes. For ANT, the advantage of post-colonial urban theory compared to CUT and TTUT is that it does not treat mediators as intermediaries. Context, here, is not deployed to transmit meaning from either of the two purified domains to the other but a mediator independent of these domains. Context shapes and creates social and natural orders itself. The problem, however, as explained above, is that post-colonial urban theory reduces the explanations of the nature of cities to a universalized, or ontologically fixed, notion of context which creates both the social context in which urbanization takes place and the phenomenon of urbanization itself. Thus, while TTUT and CUT try to reconcile the divide between mediation and purification by dissolving the former into the separations of the latter, post-colonial urban theorists dissolve the two purified domains of the Urban Constitution in

the mediating role of (social) context entirely. Nonetheless, by leaving Nature to the realist epistemology and Society to constructivism it becomes impossible to locate the quasi-objects, which do not only occupy the bottom half of the constitution but also its upper half. Thus, rather than reconciling the separation (TTUT) or contradiction (CUT) instead the abyss is expanded even further to the point of hyper-incommensurability.

In Figure 34 the resulting claim of the irreducible idiosyncrasy of all cities is labeled the *regular* version of post-colonial urban theory (see Leitner and Sheppard (2015), Amin and Graham (1997). The studies that limit the appeal to context only to 'correct' CUT and TTUTs *universalist* or *ethnocentric* tendencies (e.g. by incorporating urban experiences of the 'Global South') are labeled the *light* version of post-colonial urban theory (see Ong and Roy, 2011; Robinson, 2006) This version of post-colonial urban theory renders context less universal by restoring its contact either with the Society pole (i.e. the mediation of the nature of cities along the space/time-contexts of individual cities and urban processes) or the Nature pole (i.e. the mediation of the nature of cities by the space/time-context of urban knowledge itself).

5.4.4 Contrasts between CUT and ANT

Based on the analysis it can be concluded that CUT and ANT present two fundamentally different approaches to social phenomena, more generally, and the four sources of scientific dispute regarding the nature of cities, in particular. This section summarizes these fundamental differences along five pointers: (1) *Mode of inquiry* (description vs. critique), (2) *Object of inquiry* (cities vs. capitalism); (3) the Social (assemblage vs. society); (4) Space (topology vs. topography), and (5) Politics (democracy vs. revolution).

5.4.4.1 Mode of inquiry: description vs. critique

ANTs style of scientific engagement is incommensurable with CUTs notion of critique which stresses that dominant social relations, or a ruling class, are able to project their values onto a passive object (i.e. urban effects) (Brenner, 2009, 2013; c.f. Latour, 2004a). Instead ANTs "principle of radical symmetry" suggests that power is not something that is possessed but articulated through heterogeneous associations of humans and nonhumans (Harbers, 1998: 3). For ANT, CUTs notion of critique discriminates against nonhumans which are more than simply passive objects (goods or empty screens) on which Society projects its dominant values while, conversely, owes too much to the power Society as a *sui generis* which cannot be used as an explanation but instead requires one. In this way, ANTs radical symmetric take on power and knowledge profoundly disrupts the double object-subject schemes underlying CUTs concepts of urban ideology and concept of planetary urbanization (Brenner et al., 2011; Lefebvre, 2009; Marcuse, H. (1990[1960]) (see figure 27 in 5.2.2 and figure 32 in 5.4.2.2). Rather than taking such *a priori* given, concisely demarcated divisions of nature and society, knowledge and power, objects and subjects, ANT attends to the multiplicity of (often contradictory) ways in which heterogeneous associations are constructed by experts, governments, banks and of course (critical) urban theorists to group objects and subjects themselves (Latour, 1993 [1991]).

Against CUTs explanatory enterprise that relies on theoretical abstraction and rigid epistemological divisions ANT offers methodological imperatives at the expense of social constructivists and realist epistemologies to explore the controversial and uncertain character

of urban phenomena (Latour, 2005a, 2004b). Such inquiries in the pre-given objects, social groups and motives are by definitional fiat rejected in CUT. In ANT these theoretical concerns have to be replaced by a renewed empiricism and description, first, before they may be re-assembled at a later stage of the inquiry. As such, ANT does not oppose critique but only opposes a style of critique that relies on *a priori* theoretical categories and objects of hidden power structures, capitalist ideology, social intentions, capitalist contradictions. Instead, ANT aims to empirically describe the subtle ways in which the objects constructed by the (social) sciences and technologies may (or may not) accommodate for such forces.

5.4.4.2 Object of inquiry: cities vs. capitalism

A clear distinction between CUT and ANT stresses their commitment to studying cities. The variety of ANT urban studies discussed in section 2.4.4 all centre on cities. They either:

1. Highlight how phenomena considered intrinsically urban in nature are mediated by nonhumans, such as: the construction of discourse in the transformation of the urban form (e.g. Yaneva, 2012); urban design and architecture (Latour and Yaneva, 2009; Petrescu, 2012); urban ecologies (Hinchliffe and Whatmore, 2006; Swyngedouw. 2006; Gabriel, 2014), agglomeration process (Zitouni, 2010, 2012); market improvisation in social housing policy (Farias, 2014), construction of urban imageries (Doucet, 2012;), cartographic mapping (Gabriel, 2013);
2. Provide alternative conceptions of key themes in urban theory, including: epistemological dualisms (e.g. nature/society, economy/culture, agency/structure, local/global) (Amin and Thrift, 2002; Gandy 2005; Farías and Bender 2009, Castree, 2002; Murdoch, 1997a, 1997b, 1998), or the concepts of 'politics' and 'society' (Amin, 2007; Farias, 2011, Blok and Farias, 2016);
3. Describe technologies paramount to continued urban viability though considered irrelevant to any understanding of the nature of cities by CUT and TTUT (e.g. Latour and Hermant, 2006 [1998]; Latour, 1992; November et al., 2010); and
4. Analyze how the urban sciences construct their respective objects of the nature of cities to make sense of our increasingly urbanization world (c.f. Barnes, 2006). This is the type of ANT-inquiry deployed in this research.

From ANTs perspective, CUTs focus on urbanization and space, in contrast, seems rather contingent since its primary object of inquiry is not the city but capitalism (see section 5.4.2.1). Given CUTs reduction of urbanization the accumulation and circulation of finance capital and commitment to the extension of these cycles to purportedly non-urban scales and territories, for ANT the question is whether the city is actually the dominant social and spatial domain of capitalism to begin with (see Farías, 2011).

Conversely, from CUTs perspective ANT dissolves urban studies object of inquiry into a myriad of assemblages which – due to the latter's "principle of irreduction" (Latour, 2005) implying "infinite regress" and "indefinite extension" – cannot be meaningfully linked up to the larger urban epistemologies and broader societal context (capitalism) underpinning the former's approach to the nature of cities and the relation between urbanization and inequalities (Brenner et al., 2011; c.f. Lecomte, 2013) (see also section 5.4.4.3 and 5.4.4.4).

5.4.4.3. The Social: assemblage vs. society

Another important distinction between CUT and ANT concerns their approach to 'the social' which has profound implications as regards their conception of the nature of the phenomenon of urbanization and its relation and distinction to Society as a whole. CUTs grasps 'the urban' as a singular and exclusively 'social' (as opposed to natural) phenomenon occupying a place within one society (which has become urbanized in its entire). ANT, in contrast, attends to the multiplicity of ways in which urbanization and cities are brought into existence so that there exist a plurality of urban ontology's to be distinguished (or not) from the other multiple societies (or social ontology's). Moreover, in contrast to CUT which relies on a fundamental distinction between Society and Nature, ANT exactly extends the domain of 'the social' to include (the sociality) of nonhumans (Latour, 2005a; 2004 [1999]).

Accordingly, ANT attends to plurality of entities of urbanization (the different natures of cities) respectively constructed by the variety of traditions of urban scholarship (e.g. TTUT, CUT) as well as the multiplicity of nonhuman-human entanglements that accommodate processes of concentration (or imply the necessity of agglomeration) and co-constitute concentrations of different distinct land uses and 'social' activity. From ANTs perspective, CUT renders these ontological hybrids and especially their ability to structure *invisible* (see Latour and Hermant, 2006). Conversely, from CUTs perspective, by insisting on the irreducibility of each separate assemblage (whether it concerns, for example, an entity of the nature of cities or a technology mediating agglomeration) at the expense of *a priori* given structures, scales, power-relations, ANT cannot account for the explanatory questions regarding the broader, general and generic (global, national, regional) spatial fix of capitalism, multi-scalar and multi-dimensional (re-)production of urban space constituting the key pillars of CUTs societal and scientific concerns with urbanization and its relation to inequality (Brenner and Schmid, 2015a; Brenner, 2013; Sassen, 2005, 2006; Harvey, 1987, 1982, 2008; Lefebvre, (2003 [1970], 1974 [1991]; c.f. Lecomte, 2013).

5.4.4.4 Space: topology vs. topography

The same profound incommensurability between both paradigms can be observed with respect to space. In CUT the options and behavior of agents (urban planners, scientists, firms, ordinary citizen) are determined by spatial fixes, inter-scalar relations, urban/rural-divisions, micro and macro interactions etc.. Doing away with this spatial epistemology leaves CUT unequipped to explain and critique past and contemporary trajectories of urbanization across the globe, let alone provide mediations to the realm of practice (see also section 5.4.4.5). In contrast, for ANT it is not the scientists job to take these spatial hierarchies, scales and divisions as given as it renders invisible the manner in which these agents create scales, hierarchies and divisions themselves (Latour, 2005a). "Framing" (human) activity into such larger or smaller "context" belongs to the realm of politics (idem). Moreover, for ANT these spatial hierarchies, divisions and scales are neither the product of human activity alone nor constitute autonomous objective spatial domains but are qualities that have to be continuously maintained and refined by complex humans/nonhumans-entanglements.

Latour (1993 [1991]) gives the example of a railroad, which for him is neither local nor global but instead constitutes a continuous path linking both. A more adequate example with respect to CUTs concern with the ubiquity of urbanization is provided by Prince's (2010a, 2010b,

2012, 2014; Law and Mol, 2001; Mol and Law, 1994) account on policy mobility which contrasts the Cartesian topographic of space advanced by TTUT with the regional, network and fluid topologies that co-produce these topographies. A further example is provided by this research which in attempting to (re-)locate TTUTs double object demonstrated how the space economy and, in extension, TTUTs entity of the nature of cities requires the performance of assemblages of humans and nonhumans – joining, amongst others, Cartesian geometry, statistical tools such as the regression line, survey data, concepts of utility, principles of maximization and equilibrium, GIS, faculties, money etc – to create diagrams of bid-rent curves, concepts and analysis of locational preference, transaction costs, and, finally and laws regarding central place hierarchy, proximity, distance. transaction costs and so on. In this way, research demonstrated how the entity of the nature of cities has become an "immutable mobile" (Latour, 1987; Mol and Law, 2001): it allows TTUTs conception of urban space and associated practices of socio-spatial analysis and intervention to move in regional space (between the spatial science departments and leading planning institutions and between far flung regions, eventually reaching Diyarbakir) while holding its shape in network space (the entity remains *the same* while traveling).

CUT and ANTs opposing conception of 'the social' and 'space' also induces opposing conceptions of cities and urbanization. Because ANT neglects Cartesian (metric) space and the use of *a priori* urban/rural, local/ global distinctions it also rejects the concepts of the city advanced by both CUT and TTUT (and in extension post-colonial urban theory) that are premised upon (or articulated in contra-distinction to) this type of spatiality exclusively. As such, ANT little to offer to CUT which remains ill-equipped without these epistemological dualisms of space. Conversely, CUT has little to offer to ANT. In following Latour's 'principle of irreduction' ANT rejects taking urbanization as instances of something else (here: capitalism) but instead engages with the city as a phenomenon in its *own* right (Far'ias, 2011).

For ANT, in the first instance, urban concepts and vocabularies (in the epistemological realist terminology that is) are less important than the methodological focus on the multiple, constantly evolving, complex urban entities and ontology's it seeks to re-assemble. While by all means for ANT accounting for these urban phenomena requires close attention to the role of the capitalist political economy, and may even illuminate new insights about capital and capitalism, understanding how these urban entities are assembled and held together in practice remains key. As such, it remains a broad definition of the fundamental concerns in urban theory so as to enable delineation of the entity of urbanization across a wide range of disciplines; and, importantly, attend to forms and entities of cities not pertaining to capitalism (exclusively) (McFarlane, 2011a, 2011c). While understanding the difference between CUT and TTUT, simultaneously, ANT stresses the intimacy that exist between their "panoramic" conceptions of respectively the totality of the nature of cities, or planetary urbanization, and "panopticonist" assumption of the ability to grasp these totalities (Latour, 2005a), constituting the "shared fantasy of megalomaniac leaders", on the one hand, and "their paranoiac critics", on the other (Lecomte, 2013: 469). Moreover, here, ANT also stresses a close intimacy between CUT and TTUT, on the one hand, and post-colonial urban theory, on the other, as concerns their reliance on concepts of *scale* (local vs. global) and context-(in)dependency of 'the urban' (generality/difference). ANT exactly opposes such conception of space, more generally, and the nature of cities, in particular, in terms of wholes and their parts that

culminate from their respective conceptions of the historicity and spatiality of society and a-historicity and a-spatiality of nature (Latour, 2012, 2005a; 2000 [1996], 1999).

5.4.4.5 Politics: democracy vs. revolution

A final profound distinction between CUT and ANT concerns their respective approaches to politics and power-relations. The former understands power-relation mainly in terms of domination, a property intrinsic to the capitalist mode of production and something that is possessed by one group (the capitalist elite) and is exercised upon another group (the working class and the poor). Here the political horizons for urban change and alternative modes of urbanization are primarily, if not exclusively, framed along the necessity of revolution. ANT, on the other hand, approaches politics in terms of the distribution of agency implied by various human/nonhuman entanglements. It is exactly by doing away with Modern sociology's pre-given categories of social context and capitalist structures that it seeks to unveil the construction of discrete practices, processes, orderings and inequalities in the distribution of agency and power that, by virtue of its Constitution, are black-boxed. Here, against the strict division between politics and society assumed by CUT (despite their dialectical relation), ANTs emphasis on the co-evolution of science and society stresses their "de-monopolization" as autonomous authorities bodies deciding the *goals* and *means* resulting from the increasing "displacement" of and "dissolving boundaries" between both realms (Harbers, 2003, 1998; Latour, 2004 [1999]; c.f. Beck, 1992, 1993

By describing the multiplicity of objects ANT postulates a "cosmopolites", making visible a manifold of ontologies; each performing their own political relations and normative implications (Latour, 2007; Latour, 2004b). Moreover, for each object ANT seeks to trace its discrete location in the trajectory of its construction so as to unveil how what adjectives of 'the political' this entitity respectively implicates. As such, against revolution, the main political exercise of ANT revolves around democratization (Latour, 2004b, 2005b). A matter of taking not only all relevant human but also all nonhuman aspects of agency into account (Latour, 2008 [1992]). Rather than offering a theoretical foundation of why cities exist (TTUT) or a critical explanation of how urbanization and the relation between urbanization and inequality unfolds (CUT), ANT seeks to make visible what and who is (not) included/ excluded from the urban realities created by the construction of both technological objects and scientific concepts. What kind of ethics, morality and power-relations are accommodated by the entities of the nature of cities and urban phenomena and technologies under enquiry. By offering an empirical and more detailed account on the construction of urban knowledge and urban realities ANT advances a participatory form of politics in which a polyphony of voices are "gathered" to engage with the urban phenomena, challenges and problems encountered in theory and practice (Latour, 2007, 2005b, 2004b; Blok and Jensen, 2011).

5.4.5 Horizons of a complementary CUT-ANT research agenda

The fundamental differences between CUT and ANT noted in section 5.4.4 imply that both approaches to the four sources of dispute in urban studies – i.e. *the nature of cities*, *urban epistemology*, *social philosophy* and *the moral (in)viability of capitalist urbanization* – are by definition incommensurable. Accordingly, *in the first instance, both paradigms cannot be brought together to articulate a synthetic research approach with respect to the nature of*

cities and the relation between urbanization and inequality. Moreover, while this thesis investigates what ANT has to offer to CUT facing their fundamental incommensurability we should also ask the opposite: 'What has CUT to offer to ANT?'

Limitations of contemporary ANT urban studies

As such, this analysis underpins why both strands of ANT interventions in urban studies (section (2.4.4.1; c.f. intro section 5.4), more generally, as well as previous considerations regarding the mutual imbrications between CUT and ANT (McFarlane, 2011a, b and c; Farías, 2011; Brenner et al., 2011; Wachsmuth et al., 2011; Dovey, 2011; Simone, 2011; Rankin, 2011; Angelo, 2011; Russel et al., 2011; Tonkiss, 2011; Acuto, 2011; Farias and Bender, 2009), in particular, proved unfruitful (see section 2.4.4.2).

Because ANTs conception of nature, society, space and politics (section 2.5) *a priori* rejects TTUT and CUTs Modern urban epistemologies, both strands of ANT-inspired urban studies have approached cities and urban phenomena in contradistinction to TTUT and CUTs urban concepts while leaving the nature of cities itself – and especially the Urban Constitution that enabled production of the entity of the nature of cities as well as a variety of forms of urban knowledge – unattended. In other words, not only have these strands, contrary to TTUT and CUT which only credit the upper half of the Modern Constitution, conversely limited themselves to its bottom half. Even worse, rather than analyzing the bottom half of the *Urban* Constitution specifically – let alone linking it to its upper half – these studies have instead limited themselves to the bottom half of *Modern* Constitution, more generally, in order to, consequently, attend to the nonhuman agents mediating (an aspect of) urbanization, or urban viability, in particular. As such, so far ANT-inspired urban studies have not yet even begun to, first, to identify and analyze the mediators co-constituting urban knowledge and, second, to link this bottom half of the Urban Constitution to its upper half (i.e. the products of urban science) (see Figure XX; section 5.4.3.3).

In fact, from the perspective of the ANT-inspired urban research deployed in this research (as a study of urban science), Brenner (2013) and Storper and Scott's (2016) characterization of these strands as mere minor variants of post-colonial urban theory and other theories inspired by the cultural and contextual turn in urban studies alike would be correct. Similar to post-colonial urban theory these studies have not only limited themselves to one half of the Modern Constitution but in doing so also (implicitly or explicitly) rejected the existence of a nature of cities and, in extension, the *Urban Constitution* itself (see also section 5.4.2.3 on post-colonial urban theory's incoherent plea for a more holistic urban theory).

Prospects of an ANT investigation in the Urban Constitution

Against these ANT-inspired urban studies, in following Latour's (1993 [1991]) take on the Modern Constitution, analyzing ANTs approach to the four sources of scientific disputes in urban studies, more generally, and *how ANT may contribute to the manner in which CUT approaches urbanization and the relation between urbanization and inequality*, in particular, requires closer proximity to the field of urban studies (i.e. the production of urban knowledge) and its products (i.e. the nature of cities itself). Such an approach would attend *both* to (critical) urban theorists' Urban Constitution *and* the ever increasing number of ontological hybrids that this Constitution simultaneously rejects and allows to expand. It would study what the Urban Constitution allows and forbids, clarifies and obscures.

In fact, the description of ANTs evaluation of TTUT in section 5.4.1 offers a very modest and compromised account of such an inquiry. For example, on the most basic level it demonstrates how TTUT by neglecting the ontological hybrids – containing both human and nonhuman elements, such as: Cartesian geometry, regional and network topologies, statistical tools, survey data, cartography, concepts of utility and principles of maximization and equilibrium, diagrams of bid-rent curves, concepts and analysis of locational preference, transaction costs, GIS, spatial and social science faculties, epochalism, urban research programs, education, money and so on. – allows the increased blending of these Natures and Societies so as to increasingly separate natural space from social space and separate the quasi-objective (quasi-natural) spatial economic laws of urbanization from its social context.

In addition, the description of ANTs evaluation of CUT in section 5.4.2.1 and 5.4.2.2 demonstrates how in its attempt to settle the disputes about the nature of cities and urban epistemology CUT seems to replace the nature of cities by capitalism as its object of inquiry. Moreover, sections 5.4.3.1 and 5.4.3.2 demonstrate close affinities between TTUT, CUT and post-colonial urban theory regarding *urban epistemology* and *social philosophy* – especially with respect to the context(in)-dependency of 'the urban' and urban knowledge – which rather than reconciling Nature with Society further rivet the abyss between them .

Towards a joint CUT/ANT-research agenda for 21st century urban theory

As such, despite the impossibility of a synthetic CUT-ANT approach, by entering a so far ill-explored territory of inquiry in deploying ANT as a (social) study of science to analyze how CUT (and, in extension, TTUT and post-colonial urban theory) settle the four disputes in urban studies (sections 5.4.1, 5.4.2 and 5.4.3) this thesis concludes with the key finding that there is, in fact, at least one trajectory of research that enables ANT to contribute to CUTs approach to urbanization and its relation to inequality. One that neither irrevocably by-passes CUTs concerns with capitalism, *a priori* reject its urban epistemologies and abstains from specifying its own critical content, on the one hand, nor reduces ANT to an empirical or methodological toolkit that merely complements (and thus subordinates itself to) CUT, at the expense of its original ontological variant as rooted in the sociology of science and STS, on the other (see section 2.4.4.2); Thus approaching both paradigms on their own terms.

In deploying ANT as a social study of urban science and bringing it into closer proximity to the paradigms in urban studies (i.e. the production of urban knowledge) and their products (i.e. the natures of cities itself) it becomes possible to (at least partially) redress the modern limits to CUT (see section 2.4.3). The distinct ANT-contributions to CUT that shape the proposed joint CUT/ANT-research agenda for 21st century urban studies and (critical) urban theory are listed in the remaining sub-sections. Moreover, these pointers are interrelated

5.4.5.1 Alternative approach to counter-hegemonic urban knowledge

5.4.5.2 Modes of reasoning: from Lefebvre to Latour

5.4.5.3 Dealing with fuzzy, soritical concepts

5.4.5.4 Re-assembling the actor-networks of competing entities of the nature of cities

5.4.5.5 Urban topologies

5.4.5.6 Re-defining the urban political

5.4.5.7 Urban historicity: the continuity between modern urbanization and pre-modern cities

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6. Conclusion and Discussion

6.1 Societal context of research

In many ways the current period in history has been convincingly defined as an urban age (Amin, 2013). Population, productive activity, wealth and scientific, social, cultural and creative innovation are increasingly concentrated and agglomerating in cities (Storper and Scott, 2016; Scott and Storper, 2015; Glaeser, 2011; McCann, 2008; Hall, 1998). Since 2008 more than 50% of the total world population are living in cities (UN-Habitat, 2007; UNFPA, 2007). Moreover, during the last decades cities have become increasingly interconnected on a global scale so that national systems of cities and urban dynamics are being overtaken by increasingly integrated international (regional) and global networks of cities (in terms of global GDP, financial relations, infrastructure, knowledge, political power and cultural and symbolic influence) (see Dobbs et al., 2011; Sassen, 2005, 2006)

While cities are considered to offer higher levels of well-being and standards of living than rural settlements – so that that "even the urban poor are better off, on average, than the rural poor around the world" (Storper and Scott, 2016: 1114) – at the same time, social, economic, cultural, environmental and ecological problems, ranging from the local to the global level, are increasingly manifested in cities. Moreover, the relative effects of these so-called 'bads' of cities, including, inequality, concentrated poverty, financial crises, abandoned old industrial cities, slums, ethnic and gender cleavages, segregation, gentrification, homelessness, unequal access to housing and struggles to affordable housing, global resource and energy consumption, pollution, crime and violence, political unrest and oppression, terrorism (the list goes on) on the world population is increasing substantially (see Burdett, and Rode, 2011; UN-Habitat, 2008; Glaeser et al., 2008; Florida, 2015; Piketty and Saez, 2014).

Accordingly, questions about how to bear the fruits of the positive externalities urbanization while mitigating its negative externalities have become key concerns of leading planning and governance institutions at all spatial scales, signalled by the proliferation of scientific and research-based policy guidance literature on urbanization and urban planning (World Bank, 2009; UN-DESA-PD, 2012; UN-Habitat, 2007; UNFPA, 2007; OECD, 2009a,b; Barca et al., 2012; Barca, 2009; Sapir, 2004). More importantly, to understand and disseminate the above mentioned issues a growing body of scientific research aims to develop and fine-grain a common grammar and vocabulary of cities and urbanization by proposing a coherent and well-demarcated concept of *the nature of cities* (What is a city?) and, in extension, *the scope and limits of urban theory* (How can cities be known) (Storper and Scott, 2016; Scott and Storper, 2015). After all, without adequate knowledge of the nature, and equally the virtues and problems, of cities, the right questions cannot even be asked; neither, in this way, can the adequate mediations to the realm of practice (in terms of institution, organization, policy, planning, concrete interventions on the ground, or otherwise) be articulated and implemented.

6.2 Scientific context of research

Nonetheless, up to this day and after almost a century of existence the interdisciplinary field of urban studies still not succeeded in producing a coherent, well-demarcated concept of the city. To the contrary, never more has the field of urban studies been so significantly marked

by a multiplicity of active debates on the fundamentals of urban theory in the past decades (Storper and Scott, 2016, Scott and Storper, 2014; Brenner, 2013, Brenner and Schmid, 2014, 2015a; Mould, 2015; Peck, 2015; Leitner and Sheppard, 2015; Smith, 2013; Ong and Roy, 2011; Robinson, 2006; Soja, 2000; Harvey, 1974, 1996, 1989; Amin and Graham, 1997; Amin and Thrift, 2002; Farías and Bender, 2009; McFarlane, 2011a). In summary the key points of contestation can be divided into four sources of *scientific controversy*.

5. *The nature of cities*: (a) the historical and geographical specificity of urbanization and cities as ontologically distinct objects of inquiry and (b) the scope and limits of urban theory. disputing *the basic raison d'être of urbanization* and the societal (economic, cultural, political) specificity of urban processes versus the rest of society as a whole.
6. *Urban epistemology*: (c) the adequate empirical and theoretical precepts for acquiring knowledge of the nature of cities; and (d) the dependency of urban knowledge on its spatiotemporal context of production; i.e. the mediation of urban knowledge by power and ideology, forms of domination (capitalism, patriarchy), universalism, rationalism, economism and ethnocentric, modernist, secularist and developmentalist biases.
7. *Social philosophy*: (e) the relevance of urban scientific knowledge and, hence, urban science to scientific progress; (f) relevance of urban science with respect to societal progress (the role of urban theory in guiding social urban practice); and (g) the relation between scientific and societal progress, where the accumulation of true knowledge of the nature of cities is assumed to enable rational solutions to urban problems.
8. *The moral (non)viability, or social (in)justice, of urbanization under capitalism*: referring to social issues, such as, the connection between urbanization and (wealth or income) inequality, asymmetrical distribution of the 'goods' and 'bads' of cities among the urban population, urban dystopia and ethnic and gender cleavages in cities, etc..

The fact that these controversies have not yet been settled obstructs any scientific attempt to adequately address the scientific challenges associated with urbanization. Moreover, given that global and urban condition are increasingly intertwined the absence of a 'satisfactory' solution to these disputes also impedes formulation of adequate mediations to the realm of practice where need for viable policy in the search for social justice and economic development is becoming more urgent every day.

Against this backdrop this research has focused on 'the scientific eye', so to speak, and analyzed how the four currently influential paradigms in urban theory – (1) Traditional, taxonomic, urban theory (TTUT), (2) Critical Urban Theory (CUT); (3) Post-colonial urban theory (CULT), and (4) ANT-inspired urban studies (ANT) – approach and seek to solve these four sources of scientific dispute in urban studies. It did so by comparing their respective scientific (empirical, methodological, epistemological, ontological, social philosophical and normative) imperatives to urban theory and (further) urban research.

In particular, this research responds to the work of Neil Brenner (2013; c.f. Brenner and Schmid, 2014, 2014a; Merrifield, 2013; Wachsmuth, 2014; Madden, 2012) who in the footsteps of David Harvey and Henri Lefebvre's (neo)Marxist accounts on the fundamental relation between the development of capitalism and urbanization has defined a distinct field of urban research, called Critical Urban Theory (CUT). CUT is general approach to the nature of

cities, urban epistemology and social philosophy which grasps urbanization as the dominant capitalist mode of production, considers (social and economic) inequality fundamentally urban in 'nature' and, hence, voices a critique of contemporary urban development and policy. Moreover, in taking knowledge as conditioned by power it understands hegemonic urban science – read TTUT (but also post-colonial urban theory) – as ideological representations of past and contemporary urbanization. Thus, the fourth source of dispute in urban studies, more generally, and this inquiry in how different urban paradigms approach the relation between urbanization, in particular, derives from CUTs engagement with 'the urban'.

Brenner has assembled these interrelated concerns in, what he calls, the *Urbanization Question*. Reminiscent of the Marxian notion of false consciousness this 'question' implies that debunking hegemonic urban knowledge is the only method to, first, decipher the contradictory nature of capitalist urbanization, including the associated forms of uneven development and socio-spatial inequality, and, second, to identify alternative, socially just modes of urbanization in response (Brenner et al., 2011; Lefebvre, 2009; Marcuse, H., 1990 [1960]; Marcuse, P., 2009). Moreover, in following Lefebvre's (1991[1974]) hypothesis of *Planetary Urbanization*, which stresses that with post-Fordist, neoliberal capitalism and the associated hegemony of finance capital over industrial capital urbanization and society as a whole have become one and the same, Brenner (2013) has underpinned CUTs need for a new urban epistemology and agenda for further urban theory and research in the 21st century.

6.3 Research objective and rationale

Within this scientific context the key objective of this research was to analyze *whether and, if so, how ANT can change the manner in which CUT approaches and addresses the relation between urbanization and inequality.*

The rationale of this research objective was motivated as follows.

First, in continuation of my IRT *the initial goal of this research* was to identify the main obstacles to CUTs attempt to confront and address the *Urbanization Question* in times of *Planetary Urbanization*. This involved a theoretical and social philosophical inquiry in the virtues and limitations of CUTs concepts of cities, urbanization and their relation to inequality that have been elaborated in its search for a coherent and up-to-date urban epistemology and agenda for critical urban studies in the 21st century (section 2.3). Moreover, special attention was devoted to the moral conceptions of urban inequality that derive from its analytical conception of the relation between urbanization and inequality as well as CUTs implications for urban practice in light of the above mentioned.

Second, because CUT is not only grounded on an antagonistic relationship to existing urban practices but also to conventional urban knowledge, this research also analyzed how CUT confronts TTUT, in particular, and the relation between urban knowledge and urban practice, more generally. Accordingly, this research devoted special attention to the paradigm of TTUT (section 2.2) and the *CUT/TTUT-debate on the nature of cities* between Brenner and Schmid (2014; 2015a) and Storper and Scott (2016; c.d. Storper and Scott, 2014) (section 2.4.2).

Third, research paid particular attention to the debate on the nature of cities, urban epistemology and social philosophy between CUT and TTUT, on the one hand, and post-colonial urban theory, on the other (section 2.4.1). Not only because both CUT and TTUTs

approach to the four sources of scientific dispute – and, importantly, the differences between them – could be delimited more adequately when contrasted with post-colonial urban theory but also to safeguard the distinct character of ANT, which would be brought into the fray at a later stage of research. After all, both adherents of CUT and TTUT erroneously treat ANT as analogous to post-structuralism and the interpretive (linguistic) turn in the social sciences, more generally, while confusing ANT-inspired urban studies with post-colonial urban theory and strands of urban studies inspired by the cultural and contextualist turn alike, in particular.

Fourth, research found that in each paradigm the respective meanings and explanations of urban inequality vary per particular urban concept deployed,(see section 2.1.4;). Therefore, in comparing CUT, TTUT, post-colonial urban theory and ANT, in the first instance, research focused on their approaches to the first three sources of scientific dispute while taking their approach to the fourth as a corollary of the former three. Moreover, CUTs emphasis on *Social Justice* and 'The Right to the City' (Soja, 2010; Fainstein, 2010; Marcuse, 2009; Marcuse et al., 2009; Harvey, 2008; c.f. Barnett, 2011, 2012, 2013) imply that, in contrasts to the other urban paradigms, its approach to 'the urban' cannot be grasped in isolation from its conception of the moral inviability of capitalist urbanization. Accordingly, to minimize paradigmatic bias this research analyzed the different approaches to the moral (in)viability of capitalist urbanization in term of the relation between urbanization and 'inequality' in favour of the more value-laden and theoretically pre-determined notions of (urban) '(in)justice' or 'rights'.

Fifth, in reviewing the literature on urban inequality (section 2.1), TTUT and CUTs approaches to the four sources of scientific dispute (section 2.2 and 2.3) and especially the *ongoing (post-) modern and (post-)structural tensions* (contrasting CUT and TTUT with post-colonial urban theory) and *the CUT/TTUT-debate on 'the nature of cities* (section 2.4.1 and 2.4.2) research identified thee problems in CUTs approach to the *Urbanization Question*; which can all be traced back to the four key sources of scientific controversy in urban studies: *Normative questions* (2.4.3.1); *The crisis of critique* (2.4.3.2); and *Epistemological conundrums* (2.4.3.3). Moreover, research found that that these problems do not require further theoretical abstraction, as CUTs methodology implies, but instead signal a challenge to the social sciences *in toto* as they cannot be adequately solved by means of 'traditional' (post)Modern social scientific coordinates. As such, not only CUTs *Urbanization Question*, in particular, but especially the four sources of scientific disputes in urban studies, more generally, necessitates an inquiry in (the production of) Modern urban knowledge. In this way and conform the IRT, this research underpinned the need to view Modern urban science, and hence Modernity, themselves subjects of enquiry (section 2.4.3). More specifically, research found that an alternative approach that is both responsive to the scientific and social philosophical problems of CUT and sensitive to the scientific and societal challenges and concerns voiced by the *Urbanization Question* and the hypothesis of *Planetary Urbanization* requires an approach that: (1) Transcends epistemological division; (2) transcends the context-(in)dependency of 'the urban'; (3) analyzes rather than opposes Modern domains; and (4) reconsiders the context-(in)dependency of urban knowledge (section 2.4.3.4).

Sixth, at the same time, since the mid 1990s both actor-network theorists with an affinity to human geography and urban studies and urban scholars inspired by ANT have taken urban theorists' inability to settle the four sources of scientific dispute as momentum to introduce

ANT to urban studies (Amin and Thrift, 2002; Gandy 2005; Murdoch, 1997a, 1997b, 1998). By viewing Modern (social) science, more generally, and modern urban knowledge, in particular, subject of enquiry ANT is exactly oriented at how the four sources of scientific disputes that define current debates in urban theory are settled in practice (section 2.4.4.1). One strand of ANT-inspired urban studies attends to the mediation of processes generally considered intrinsically urban in 'nature', such as, agglomeration, transformation of urban morphology, the production of urban economies, housing markets, construction of urban discourses, urban ecologies, urban politics, urban imageries, urban cartgographies, urban policy (the list goes on), are mediated by nonhumans (Yaneva, 2012; Zitouni, 2010, 2012; Hinchliffe and Whatmore, 2006; Gabriel, 2014; Doucet, 2012; Farias, 2011, 2014; Prince, 2010a, 2010b, 2012, 2014; Mol and Law, 1994; Law and Mol, 2000). Another, focuses on the agency of technologies within cities, paramount to continued urban viability though generally considered irrelevant to any understanding of urbanization by CUT and TTUT, including: transportation, GIS, cadastral maps, electricity grids and ICT, etc. (e.g. Houdart, 2012; Latour and Hermant, 2006 [1998]; Latour, 1992; Hughes, 1983; November et al., 2010).

Seventh, against this backdrop, a number of urban scholars have started to explicitly inquire in the contrasts and connections between Assemblage (closely related to ANT) and CUT so as to explore the possibility of a joint research approach and agenda. Apart from Farías and Bender's (2009) *Urban Assemblages, How Actor-Network Theory Changes Urban Studies* and a series of AAG conference sessions, the most noteworthy undertaking in this respect is the *CUT/Assemblage Urbanism-debate* between Brenner et al. (2011; Wachsmuth et al., 2011), and McFarlane (2011a, 2011b, 2011c) (see also Dovey, 2011; Simone, 2011; Rankin, 2011; Angelo, 2011;; Tonkiss, 2011; Farías, 2011; Acuto, 2011).

However, despite the rich collection of Assemblage and ANT interventions in (critical) urban studies, so far attempts to articulate a joint CUT-ANT research approach have not cut ice (section 2.4.4.2). In part, as Brenner et al. (2011; c.f. Storper and Scott, 2016) correctly observed, this can be attributed to Assemblage Urbanism's neglect of capitalism, naive objectivism, absent specification of its critical content, absence of an Assemblage concept of 'the urban' and even the absent delineation of Assemblage and Assemblage Urbanism themselves. Accordingly, and what constituted the very *research rationale*, despite the affirmation not only by Assemblage urbanists but also adherents of CUT (and even TTUT) of the relevance of such an inquiry, the potential contributions of ANT to urban studies, more generally, and CUT, in particular, have not yet been adequately investigated. For example, on behalf of CUT, Wachsmuth et al. (2011) ended the Assemblage/CUT-debate with "the nagging feeling that the major contours of the debate [had] remained amorphous" (p. 743).

Eight, in response, the most important remedies to the pitfalls of the earlier endeavors to investigate the possibility of a joint CUT-ANT research approach that is *both* responsive to the Modern limits to CUT *and* sensitive to the scientific concerns posed by its *Urbanization Question* and *Planetary Urbanization* implied that (section 2.4.4.3):

(1) The more scientifically established and concisely delineated ANT should be selected in favor of the broader and less 'tested' concept of Assemblage.

(2) ANT should be deployed as a toolkit for studying urban science and production of urban knowledge rather than urban(-related) processes and phenomena alone. In this way, research could analyze how ANT confronts the four sources of dispute in urban studies instead of only the first. Moreover, by 'nature' ANT is an approach for studying knowledge production and scientific development instead of phenomena hence assembled by (social) scientists alone.

To enable a more in-depth, comprehensive inquiry in the fundamental contrasts and connections between CUT and ANTs approach to 'the urban' extensively discussed ANTs conception of science and the philosophy of science, history, social phenomena, space and politics as well as the historical context and examples underpinning its approach (section 2.5).

6.4 Research questions and methodology

The research objective was translated in the following research question and sub-questions:

Main question

Can and, if so, how does ANT change the manner in which CUT approaches the relation between urbanization and inequality?

Sub-questions

11. How does ANT approach and define the city, urban space, and urbanization?
12. How does ANT evaluate CUTs concepts of, and approach to, the urban?
13. How does ANT evaluate CUTs theory of the relation between urbanization and inequality?
14. How does ANT evaluate CUTs implications for urban practice?
15. How does ANT evaluate CUTs understanding of the reciprocal relation between urban knowledge and urban practice ?
16. How does ANT evaluate the manner in which CUT confronts TTUT?

Paradigmatic inquiry and literature study

This research entailed a (meta)theoretical-philosophical, or *paradigmatic inquiry*, analyzing CUT and ANTs (and, in extension, TTUT and post-colonial urban theory's) approach to the nature of cities and the relation between urbanization and inequality, using literature study to map out their respective concepts of nature, society, politics and space and approach to theory empirics, methodology, epistemology, ontology, social philosophy and ethics (section 3.3).

While this research was explorative it still attempted to provide cumulative knowledge on the contrasts and connections between CUT and ANT. One that gets at least two steps further than the earlier explorations of a joint CUT/ANT-research approach and agenda by not only (a) identifying the modern obstacles to, and fallacies and contradictions in, CUTs (and, where needed, TTUT and post-colonial urban theory's) approach to the four sources of scientific dispute but (b) could also explain them using ANT. Here, special attention was devoted to the CUT/TTUT –and modern/post-modern-debate, deploying ANT to account for these paradigmatic bifurcations and collisions in urban studies (section 3.4.1).

Paradigmatic case study

While the investigation was conducted by means of a literature study (Chapter 2) the analysis was complemented with empirical research that serves as an illustration, or metaphor, of the paradigmatic inquiry. The purpose of this paradigmatic case study (Flyvjberg, 2001) was two-

fold. On the one hand, it served to *exemplify* the research questions, analysis and outcomes which tend to be rather abstract. In this way, it could more effectively animate the scientific but also societal relevance of this research. At the same time, because research compares CUT and ANTs approach to the relation between urban knowledge and (policy) intervention, research has to be informed by application of urban knowledge 'on the ground' (section 3.5.2).

The paradigmatic case study centered on urban phenomena, or *issues*, in the city-region Diyarbakir, Southeastern Turkey, including: accelerated agglomeration-cum-polarization of distinct land uses; local economic development; its relation between city and countryside; urban and regional policy and strategy; urban sprawl; segregation; and urban inequalities. The goal of the case study was not to exemplify (let alone disclose) 'true' knowledge of the nature of cities (e.g. by testing the respective truth claims against the urban phenomena observed in Diyarbakir). Instead its purpose was to illustrate the contrasts and connections between CUT and ANTs approach to the four sources of scientific disputes along Diyarbakir's urbanization..

To this end, it described (a) the similarities between CUT, TTUT and/or ANTs concept of urbanization, urban inequality, the reciprocal relation between urban knowledge and practice and implications to urban (policy) intervention, on the one hand, and those implied by a variety of scientific studies, policy reports, policy interventions and local practitioner's conception on Diyarbakir's urbanization process, on the other; (b) how CUT, TTUT and ANT would respectively explain Diyarbakir's urbanization processes as well as conceptions of, and interventions in, these processes; and (c) the particular conceptions, scientific explanations and (policy) interventions these paradigms respectively oppose. In this way, local practitioner's conceptions of, scientific studies and policy reports on, and actual (policy) interventions in Diyarbakir could be used as metaphors of the connections and contrasts between CUT and ANTs approach to the four sources of scientific dispute (section 3.5.4).

Due to the illustrative purpose of empirical research, theoretically, selection of the case study site was inconsequential to the validity of the case study versus the inquiry as a whole. In practice, however, Diyarbakir's relatively new-born, rapid urbanization process and its unique position regarding Modernity and its political and administrative context made it a more suitable metaphor to compare CUT, ANT and TTUT (section 3.5.3).

6.5 Findings

The research findings can be summarized as follows.

6.5.1 Traditional Taxonomic Urban Theory

The RDA-SAs (2010, 2015) urban and regional policy visions, governance objectives as well as other research and policy guidance reports (e.g. Ministry of Development, 2013; Deniz, 2013) offered a perfect metaphor of TTUTs approach to the four sources of scientific dispute. Amongst others, application of TTUT to the city-region of Diyarbakir implied that:

I. Its sudden and rapid urbanization is conceived as its inevitable entrance to 'the urban age' (Ministry of Development, 2013; c.f. Scott and Storper, 2014; UNFPA, 2007).
II. The basic *raison d'être* of its urbanization is exclusively grasped in spatial economic terms (RDA-SA, 2015. Ministry of Development, 2013; c.f. World Bank, 2009; Scott and Storper, 2014).

III. its urbanization is assumed to induce Rawls' (2001) distribution of wealth since (so it is assumed), on average, its residents are better off in the city than in the countryside (RDA-SA, 2015; Ministry of Development, 2013; Deniz, 2012; c.f. World Bank, 2009; Storper and Scott, 2016).

IV. Its urbanization is considered a modern phenomenon: both resultant of, and paramount to, its modernization. This has profound implications to conceptions of and policy on its urban growth trajectory and its rural population and migrants (Ministry of Development, 2013; RDA-SA, 2010, 2015; c.f. Scott and Storper, 2014).

V. The definition of its urban settlement spaces is premised upon the urban/rural-divide; (Ministry of Development, 2013; Öğdül, 2010; ESPON, 2004; SPO, 1982; Deniz, 2013; c.f. Storper and Scott, 2016; Scott and Storper, 2014; UNFPA, 2007).

VI. While urbanization is considered paramount to national and regional economic growth as well as the reduction of inter –and intra-regional disparities at the same time inequality is grasped as a problem *in* rather than *of* cities (RDA-SA, 2015; Ministry of Development, 2013; Deniz, 2012; c.f World Bank, 2009; Storper and Scott, 2016).

Moreover, the case study illustrated how application of TTUT induces a discriminatory stance towards to Diyarbakir's rural migrants and IDPs in the city as well as to a large segment of its rural population. Not only are their occupations and life-styles, and especially the associated mode of production rendered either invisible or backward so that these segments of the population are both economically and culturally obstructed in their (dis)interested pursuits. Even further, their occupations and lifestyles are also grasped as one of the contextually-specific factors that explain Diyarbakir's poor development performances despite the city-region's conformity to national and international urban trends. Instead of comparing and perhaps even reconciling the socio-spatial dynamics associated respectively to traditional and neo-liberal capitalist modes of production TTUT induces an approach to socio-spatial change that tends to turn the public into the problem (see Dewey, 1954 [1927]; Latour, 2007).

6.5.2 Critical Urban Theory

Section 5.2 demonstrated how Diyarbakir simultaneously lends itself to exemplify not only CUTs concept of the nature of cities and the relation between urbanization but also the historical trajectory of the arguments underpinning *Urbanization Question* and hypothesis of *Planetary Urbanization* as advanced by Brenner's (2013; c.f. Brenner and Schmid, 2015a).

First, the municipality's Local Economic Development Department's stance on the disunion (and even opposition) between urbanization and production and socioeconomic equality offered an exquisite exemplar of Manuel Castells' (1977 [1972]) conception of the city as a mere site of "collective consumption" and an "ideological construct" (Brenner, 2008).

Second, numerous scientific account on, and local practitioner's conceptions of, Diyarbakir's urbanization process, in particular, and Turkey's urban history, more generally, offered strong exemplars of Harvey's (1979, 1982, 2008) understanding of urbanization as:

I. The crystallization of the socio-spatial contradictions of industrial capitalism and central pivot for the accumulation and circulation of capital (Yüksel, 2011; Cicek, 2017; Tekeli, 2009).

II. Both product of and producer of uneven spatial development, crisis formation and capitalist restructuring (Yüksel, 2011; Gambetti and Jongerden, 2011; Jongerden, 2010, Gambetti, 2004, 2005, 2009; Yadirgi., 2014); and, as such,
III. The fundamental source of (socio)economic inequality in modern society and, hence, of the city as the key site and spectator of contemporary class struggle.

Third, similar scientific account on urbanization in the city-region of Diyarbakir perfectly illustrated Lefebvre's (2003 [1970], 1974) [1991], 2009) concepts of urban space and urbanization, including:

IV. How with the dominance of finance capital over industrial capital since the 1980s (Smith, 2003), urbanization reorganizes the contradictions of the first into the contradictions of the second so that urbanization temporarily internalize and re-produce the socio-spatial contradictions related to world market expansion and capitalist restructuring and associated forms of political *regulation* and *contestation* Brenner, 2013; Brenner and Schmid, 2015a);
V. How these configurations 'creatively destroyed' insofar they can no longer maintain their operational effectiveness in face of the conflicts generated through the former contradictions up to the point new urban configurations are (re-)produced (idem);
VI. That urbanization is no longer confined to "concentration" but is instead "extended" over territories and sites traditionally considered 'rural' (*Implosion/Explosion*) (idem);
VII. That understanding Diyarbakir's urbanization process could be best approached when viewed as part of a larger "urban fabric" that: is continuously rewoven and interwoven, in which time and distance continuously unfold and are refolded, and which appears as intrinsically amorphous (a formless form) (Merrifield, 2013);
VIII. How urban space is not only produced by discrete s*patial practices* but also distinct forms of *territorial regulation*/*spatial representations* and in *everyday life* (Schmid, 2008; Elden, 2007).
IX. How urbanization is becoming a generalized, planetary condition in which the modern domains along which space has been split up are increasingly subsumed and re-ordered. In this way, the difficulty of deciphering Diyarbakir's urbanization process exemplified why *The Urbanization Question* poses a meta-theoretical and meta-philosophical problematic, or a "worldwide problem" (Lefebvre, 2009; p. 282)

In this way, research did not only exemplify the intimate relation between urbanization, on the one hand, and circuits of finance capital, neo(industrial) capitalism and inequality, on the other, but also how, by definitional fiat, TTUT obscures both (Brenner and Schmid, 2014).

6.5.3 Modern Limits to CUT

Section 5.3 illustrated the modern limits to CUT (section 2.4.3) along CUTs account on Diyarbakir's urban revolution. It exemplified CUTs normative fallacies by:

I. Highlighting the theoretical and political issues of *representativeness* and *justification* of CUTs norms of critique along the Local Economic Development Department's motivation of its socioeconomic policy (c.f. Barnett, 2012, 2013; Kuymulu, 2013)
II. Highlighting the epistemological and social philosophical problems – *reduction* and *insurmountable gap between urban theory and practice* – that arise from approaching

the nature of cities and normative claims of urban *injustice* as inextricably related (Brenner et al., 2011; Lefebvre, 2009; Marcuse, H. (1990[1960; Barnett, 2011).

Moreover, it illustrated CUTs epistemological conundrums by:

i. Underscoring the inability of CUTs accounts on Diyarbakir's urbanization to transcend a range of modern dualisms (economy/culture, local/global, structure/ agency, micro/macro etc.) arising from its inability to settle the dispute about the context-(in)dependency of 'the urban' (Yüksel, 2011; Bayirbag, 2008; Gambetti, 2004, 2005; c.f. Brenner, 2013; Ong and Roy, 2011; Granovetter, 1985; Polanyi, 1944).
ii. Underscoring the inability of CUTs account on Diyarbakir to adequately settle the dispute about the context-(in)dependency of urban knowledge so that these accounts became metaphors of what, Lefebvre (2003 [1970]) termed, "blind fields" (p. 29).

Finally, not discussed in the literature study, research found a third ontological fallacy in CUT (section 5.3.3). This fallacy and its ramifications can be summarized as follows:

i. Because CUT assumes that urban ontology (*what is* 'the urban') can only be assessed reflexively, delineation of 'the urban' as an ontologically distinct object of inquiry is reduced to a matter of urban epistemology (*what can be known* about 'the urban') exclusively (Brenner et al., 2011; Walker, 2015) (section 5.3.3.1).
ii. Since CUT aims to decipher the continuous (re-)production of concentrated, extended and differential urbanization by debunking TTUTs concept of urban space (Brenner, 2013; Brenner and Schmid, 2014; Brenner et al., 2011; Lefebvre, 2009; Marcuse, H. (1990[1960]), it constructs two objects at once instead of one (section 5.3.3.2).
iii. Due to its reliance on this double object CUT fails to expose (1) the relation between urbanization and inequality and (2) that TTUT engenders *confusing and misleading conceptions of capitalist urbanization* and, hence (3) that TTUT obscures and sustains this relationship (section 5.3.3.2).

In response to this extended analysis of the *CUT/TTUT-debate* research identified and concluded a number of fallacies and contradictions in both CUT and TTUT.

I. It verified Brenner and Schmid's (2014) claim that TTUTs concept of 'the urban' is logically inconsistent.
II. It identified a contradiction in TTUTs simultaneous insistence on theoretical abstraction, on the one hand, and empiricism, on the other.
III. It found that TTUTs concept of the historical and geographical specificity of cities versus respectively society as a whole, on the one hand, and, what Storper and Scott (2016) named, "planetary space", on the other, is logically inconsistent.
IV. It acknowledged Storper and Scott's (2016) critique of CUTs incoherent and confusing reference to 'urban' and 'rural' space in its concept of *Planetary Urbanization*.
V. It found that, due to its excessive reliance on deconstruction, Brenner and Schmid (2014) fail to detect that TTUTs obscuring of the nature of planetary urbanization and its intimate relation with inequality lies not so much in TTUTs incoherent concepts of 'the urban' and 'the rural' but in TTUTs black-boxing of the (historical specificity) of planetary space and, in extension, its absent delineation of the relation and distinction between, what Storper and Scott (2016) respectively name, "planetary space" and

"urbanization" (despite the fact that TTUT ironically employs planetary space as the broader spatial economic context of urbanization and intra-urban processes)

VI. It found that, because it collapses society as a whole into (planetary) urbanization, CUT fails to (1) address TTUTs inadequate (geographical) specification of the city versus society as a whole, and (2) how, by this inadequate specification, TTUT does not only alleviate the possibility to inquire in the geographical specificity of society as a whole but especially to investigate the relation Society as a whole (including inequality!) may (or may not) entertain with urbanization.

VII. Both Brenner and Schmid (2014) as Storper and Scott (2016) failed to detect (or explain) that CUTs deconstruction of TTUT (the 'urban age thesis'), in fact, rests on the latter's subjection to the *sorites paradox* (of 'fallacy of the heap') (Hyde, 2018).

6.5.4 ANTs approach to the nature of cities

Against the fallacies and contradictions in CUTs (and in extension TTUT and post-colonial urban theory's) approach to the four sources of scientific dispute in urban studies the last part of the analysis deployed ANT as a study of urban science (section 5.4).

ANTs evaluation of TTUT

By deploying ANT to locate TTUTs object of the nature of cities it found that TTUTs object of urban space, in fact, involves the enrollment of two Modern critiques (of *naturalization* and *ideology*) and the associated reliance on the simultaneous transcendence/immanence of Nature and Society (Latour, 1993 [1991], 1987a; Latour and Woolgar, 1979; Mol and Law, 1994; Prince, 2010, 2014). By re-constructing TTUTs entity, research could retrospectively:

I. Explain the origins of the logical inconsistency of TTUTs concepts of 'the urban'.

II. Explain the TTUTs simultaneous reliance on empiricism/theoretical abstraction.

III. Explain TTUTs inadequate specification of cities versus the rest of social reality.

IV. Argue that while, in contrast to post-colonial critiques of 'economism' (Mould, 2015), TTUTs economic reductions may be valid in their own right, TTUTs concepts of 'the urban' tend to mistreat The Economy itself.

V. Detect that by equating globalizing-cum-localizing effect with urbanization TTUT is culpable of ontological and methodological overreach.

VI. Explain that Storper and Scott (2016) were wrong to concord with Brenner and Schmid (2014) that its under-specification (black-boxing) of 'the rural' is necessarily problematic with respect to (TTUTs) specification of 'the urban'.

ANTs evaluation of CUT

In deploying ANT to evaluate CUT it found that, similar to TTUT, its object of inquiry also rests on the simultaneous transcendence/immanence of Nature and Society (section 5.4.2.1). By re-constructing CUTs entity of planetary urbanization research could retrospectively disentangle CUTs double dialectic (or better *trialectic*) of urban space and, hence, explain the fallacies and contradictions in CUTs approach to urbanization and TTUT (section 5.4.2.2).

Urban historicity

Moreover, in deploying ANT to re-construct CUT and TTUTs entities of the nature of cities, research could identify and compare CUT, TTUT and post-colonial urban theory's respective

approaches to urban historicity (section 5.4.3) (Latour (2000 [1996]; 1999; c.f. Scott and Storper, 2014; Lefebvre, 2003 [1970]; Wirth, 1969 [1938]). In this way, research found:

I. How, similar to Modern (social) science more generally in both CUT and TTUT the nature/society-division, paramount to the construction of their respective entities of the nature of cities, and therewith those entities themselves, are further entrenched by the asymmetric attribution of historicity to cities and urbanization.
II. That this asymmetric urban historicity is manifested in the respective conceptions of the context-(in)dependency of urban knowledge and, consequently, expressed in their respective approaches to the context-(in)dependency of cities/urbanization itself.
III. That this asymmetric historicity is reversed with respect to the nature of cities *before* (cities a-historic, urbanization historic) and *since* modernity (urbanization a-historic, cities historic.
IV. How this asymmetric historicity also applies to CUT, TTUT and post-colonial urban theory's disparate conceptions spatiality.
V. And, finally, that because of the above mentioned, both CUT and TTUT, on the one hand, and post-colonial urban theory, on the other, adhere to the same metaphysics for exactly opposite reasons.

The Urban Constitution

Hereafter, research could explain the proliferation of the field of urban studies, more generally, and TTUTs entity of the nature of cities, in particular, by discerning, what in thesis is called, *The Urban Constitution*. It found that the proliferation of ontological hybrids performing TTUTs entity of the nature of cities and, hence, the further establishment of urban studies as a distinct field of social scientific research – or what in this thesis is termed *The Triumph of the City* – is ironically premised upon the official rejection of this very work of mediation that *The Urban Constitution* de facto allows (Latour, 1993 [1991]).

At the same time, however, research could explain how this act of bracketing-off the work of mediation from the work of purification in CUT and TTUTs description of the historical development of urban studies (production of urban knowledge) has already started to implicate its demise. This demise could be illustrated along the urban paradigms' inability to settle the four disputes in urban studies. After all, as this deployment of ANT implied, *We Have Never Been Urban*. Not in the sense that urbanization and cities have never existed (or existed as such), but rather that urban studies, more generally, and CUT and TTUT, in particular, have never functioned along the official rules of their *Urban Constitution* alone.

Even further, by contrasting ANTs non-Modern approach to 'the urban' (linking the work of mediation and purification of the *Urban Constitution*) with the Chicago School, TTUT, CUT and post-colonial urban theory (only crediting the work of purification) research demonstrated that with consecutive paradigmatic attempts to reconcile both poles of this constitution the abyss between Nature and Society has not gotten smaller but conversely increased.

Fundamental incommensurability of CUT and ANT

In conclusion, research found that CUT and ANTs approach to the four sources of dispute in urban studies – i.e. the nature of cities, urban epistemology, social philosophy and the moral (in)viability of capitalist urbanization – are by definition incommensurable. Accordingly, in

the first instance, both paradigms cannot be brought together to articulate a synthetic research approach with respect to the nature of cities and the relation between urbanization and inequality. This incommensurability was captured along five distinction (section 5.4.4):

I. Mode of inquiry: description vs. critique.
II. Object of inquiry : cities vs. capitalism.
III. Concept of 'the social': assemblage vs. society.
IV. Concept of Space: topology vs. topography.
V. Conception of 'the political': democracy vs. revolution.

Horizons of a complementary CUT/ANT-research agenda

At the same time, however, despite the impossibility of a synthetic CUT-ANT approach, by entering a so far ill-explored territory of inquiry in deploying ANT as a (social) study of science to analyze how CUT (and, in extension, TTUT and post-colonial urban theory) settle the four disputes in urban studies research could identify at least one trajectory of inquiry that enables detection of ANT to contribute to CUTs approach to urbanization and the relation between urbanization and inequality. These discrete contributions of ANT should neither be grasped as complementary to CUTs concepts of urban space nor as alternatives to CUTs approach to the nature of cities. Rather they inform a research agenda that maintains CUTs (and, in extension, TTUT and post-colonial urban theory's) approach to the four sources of scientific dispute in terms of the purified elements of the nature of cities collected so far, on the one hand, while complementing these with ANTs non-Modern approach that attends both to work of purification and mediation while seeking to link both practices. These horizons of a complementary CUT/ANT-research agenda are listed as follows:

I. Alternative approach to confronting hegemonic urban knowledge
II. Re-assembling the actor-networks of competing entities of the nature of cities
III. Inquiry into modes of urban reasoning: from Lefebvre to Latour
IV. Dealing with fuzzy concepts
V. Urban topologies: spatiality of urban knowledge and spatiality's it investigates
VI. Re-defining the urban political
VII. Urban historicity: the continuity between modern urbanization and pre-modern cities

6.6 Scientific and societal contributions of research

Since this research entailed a paradigmatic inquiry with questions, analyses and outcomes mainly at the level of meta-theory and meta-philosophy the research findings are primarily relevant to the sciences.

Scientific contributions

This research is primarily relevant to urban scholars and scientific organizations and institutions engaged in contemporary debates on the scope and limits of urban theory (see Storper and Scott, 2016; Scott and Storper, 2014; Brenner, 2013, Brenner and Schmid, 2015a; Ong and Roy, 2011; Robinson, 2006; Amin and Thrift, 2002). More specifically, this research sought to contribute to urban scientists' attempts to advance and innovate CUT or ANTs approach to the four sources of scientific dispute; And especially those that seek to identify the contrasts and connections between CUT and ANT with the purpose of exploring the

possibility of a joint research approach and agenda that is sensitive to the scientific and societal concerns posed by CUTs *Urbanization Questions* and hypothesis of *Planetary Urbanization* (see McFarlane, 2011; Brenner et al., 2011; Farias, 2011; Wachsmuth et al., 2011; Farías and Bender, 2009; Castree, 2002; Murdoch, 1997a, 1997b, 1998).

In particular, the main contributions of this research can be listed as follows:

I. Identification and comprehensive overview of the modern obstacles to, and fallacies and contradictions in, CUTs (and, in extension, TTUT and post-colonial urban theory's) approach to the four sources of scientific dispute.

II. Identification of the fallacies and contradictions in CUTs critique of TTUT and their ramifications for CUTs attempt to expose (1) the relation between urbanization and inequality and (2) that TTUT engenders *confusing and misleading conceptions of capitalist urbanization* and, therefore, (3) obscures and sustains this relationship.

III. Finding that (1) these fallacies and contradictions to settle the four sources of dispute in urban studies can only be adequately solved by taking Modernity, more generally, and (the production of) Modern urban knowledge, in particular, as subjects of inquiry

IV. Finding that ANT is the only suitable paradigm that can be deployed to this purpose.

V. Finding that without alternatively confronting the four sources of scientific dispute in urban studies both the scientificness and societal relevance of urban studies, more generally, and (critical) urban theory, in particular, are seriously impaired.

VI. Identification and overview of the shortcomings and fallacies of contemporary ANT-inspired urban studies to adequately intervene in contemporary debates on the four sources of scientific dispute in urban studies, more generally, and to contribute to CUTs *Urbanization Question* and hypothesis of *Planetary urbanization*, in particular.

VII. Finding that of the deployment of ANT as a study of urban science is the only trajectory of research in which ANT can contribute to CUTs approach to the four sources of scientific dispute in urban studies.

VIII. Explanations of contradictions in, CUTs (and, in extension, TTUT and post-colonial urban theory's) approach to the four sources of scientific dispute by deploying ANT as a study of urban science and the production of Modern and critical urban knowledge.

IX. Identification and comprehensive overview of the fundamental incommensurability between CUT and ANT that underpin the impossibility of a synthetic CUT/ANT-approach to the four sources of scientific dispute in urban studies.

X. Finding that deploying ANT as a anthropological study of urban science enables articulation of a joint CUT/ANT-research agenda to the four sources of scientific disputes in urban studies that (1) is sensitive to the scientific and societal concerns expressed through the Urbanization Question and hypothesis of Planetary Urbanization, and (2) is responsive to the Modern limits, contradictions and fallacies in CUT (as well as TTUT and Post-colonial urban theory) while (3) remaining able to treat each paradigm on its own terms.

XI. Identification of the discrete horizons of a joint CUT/ANT research agenda for 21st century urban studies and critical urban theory.

Summing up these findings, compared to past and current ANT-inspired urban studies and endeavours to analyze the conjunctions and disjunctions between CUT and ANT and explore whether and, if so, how ANT may contribute to CUTs approach to the relation between urbanization and inequality, this research got at least five steps further by:

I. Inventory the modern obstacles to, and fallacies and contradictions in, CUT, TTUT and post-colonial urban theory's approach to the four sources of scientific dispute at once as well as those in CUTs approach to TTUT.
II. Explaining and comparing CUT, TTUT and post-colonial urban theory's respective fallacies and contradictions by deploying ANT as a study of urban science
III. Explaining the proliferation and demise of the interdisciplinary field of urban studies, more generally, and the paradigms of CUT and TTUT, in particular, by the discovery that construction of their respective entities of the nature of cities is premised upon the consecutive and mutually reinforcing distinctions between Nature and Society, the work of purification and mediation and the assymetric attribution of historicity to cities and urbanization *before* and *since* Modernity.
IV. Closing the debate about the possibility of a synthetic CUT/ANT concept of urbanization and the relation between urbanization and inequality, in particular, and approach to the four disputes in urban studies, more generally, by discerning five fundamental sources of incommensurability between both paradigms.
V. Articulating a new trajectory of an joint CUT/ANT research agenda to confront the four sources of scientific dispute by identifying new horizons for a CUT/ANT-inspired urban research for 21st century urban studies

Moreover, this research stresses that without deploying ANT as a study of urban science and the production of (critical) urban knowledge the manner in which urban theorists and urban scientific institutions (1) settle the four sources of scientific dispute in urban studies and (2) inform not only further urban theory and research but, importantly, also (3) urban policy interventions in practice in this respect (thus insofar these depend on an approach to the four sources of scientific dispute) will remain an arbitrary matter. As such, at the moment both the internal and external functioning of urban studies and, especially, (critical) urban theory (i.e. their 'scientificness' and societal relevance) are seriously impaired.

Societal contributions

While the relevance of this research is primarily scientific it also bears distinct societal contributions. Societal relevance primarily applies to macro (governmental) actors responsible for urban governance and policy. Societal relevance divided into two parts.

Societal relevance 1:

The first strand of societal relevance stresses the use of knowledge as a *means* to achieve certain *goals*. Urban theory is paramount to inform both further (empirical) urban research and concrete policy intervention and guidance 'on the ground'. Moreover, given the continued urban growth across the globe and the accelerating concentration of economic, social, cultural, political, environmental and ecological challenges and prospects in cities the need for adequate concepts and understandings of urbanization and the relation between urbanization

and inequality is becoming more important every day. Therefore, there exists a profound necessity not only to accumulate urban knowledge but especially to test and refine it.

Research found that the contemporary urban paradigms are ill-tested. For example, they do not register the quasi-objects in the construction of their respective entities of the nature of cities. Therefore, as this research demonstrated, they remain incapable of accounting for and solving the respective fallacies and contradictions in their respective approaches to the four sources of scientific dispute in urban studies. Even further, it found that so far the manner in which urban theorists and urban scientific institutions (1) settle the four sources of scientific dispute in urban studies and (2) inform not only further urban theory and research but, importantly, also (3) urban policy interventions in practice in this respect (thus insofar these depend on an approach to the four sources of scientific dispute) has been, in fact, an arbitrary matter.

By deploying ANT as an anthropological study of urban science this research has started to identified and inventorized the elements needed to articulate a more adequate approach to the four sources of scientific disputes in urban studies, more generally, and therewith to analyze the nature of cities and relation between urbanization and inequality, in particular. In extension, such an ANT-inspired urban research agenda can spur the production of urban knowledge and approach to the four sources of scientific dispute in urban studies itself. Thus, the core contributions of this research is that it enables the articulation of the ways in which urban scientists can device more adequate urban scientific means to achieve societal goals

Societal relevance 2:
The second contribution of this research is informed by the co-constitutions of scientific means and societal (political) goals. Urban practitioners endowed with the formulation of urban policy do not only rely on urban knowledge to design and motivate their policies to secure the positive externalities of agglomeration and prevent or mitigate its negative externalities. More importantly, they also need to weight different knowledge and ideas about (the same aspects of) urbanization, on the one hand, and mutually align societal and political goals and with scientific means, on the other. By virtue of its ability to disclose the relation between the internal and external functioning of urban science research that deploys ANT as an anthropological study of urban science is especially useful to adequately respond to both challenges. Moreover, it can increase democratic formulation of policy by including a polyphony of voices; not only adding lay people, but also nonhumans into the fray.

6.7 Implications for further research

The implications for further research are informed by the horizons of a joint CUT/ANT research agenda for 21st century urban studies and (critical) urban theory. This research stresses that further urban research in face of the four sources of scientific disputes regarding the nature of cities, more generally, and CUTs approach to urbanization and the relation between urbanization and inequality, in particular, requires the deployment of ANT as an anthropological study of urban science to describe and analyze how the scientific disputes in urban studies about (1) *the nature of cities*, (2) *urban epistemology*, (3) *social philosophy*, and (4) *the moral (in)viability of capitalist urbanization*, are settle in scientific practice.

This research agenda is not proposed with the intension to fully replace current urban studies, more generally, and the distinct approaches of CUT, TTUT and post-colonial urban theory to the four sources of scientific dispute on the nature of cities, in particular. Instead, it intends to complement and, where needed, rectify contemporary approaches to the four sources of scientific dispute in urban studies by deploying ANT to link the purified urban objects of the paradigms of CUT (but also TTUT and post-colonial urban theory) already assembled to the work of mediation co-constituting these respective entities. As such, these urban paradigms can continue as is. Their discrete urban scientific practices would serve as the phenomena under enquiry.

Moreover, research also stresses importance of contemporary strands of ANT-inspired urban studies so far. Although not immediately relevant with respect to the four sources of scientific dispute, more generally, and CUTs Urbanization Question and hypothesis of Planetary Urbanization, in particular, together both strands are developing a useful repository of the human-nonhuman entanglements co-constituting (aspects of) urbanization and continued urban viability.

With respect to exploring the potential contributions of ANT to CUTs approach to urbanization and the relation between urbanization and inequality the implications of research are more imperative. For example, it stresses maintaining CUT (neo)Marxist approach to the (re-)production of urban space but abandon its ideology critique and debunking of TTUT. Insists on attending to cities and urbanization before capitalism; and, rejects Brenner and Schmid's (2014) approach to the *sorites paradox.*

The research outcomes imply that the inquiry conducted for this thesis should be prolonged but with more sustained attention to:

I. Construction of the respective entities of the nature of cities: i.e. an anthropology of CUT and TTUT.
II. Construction of economic and spatial economic actants co-constituting TTUTs (but also CUTs) entity of the nature of cities: closer attention to the practices inherent to the field of (spatial) economics.
III. ANTs alternative approach to utilitarianism and anti-utilitarianism.
IV. The relation between the internal and external functioning of urban science: linking abstract urban concepts to concrete urban development and policy interventions.
V. The development of ANT-concepts of the nature of cities.

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Appendixes ommited