Figure 1: Barbican Estate by Chamberlin, Powell and Bon 1965–1976, sheltered resident playground below Seddon House, London 2017

I. Research as Situated and Critical Project

"The urban is defined as the place where people […] find themselves standing before and inside piles of objects, experience the intertwining of the threads of their activities until they become unrecognizable, entangle situations in such a way that they engender unexpected situations."
Lefebvre, Henri (2003 [1970]) The Urban Revolution, Minneapolis, p.39

"[…] the spatial turn stands for the insight that all spaces (architectural spaces, urban spaces, regions, nation states, bedrooms, recreation parks, river landscapes, etc.) are always also results of social production: not only in the sense that there are professions that plan and design these spaces, but also in terms of the challenging insight that spaces only become spaces for people inasmuch as they are—again and again and again—produced socially. In other words: the constitution of space is a performative act.

[…] How we perform the synthesis between objects, how we span the space between things and people is a highly conventionalized, objectified practice, one that is pre-structured by professions such as planning and architecture."
Löw, Martina (2016 [2001]) The Sociology of Space: Materiality, Social Structures, and Action. New York, p.vii

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1. Problems of Research in Architecture and Urbanism

1.1 Multiple Framings of Knowledge

The framing of knowledge influences the modes and methods used to produce new knowledge and the way knowledge is justified. It influences the systematics of knowledge organisation and maintenance, as well as the teaching, dissemination, and the possible relations between different bodies and forms of knowledge.

This research project is closely connected to the disciplines of architecture and urbanism. Research in these disciplines occupies different epistemological dimensions and produces and uses knowledge that is framed in different ways. Interpretative, critical and discursively generated forms of knowledge prevail in criticism, history and architectural theory; quantifiable and empirically tested forms of knowledge define the basis for technology-driven applications in architecture and urbanism; design knowledge is produced extensively, but not exclusively, in the design studio. The difference in the framing of knowledge is mirrored by the different meanings assigned to research terminology. If we speak of an experiment in a materials research laboratory, we mean something different than the experiment of developing a curriculum (Knoll et al. 2008; 2011) or the experiment in designing (Schön 1987, p.70), which again is different from the experimental implementation of a transdisciplinary real-world project (Hirsch Hadorn and Pohl 2008, p.117). Similarly, statements of 'truth' make sense in the programming of building construction software, but are of limited reach in the architectural design studio, for "a theory is never proven or legitimised in an architectural design, only tested or extended." (Spuybroek 2008, p.287). The iterative, non-linear and contingent process of designing represents a mode of knowledge production that is very different to the systematic routines of the scientific method (Cross 2001). Its outcomes are often temporary, fragile and therefore unstable. Conversely, architectural and urban practice involves, among other things, the integration of systematic technical and production-orientated knowledge. This knowledge is produced by specialists of various disciplines and the teams who work on the realisation of architectural and urban projects. As part of this process different technologies are developed and used, workflows and budgets are scheduled, monitored and organised, or compliance with standards and regulations is ensured.

Architecture departments typically accommodate different framings of knowledge, "cultures of knowledge" (Biggs and Büchler 2011, pp.68f), or "knowledge landscapes" (Dunin-Woyseth and Nilsson 2011, p.80). In this academic space, the rationality of technology meets discursive analysis and the reflection-in-action of design (Schön 1987). The different framings of knowledge do not occur in isolation and co-exist with each other. Priority might be given to one framing over the other, depending on the perspective, research problem and discipline/sub-discipline involved, but we usually find them entangled. The general research outline issued by the Architecture Department at TU Darmstadt in 2009 and reprinted as an editorial in the architectural theory magazine "Generalist" suggests that research in architecture, to which I propose to add research in urban and landscape design, has to integrate different framings of knowledge, methods, and actors, without the reassurance – and the constraints – of working within the scientific system (Fachbereich 15 TU Darmstadt 2009):

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> "Architecture is a design discipline. Designing is a methodology for solving complex problems, which […] requires empirical and theoretical analysis of the design constraints, but which cannot itself assert a claim to being a scientific method. […] The questions raised in architecture come from neither a single discipline of knowledge nor do they permit themselves to be defined as purely interdisciplinary problems. [Hence it] […] needs the interaction of various methods and instruments, and it seeks, with a view to the specifics of the project, interdependencies among technical, economic, ecological, and societal developments. Whereas the process of traditional research takes place exclusively within the scientific system (either within a discipline or between disciplines), this (transdisciplinary) approach to research decidedly integrates participants from social, non-university, and project-specific practice, and it aims to produce use-oriented solutions and effects with social relevance." (ibid., p. 4).[1]

The complex non-linear and creative activity of design has been the subject of theoretical and self-reflexive enquiries since architecture and urbanism were established as disciplines, yet it is only recently and gradually that a research-by-design approach has been recognised by institutions as a form of research in its own right, and more specifically, as an academic form of research (Dunin-Woyseth 2005; Verbeke and Jakimowicz 2009). However, while design-led research is gaining in significance, which includes the spreading of "design thinking" into other fields and disciplines (Wolfrum and Janson 2016, p.10), there seem to be growing doubts as to whether the integrative capacity of design still holds. In "The Mutual Limits of Architecture and Science", Kenneth Frampton criticises the analytical fragmentation of architectural questions and asserts that "[…] comprehensive synthesis […] remains the field's ultimate mandate." (Frampton 2000, p.368) John Fernandez observes that "clear and strong divisions between design and technology (and by the way, criticism, history and visual studies and others) have resulted in both productive and debilitating shifts away from the generalist center of design." (Fernandez 2006, p.16) The discipline's technical rationality is itself subjected to a continuous process of transformation. On the one hand, it has benefited from new technologies and ever growing capacities in the processing of data. On the other hand, research problems have increased in scale and complexity. Empirical-scientific methods deployed in other disciplines continue to feed into architectural and urban research, in particular from engineering and from fields concerned with the physicality of architectural and urban production, such as materials sciences, energy and environmental control, traffic modelling, robotics in construction, surveying, but also from the social sciences, or from economics for the managing of budgets and workflows. Processes of differentiation require architecture and urbanism to integrate a growing number of sub-disciplines and growing amounts of specialist knowledge. Like other disciplines, they seek to respond to the demand for 'verified'

1 Some of the positions on research in architecture that emerged in the Architecture Department at TU Darmstadt were debated in the panel discussion "Forschung in der Baukunst", which was held at BTU Cottbus on 03.02.2010, with Adeline Seidl, co-editor of the Generalist magazine, being part of the panel. Other guests included: Rainer W. Ernst (Muthesius University of Fine Arts and Design, Kiel), Karen Eisenloffel, Heinz Nagler, Wolfgang Schuster (all BTU). The session was moderated by Dagmar Jaeger (BTU).

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information from the private sector, local authorities, policy agencies and the political domain.

Where different framings of knowledge interact with each other, fundamental questions about ontology, epistemology, methods, and possible conflicts between them have to be addressed for each research situation anew. Architectural and urban knowledge serves different and at times contradictory ends. Its presuppositions, applicability and theoretical range need to be assessed and communicated by those who produce and use the knowledge. With reference to social theorist Andrew Sayer's concept of "naïve objectivism" (Sayer 1992, cited in Brenner, Madden and Wachsmuth 2011, p.233), Neil Brenner et al. point to the potential fallacies of uncritical modes of analysis, in which researchers "[…] presuppose that the 'facts' […] speak for themselves rather than requiring mediation or at least animation through theoretical assumptions and interpretive schemata." (ibid.)[2]. Research is related to and influenced by its supporting institutional frameworks. The multiple framings of knowledge in architectural and urban research raise difficulties, not only in terms of methodological and epistemological complexity, naïve objectivism, the practical challenges of working with and managing different forms of knowledge, or the frequent problem of making choices, but also in terms of how research is evaluated by institutional bodies[3]. Research expert Halina Dunin-Woyseth suggests in her paper presented at the colloquium "The Unthinkable Doctorate" held in Brussels in 2005[4], that

> "[…] architectural research does not fit naturally into the classification of the traditional academic disciplines even if faculties of architecture are incorporated as separate disciplines in the institutions of higher education. One of the prime reasons for this is the issue of assessing the quality of architectural research." (Dunin-Woyseth 2005, p.86)

From outside the discipline, and on a more general level, the Bologna reform has started a process of critical repositioning of research in the design disciplines (ibid, p.91)[5], which not only encompasses the level of doctorates, but the entire system of academic architectural education (Knoll et al. 2008; 2011). Given the dynamic environment in which architectural and urban knowledge is produced and applied, new configurations for research and further diversification will occur. Their critical reflection and the positioning of research in relation to them is a continuous process. Hence, research in architecture and urbanism cannot be considered a routine or pre-given

2 I return to this problem at a later stage when I connect to Bruno Latour's proposition of a paradigmatic shift away from "matters of fact" towards "matters of concern" (Latour 2005, p.39). For the rejection of naive objectivism in Reiner Keller's "The Sociology of Knowledge Approach to Discourse" see (Keller 2011a, p.271).

3 Non-university agencies that allocate funding and coordinate research projects, for example the DFG (Deutsche Forschungsgesellschaft) in Germany, are challenged by the different framings of knowledge and modes of knowledge production in similar ways as the university department.

4 Professor Dr. Johan Verbeke, then head of the research department at Sint-Lucas School of Architecture in Brussels, kindly provided me with the proceedings of the colloquium during a conference held at Sint-Lucas in 2011. Very sadly, Johan Verbeke unexpectedly passed away in 2018.

5 Halina Dunin-Woyseth assumes a dual perspective based on the situation in the doctoral programme at Oslo School of Architecture, and the recommendations as formulated in the Bologna-Berlin Process for future doctoral research in Europe (Dunin-Woyseth 2005).

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process. The presence of different kinds and framings of knowledge needs to be addressed if naïve objectivism and compartmentalised discourses are to be avoided. However, rather than perceiving this as an impediment to research, I share the view of the critics and researchers who take multiplicity as a resource to work with, in particular if we understand urban issues as something that cannot be grasped in isolation and from a single perspective.

1.2 Separation of Macro and Micro Scales of Conceptualisation

Regional development plans, zoning plans, urban design and architectural detailing establish a hierarchy of control levels, which are distributed across different scales. Each scale is controlled by different actors and authorities. Each scale deals with different aspects of the built environment. The process of specialisation and compartmentalisation – in the political domain, in social and economic organisation, in the professions and universities – further contributes to the establishment of hierarchies and affects the way actors work with each other. Henri Lefebvre observed in the 1970s that the problem of separation between the architectural, urban and regional levels in the professions produce conditions where "[…] neither common projects nor theoretical continuity are possible." (Lefebvre 1991 [1974], p.12) Kenneth Frampton reaffirms a decade later that "[…] the split between architecture and urban development has led to a situation in which the possibility of the former contributing to the latter and vice versa […] has suddenly become extremely limited." (Frampton 2007 [1980], p.9) Differentiations within the professions, increasing levels of complexity and a drifting apart of methodologies between disciplines continue to contribute towards the widening of the gaps. Formalised representations of spatial organisation are part of this process. Here, the political dimension of scales becomes visible. As reductive abstractions of spatial reality, plans represent a limited number of aspects – and exclude others. Large scale plans have the tendency to smooth over differences and contradictions, and, by means of their integrative capacity, pass on this tendency to smaller scales, that is, to different levels of power. The hierarchy of scales enables institutions that work on large scale plans to exert control over lower scales. Institutionalised representations of space, which are produced within dominant practices and discourses, might thus appear as pre-givens on the lower scales. A reverse directionality is initiated whenever this process is made explicit and power relations are called into question. The exclusion of either large or small scales creates blind spots pertaining to the instrumental continuity between scales, as well as the potential conflicts within the system.

Neil Brenner argues that the detachment of research focussed on small scale phenomena from research concerned with large-scale sociospatial processes, geopolitics and geoeconomics, has contributed towards a crisis in urban theory and urban sociology (Brenner 2013, pp.90–94 and p.97). Brenner identifies the "analytical black-boxing" (ibid., p.93)[6] of what he refers to as "context of context" (ibid., p.92) within the realms of (micro-)contextual and place-based practice as being symptomatic of this tendency (ibid.)[7]. According to Brenner, insufficiently defined concepts and "[…] the

6 Brenner uses the expression "analytically 'black-boxed'" (ibid.).

7 Neil Brenner explicitly refers to research activities based on actor-network concepts as pioneered by Bruno Latour, and research drawing on the notion of "assemblage" as conceptualised by Gilles Deleuze.

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fragmentation of urban realities in everyday political-economic and cultural practice is being replicated relatively uncritically within the discursive terrain of urban theory." (ibid.) With reference to Kenneth Frampton's (2000, p. 368) criticism of architectural research, I suggest that the problem of rejecting "macrostructural forms of argumentation" (Brenner 2013, p.92) has to also be dealt with in architecture. The jumping over or ignoring of intermediate scales, and the assuming of an 'external' position represent two variations of the bracketing out problematic. Confronting the phenomenon of Parisian banlieues and suburbanisation, Henri Lefebvre observed in 1968 that "[…] sociological thinking and political strategy, and so-called planning thought, tend to jump from the level of habitat and to inhabit (ecological level, housing, buildings, neighbourhood and thus the domain of the architect), to the general level (scale of land use planning, planned industrial production, global urbanization), passing over the city and the urban." (Lefebvre 1996 [1968], p.123) The possibility of empirically reconstructing and following interactions across different scales is at the base of Lefebvre's proposition to move analytically, in urban analysis, "[…] from the most general knowledge to […] the city and conversely, particular and specific knowledge of urban reality to its global context" (ibid., p.105). Lefebvre's analytical focus embraces micro and macro, specific and global, in a double movement through different scales and times. His notion of movement suggests that, complementary to rupture, there is the possibility of continuity. Arguing along similar lines, Edward Soja asserts that "the appropriate response to the micro vs. macro choice is thus an assertive and creative rejection of the either/or for the more open-ended both/and also… ." (Soja 2000 [1996], p.310) Venturini, Jensen and Latour argue that the micro-macro perspective, if it is used in models that assume agents at the local level to be incapable of understanding processes at the macro level, may result in the privileging of positions external to both levels (Venturini, Jensen and Latour 2015, para. 1.5). It gives power and control to those who observe and analyse collective phenomena from the outside – scholars, modellers and external public officials – and it raises expectations that the initiatives for change and propositions for the restructuring of patterns of interaction should be brought forward by the neutral, observing outside, rather than by individuals or groups that act in the situation (ibid.). We see such dynamics operating in mediated planning processes in which external agents are expected to provide the larger picture, adjust the rules-in-use for better outcomes, or assist in the production of a consensus that is then supposedly more appropriate to the situation than if it was developed through the creative and self-reflective, but prejudiced, capacity of the participants themselves. Criticising reductionist simulations based on "thin concepts" (ibid., para.1.9), Venturini, Jensen and Latour assert that "[…] contrarily to what most social simulations assume, collective action does not originate at the micro level of individual atoms and does not end up in a macro level of stable structures." (ibid.) They emphasise the two-way continuity between scales and the intricate and heterogeneous nature of the network through which actions are distributed (ibid., para. 1.11). Yet whatever complexity the tools or models we apply to our analysis may assume, there are limits to what we can know about the city. In view of this problematic, Edward Soja suggests that "understanding the city must involve both views, the micro and the macro, with neither privileged, but only with the accompanying recognition that no city – indeed, no lived space – is ever completely knowable no matter what perspective we take" (Soja 2000 [1996], p.310).

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In multi-scalar thinking problems are related to each other across different scales. Conceiving a perspective that emphasises the analytical continuity between the extremes, and that neither privileges the micro, nor the macro, nor assumes an external position, may help us to develop a deeper understanding of urban processes. I readdress these issues upon assembling the methodological assumptions of situational analysis further below, as well as in my discussion of control levels in the field of change.

1.3 Institutionalised Dominance of Static Space

Architects, urbanists and the planning professions work with multiple ideas of space and integrate new perspectives on space into their concepts. However, their work is situated within institutionalised frameworks that have at their base an understanding of space as neutral and static entity. Hence, it seems that despite the efforts being made to revise and further develop ideas of space, we are confronted with the tendency in architecture, and maybe to a lesser degree in urbanism, to engage with the problems of space in over-simplified ways.

In the introduction to this thesis, I have argued that change is an ever present condition in the urban environment; that change is influenced by collective human action and of the processes humans conceive to structure their lives and the world; and that urban practice, as well as theory, are challenged by the dynamic nature of cities. Outlining an urban sociology for the twenty-first century, Manuel Castells asserts that "spatial transformation must be understood in the broader context of social transformation" (Castells 2002, p.11). According to Castells, "space does not reflect society, [...] it is a fundamental dimension of society, inseparable from the overall process of social organization and social change." (ibid.) To what extent, then, do established instruments and frameworks accommodate social and transformative dimensions in their conceptualisations of space? While the reality of post-industrial and post-growth restructuring projects as well as the spatial turn in the social sciences led to a rethinking of the urban condition as dynamic and open process (Selle 1994; Fezer and Heyden 2004; Ministerium für Landesentwicklung und Verkehr des Landes Sachsen-Anhalt 2010), we could argue that participants in institutionalised forms of architectural and urban practice continue to work with the all-pervasive model of Euclidean space, which defines space as an empty container into which objects and subjects may be placed and related to each other through measurement. Within this space, the Cartesian coordinate system is fixed to an assumed origin of space, which rests on itself and controls what is around it. Movements are described by means of vectors that are locked in position and follow the Euclidian operations of translation, rotation or reflection. The space thus defined is coherent, static and neutral. Like time, it is understood to be free of ideology and of subjective bias.

Static space can easily and accurately be reproduced in plans and physical models. It is used for quantifying space, for establishing property rights, for controlling the distribution of uses, for eliminating conflicts, in short, for conventional zoning and planning. It has shaped the instruments through which institutions and professions control and organise space today. The practicability of working with static space, along with the routines established around it, including our learnt perception, reinforces the claims of the model to represent space 'as it is'.

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Henri Lefebvre argues this kind of reduction and abstraction of reality is directly related to the commodification of space and the requirements of exchangeability (Lefebvre 1991 [1974], pp.337f, p.341). He highlights the contradictions in the resulting urban environments, which embody multiform fragmentation on the one hand and the striving towards homogeneity on the other (ibid., p.287). Lefebvre seeks to sensitise us to the far reaching effects of leaving aside the temporal and unstable dimension of space, of eliding the differences that contribute towards the production of space, of ignoring human agency and intentionality, of defining political problems of space as problems of engineering, of ignoring the hegemonic and stabilising structural effects which are reproduced with abstract space, of leaving aside the dimension of the everyday and the close-knit web of interactions and human relations that unfold in space and that co-produce space. He argues for a reconceptualisation of space as an extension of human agency, as site and means of intervention, action and change. He proposes an analytic "[…] shift from *things in space* to the actual *production of space* […]" (emphasis in original, ibid., p.37) wherein actors combine their critical conceptualisations of space with the realisation of "counter spaces" and the development of alternative urban practices (Lefebvre 1991 [1974], pp.381f, p.419).

Since Lefebvre formulated his ideas in the 1970s, many critical projects have been conceived that approach space differently. Concepts of spatio-temporality have informed new ways of thinking about the built environment (Harvey 2000, pp.182ff). Process-oriented framings of spatial interventions have been proposed and tested (Heinemann and Schmidt 2004; raumlaborberlin, Maier and Heidelberger Kunstverein 2008; Wolfrum and Brandis 2015). Institutionalised frameworks and models of space are increasingly challenged by groups and actors who see the opportunity to (re-) connect their spatial agendas to the social and political, and in this way to strengthen the impact and relevance of their work. They demand established processes be opened up to accommodate different ways of 'doing' urbanism and architecture (Awan, Schneider and Till 2011).

1.4 Positioning of Theory in Relation to Material and Social Worlds

Jane Jacobs suggests that "When we deal with cities we are dealing with life at its most complex and intense." (Jacobs 2011 [1961], p.372) The work of architects and urbanists routinely engages with material and social issues. If their work exceeds certain levels of complexity, they cooperate with specialist consultants, sometimes with engineers, who advise on structural stability and the physicality of materials, and sometimes with sociologists, who advise on questions of the social. Based on the institutionalised division of labour they reproduce – unintentionally – what Latour criticises as the "bifurcation" of reality (Latour 2005, p.38), in particular if the specialists emphasise the incommensurability of their domains. This bifurcation separates "the social, or the mind" from "the material, or the natural" (ibid., p.34). Latour argues that the sciences are caught up in modes of enquiry that fail to add to what is given in experience as a result of this condition, and further, that they tend to disqualify what is given in experience (ibid., p.24f). In view of the reductionist perspectives produced in this way, Latour suggests that "what is important to remember is that bifurcation is unfair to both sides: to the human and social side as well as to the non-human or 'natural' side […]" (ibid., pp.15f). Theorising about the epistemological relationship of architecture and soci-

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ety, sociologist and architectural theorist, Albena Yaneva observes similar reductionist effects in cases where one side is used to explain the other (Yaneva 2012, p.37). We could further claim that reductionisms in architecture are connected to the tradition of generating systematising bodies of knowledge, as for example in typology studies, or more recently, in parametrically defined urban models. These approaches seek to control complexity on the basis of predefined categorisations, which often results in the exclusion of issues that do not fit the methodology and the systematics of categories.

However, the growing sensitivity for the mutual relationship of the spatial and the social, in combination with the availability of digital means of analysis and representation, has helped to establish a series of new research perspectives. The emphasising of relational aspects in all things produced by humans has influenced actor-network theory, assemblage or situational analysis. In the recent past, we have seen the emergence of a series of architectural and urban research projects that seek to overcome, implicitly or explicitly, the division between the material and social worlds, by means of raising questions that transgress traditional disciplinary boundaries (Harnack 2012; Hebert 2012; Heiler 2013; Wolfrum and Brandis 2015). Similar tendencies are at work in the social sciences, where the sociocentric perspective, with its exclusive focus on interaction or communication, gives way to perspectives that put more weight on materiality, space or the human body (Delitz 2009; Stenberg and Fryk 2012; 2014; Löw 2016 [2001]). In choosing to leave the safety of compartmentalised thinking, they open up new trajectories for architectural and urban analysis. Theorising about the constitution of space, sociologist Martina Löw suggests that

> "The observable processes of space constitution in modern society can only be explained when space and society are not defined as two separate realities. If space is defined as uniformly given, then change seems to involve dissolution and destruction; if space is conceived as territory, then society is lost from sight; if space is equated with the actual place, the macrosociological perspectives are inconceivable. It is only when the systematic division between space and action is overcome and space (or spaces) are recognized as social products that it will be possible to understand the various dimensions of constitution." (Löw 2016 [2001], p.103)

It seems that a new generation of research is reemphasising the connectedness of the spatial, the social and the material in different fields. Not only has the spatial turn in the social sciences established new perspectives on the spatiality of the social, it has also opened up new ways for architectural and urban theory to (re-)connect to the social sciences. Perspectives based on relational concepts of space share the understanding that materialities are consequential. In doing so, they connect to the constructivist paradigm in sociology which offers a theoretical framework for the relationship between the material and social worlds. Peter L. Berger and Thomas Luckmann argue in the conclusion to their 1966 classic "The Social Construction of Reality. A Treatise In the Sociology of Knowledge", that humans, or in the words of Berger and Luckmann, "man" is

> "[…] predestined to construct and to inhabit a world with others. This world becomes for him the dominant and definitive reality. Its limits are set by nature, but once constructed, this world acts back upon nature. In the dialectic between nature and the

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> socially constructed world the human organism itself is transformed. In this same dialectic man produces reality and thereby produces himself." (Berger and Luckmann 1966, p.183)

If we understand "reality", or rather, "realities"[8] as a contingent product of collectively sustained processes, we acknowledge that they are in constant transition. This means that architecture, as one aspect of reality produced by humans, cannot be assumed to be static. An understanding of architecture that takes into account the consequential aspects of materiality, as well as the effects of social action on space and on the material world, is not trapped in the opposition of architecture and society. In doing so, it gains access to a whole set of new questions, through which it may challenge reductionist approaches to space and the ontological bifurcation of the world.[9]

2. Learning from Criticisms of Scientific Knowledge Production

2.1 Shared Histories of an 'Aesthetics of Matters of Fact'?

At the outset of this chapter, I addressed the co-existence of different framings of knowledge in architectural and urban research, together with the implications, problems and possibilities this may raise. I concluded that research in architecture and urbanism is not a pre-given site, routine or process. Based on the understanding that the way the sciences are perceived in general also affects the understanding of research in architecture and other design-led disciplines, I propose to include in my methodological outline the criticisms of the production of scientific knowledge by Karl Popper, Thomas Kuhn and Bruno Latour, among others. Rather than restating their arguments, I concentrate on the concepts which I believe are related to the kind of research I intend to pursue and that are in this sense of relevance for the epistemological and methodological positioning of this research project. I also establish parallels between architecture's and urban sociology's shifting claims to scientificity.

There is a long tradition of relating architecture to art, and a more recent tradition of relating architecture to science. What seems to be a contradiction in classification gives expression to the shared epistemological foundations of the two fields. Enquiring into the nature of empiricism and its origins, Bruno Latour suggests that the mimetic relation of copy and model, as a concept, migrated from the arts to the sciences (Latour 2005, p.41f). According to Latour, art and science jointly contributed to an "aesthetics of matter of fact" as it emerged during the 16th century in parallel with the growing interest in the representation of nature (ibid., p.15). Alan Colquhoun observes that "in the Renaissance both the aesthetic and the constructional codes became subject to systematic theory, and art and science were harmonized through the epistemology of a geometric universe." (Colquhoun 1971, p.87) With the formation and separation of engineering as a new academic discipline during the 19th century, architecture

8 Upon arguing the everyday to represent the "dominant" form of reality (Berger and Luckmann 1966, p.21), Berger and Luckmann propose humans have the capacity to distinguish between "multiple realities" (ibid.).

9 I take up this argument in the section "From Matters of Fact to Matters of Concern" below.

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effectively lost a core component of its research base – the 'firmitas' as conceptualised by Vitruvius. It responded either by re-emphasising its status as a form of art or by institutionalising research in the newly created polytechnics alongside the faculty of engineering. In building practice, architecture claimed a role that integrates and coordinates other disciplines. During this period we see architectural and urban observations and systematisations in the discipline improve in precision and evolve in parallel to debates on style, aesthetics and social issues. Further reorientations occur during the 1920s with the modernist movement's call to introduce technological and scientific principles to the design process. The Bauhaus contributes to this agenda, in particular during the directorship of Walter Gropius and Hannes Meyer (Droste 1991, pp.60f and p.193)[10]. In 1926, Walter Gropius asserted that "the Bauhaus workshops are essentially laboratories in which prototypes of products suitable for mass production and typical of our time are carefully developed and constantly improved." (Gropius 1926, p.96)[11] The architects who signed the 1928 La Serraz founding declaration of the Congrès Internationaux d'Architecture (CIAM), including Hannes Meyer and Ernst May, claim that "through educational work carried out in schools, a body of fundamental truths could be established forming the basis for a domestic science (for example: the general economy of the dwelling, the principles of property and its moral significance, the effects of sunlight, the ill effects of darkness, essential hygiene, rationalization of household economics, the use of mechanical devices in domestic life. etc.)" (CIAM 1928, p.111). The advocates of this perspective declared architecture to have finally become scientific and the design studio a laboratory. In 1929, on the occasion of the CIAM 2 congress in Frankfurt, which was dedicated to the problem of the 'Minimum Dwelling', Le Corbusier and Pierre Jeanneret demanded customs and traditions in architecture be left behind "[…] to seal new pacts in the scientific world and in that of large-scale contemporary production." (Le Corbusier and Jeanneret 1929, p.33)

> "Everywhere, in everything, in our daily research, we lack scientific certainty. Physics and chemistry are the territories which we must prospect in the search for sufficient truths." (emphasis in original, ibid.)

During this period we see similar tendencies in the social sciences and urban sociology, which sought to improve on their epistemology by aligning themselves with the scientific-positivist paradigm by "[…] developing an elaborate set of assumptions about the making of sociology as a science parallel to the natural sciences" (Clarke 2005, p.28). At the beginning of the 20th century, the many different practices and local cultures emerging in rapidly growing cities shifted into the focus of social research. Urban eth-

10 Magdalena Droste observes that during the fourteen years of its existence, the thematic and pedagogic orientation of the Bauhaus had shifted from the dualism of art/craft towards art/technology under Gropius and Moholy-Nagy (Droste 1991, p.60), before the art component gave way to social, economic, political and scientific concerns under Hannes Meyer. By then, architecture was considered a product of collaborative effort and scientific analysis (ibid., p.193). Within this general development, parallelisms seem to have existed. For example, upon reflecting on his teaching at the Bauhaus, Moholy-Nagy explicitly states that the material studies conducted in his course were non-scientific in nature, aiming at reconciling art and technology (Moholy-Nagy 2001 [1929], p.21) .

11 The curriculum of 1925 speaks of "praktische Versuchsabteilungen" (Droste 1991, p.136)

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nographers studied these social phenomena on their doorsteps, most prominently the loose network of researchers around Robert Park in Chicago, a city which was then one of the busiest places in the United States and a generator of social, technological and economical change (Häussermann and Siebel 2004, p.45; Gieryn 2006). Thomas Gieryn suggests that the Chicago School[12] pursued a dual epistemological approach based on the concepts of "field-site" and "laboratory" (Gieryn 2006, p.7ff). On the one hand, the concept of field-site enabled researchers to define the phenomena under study as "*naturally occurring* – not made up in the course of inquiry" (emphasis in original, ibid., p. 13). On the other hand, the concept of laboratory meant that the findings could be assigned a degree of universality through which they could be transferred to other cities (ibid., p.10). The dual perspective established an epistemological framework that oscillated between field and lab, found and made, here and anywhere, immersed and detached (ibid., p.11). Gieryn observes that "untroubled by relativism or ideological distortions of Truth, Chicago School members took for granted that the city of Chicago possessed an a priori, external and objective reality discoverable and describable by systematic scientific methods." (ibid., p.7)[13]

In Europe, modernist building and planning principles – rationalised and scientifically legitimised – were applied at unprecedented scale with the onset of postwar [re-]construction and urban restructuring. The state of crisis that was to follow[14] produced different, to some extent opposing reactions, which in turn influenced the choices available for architecture's relations to science. In some responses, architects exploited newly developed or hypothetical technologies in combination with elements of pop culture. Buckminster Fuller, Archigram, the Metabolists or Yona Friedman, among others, worked with this approach. Others assembled around the Design Methodology Movement during the late 1950s through to the 1970s, which sought to

12 Häussermann and Siebel speak of a network of researchers sharing similar views rather than of a narrowly defined "school" (Häussermann and Siebel 2004, p.45). Thomas Gieryn acknowledges the major influence Robert Park and Ernest Burgess had on the school during its heyday, but points to the different stages of the school's development and the resulting difficulties of speaking of "the" Chicago School (Gieryn 2006, p.8). It is not to be confused with the Chicago School of architecture, which is usually associated with Mies van der Rohe at the IIT.

It is now well understood that the different strands of urban sociology and ethnography did not develop in isolation. Robert Park, when already an experienced urban journalist and holding a degree in philosophy, attended some of Simmel's lectures on sociology in winter term 1899/1900. Häussermann and Siebel suggest that Park might have been less interested in the dichotomy of urban and non-urban human behaviours as studied by Simmel, but rather in the idea of society being constituted by multitudes of different relations (Häussermann and Siebel 2004, p.45). Thomas Gieryn also mentions Ferdinand Tönnie's conceptualisation of 'Gemeinschaft' and 'Gesellschaft' to have influenced ideas about "[…] the mosaic of small traditional villages that comprise (not without disruption, and pain) the modern big city." (Gieryn 2006, p.9)

13 Adele Clarke takes as an example the Normal Curve to illustrate the kind of interpretative bias involved in the research designs of the early scientific strands in the social sciences: "While the fringes or margins are literally contiguous with the centre, we are led to assume they are not constitutive of the 'normal'." (Clarke 2005, p.24) The field is smoothed out and variations are graphically positioned at either "end", suggesting them to constitute "opposites" rather than parts of the same process (ibid.),

14 Here I refer to the accounts of architectural history by Norbert Huse (2008) and sociologist Tilman Harlander (1999, p.253). See also the controversy about the Pruitt–Igoe housing estate, built in St. Louis, Missouri in 1956, demolished in stages between 1972 and 1976 (Jencks 2011, p.26).

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replace that which was conceived as unscientific intuition in the design process with a more systematic approach derived from systems theory and mathematical models (Frampton 2000, p.357; Cross 2001). Cedric Price and systems theorist Gordon Pask proposed deploying cybernetics to approach architectural problems during the early 1960s (Price 2003, pp.69ff; Mathews 2005). Since the 1980s, the Space Syntax methodology by Bill Hillier and others has employed mathematical tools for the analysis of space (Hillier 2007 [1996], p.1). While some understand the postmodern turn as a move away from the undisputed authority of the sciences, towards more complex and pluralistic notions of architecture (Jencks 2011, pp.40ff), technology and the sciences have never ceased to be an inspiration for architects. The gradual takeover of "Digitalism" (Colletti 2011) and the application of information technology in all domains of architectural activity, seems to have resulted in further changes in architecture's relations to science. This embraces questions of method and practice, as well as the speed and extent to which new ideas are shared. Addressing the relationship of architecture to science and art today, Bill Hillier suggests that

> "Architecture […] is both art and science in the sense that it requires both the processes of abstraction by which we know science and the processes of concretion by which we know art. […] It is the fact that the architect designs with the spatial stuff of living that builds the science of architecture into the art of architecture." (Hillier 2007 [1996], p.7)

2.2 About Raising New Questions and Taking a Risk

During the period when modernism and its goal of establishing scientific standards in architecture and urbanism emerged, philosopher of science Karl Popper developed a critique of science[15] based on the analysis of the production of scientific knowledge. Popper published his work under the title "Logik der Forschung" in Vienna in autumn 1934[16], but it was not until 1959 that the English translation titled "The Logic of Scientific Discovery" (Popper 2002b [1934]) brought this part of his work to a wider audience. By then he was already well known for his enquiry into political philosophy and his critique of historicism. In "Open Society and Its Enemies", published in 1945 while in exile in New Zealand (Popper 2013 [1945]), Popper argues that essentialist views of history and the belief that history unfolds according to universal laws contribute to the formation of totalitarianism in societies. Returning to the sociology of knowledge and to the critique of scientific knowledge, Popper published "Conjectures and Refutations" in 1963 (2002a [1963]), which consists of an anthology of papers and lectures written by Popper between 1937 and 1960. Although Popper has predominantly written for the scientific community and for scholars in the philosophy of science, some of his ideas found their way into the work of theorists concerned with architecture, urbanism and design. In particular his juxtaposition of the utopian model and incrementalism, and his concept of the open society have been widely taken up in architectural and urban

15 In this critique, Popper partly excludes mathematics and logics, to which he refers to as "pure sciences" (Popper 1953, p.67, p.83).

16 The imprint states 1935. For information on translation and date of publication, see Popper (2002b, p.xii).

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theory (Rowe and Koetter 1978, p.122; Selle 1994, pp.49ff; Sennett 2007, p.5[17]; Rieniets, Sigler and Christiaanse 2009, p.25). His concepts of "critical attitude" (Popper 1953, p.64) and learning from past mistakes seem to offer further connections for design-related forms of knowledge.

Popper's criticism of observationalist-inductivist empiricism and of inductivist generalisation as scientific method takes as a starting point the view that positive outcomes in an experiment can never conclusively verify a scientific theory – there could always be the yet undetected exception or anomaly challenging the theory (Popper 2002b [1934], p.3ff). Accordingly, in the preface to "Conjectures and Refutations" Popper summarises his conceptualisation of scientific knowledge as follows:

> "The way in which knowledge progresses, and especially our scientific knowledge, is by unjustified (and unjustifiable) anticipations, by guesses, by tentative solutions to our problems, by *conjectures*. These conjectures are controlled by criticism; that is, by attempted *refutations*, which include severely critical tests. […] Criticism of our conjectures is of decisive importance: by bringing out our mistakes it makes us understand the difficulties of the problem which we are trying to solve." (emphasis in original, Popper 2002a [1963], pp.xi-xii)

In this paradigm, the most thoroughly developed method, research approach, theory or design proposition sooner or later become questionable. They are temporal in character and are eventually replaced, through a process of criticism and testing. Popper suggests that "the most important function of observation and reasoning, and even of intuition and imagination, is to help us in the critical examination of those bold conjectures which are the means by which we probe into the unknown." (Popper 1960, p.37). According to Popper, research endeavours that are refuted have not been made in vain. Refutations do not 'nullify', but rather open up new trajectories for research. Based on this chance to build upon past experience and the view that research should focus on the pressing problems of the present, Popper advocates pragmatist problem solving rather than addressing the speculative problems of a distant utopia (Popper 1947, pp.485f). The 'learning from our mistakes' is central to Popper's notion of tradition, for Popper observes that "[…] the tradition of critical discussion is the only practicable way of expanding […] our conjectural and hypothetical knowledge" (Popper 1958, p.204). Ralf Dahrendorf, who refers to Popper's concepts in many of his writings, expands on this idea and applies it to human activity beyond the scientific domain, using the term "Entwurf" (design) (Dahrendorf 1986 [1967], p.II). He stresses that trial and error contribute significantly to the advancement of knowledge (ibid.) and demands, accordingly, that there should always be controversy about the assumptions that inform knowledge and collective actions (ibid.). This relates to Popper's proposition that social and political goals cannot be determined scientifically (Popper 1947, p.482) and that decisions on ends need to emerge from discursive realms beyond science (ibid.). Implicit in this view is the idea of the critical scientist, who engages in this discourse as an active member of the open society.

17 Richard Sennett mentions Karl Popper in one of the versions of "The Open City" (Sennett n.d., p.5). Further connections in this version of the text are made to Charles Darwin, Niklas Luhmann's concept of autopoiesis (ibid.), and the criticisms of Jane Jacobs (ibid., p.6), among others.

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Pertaining to the question of when a theory qualifies as scientific, Popper establishes, with reference to ancient Greek philosophy, the distinction between the "dogmatic" and "critical attitudes" (Popper 1953, p.64). Popper suggests that the propensity in humans to detect regularities in the environment, and to project expectations and laws upon nature could be subsumed as "dogmatic behaviour", and the corresponding mode of thought as "*dogmatic attitude*" (emphasis in original, ibid.). This kind of knowledge seeks to exclude observations and propositions that are not in line with the expectations (ibid.). Following Popper, the dogmatic provides stability and protects approximations from being prematurely rejected (ibid.). The "critical attitude", Popper argues, emerged as an alternative in non-dogmatic schools of thought[18] and evolved further through cycles of cultural practice (ibid.). Similar to its dogmatic predecessor, the critical school draws from myths, expectations and hypotheses, but it is prepared to question, modify, or reject them (ibid., p.65). In the critical tradition, a theory is passed on together with the encouragement to critically engage with it and improve upon it (ibid., p.66).

If we were to position the productions of architecture and urbanism within Popper's model of the dogmatic and critical, we would, perhaps, find most of them drawn towards the dogmatic, for many of the activities in this field are concerned with the (re-)production of pre-defined outcomes. The corresponding research is directed towards known and widely recognised problems. It is preoccupied with optimisation and practical innovation within given frameworks, with the identification of best-practice projects, and typically includes the search for practical applications of technologies that have emerged in other disciplines. The kind of operational criticism prevailing in this dogmatic field seeks to increase efficiency, profitability and predictability. However, we may also find a number of decidedly critical productions. The critical is not reluctant to challenge existing frameworks and inherited ideas. In critical enquiry, the wider framing is seen as part of the problem under examination. Both orientations, the dogmatic and the critical, rarely occur in pure form. Architecture and urbanism occupy a field where the dogmatic and critical meet. As noted in the section on knowledge production, research in architecture and urbanism can choose whether to emphasise and work towards optimisation and efficiency, whether in this sense to follow the dogmatic route of a pre-defined project, or whether to emphasise the critical and in this way be challenged by epistemological openness. Different orientations are justifiable, for the critical relies on the dogmatic as its prime target, and the dogmatic needs criticism to maintain its capacity to deliver efficiency and reliable solutions to the multitude of recurrent standard problems that architecture and urbanism have to address every day. If seen through the lens of Popper's criticism, research in architecture and urbanism thus offers a series of different routes, each with its specific possibilities and limitations. As indicated by the title of this chapter, and explained in greater detail at a later stage, this research project follows a critical approach in which non-standard, non-predefined questions are raised and worked with.

Finally, Popper's proposal for judging the quality of a theory could be adapted to establish an indicative benchmark for a research project. In Popper's view, the scientific significance of a theory is defined by its explanatory power and the way it stands

18 Popper suggests that the school established by Thales was the first of its kind which did not pursue the preservation of a dogma (Popper 1953, p.67).

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up to and relates to criticisms (Popper 1958, p.209). Popper claims that on the level of theory "[…] we do not prefer *every* non-falsified theory—only one which, in the light of criticism, appears to be better than its competitors […]" (emphasis in original, Popper 1953, p.74). Correspondingly, Popper proposes a clearly defined distinction between what he conceives as interesting, or uninteresting theory. He suggests that "[…] every interesting and powerful statement must have a low probability; and *vice versa*: a statement with a high probability will be scientifically uninteresting, because it says little and has no explanatory power" (emphasis in original, Popper 1953, p.77).

In summary, the series of methodological and epistemological principles of Popper's theory of knowledge may inform the setting-up of a research design in architecture and urbanism with the following objectives: to learn from past mistakes as well as existent criticisms of non-dogmatic examiners; to test new research results against past solutions, together with the claims of established theories; and to look beyond known problems and the framings associated with them. In line with Popper, it is justifiable for research to 'take a risk' because concepts with lower probability are more interesting, and because attracting criticism is prerequisite to the process of learning.

2.3 Instability of Scientific Knowledge and its Movement 'Away From'

The discontinuous development of the sciences are the subject of a series of key analytical and interpretative writings, which have produced doubts about the stability of scientific knowledge itself. Three years after the English translation of "The Logic of Scientific Discovery" by Karl Popper had been published (Popper 2002b [1934]), Thomas Kuhn initiated a controversy with "The Structure of Scientific Revolutions" (Kuhn 2012 [1962]). Kuhn's sociology and history of science suggests that scientific research is determined, governed and legitimised by temporal paradigms shared by scientific communities. The paradigm defines the types of problems that are admitted to the scientific process and provides the directions for solving them. Preceded by phases of crisis during which anomalies are accumulated, paradigms replace each other periodically through scientific revolution (ibid.)[19]. Imre Lakatos, a former disciple of Popper, takes both Popper's and Kuhn's propositions further and speaks of "research programmes" rather than research paradigms, whereby multiple research programs may coexist next to each other. The stabilising mechanism that enables continuity despite pressures of change in this model is defined as a "protective belt", which consists of "auxiliary hypotheses" that are placed around the "hard core" of the programme ('protective belt' and 'hard core' in single quotation marks in the original, Lakatos 1978, p.4, pp.48ff).

Thomas Kuhn suggests that the sciences, during recurrent intervals of crisis and transition, depend on the making of decisions that do not fully rest on scientific principles and that seek orientation in normative categories, such as the "future promise" of a theory (Kuhn 2012 [1962], p.156); that this process is framed by conditions of

19 In a similar way, for Michel Foucault "[…] these sudden take-offs, these hastenings of evolution, these transformations which fail to correspond to the calm, continuist image" (Foucault 1980, p.112) are periods during which new "regimes" (ibid.) of scientific truth are established through controversy and the reciprocal effects of knowledge/power, blurring the certainty of what "governs" (ibid.) scientific statements and how statements govern each other (ibid.).

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exceptional confrontation and criticism (ibid., p.147); and that the sciences move away from the concepts that have failed to provide satisfactory explanations of the world (ibid., p.170). Philosopher Ian Hacking highlights in his 50th anniversary introduction to Thomas Kuhn's "The Structure of Scientific Revolutions" that the moving "away from" seriously challenged the view deeply embedded in the Western tradition that the sciences would follow a rational path of progress "towards" truth in the sense of an all-embracing account of nature and of the world (Hacking 2012, p.xxxv). After the idea of directionality in the development of nature had been questioned by Charles Darwin more than a hundred years earlier – not without lasting opposition (Beer 2008, pp.xxvi–xxxii)[20] – Kuhn felt the need to raise the question whether it would "[…] really help to imagine that there is some one full, objective, true account of nature and that the proper measure of scientific achievement is the extent to which it brings us closer to that ultimate goal?" (Kuhn 2012 [1962], p.170). The ensuing controversy about scientific relativism is indicative of how challenging the idea must have been at that time.

Similarly, architecture and urbanism seem to struggle recurrently with their own crises of directionality. Popper's rejection of "utopian rationalism" (Popper 1947, p.484), which is based on the view that pursuing utopian ideals results in different degrees of violence in the long term (ibid.), entered architectural and urban theory where it has produced a dilemma. In their broad discussion of utopia in architecture and urbanism, Colin Rowe and Fred Koetter highlight the capacity of 'ideal cities' and utopias to make visible the gap between the actual and the possible and to provide visions of alternative futures (Rowe and Koetter 1978, ibid., p.49). Rowe and Koetter responded by distinguishing between utopia as blueprint "prescription" and utopia as "metaphor" (ibid., p.123)[21], which enabled them to acknowledge the problematic of the blueprint while rescuing utopia as an operative model for architecture and urbanism. They suggested that the model, despite its obvious orientation towards the future, also connects with the past and with memory (ibid., p.49). If we relate this proposition to Thomas Kuhn's concept of movements in the sciences, and to the Popperian 'learning from our mistakes', it may define a movement 'away from' the shortcomings and failures of our past architectural and urban concepts, and, at the same time, a movement 'towards' a contingent future that is negotiated within an open and therefore contested field of possibilities. Positioning an architectural and urban research project within such a construct makes explicit that other ways of "doing architecture" (Awan, Schneider and Till 2011) are possible. It is in this context that the role of the researcher as "critical examiner" (Popper 1960, p.37) becomes political, that the researcher enters a discursive arena, and that established research and design routines need to be questioned and put to the test. We could claim that, if research in architecture and urbanism seeks to detach its research object, method or output from such questions, on the grounds of a proclaimed scientificity and dogmatic attitude, it omits an important aspect of research work. And further, if it seeks to work from behind a protective belt to stave off

20 Discussing this problematic in the introduction to Charles Darwin's "On the Origin of Species", Gillian Beer refers to Creationism or Intelligent Design as alternative, directional conceptualisations of evolution.

21 Rowe and Koetter use the term metaphor together with, or exchangeably with, "image" (ibid., p.14) and "prophecy" (ibid., p.48), or "reference" (ibid., p.14) or "model" (ibid., p.48).

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criticism[22], it may find it difficult to connect to issues of relevance beyond the narrow confines of a discipline.

2.4 From 'Matters of Fact' to 'Matters of Concern'

Recent controversy about post-truth politics (German 'postfaktische Politik') has highlighted the problematic of arguing on the basis of facts. The construct of the post-truth/factual emphasises the instrumental ignorance of facts on the one hand, while asserting the credibility of facts on the other. However, problems with the latter arise if facts are used as if they speak for themselves – an issue repeatedly analysed and criticised by Bruno Latour in publications and a series of lectures and papers (Latour 2004; 2005; 2008). Based on his analysis of how we produce and use scientific knowledge today, Bruno Latour argues that we should replace the taken-for-granted attitude towards "matters of fact" with the less naïve and less innocent concept of "matters of concern", which does not negate the political dimension and the tendencies of scientific practice (ibid.). In this alternative concept, scientific research is understood as an activity that is closely tied to the conditions in which it takes place, rather than following a linear and autonomous progression of knowledge. For Latour 'matters of fact' are the result of an "[...] amazingly narrow, specialized, type of scenography using a highly coded type of narrative, [...] a very precise repertoire of attitude and attention." (Latour 2005, p.38) Latour understands 'matters of fact' as being located within the artificiality and peculiarity of the scientific model, and as having originated from the epistemological distinction between 'primary' and 'secondary' qualities of objects in the tradition of early empiricism (ibid., p.13). According to this distinction, primary qualities are properties of objects that are independent from the observer and her perception, as for example motion, geometry and other properties related to the Newtonian concepts of space and time. As they are considered to exist in the object itself, this view claims that they can be determined with certainty and that they represent objective facts. Properties that rely on sensory experience in the observer, such as colour and sound, are defined as secondary properties. According to early empiricist view, this experience is connected with subjective judgement and cannot provide objective facts (ibid., pp.12f).[23]

Latour suggests typical problems and misunderstandings of this distinction to include the assignment of primary qualities to the human as if it was a category of objects (naturalisation) (Latour 2005, p.15), as well as a reductionist attitude towards objects, through treating them as being defined exclusively by their material aspects (ibid., pp.15f). He further suggests that although postmodern criticisms and deconstruction have significantly broadened the scope of critical enquiry, in particular of the concepts of modernity, these criticisms did not succeed in liberating themselves from the modernist divide between what was "social, symbolic, subjective, lived and what was material, real, objective and factual" (Latour 2008, p.6).

22 Patrik Schumacher demands such a protection for what he terms "avant-garde style" respectively "avant-garde research" (Schumacher 2010, p.280).

23 Latour traces back the distinction of primary and secondary qualities to the works of Galileo and John Locke (Latour 2005, p.12), and builds upon criticism formulated by Alfred North Whitehead and Gabriel Tarde, as well as Williams M. Ivins (Latour 2005).

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Latour refers to the proposed shift in attitude as "second empiricism" – as opposed to the first empiricism handed down through the history of science (ibid.). He suggests that "we don't have, on the one hand, a harsh world made of indisputable matters of fact and, on the other, a rich mental world of human symbols, imaginations and values" (Latour 2005, p.38). Latour argues that if it is acknowledged that "science is *adding itself* to the world" (emphasis in original, Latour 2005, p.24), a shared territory may be established in which the sciences represent one possibility – among others – "to fold oneself inside" the "flow of experience" (ibid.), rather than accelerating its reduction and disqualification (ibid.). Central to this second empiricism is Latour's concept of 'matters of concern', for which he provides the following analogy: "A matter of concern is what happens to a matter of fact when you add to it its whole scenography, much like you would do by shifting your attention from the stage to the whole machinery of a theatre." (ibid., p.39) Thus, 'matters of concern' come together with information about how, and for which purpose, knowledge is being produced, because "[…] they distinguish clearly the population of those for whom they matter." (ibid., p.47). While 'matters of fact' give authority to those who claim to be in the possession of indisputable knowledge – to "shut the dissenters' voice down" (ibid., p.39), 'matters of concern' build upon dispute and acknowledge the political dimension of objects and artefacts (ibid., p.47). In this sense, 'matters of concern' do not claim to be ahistorical and immune to change.

On the occasion of a keynote lecture given at the "Networks of Design" conference, Bruno Latour suggests that the distinction between 'matters of fact' and 'matters of concern' could be more clearly made through the concept of 'design'.

> "When things are taken has having been well or badly designed then they no longer appear as matters of fact. So as their appearance as matters of fact weakens, their place among the many matters of concern that are at issue is strengthened." (Latour 2008, p.4)

According to Latour, there is a transitory aspect in designing, a link to shifts in possibilities and fashions (ibid., p.5). "Designing […] is an antidote to hubris and to the search for absolute certainty, absolute beginnings, and radical departures." (ibid.) Political theorist Chantal Mouffe takes Latour's proposition further, suggesting that the work of designing, of composing and decomposing, is "[…] eminently political [for] it does not take place in a neutral terrain in which the observers could impartially decide if things have been composed in a 'good' or 'bad' way." (Mouffe 2013, p.81)[24] Mouffe proposes that conflicting interests in this process have to be understood as articulations of hegemonic and counter-hegemonic struggles (ibid.). Despite these differences in the foregrounding of the political, Mouffe asserts that they both "[…] broadly belong to the same epistemological camp […]" (ibid., p.80). They both seem to agree about the crucial role of criticism in reproductive processes, be it as 'design' or the more politically orientated "articulation" according to Chantal Mouffe (ibid., p.81). Being critical of criticism, Latour asserts that criticism itself has contributed towards the bifurcation of the world. In his essay "Why Has Critique Run out of Steam? From

24 In the article "Parteiisches Design" Jesko Fezer establishes a series of connections between Chantal Mouffe's conflict-centred perspectives and designing, and emphasises the distinction between politics and 'the political' (Fezer 2018, pp.165ff).

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Matters of Fact to Matters of Concern" Latour seeks to raise awareness for the effects of criticism on that which is criticised (Latour 2004). According to Latour, the self-affirmative routines prevailing in the social sciences have led to a crisis of "the critical landscape" (ibid., pp.237ff), which led him to the formulation of an alternative that is supposed to add to the criticised, rather than subtracting from it:

> "The critic is not the one who debunks, but the one who assembles. The critic […] offers the participants arenas in which to gather. The critic is not the one who alternates haphazardly between antifetishism and positivism[25] […], but the one for whom, if something is constructed, then it means it is fragile and thus in great need of care and caution." (ibid., p.246)

For Chantal Mouffe, this concept of criticism does not reach far enough. While for Latour the "adding of scenography" is an epistemological means to see the world as being constructed together with all the supporting machinery attached, Mouffe's interest is more in the machinery itself. In Mouffe's view, Latour's framings remain too narrowly defined, which, according to Mouffe, results in "[…] disempowering political effects because they preclude the possibility of revealing and challenging power relations." (Mouffe 2013, p.81) For Mouffe, criticism is a device to bring about change. Mouffe and Latour both seem to share the view that the production of knowledge cannot be considered a self-evident process. They demand research be accompanied by criticism; they also demand research problems be more broadly conceived, so as to include critical reflection on the enquiring self and the situatedness of the research project. In this way, research and theory have their blind spots, political tendencies, or otherwise silently accepted presumptions openly addressed, so that they can be approached as 'matters of concern'.

3. Assembling Architectural and Urban Research Perspectives

3.1 Approaching the Urban as Open Construct

Urban theorist Neil Brenner suggests that "the urban is a theoretical construct [and] not a pregiven site, space or object" (Brenner 2013, p.96). With reference to my previous remarks on the problems of research in architecture and urbanism, we could assert that urban research is not a pre-given site or self-evident process. In this sense, Brenner emphasises the significance of making explicit how the urban is approached in research, since

25 As part of his analysis, Latour provides the following definitions: "Antifetishists debunk objects they don't believe in by showing the productive and projective forces of people; then, without ever making the connection, they use objects they do believe in to resort to the causalist or mechanist explanation and debunk conscious capacities of people whose behavior they don't approve of." (Latour 2004, pp.240f) According to Latour's analysis, the two strands of criticism are strategically held separate and used at will by the critic, according to his or her momentous tactics (ibid.).

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> "[…] questions of conceptualisation lie at the heart of all forms of urban research, even the most empirical, contextually embedded, and detail orientated. They are not mere background conditions or framing devices but constitute the very interpretative fabric through which urbanists weave together metanarratives, normative-political orientations, analyses of empirical data, and strategies of intervention." (ibid.)

The conventions and frameworks shared in a research community exert a significant influence on the type of questions that are raised or excluded (Biggs and Büchler 2011, p.66). The way the urban is conceptualised has influence on our choice of methods, the scale and depth of enquiry, the type of knowledge we seek to generate, and the envisaged nature of possible outcomes. According to Brenner, conceptualising the urban and the positioning of research within this conceptualisation become critical steps that have to precede any empirical and specific engagement with the urban domain (Brenner 2013, pp.96f). One of the first tasks, then, is to theoretically address the urban and to position the intended research accordingly. In order to distinguish the urban from the city, and process from built form, Henri Lefebvre draws a conceptual connection between movement and openness, and rejects the idea that the urban could be approached as closed and static object.

> "The urban phenomenon is made manifest as movement. Therefore, it cannot achieve closure. The centrality and the dialectical contradiction it implies exclude closure, that is to say, immobility." (Lefebvre 2003 [1970], p.174)

It seems apparent that such an understanding of the urban cannot work on the basis of pre-defined concepts and methodologies that strive for closure. If, for the purpose of research, the urban is abstracted as a "zone of thought, representation, imagination, or action" (Brenner 2013, p.96), how far will we travel if the urban is limited by our imagination and projections alone? What does it mean, from the perspective of methodology, to think in terms of openness rather than in terms of demarcation and closure? How can we work within this paradigm, and how can we establish an argumentation, a research project? Pertaining to these questions, if we define as our point of departure the urban as a zone of thought which is essentially open, we will have to conceive of ways to exploit its potentiality while addressing the many conceptual and methodological challenges that come along with this decision.

3.2 Reframing Critical Theory as Critical Urban Theory

On the occasion of the "Cities for People, Not for Profit" international conference held at the Centre for Metropolitan Studies (CMS) in Berlin in 2008, Neil Brenner discussed the framework for a critical urban theory which connects to concepts that originated in the work of philosophers Max Horkheimer, Theodor Adorno, Jürgen Habermas and others (Brenner 2012, p.18). This discussion does not seem to be self-evident, for Bruno Latour suggested in 2004 that critical theory, as represented by the Frankfurt School, "[…] died away long ago". And indeed, the demolition of the iconic AfE Tower[26] in Frank-

26 The 32-storey, 116 m AfE tower (acronym for 'Abteilung für Erziehungswissenschaft') accommodated from its opening in 1972 until 2013 seminar rooms and offices of the Social Science and Education

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furt in 2014, former academic home to members of the Frankfurt School, does not suggest it could have been otherwise. However, since the days of the Frankfurt School, the concepts of critical theory have migrated to other fields of enquiry, including architecture and urban theory. With the fading of the tradition in philosophy, these strands of critical theory found themselves challenged by the task of advancing the theory from within their disciplines on the one hand, and by means of connecting to each other on the other. Kenneth Frampton, for example, in the introduction to his history of modern architecture, highlights the significance of the ideas of the Frankfurt School for his work as a historian (Frampton 2007 [1980], p.9), as well as for the (re-)politisation of academic research in general. Pertaining to the relationship between architecture and scientific-empirical modes of knowledge production, in "The Mutual Limits of Architecture and Science", Frampton demands that research and architectural practice be confronted with critical theory so that "[…] whether we like it or not, the interface between architecture and science returns to the political." (Frampton 2000, p.368) However, to speak of a clearly demarcated critical theory in architecture and urbanism would be misleading, for there is no single point of reference, no 'school', or unified discourse. Critical theory in this field may be conceived as a shared attitude, as a research perspective which may be used "[…] as a varied terrain in which to reconfigure architecture and its theorised interpretations." (Borden and Rendell 2000, p.16) Neil Brenner provides some orientation in this varied terrain by identifying, among the many sub-concepts of critical theory and with recourse to the root concepts developed by the Frankfurt School, a series of assumptions that could inform a contemporary, reframed critical approach to urban and architectural research (Brenner 2012, pp.15–19). He suggests that:

1. Theory is to be considered as embedded within time/space of history and mediated through power relations. There is no privileged and neutral standpoint, for which reason theory needs to be reflexive. "Critical theory **is reflexive.**" (emphasis added, ibid., p.15)
2. Theory requires a degree of autonomy and abstraction that allows criticism to operate beyond the constraints posed by the immediate and the specific. "Critical **theory is theory.**" (emphasis added, ibid.)
3. The generalisations of means-to-ends rationales, which are aimed at improvement and efficiency without interrogating the dominant systems in which they operate, and which they ultimately reproduce, need to be questioned. "Critical theory entails a **critique of instrumental reason.**" (emphasis added, ibid.)
4. And finally, the critical approach builds upon the fractures and contradictions within the social totality to formulate possibilities for alternative and emancipatory realities. "Critical theory emphasises the disjuncture between the **actual and the possible.**" (emphasis added, ibid.)

departments at Johann Wolfgang Goethe University, the academic home of the Frankfurt School. It was designed by the federal architecture department of Hessen and was related to architect Ferdinand Kramer's restructuring plan for the university campus. Kramer, former member of Ernst May's 'New Frankfurt' team and living in exile in the United States since the late 1930s, had been appointed university architect by then rector Max Horkheimer. The concrete tower acquired an iconic status as a site of student protests and political action.

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Brenner emphasises that the reflexive capacity of the critical approach is instrumental in its adaptation to new problems and new questions that are continuously produced in the urban domain (ibid., p.18). With reference to the writings of Peter Marcuse, Brenner suggests that this capacity has enabled the critical approach to shift its theoretical orientation from the abstract, as the initial domain of the Frankfurt School, towards the more concrete issues of social change and urban transformation (ibid.).

Based on the considerations brought forward in this and the following section, I propose taking the critical perspective to support and inform the "interpretative fabric" (Brenner 2013, p.96) through which issues are approached in this research project. For this purpose, I refer to and draw from the works of theorists who are associated with a critical perspective on urban problems. They have different theoretical orientations, they do not share the same methods and would probably not use the label of critical urban and architectural theorist; what these theorists have in common, however, is their interest in raising inconvenient questions, in interrogating systems of dominance, and in proposing connections where none have been seen before. The texts to which I refer at various stages for this purpose include, but are not limited to, the writings of Henri Lefebvre and David Harvey together with texts that relate directly or indirectly to their theories and analyses, for example by Neil Brenner, Christopher Dell, Jesko Fezer, Christian Schmid, Edward Soja, the writings of Michel Foucault, and the writings of Bruno Latour and Adele Clarke on the critical reframing of methodologies and research problems. With regard to the interpretative fabric through which to approach space, I refer to Henri Lefebvre's writings on the social production of space, and, among others, to Martina Löw's theoretical framework for a relational concept of space.

3.3 Making a Difference

Addressing the practical consequences of the critical approach, Ian Borden and Jane Rendell assert that "any critical theory aims not only at the understanding of the world but also at the simultaneous transformation of both itself and that world 'beyond' theory." (Borden and Rendell 2000, p.13) The critical perspective in architecture and urbanism seeks to make a difference to spatial practice. Neil Brenner suggests that,

> "Rather than affirming the current condition of cities as the expression of transhistorical laws of social organization, bureaucratic rationality, or economic efficiency, critical urban theory emphasises the politically and ideologically mediated, socially contested and therefore malleable character of urban space – that is, its continual (re)construction as a site, medium, and outcome of historically specific relations of social power." (Brenner 2012, p.11)

If critical research seeks to make a difference, it can look to design, or designing, as a potential ally. To design means to work with, and exploit, the malleable character of the urban. Design is an activity that engages with the construction and reconfiguration of urban and architectural spaces. This raises the question of what the relationship between research, design, and urban and architectural practice consists in. Addressing the difficulties of challenging the gap between the real and imagined in design, Tomás Maldonado, former director of Hochschule für Gestaltung (HfG)

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Ulm suggested in 1972 that the designer has to address the constituents, politics and constraints of planning processes (Maldonado 1972, p.52).[27] Maldonado, like Frampton, Borden and Rendell a few decades later, highlights the significance of a critical attitude when it comes to designing, suggesting that "Those who allow that design activity be conducted without recourse to a heightened critical consciousness - ecological or social - always end up departing from the specific reality of the situation."[28] (Maldonado 1972, p.48, own translation) According to Maldonado, innovation and utopian propositions should be measured against their feasibility (ibid). For this purpose theory should be rooted in both utopian and real world realms, and should be based on sets of realisable actions (ibid). Maldonado emphasises the need to maintain both theoretical and practical operability in conditions of change. Drawing on the writings of Tomás Maldonado and critical planning theory of the 1970s, theorist and urbanist Jesko Fezer formulates a proposition for the [re-]framing of design in architecture:

> "An architecture that strives for social relevance has to deal with how the complexity of social dynamics can be grasped and on what levels and with what methods one can approach them. Precisely because planning operates within a complex and contradictory social space, it articulates, positions, modifies, limits or represses intrinsic social desires and conflicts. It is precisely this that can be understood as the intentionality of architecture and planning - as a design attitude."[29] (Fezer 2007 p.61, own translation)

Hence, speaking of a critical attitude in design means to connect to critical strands of research, to acknowledge its capacity to critically reflect on itself as a practice and its relation to dominant modes of production. Conversely, speaking of a critical attitude in architectural and urban research means to acknowledge its potential relevance for design, and therefore for the design of change. The critical perspective in architecture and urbanism emphasises the mutual relationship of research, design and the political. Despite the difficulties individuals and collectives experience when they combine a critical theory approach with a project, a growing body of work is dedicated to precisely this field. The authors of "Spatial Agency. Other ways of doing Architecture" speak of this work as a "critical practice" (Awan, Schneider and Till 2011, p.29), where

27 Tomás Maldonado's text "Environment and Revolt" (Umwelt und Revolte) (Maldonado 1972) is discussed in the German magazine "form und zweck" (1991) vol. 2+3 and more recently in Jesko Fezer's "Deprofessionalisierungstendenzen" (Fezer 2011). Fezer discusses Maldonado's theory of "scientific operationalism" in relation to design methods and participation.

28 Translated from German: „Wer darin einwilligt, dass Entwurfstätigkeit ohne den Beistand eines geschärften kritischen Bewusstseins – ökologisches oder soziales – ausgeübt wird, endet immer damit, aus der je besonderen Wirklichkeit auszuwandern." (Maldonado 1972, p.48)

29 Translated from German: "Eine Architektur, die um gesellschaftliche Relevanz bemüht ist, muss sich damit auseinandersetzen, wie die Komplexität gesellschaftlicher Dynamiken erfassbar ist und auf welchen Ebenen und mit welchen Methoden man auf sie zugehen kann. Gerade weil Planung innerhalb eines komplexen und widersprüchlichen sozialen Raumes operiert, faltet sie immanente soziale Begehren und Konflikte auf, artikuliert sie, bringt sie in Stellung, modifiziert sie, begrenzt sie oder verdrängt sie. Gerade das kann auch als Intentionalität von Architektur und Planung verstanden werden – als Entwurfs-Haltung." (Fezer 2007, p.61)

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Figure 2: "The arrival city needs the best schools", German Pavilion at the 15th International Architecture Exhibition 2016, by Deutsches Architekturmuseum (DAM) general commissioner and director Peter Cachola Schmal, curator Oliver Elser, and project coordinator Anna Scheuermann

the agent "[…] is one who effects change through the *empowerment* of others, allowing them to engage in their spatial environments in ways previously unknown or unavailable to them, opening up new freedoms and potentials as a result of reconfigured social space." (emphasis in original, ibid., p.33). In the process, the spatial competence of designers connects with the spatial competence of participants and users, forming a joint space of learning and collective action. Critical urban and architectural practice seeks to make a difference and work towards practical change.

3.4 Adding Urban Action: Pushing the Limits of What We Can 'See' in the City

Many different disciplines share the understanding that the built environment holds information about the conditions and processes that have contributed towards its production. These include archaeology, anthropology, architectural theory, conservation, building history, cultural studies, geography, urban studies, to name but a few. From this perspective the built environment is understood to "[…] mirror the attitudes of past and present generations […]" and to "[…] reflect the increasingly diverse and often conflicting preferences of numerous (and unequally influential) social groups." (Hassenpflug, Giersig and Stratmann 2011, p. 25) In the architectural and urban disciplines researchers and architects like Kevin Lynch (1960; 1972), Gorden Cullen (2010 [1961]), Robert Venturi (1992 [1966]), Colin Rowe and Fred Koetter (1978), Aldo Rossi (1982 [1966]), Rem Koolhaas (1994a [1978]), John Habraken (2000), and others, have pioneered environmental analysis in new ways of reading and interpreting the 'thick' information available in cities. In their work, morphologic, morphogenetic and typological research has established a systematic view of the historic city (Moudon 2004). Forms of urban analysis based on computational models, such as the space syntax methodology (Hillier 2007 [1996]), or the more politically oriented forensic architecture approach (Weizman 2012a; 2012b) continue to share the view that the built environment can

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be conceived as complex and ever changing recording and storage device for different kinds of information. Some of these perspectives assume that if they look closely enough, they will identify and subsequently be able to manipulate specific situations in the built environment through which they may connect to past and present ideas, to rituals and dreams, to social conditions and practices of the everyday. Other perspectives hope to see forms of organisation beyond the visible pattern of space, of hidden rules, of silent forms of domination. However, the multiple stories embedded in the built environment do not tell us what or how to see. Nor do they speak to us directly. The information has to be identified, decoded and interpreted. We necessarily bring previously formed knowledge and preconceptions to the practice of interpretation, for we cannot decipher information without making assumptions about the code. Our capacity to see defines what and how we see. It also defines what we cannot see. The knowledge we thus produce is fragmentary and incomplete. Problems of this kind are examined in semiology, but they seem to be of general relevance for any analysis that seeks to access information recorded in the built environment.[30]

Connecting to the work of Kevin Lynch, urbanist and theorist Thomas Sieverts refers to the city "[…] as the common product of the 'hardware' of the real, physical environment and the 'software' of perception and use. In the process of comprehending the city, both the 'hard' and the 'soft' world cannot be separated […]" (Sieverts 2003 [1997], p.101). In this configuration, experiencing, using and interacting with the city is seen as an active part of the construction of the city. Hence, if urban and architectural analysis engages with urban phenomena by looking exclusively at the 'hardware' of the city, such as buildings, infrastructure, urban form, technical aspects or environmental conditions, it will elide the fields "where the action is" (Goffman 1967; Dellwing and Prus 2012, p.9)[31].

Pertaining to the question of who, or what, acts upon the built environment, Hassenpflug et al. suggest that "apart from various professional groups (such as architects, investors, entrepreneurs, local politicians, members of municipal administrations, artists, etc.), it is the differing forms of citizens' collective action that contribute to shaping the physical and social appearance of urban spaces." (Hassenpflug, Giersig and Stratmann 2011, p.25) If we understand the city as the product of social, economic and political processes which are established and negotiated through collective human action, architects and urbanists cannot assume the study of built form, structure, or the study of the work of architects is sufficient for developing an understanding of urban reality. While walking through Baltimore, as well as observing Boston from Federal Hill, David Harvey speaks about what we can hope to see of urban reality in the built environment – if we look hard enough – and what will be hidden from view if we do not ask the right questions and if we do not look at the prevailing social and political conditions at the same time (Harvey 2000, pp.133ff; 2001, pp.128ff). Likewise, Henri Lefebvre suggests that, "for conflicts to be voiced, they must first be perceived, and this without subscribing to representations of space as generally conceived." (Lefebvre 1991 [1974], p.365). But how can we develop an enquiring architectural and urban

30 I would like to thank Tak Hoshino for having raised this issue in a conversation about urban analysis.

31 The term was coined by sociologist Erving Goffman in the late 1960s as part of his research in the field of symbolic interactionism.

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Figure 3: Finishing touches to the large mirror installation 'Dalston House' by artist Leandro Erlich in Ashwin Street prior to the public opening, London 2013

perspective on the built environment beyond the standard representations of architecture and urbanism? How can we enrich the scope of what we can see in the city?

New and sophisticated ways of representing and analysing the city as well as space itself have emerged since Kevin Lynch conceived his image-of-the-city approach. Architects and urbanists have sought to further develop and expand their repertoire of urban analysis together with the many other disciplines that engage with built environments. Our understanding of the built environment is constantly changing with the emergence of new problems and new questions, which, if we refer to Ian Borden and Jane Rendell "[…] offers the chance to see architecture as something other than buildings, compositional techniques or architect-based practices" (Borden and Rendell 2000, p.8). They suggest that, if we assume architecture is entangled with the material and ideological aspects of urban power, then, in order to more fully understand architectural practices, "[…] it is necessary to look at other arenas, other theoretical territories." (ibid.) It is thus incumbent on us to look into areas in which power relations are generated and negotiated, that is, into social process and action. But how can we add to architectural and urban enquiry an analysis that translates into human action? A possible theoretical framework for this undertaking is provided by Martina Löw's sociology of space in which space is conceptualised as "relational arrangement of social goods and people" (Löw 2016 [2001], p.134) and "spacing" and "operation of synthesis" as the simultaneous key processes through which space is

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constituted (ibid.)[32]. In asserting the need for and the epistemological advantage of working with relational concepts of space, Löw suggests that

> "[…] changes to the phenomena of space can only be understood when we cease to assume two different realities—on the one hand space itself, on the other social goods, people, and their actions […]. Thus, if space is not the rigid background of actions, but rather integrated in the context of action, then a changing practice of the organization of proximity can be brought into focus." (Löw 2016 [2001], p.226)

Architecture and urbanism are among the practices that organise proximity. Martina Löw's proposal that we relate space to action and vice versa provides a different perspective on the organisation of proximity, and therefore architectural and urban practice. Pertaining to the analysis and conceptualisation of cities, Martina Löw argues that

> "Cities are generally viewed from a structural level. […] It is still the case that not enough work has been done on the question as to how, for example, a city develops in action, that is, how Cologne, Hamburg, or Munich become a city for people who act." (Löw 2016 [2001], p.216)

The question of how cities develop in action is related to process, to shifts in spatial arrangements, to conflict and change. If we return to the idea of connectivity between scales, we could say that the above criticism and perspective could be applied to spatial arrangements at lower levels, such as a housing estate or spaces of the everyday, as well as higher levels, for example in the strategic (re-)positioning of cities in conditions of global competition. In either case, the process will be based on collective action, for

> "The constitution of spaces in action is not as a rule done in isolation, but takes place in processes of negotiation with other actors. Negotiation of power structures is an immanent aspect of this process." (Löw 2016 [2001], p.191)

Based on these premises, I seek to raise new questions by means of combining architectural and urban theory with an empirical enquiry into urban action. In doing so, I hope to expand our critical view of architectural and urban productions, and push the limits of what we can 'see' in the city. Adding to architectural and urban research, an analysis of process and action raises methodological difficulties that have to be carefully addressed, but which, I believe, are offset by the chance to connect the material and social worlds in research rather than separating them, for the benefit of a richer, and thicker understanding of urban space and of architectural reality.

32 In the German original text, published in 2001, Martina Löw uses the phrase „relationale (An)Ordnungen sozialer Güter und Menschen", respectively the terms "Spacing", as in the later English version, and "Syntheseleistung" (Löw 2015 [2001], p.158).

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3.5 Multi-site Research Approach

In the preceding sections, I have argued for a mode of research that combines the study of the material world with an analysis of urban action; I have argued for an approach to the urban as an open construct; I have proposed that research in architecture and urbanism evolves around multiple framings of knowledge, and that the work of these disciplines connects to non-academic practice and process-based bodies of knowledge. All these postulates suggest that research problems in architecture and urbanism extend across different sites, together with the knowledge and the data related to them. Irrespective of research projects being organised within multidisciplinary, transdisciplinary, or other frameworks, issues about how disciplines choose to relate to each other have to be addressed, as well as the situation of dispersed knowledge, the availability of different sources of data, the potential conflicts between them, or the complexity of research questions. The challenges related to multi-site research are in this sense similar across the disciplines. Pertaining to the situation in the social sciences Adele Clarke observes an

> "[…] increasing need for what is now being called multisite research—projects that examine multiple kinds of data from a particular situation of inquiry, including discourses. This involves diverse approaches that move us away from single–site, intensive, immersed ethnographies or interview studies of the past. Today we seek to better capture the increasingly complex, diffuse, geographically, discursively, and/or otherwise dispersed aspects of research topics of interest to scholars in the social sciences, humanities, and professions." (Clarke 2005, p.165)

Researchers need to think about what kind of data to gather, how and where to look for them, how to decide on their significance, and how to organise and integrate heterogeneous types of data so that they become productive (ibid., p.167). The degree of openness during the search for sites determines whether important information is collected or missed. On the other hand, if there is insufficient focus in the approach, researchers might find it difficult to defend their argument (ibid.) Also, as "it is rare that one can determine 'all' the 'proper', 'best', 'possible/feasible' sites in advance" (ibid., p.167), Clarke suggests that in multi-site research "one must, of course, reserve the right to add and/or delete additional sites later." (ibid.) Certain decisions as to the structure of the project, the sequencing of sites, the methods applied, or even the ultimate focus of the project may not have been made at the outset of the research process. Because of the multiple possibilities to choose from, there is no standard model to which multi-site research projects could refer. Consequently, if research is pursued as multi-site research, it needs to align its modes of enquiry with the specifics of each site, and with the specific development of the project. In the multi-site approach, a research project tends to be a multiple-methods project.

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4. Grounding the Project: Situational Analysis and Grounded Theory Methodology

4.1 Turning to Social Science Methodologies: Situatedness of Research Problems

Architectural and urban research share with research in the social sciences the problem of working within 'fields' of enquiry. The field is a concept that has been at the base of research in the social sciences since social anthropologists and ethnographers began to directly engage with social phenomena. In ethnography, the field is "where the action is" (Goffman 1967); it is where the world is produced in collective processes – through actions, fixations and negotiations of meanings. The field is therefore the primary site of ethnographic analysis, for making first-hand observations, for 'doing' research through techniques of immersion and intersubjective participation (Dellwing and Prus 2012, p.53), and for "hanging around" (Shaffir, Dietz and Stebbins 1994, p.40; Kling and Kurbasik 2018, pp.283f).

The writings of Bruno Latour and others suggest that the deconstruction of modernism's epistemologically effective "envelopes" (Latour 2008, pp.8f) has led to a new understanding of the field and of research contexts. According to this new understanding, knowledge does not evolve along a single and linear trajectory of progress that points towards a final perfection. Research problems are rather seen as part of specific situations, as are the researching agents and the research process; research problems are situated within a complex web of relations, interactions, contradictions and contingencies. With the questioning of modernist 'envelopes', situations and fields of enquiry ceased to be conceivable as pre-given. While the 'envelope' had been instrumental for the production and maintenance of hard demarcations and the production of scientific objects that could be presented as matters of fact, its removal led to conditions that resist closure and that emphasise the connectedness of problems and phenomena rather than their isolation from each other. This in turn encouraged the development of new methodologies and research perspectives.

Ideas about the situatedness of knowledge and its production extend to the work of architects and urban designers. In his studies at the MIT during the 1980s Donald Schön describes the production of design knowledge as the outcome of conversations with – and in – situations (Schön 1987, p.57). Designing is an activity that is situated, for it is dependent on the formulation of a research problem, on the designer's approach and skills, and on the (professional) tools used in the enquiry. At the same time, designing creates new situations by means of continuously reframing research problems during the process (Schön 1987, pp.57, 65; Knoll et al. 2011, p.22). Referring to Schön's descriptions of design knowledge production, sociologist Albena Yaneva suggests "[…] that architects need to engage with a pragmatist type of architectural inquiry that is a situation-based, distributed way of learning about architecture and its various entanglements rather than one that relies on a stable stock of systematic, scientific knowledge." (Yaneva 2012, p.68) However, architects and urban designers are likely to continue to draw on, and co-produce, systematic and scientific knowledge. As I have argued earlier, multiple framings and bodies of knowledge coexist with each other in architecture and urbanism. Architectural and urban researchers have a choice in terms of what kind of knowledge they produce and what kind of knowledge they work

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with. Because there are valid justifications for each of these framings, and because different bodies of knowledge may contribute in different ways to architectural and urban work, the question about which form of knowledge or research method to apply is not one that may be answered generally, but one that needs to be addressed for each architectural and urban research problem anew.

4.2 Social Worlds/Arenas Theory, Grounded Theory Methodology and Situational Analysis

Engaging with urban problems means engaging with different processes simultaneously and across different scales. Within a multiscalar research perspective on urban problems, the meso level, or medium scale, is of prime interest if the urban is understood as collective process and not as the mere aggregate level of many individuals. Highlighting the significance of this level for the production of both individual identities as well as the social, Clarke suggests the meso level is the site where "[…] individuals become social beings again and again through their actions of commitment […]" (Clarke 2005, p.110). According to Clarke, four analytical methodologies that focus on the meso level can currently be distinguished in the social sciences: actor-network theory (ANT), assemblage theory, social worlds/arenas theory, and other variations of network theories (Clarke and Keller 2014, para.66), where Clarke asserts that "a particular strength of social worlds/arenas theory lies in its capacities to handle collective history and change over time." (ibid.) Observing the field of qualitative research in the social sciences, Clarke suggests that "today the qualitative research enterprise is moving beyond field notes and interview transcripts to include discourses of all kinds." (Clarke 2005, p. 145) She argues that "historical, visual, narrative, and other discourse materials and nonhuman material cultural objects of all kinds must be included as elements of our research and subjected to analysis because they are increasingly understood/interpreted as both constitutive of and consequential for the phenomena we study." (ibid.) We could claim that, for the same reasons, architectural and urban research should be including a broader range of constitutive and consequential elements in their frames of enquiry. Architectural and urban research may benefit from more systematic exploration of the relationship between human and nonhuman actors, between collective action and the material world, between discursive controversy and space-generating processes, especially if they intend to engage with such complex phenomena as conflict and change. Social worlds/arenas theory, as adapted in situational analysis, offers a series of interpretative and methodological assumptions that are useful for the study of conditions characterised by differences of perspective, shifting social configurations, negotiations, controversy, commitment, collective action, conflict and change. Adele Clarke explicitly characterises social worlds/arenas theory as a conflict theory (ibid., p.48).

Social worlds/arenas theory was first developed by Anselm Strauss in the late 1970s in a series of writings, including "A Social Worlds Perspective" (Strauss 1978b). The theory builds on Chicago School interactionism and the work of Robert Park; it draws from Mead's concepts of commitment and perspective, as well as from concepts developed by Georg Simmel (Clarke 2005, p.38). However, Strauss decentres the concepts of territoriality and integration which dominated the research of the early Chicago School.

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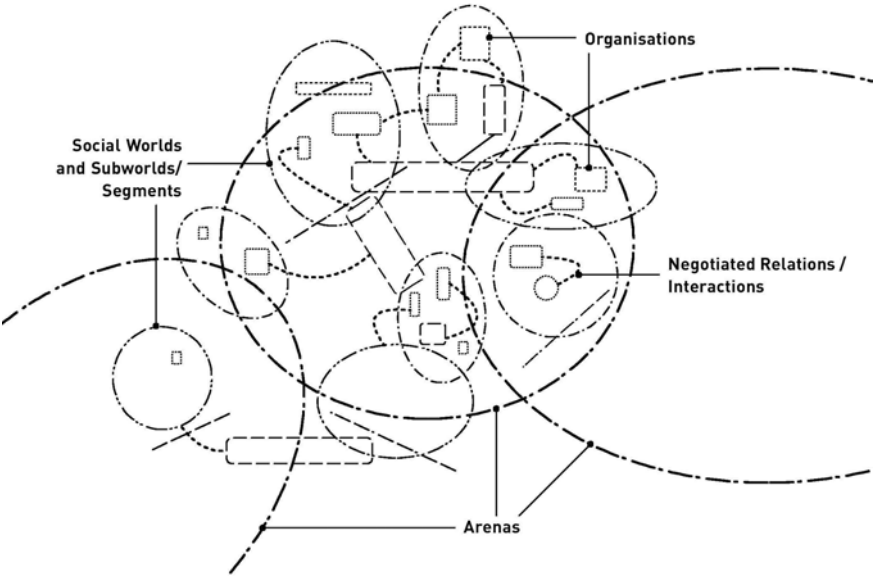
Figure 4: Representation of social worlds/arenas, adopted from Adele Clarke (2005, p.111); drawing by author



Boundaries of social worlds are now defined by the limits of shared practices, action and communication rather than by territorial features, or formal membership (Strauss 1979)[33].

According to Strauss, there is at least one "primary activity" (Strauss 1978b, p.236) at the core of each social world, supported by "related clusters of activity" (ibid.). The clusters involve subprocesses, such as competing for appropriate sites to conduct the primary activity, as well as the funding and protecting of the site (ibid.). Other possible subprocesses may include organisational diversification, learning, expanding and invading (ibid.). Strauss asserts that "the discovery and study of such subprocesses and of their relationships, including conflictful and 'power' relationships, are essential parts of research into social worlds." (ibid., p.237) Anselm Strauss's theoretical propositions resulted in a series of case studies on various social phenomena. Lacking a general methodological framework at that time, Strauss recommended that case studies and substantive research, that is, research on specific phenomena, be accompanied by the gradual building of a general social worlds/arenas theory (ibid., p.243).

In the unpublished paper "Social Worlds and Spatial Processes: An Analytic Perspective", written in 1979, Strauss explicitly connects the social worlds perspective to spatiality, suggesting that spatial processes "[…] contribute to the creation, maintenance, and evolution of social worlds" (Strauss 1979). He confirms that social worlds should "[…] be thought of first and foremost in terms of their central activities […] but to carry out those activities, space is also relevant." (ibid.) Hence, spatial aspects are

33 See Castells (2002, p.10) about the significance of territoriality and integration in the early Chicago School.

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explicitly part of the theory and analysed in relation to the process of the primary activity. Strauss observes the differences in the spatial frame to which social worlds may relate, suggesting that spatial aspects could play a decisive role during the phase when a new social world is established (ibid.); further links between process and space may be based on the invading, abandoning, maintaining, designing and restructuring of sites around which social worlds assemble (ibid). He emphasises that social processes and spatial processes are mutually related to each other "as conditions and consequences" (ibid.) – thus preparing the ground, together with other contemporaries of his time, for what would later be defined as the spatial turn in the social sciences and other disciplines. The new paradigm, which understands space as being relational and socially produced, and which distinguishes from space the geographically fixed position in the Euclidian model, opens up new ways of theorising space and social process (Löw 2016 [2001]). Currently, however, there is no elaborated model of how the relations of space and social worlds could be conceived, despite the ongoing shift in theoretical perspective, and despite the initial propositions brought forward by Anselm Strauss. Without claiming to deliver such a model, I seek to establish a series of connections between social worlds/arenas theory and spatial issues, with the aim of developing a suitable analytical approach to the specific kind of change observable in the Parkstadt Bogenhausen housing estate, and to add a new empirically grounded concept to urban and architectural theory.

Adele Clarke, a former student and co-researcher of Anselm Strauss's, reframed and adapted the social worlds/arenas theory for application in situational analysis (SA) (Clarke 2005; 2012; Clarke and Keller 2014; Clarke, Friese and Washburn 2018). Clarke introduced this new approach, which evolved in the tradition of Anselm Strauss's and Barney Glaser's grounded theory methodology (GTM or GT), to qualitative research in her book "Situational Analysis. Grounded Theory after the Postmodern Turn" (Clarke 2005; Morse et al. 2009, pp.194ff). The 2nd edition of 'Situational Analysis', co-authored by Adele Clarke, Carrie Friese and Rachel Washburn, updates and establishes SA as qualitative methodology in its own right (Clarke, Friese and Washburn 2018). Entitled "Situational Analysis: Grounded Theory After the Interpretative Turn", it further clarifies the relationship of SA and GTM, stressing their shared roots in the pragmatist, interactionist and constructivist traditions, while also clarifying SA's distinctive analytical tools and capacities. Clarke et al. suggest that

> "As an analytic approach distinct from GT, SA can be used on its own in studies centered on analysing and interpreting situations. Alternatively, SA can be used along with constructivist GT in the same project to *also* analyse and portray action—basic social processes—in that situation" (emphasis in original, Clarke, Friese and Washburn 2018, p.xxvi).

In the following, I will for the most part refer to SA's adaptation of the social worlds/arenas model, as well as to the 'theory/methods package' of SA. Clarke's set of theoretical adjustments proposed for "pushing grounded theory around the postmodern turn" (Clarke 2005, p.19) offers a series of possible connections for the kind of architectural and urban research I have outlined earlier (own emphasis where not stated otherwise):

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1. "Acknowledging the embodiment and **situatedness of all knowledge producers**" and the resulting multiple framings of knowledge (emphasis added, ibid.).
2. Emphasising **contingency and difference**. Things could always have been otherwise. This results in an essentially **open view** of research problems (emphasis added, ibid., p.9).
3. "Grounded theori**zing** through the development of **sensitizing concepts**" rather than seeking to develop definitive, or formal theory (emphasis in original, in italics, ibid., pp.28).
4. **Social worlds** are produced and populated by human actors, institutional worlds, discourses, and non-human actors – a definition which **includes architecture and urban actors** (emphasis added, ibid., pp.45f).
5. **Situational analysis** explicitly turns to **mapping** as instrument of exploration, analysis and concept building, with the aim of producing "thick analysis" (emphasis added, ibid., p.xxxiii, p.30).

Clarke emphasises that arenas are sites in which multiple social worlds – or parts thereof – assemble for collective action and discourse production, suggesting that in social worlds/arena theory "we assume multiple collective actors (social worlds) in all kinds of negotiations and conflicts in a broad substantive arena focused on matters about which all the involved social worlds and actors care enough to be committed to act and to produce discourses about arena concerns." (Clarke 2005, p.37) Depending on the situation, "arenas usually endure for some time, and long-standing ones will typically be characterized by multiple, complex, and layered discourses that interpolate and combine old(er) and new(er) elements in ongoing, contingent, and inflected practices." (ibid., pp.37f) Hence, we could say that there is a temporal and historical dimension to arenas – which qualifies them as targets for research about process and change. Complex social worlds are not homogenous and characteristically develop subdivisions and segments. This occurs as a response to changing commitment, or as part of the realigning to shifting discourses and new organisation (ibid., p.48). Social worlds may intersect to form a new world, or subdivide into separate new worlds (ibid.). Pertaining to the individual, Clarke suggests that "people typically participate in a number of social worlds/going concerns simultaneously, and such participation usually remains highly fluid." (ibid., p.46) Hence, the analytical focus may be set on single or multiple arenas, on individual or multiple social worlds, but never in isolation, because all arenas/social worlds in which a single world participates are "mutually influential/constitutive of that world." (ibid., p.48) Conflicts are assumed to be present between different social worlds and within single social worlds, arising from differences in perspective, commitment and inscribed attributes, and are routinely addressed by actions such as negotiating, persuasion, educating, and discursive repositioning (ibid., p.49). They all imply some kind of change.

Within the theory we find stabilising and destabilising concepts combined. On the one hand, social worlds/arenas are constitutive for establishing (multiple) identities (ibid., pp.45f). Relational patterns produced by the assembling of social worlds, and most importantly the arena itself, act as points of reference and provide orientation in the situation. Discursive formations in the arena have the capacity to contain contradictory discourses through which "[…] some stability is achieved—however temporary, elusive, or conditional." (ibid., p.54) On the other hand, identities and

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concerns are destabilised, reconstructed and deconstructed, as well as the relations within the arena and between social worlds. Clarke's graphic representations of social worlds/arenas respond to key ontological concepts in the theory – assumptions about ambivalence, contradictions within the situation and of non-closure/non-holism – by means of permeability (dotted lines) and by leaving the boundaries of social worlds/discourses open. The situation is represented as part of a social condition that cannot be exhausted, or fully grasped.

4.3 Approaching Research Questions from within the Situation

At the time of writing, there are very few, if any cases which use situational analysis (SA) for research problems raised from within the architectural and urban disciplines (Clarke, Friese and Washburn 2018, pp.374ff). Based on the set of theoretical premises assembled in the previous section, how far can situational analysis be integrated to research in architecture and urbanism? How accessible are the tools of situational analysis for architectural and urban analysis? Emphasising the versatility of the methodology and of its related methods, Adele Clarke encourages researchers to apply situational analysis to different fields of enquiry and to different research problems. According to Clarke, situational analysis is compatible with a wide range of empirical material and "[…] can support researchers from heterogeneous backgrounds pursuing a wide array of projects." (Clarke 2005, p.xxii) The arenas to which situational analysis has been applied so far are extensive and diverse; the majority of cases are centred on public health issues, human service practices, gender, or inequality (Clarke 2005; Clarke and Charmaz 2014; Clarke, Friese and Washburn 2018, pp.374ff). Accordingly, an intended secondary outcome of this research project is to show that situational analysis is a useful tool for engaging with urban and architectural research questions. The concept of 'situation' is central to situational analysis as well as architecture and urbanism, and could in this sense assist in connecting the three.

Situational analysis builds on a specific understanding of 'situation'. Rather than conceptualising the broader conditions of a situation as contextual background, as merely framing it, Clarke argues that "the conditions *of* the situation are *in* the situation" (emphasis in original, Clarke 2005, p.71). Pertaining to the relation between the constitutive elements, Clarke asserts that

> "The fundamental assumption is that everything in the situation *both constitutes and affects* most everything else in the situation in some way(s). Everything actually in the situation or understood to be so conditions the possibilities of action […]. People and things, humans and nonhumans, fields of practice, discourses, disciplinary and other regimes/formations, symbols, controversies, organizations and institutions, each and all can be present and mutually consequential." (emphasis in original, Clarke 2005, p.72)

Based on this premise, there are no constitutive elements that do not somehow appear in the situation under study itself – even when located at a great distance from the actual problem. Situational analysis thus offers a theoretical framework for approaching the local/global problematic in that it does not reduce the global to a de-territorialised space of flows that is external to the situation under analysis. Rather, it conceptualises the situation as a site in which local and global forces interact, confront,

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and co-constitute each other. The fundamental question raised by this perspective is "How do these conditions appear – make themselves felt as consequential – *inside* the empirical situation under examination?" (emphasis in original, ibid., p.72). Despite the resulting challenges for representation and integration, in particular if the focus of research is on narrowly defined problems or micro-scale actions, SA defines the situation as a privileged site of research from which all consequential and connected conditions may be observed and analysed. As a response to these representational challenges, and in order to provide a systematic grounding for the empirical analysis, Clarke suggests using specific mapping tools in the analysis of the situation.

Situational analysis' theoretical framing adopts the view from science and technology studies as well as from cultural studies that the human and the nonhuman are co-constitutive – that social worlds are as much constituted by materiality as materiality is constituted by the social (Clarke 2005, p.63 and p.153) Together they "[…] constitute the world and each other." (ibid.) Correspondingly, Clarke suggests that "any method that ignores the materialities of human existence is inadequate, especially today as humans and various technosciences are together transforming the planet from the inside out." (ibid., p.xxxv) This view is mirrored by criticisms in architecture and urbanism which emphasise the mutual relationship of the material and social worlds. Alban Janson and Sophie Wolfrum explicitly refer to the condition in which the material aspects of architecture interact with human perception, with the body, with social practices, as "situation" (Wolfrum and Janson 2016, pp.23f). As architecture cannot be conceived without this interaction, situations are constitutive of architecture (ibid.). They propose that architecture could be seen as a social discipline that produces complex situations in which humans participate individually and collectively, whereby architectural space, its qualities, physical properties and atmospheres reflect back on and co-produce the situation (ibid., pp.24f). Situations define the condition through which and in which we experience architecture (Janson and Tigges 2014, pp.284f). Highlighting the processual character of architectural situations, Alban Janson and Florian Tigges observe that, "as a rule, situations are not experienced in purely static terms, but instead through movement and active participation." (ibid.) In architectural situations, humans and objects are related with each other through perception, interaction, use and other performative acts. The relationship is influenced by the motivation and state of mind of the actors involved (ibid.). Janson and Tigges suggest situations are among the "fundamental concepts of architecture" (ibid.). In this sense, the architectural conceptualisation of 'situation' can be connected to the theory of relational space (Löw 2016 [2001]), as well as to situational analysis in multiple ways.

The theory of social worlds/arenas engages with social phenomena without resorting to either reductionist or holistic views of society. For Clarke, "[…] there is no such thing as 'society', but rather mosaics of social worlds, arenas, and discourses—some at quite large scales with vast audiences—but never everyone" (Clarke 2005, p.154). Social worlds are temporary and fluid – they never stand still (Strauss 1978b, p.237). The urban, then, could be conceived as a vast and unstable arena, embracing many other arenas and social worlds – but not all of them, for "even the largest arenas do not extend everywhere." (ibid.) Here, the concept of the urban as arena seems to relate directly to the urban as open construct. By means of the social worlds/arenas map it is possible to represent, on the one hand, the urban as a vast but accessible field of enquiry, and on the other hand, the limits of that which can be represented – indicated

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by the permeable and provisional boundary of the arena. The graphic representation points towards residues and spaces of otherness that cannot be fully identified and analysed.

Situational analysis integrates within its methodology a series of key ontological and epistemological assumptions of symbolic interactionism and pragmatism, the systematic rigour of empirically grounded qualitative research, in particular of grounded theory methodology and social worlds/arenas theory, as well as the criticisms of knowledge production raised by postmodernism and constructivism (Clarke 2005, xxxiii). In terms of research fields and materials, "situational analysis allows researchers to draw together studies of discourse and agency, action and structure, image, text and context, history and the present moment—to analyze complex situations of inquiry broadly conceived." (Clarke 2005, p.xxii) In terms of methods, "situational analysis offers flexible and elastic *empirical* tools […] with which to deconstruct 'society' into mosaics of arenas organised around and through different kinds of discourses and action." (emphasis in original, Clarke 2005, p.178) Situational analysis assumes that collective action is negotiated between and through social worlds that partially and temporally participate in arenas. All elements that are constitutive of a situation are present in the situation. The situation is thus both a conceptual tool to envisage social reality, as well as a site of analysis. Based on these premises, situational analysis has the capacity to inform both the epistemology of architectural and urban research, as well as the toolbox of research methods. In this sense it may offer a new perspective on how urban environments change by connecting the social with the material and by connecting collective processes with a specific spatial situation.

4.4 Discourse Theory and Situational Analysis

Connecting to discourse theory is among the core proposals by Adele Clarke for the "pushing of grounded theory around the postmodern turn" (Clarke 2005, p.19). In this section, I discuss the situational analysis approach to discourse theory, and how it could be used in architectural and urban enquiry. I refer to the argument developed by Adele Clarke, as well as to Reiner Keller's work on discourse analysis and the sociology of knowledge. Reiner Keller co-edited the German translation of Adele Clarke's (2005) "Situational Analysis", which was published in 2012 under the title "Situationsanalyse. Grounded Theory nach dem Postmodern Turn" (Clarke 2012)[34].

The rise in significance of discourse theory and discourse analysis since the beginning of the 1970s is paralleled by the critical questioning of knowledge production and language as neutral medium of knowledge transmission (Clarke 2005, p.150). Clarke adduces the many roots of discourse theory, highlighting the contributions of social constructivism, in particular Berger and Luckmann's proposition that meanings and systems of reality are socially produced, as well as Foucault's theoretical contributions, in particular his concepts about the mutual relationship between power as knowledge and knowledge as power, and his ideas about the disciplinary formations through

34 Pertaining to the relation between discourse theory and SA, the 2nd edition of "Situational Analysis" (Clarke, Friese and Washburn 2018) draws on the basic assumptions as outlined in the 1st edition (Clarke 2005). In the following, I refer to the 1st edition.

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which they operate (ibid., p.149)[35]. As with other concepts developed by Foucault, the notion of discourse is located in different analytical configurations. Initially associated with linguistic systems of signs which order the complexity of the world, the notion shifted to the practices that constitute the objects to which they refer (Keller 2011a, p.132), as well as to collectively exercised mechanisms of dominance related to these practices and objects (Clarke 2005, p.54, p.149). The specific Foucaultian understanding of discourses is centred on their capacity to open-up, or close-off, "conditions of possibility" (Clarke 2005, p.53). With reference to Foucault, Clarke speaks of the relatedness of discourses to "regimes of practices" (ibid., p.53) which "[…] must be sustained through performance of those practices over time." (ibid.) Discursive practices may be conceived as the means by which cultural knowledge, social action and institutions are achieved as well as enacted (ibid., p.152)[36]. According to Reiner Keller, institutions can be understood as the temporal and contested crystallisations of symbolically defined structures that bring order to the world (Keller 2011a, p.94). In this role they enable and restrict social actions. It is in this sense that Clarke highlights the consequential nature of discourses (Clarke 2005, p.153).

Relating discourse theory to social worlds/arenas theory, Clarke asserts that "discourses are typically produced by and representative of particular social worlds and arenas and the conflicts and contradictions within them." (Clarke 2005, p.160). Hence, arenas are sites in which different discourses – represented by different social worlds – compete with each other (ibid.). If a single social world is conceived in such a way that it contains multiple segments as outlined above, it could be understood as producing multiple and potentially conflicting positions on a single topic (ibid., p.161).

Addressing the relationship between different social worlds, Clarke asserts that "part of the work social worlds do is monitoring the discourses and actions of the other social worlds in the arenas in which they participate." (ibid., p.57) The Foucaultian perspective assumes that groups, individuals and institutions are engaged in collective operations of power, in disciplining and in surveillance. Pertaining to the work of professions and academic disciplines, Adele Clarke observes that

> "Disciplines are implicated in projects of social control, including by the state, the professions (including education, medicine, etc.), and other agencies that ultimately serve the interests of dominant groups. […] all disciplines and professions are constituted by and through particular discourses that privilege and marginalize varied sectors. Discourse analysis provides tools to deconstruct and analyze such regimes of truth—discourses through which we ourselves are varyingly disciplined and constituted as people and as scholars." (Clarke 2005, p.151)

35 Sociologist Jörg Strübing asserts the long tradition of 'discourse' as a concept in sociology (Strübing 2013, p.172). It appears, for example, in the 'universe of discourse' which was coined by George Herbert Mead in 1934 to describe the system of shared meaning, or context, when humans establish a thought (ibid.). According to Strübing questions of power and authority were secondary in these early concepts, whereas they became central to Michel Foucault, who applied the notion of discourse to an intermediate level in processes that generate sociality (ibid.). A discussion of Foucault's work and how it could be applied in the social sciences for discourse analysis and in the sociology of knowledge is available in Keller (2007; 2011a and 2011b).

36 Accordingly, the practical fields in which discourses are deployed are major targets of Foucaultian conceptualisations and analysis (Clarke 2005, p.154).

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Figures 5 and 6: Spatial intersection of two discourses respectively two 'regimes of practices': Disciplining and surveillance on the one hand, appropriation and everyday use on the other hand. Alexandra Road Estate, designed by Neave Brown of Camden Council's Architects Department in 1968, constructed between 1972 and 1978. London 2011

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Hence, discourse analysis provides architects and urbanists with the conceptual tools to see themselves as participants in constellations of power, as co-producing discourses which are consequential for the built environment. Supported by institutionalised professionalism and academic procedures, architects and urbanists exert a degree of control in terms of who is admitted to discourse production, what may be said about the urban and about architecture, and what kind of settings are required for urban and architectural knowledge to count as such and become effective in institutionalised urban practice. Identifying actors with sufficient power to end controversy through closure is a key concern in discourse analysis. Situational analysis goes further in that it actively brings to the fore actors that lack such power. Clarke stresses that "situational analysis also (inspired by but also contra Foucault) intentionally seeks to represent *all* the social worlds and discourses in an arena, amplifying the silent and silenced, specifying implicated actors and actants, and seeking out their (usually quite marginalized) discourses." (emphasis in original, Clarke 2005, p.178) The knowledge generated by this perspective emphasises the contingent nature of decisions – it could have been otherwise – and aims at a better understanding of the situations in which decisions are made. Hence, if the analysis is combined with questions such as 'what kind of changes could we make in the situation so that things can be different, what kind of other positions are possible?', research begins to challenge existing regimes of change.

The analysis of discourses needs to address a series of difficulties. In terms of analytical location, discourses operate at different levels or scales (Clarke 2005, p.153). They evolve and do not stay still – as do our interpretations of and our associations with them (ibid.) In terms of conceptualisation, working with discourse theory that draws from Foucault means to engage with structuralist, poststructuralist and at times essentialist views that intersect in his work[37]. His forms of analysis are difficult to grasp as a method (Keller 2007, p.7)[38]. Pertaining to the study of urban phenomena, some discourses are

37 Jörg Strübing suggests that Foucault's concept of discourses is based on the premise that they have in themselves the generative power to produce and reproduce social reality and structures of knowledge (Strübing 2013, p.172). Here Foucault differs significantly from concepts that locate such generative powers exclusively in human actions, which resulted in a methodological gap with the constructivist-interactionist paradigm (ibid.). It is only recently that this gap is being gradually closed, for example through Adele Clark's introduction of discourse analysis to grounded theory methodology (Clarke 2005), or Reiner Keller's "Wissenssoziologische Diskursanalyse" (WAD) and "Sociology of Knowledge Approach to Discourse" (SKAD) (Keller 2007; 2011a and 2011b). Reiner Keller observes that while "The Archaeology of Knowledge" leaves room for an understanding of discourses as autonomous objects that could do things on their own, Foucault revised this interpretation with "The Order of Things" (Foucault 1981 [1970]) and the following series of genealogical analysis, in which he foregrounds social practices, mechanisms of power/knowledge, games of truth and conflict (Keller 2007, para.3).

38 Keller asserts that Foucault omitted a detailed discussion of method and that we do not exactly know how Foucault actually engaged with texts, what methods he deployed to read, analyse and structure his material. (Keller 2007, p. 7). According to Keller, Foucault did not become more precise than referring to the 'classic' meticulous modes of study of the historian, as well as emphasising the toolbox character of his work (ibid.). Hence we find seemingly contradictory statements in texts that are difficult to use in combination. In "The Archaeology of Knowledge" Foucault speaks, on the one hand, about discovering within the diversity of discourses "rules of formation" (Foucault 1972 [1969], p.38, p.166) – as basic principles "[…] that will be uniformly valid, in the same way, and at every point in time"

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more consequential than others, in that practices connected to them have lesser or greater transformative capacity in the built environment. Dominant discourses might obscure less powerful or contradictory discourses (Clarke 2005, p.54, pp.152f). This in turn influences the 'visibility' of discursive formations and their accessibility for architectural and urban analysis. Finally, the arena in which urban change is defined and negotiated is, conceptually, very large. However, "one important task of analysing discourses is noting their limits." (ibid., p.154) If we speak of architectural and urban theories, narratives and concepts, as I do in this research project, we have to keep in mind their limited range as well as the many other discourses that co-produce and influence the urban condition.

Addressing the different forms or types of discourses, Clarke asserts that situational analysis "[…] can draw upon multiple forms of discourse—narrative, visual, historical, and in varied combinations/hybridities" (Clarke 2005, p.156). As part of her general discussion about the kind of research material suitable for situational analysis, Clarke sketches out a possible direction for working with narratives, which I seek to further explore in this research project.

> "It is usually (but not always) the analysis of particular sets of texts or narratives chosen because they are *produced* by a particular group or social world in which the researcher is interested, or because they are *about* a particular group or social world or thing(s) in which the researcher is interested. In essence, a discourse claims to properly and adequately describe how X is (or should be) in the world, and a strong discourse analysis would deconstruct and analyze both the descriptions and the claims." (emphasis in original, ibid., p.150)

In this project, two fields in which discourses are co-produced and become effective are analysed. On the one hand, there are architectural and urban narratives, the practices, issues and materialisations to which they refer, including their effects on and relations to the broad arena of urban change. On the other hand, we have the collective process in the Parkstadt Bogenhausen housing estate. Hence, the analysis is on the one hand an enquiry into architects and urbanists asking 'How should we think about/approach/design conflict and change?' And on the other hand an enquiry into residents, administrators and other actors negotiating and 'doing change' in and of their everyday urban environment, through engaging in the Parkstadt arena.

4.5 Mapping and Drawing as Tools of Empirical Enquiry and Concept-Building

I have pointed to the limited range of perception-based observational analysis when engaging with space and the city. Explorative drawing, diagramming and mapping define a set of techniques used in architecture and other disciplines to push the limits of what we can 'see'. Well known examples include Kevin Lynch's study of mental maps for Boston and Jersey City, the diagrams of Cedric Price and cybernetician Gordon

(ibid., p.166); on the other hand he emphasises that theorising about discourses "[…] is not trying to find in them a hidden law, a concealed origin that it only remains to free" (ibid., p.205). Keller concludes that it is difficult to speak of a "Foucaultian discourse analysis" (Keller 2007, p. 7), in the sense of it being reproducible.

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Pask for the Fun Palace project, or the poetic explorations of space in the drawings of Lebbeus Woods, Peter Salter, Smout Allen or Neil Spiller. In view of the complexity of urban phenomena, Raoul Bunschoten, Hélène Binet and Takuro Hoshino of the research collective CHORA suggest that "cities have become such dense, proliferating places that, in order to interact with them, to intervene in their development, one has to oscillate between working close to the ground (where the horizon is near, everything flows, textures are infinitesimal) and the more rarefied domain of diagrammatics in which relationships and the mechanics of change are described." (Bunschoten, Binet and Hoshino 2010 [2001], p.261) On this understanding, field work and analytical work intersect in the process-oriented diagram, an approach presented and discussed in CHORA's "Urban Flotsam" publication (ibid.). Likewise, in the introduction to the 2013 AD issue on architecture and drawing, titled "Architectural Drawing: Grasping for the Fifth Dimension", Neil Spiller observes that "new protocols of drawing" are being developed by architects who seek to explore fields beyond the three dimensions of space and the dimension of time (Spiller 2013, p.14).

However, despite their analytical and inspirational power, explorative mapping and diagramming of this kind remain the exception. Considering the overall output of the profession, architectural drawings rarely address fields that are not directly related to building practice or building-related design work. In architecture and urban design, drawings are routinely used for the surveying of physical site conditions, for the fixation of building form, for the control of the construction process, or for the communication between design team, planning authorities, and other participants in building. Established drawing and mapping standards are highly conventionalised and therefore of limited use and range. Facing a similar dilemma, Albena Yaneva adapted Bruno Latour's "Mapping Controversies" approach, initially for the analysis of "architecture in the making" (Yaneva 2012, p.72), which since then she has extended to include the scale of urban issues (Yaneva 2016)[39]. Conceived as "research methodology and teaching philosophy" (Yaneva 2012, back cover), mapping controversies combines elements of actor-network theory with ethnography. Yaneva applies the sociological notion of "moving target" (ibid., p.45)[40] to architecture, arguing that we should not conceive of architecture as a stable frame in which to situate social action. She defines architectural controversy as "[…] situation of disagreement among different actors over a design issue" (ibid., p.72), which includes aspects of technology, construction process and material. Yaneva suggests that through mapping controversies and the reconstruction of shifting actor-network constellations, the social and architectural may be approached "in their fluid states." (ibid., p.45)

Based on what I have discussed so far in terms of methodology, I propose that situational analysis could offer another useful and new perspective, based on its own assumptions and tools, through which the representational and analytical range of mapping in architecture and urbanism could be extended. The targets of mapping

39 Here as analytical tool in the "Hands-on Famagusta" Project, a long-term community-based project initiated and managed by Socrates Stratis in Cyprus (Stratis 2016).

40 In social science the "moving target" is a concept that characterises the dynamic nature of the sociological field, accelerated through digital networking and mobility, and which is increasingly challenging for researchers and ethnographers (Strübing 2013, p.66).

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analysis in this perspective are situations and social worlds/arenas in and through which change is collectively produced and negotiated.

Adele Clarke has the social sciences in mind when she highlights the benefits of producing and working with maps, suggesting that they interrupt working routines, enhance reflexivity in research, and "[…] provoke us to see things afresh." (Clarke 2005, p.30) Clarke understands mapping as a "cognitive process" (ibid.) which opens up spaces of knowledge. She asserts the capacity of maps to engage with and represent temporal, spatial and relational information:

> "Maps work "[…] as discursive devices for making assemblages and connections—relational analyses. Maps are excellent 'devices to materialize questions' […]—devices for handling multiplicity, heterogeneity, and messiness in ways that can travel. Maps work well as spatial and temporal narratives. Maps allow unmapping and remapping. […] one can move around on/in maps much more quickly and easily than in […] text, excellent for analytic work." (ibid.)

Clarke's justifications are familiar terrain to architects and urbanists. The challenge to them, in the research context of situational analysis, is not the making of maps as such, but rather the kind of questions raised and the social science perspective involved. In mapping, the authors are always more than just observers – they are co-producers of the mapped situation, being immersed in the field, as well as being selective and guided by intentions. What is left out in mapping is as important as that which is shown. Thus mapping is not a neutral activity – maps are understood to have a political dimension (Clarke 2005, p.30; Garcia 2010, p.34).[41]

5. Adapting the Iterative-Cyclical Research Model of Grounded Theory Methodology

5.1 Theoretical Sampling and GTM's Iterative-Cyclical Research Model

Research that builds on conventional demarcation does so because it seeks to position a research object within a clearly defined, and therefore controlled, research domain. This domain is typically conceived as a closed field, which lends itself to systematic organisation and the application of sampling strategies according to (pre-)defined categories and structuring hierarchies. If we assume the urban to be an open construct, and if we refer to Henri Lefebvre's idea of the urban phenomenon as "movement" (Lefebvre 2003 [1970], p.174), as a dynamic condition that cannot achieve closure and thus

41 This means that the mapping of an existing situation also contains an element of 'designing' that situation, which is more than merely imagining a situation: if we draw an analogy to the Thomas theorem in the social sciences (Dellwing and Prus 2012, p.19, p.54), a design may be conceived as being 'real in its consequences', even if it remains unrealised. A design project may trigger discourse, and change the way we think about and act on real world issues, such as the unrealised Fun Palace project as the "socially interactive machine" (Mathews 2005, p.73). This is why it makes sense to also map designs, unrealised projects and narratives if they are present in the analysed situation – as theoretical or utopian ideas that exert performative power through producing a condition "[…] in which articulation itself generates a new reality". (Wolfrum and Brandis 2015, p.6)

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immobility (ibid.), we are facing a dilemma of demarcation, because representations and modes of analysis that resort to closure are likely to fall short of grasping the core quality of the urban condition. Hence, fixation, categorisation, and demarcation seem to be the wrong concepts to begin with. The question of sampling is directly related to this problem. Working with categories and representational sampling strategies is a well established method in the quantitative tradition of the social sciences (Rosenthal 2014, p.83). The sample is understood to adequately represent a given population or body of material. This provides the justification for researchers to apply their sample-based findings to the entire population.

Taking the qualitative research perspective, however, researchers assume that they do not know enough of the problem to justify working with predefined categories, conclusive hypotheses-testing, or sampling frames based on the exhaustive listing of all significant characteristics in a target population (Rosenthal 2014, pp.47ff; Strübing 2013, p.22). Consequently, we cannot enter the discursive analysis of urban and architectural narratives on the basis of a predefined 'population', or categorisation, for this would equate to closing the field of enquiry. How, then, should we conceptualise the research process? On which basis should we sample from the many architectural and urban narratives on conflict and change? What kind of data could support the ensuing case study? Adele Clarke suggests that "for a discourse study or discourse site within a multisite study, the data should offer both depth and range of variation." (ibid., p.186) If this proposition opens up the field of possibilities, how can we arrive at a manageable number of samples and along which paths should we organise the process?

The research process proposed in response to these issues is conceptually based on the iterative-cyclical model of basic grounded theory methodology (GTM). GTM uses 'theoretical sampling' as specific data collection method. According to Anselm Strauss, theoretical sampling is "[…] a means whereby the analyst decides *on analytic grounds* what data to collect next and where to find them" (emphasis in original, Strauss 1987, p.38). The dynamic process of data collection in theoretical sampling is controlled by the emerging theory or concept (ibid., p.39). It is an activity of "[…] gathering new data that speak specifically to the theoretical point" (Clarke 2005, p.185). With regard to our problem of selection, theoretical sampling means that narratives are selected and analysed on grounds of their assumed relevance to the analytical process. Strauss highlights that theoretical sampling involves "[…] much calculation and imagination on the part of the analyst (Strauss 1987, p.39). To keep track of the research process in GTM, notes, or "memos" are taken during the analytical movements (Strauss 1987, pp.109–130, pp.184–214; Clarke 2005, p.84).

Jörg Strübing visualises the basic GTM model as sequence of iterative loops that move back and forth between theory development, which is conceived as a process, and the empirical field (Strübing 2013, p.128). In the model, the development of a theory is sustained by the production of temporal hypotheses, which in turn deliver the criteria for theoretical sampling and inform the different aspects of fieldwork through deduction.

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Figure 7: Iterative-cyclical research model of grounded theory methodology (GTM), according to Strübing (2013, p.128); drawing by author

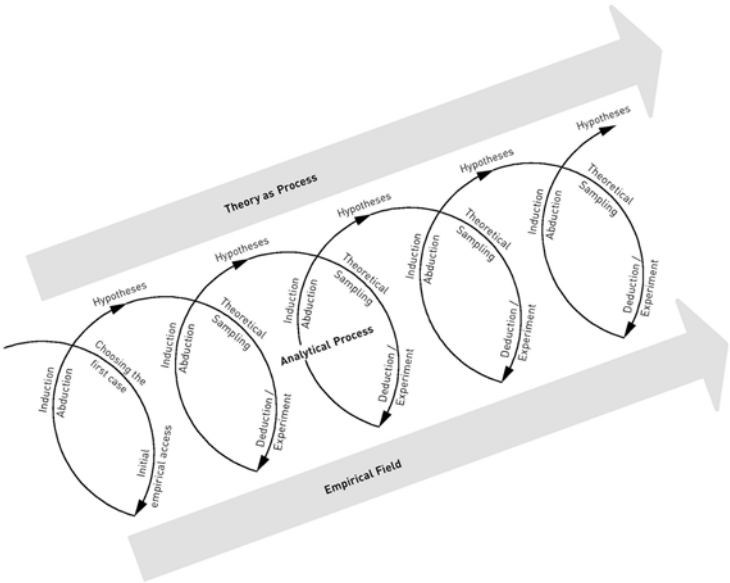

Figure 8: Adaptation of the iterative-cyclical research model. The discursive-interpretative process starts with the observation of asymmetric urban change, which then develops into an analysis of architectural and urban narratives; drawing by author

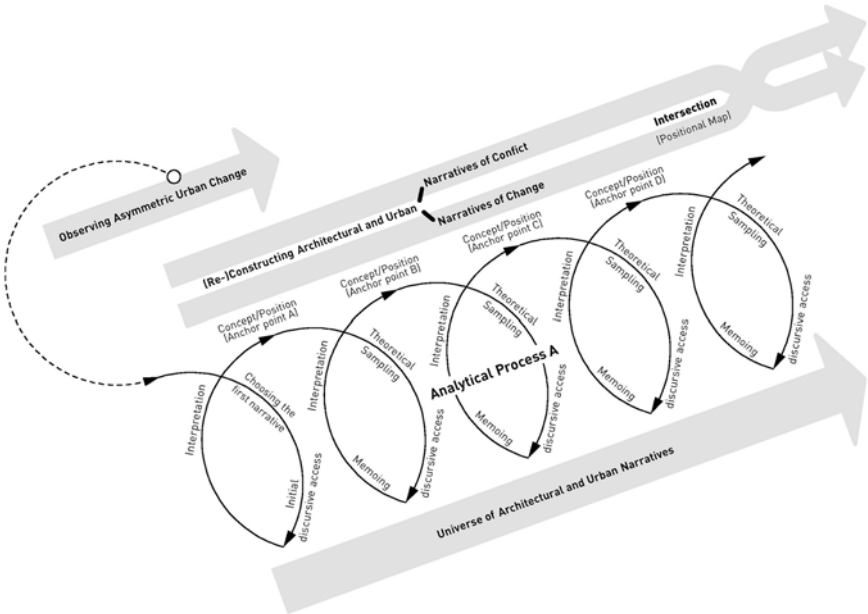

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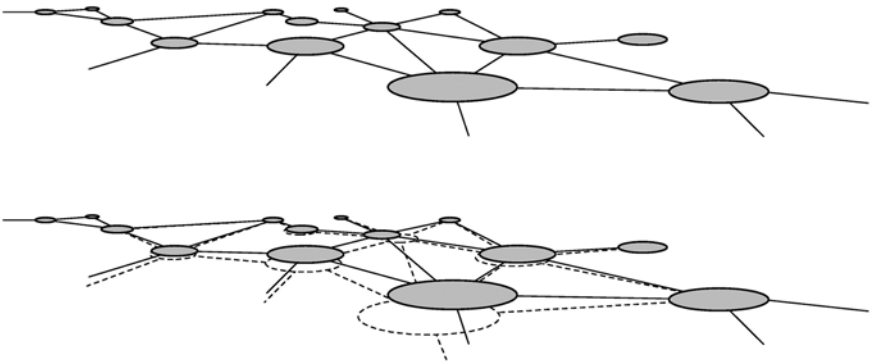
Figure 9: Graphic representation of the anchoring model used in Analytical Process A. Top: strand of enquiry into architectural and urban narratives, consisting of connected anchor points/concepts/positions. The points are generated step-by-step in the discursive-iterative research process. Bottom: relational and malleable character of the model.



The work with the data obtained in and from the empirical field produces the next temporal hypothesis through induction/abduction (ibid.)[42]. While traditional GTM insists that all concepts need to "earn their way into the analysis, by emerging from the data" (Clarke 2005, p.75)[43], Adele Clarke suggests in the proposed 'pushing GTM around the postmodern turn' that this could be insufficient if it is not combined with some initial sensitivity for blind spots and discursively constructed mechanisms of elusion (ibid.). She asserts that research projects need to be designed from the outset so that they "[…] explicitly gather data about theoretically and substantively underdeveloped areas that may lie in our situations of inquiry" (ibid., p.76) so as to prevent researchers stepping over them (ibid.). Moreover, Adele Clarke asserts "[…] that an 'analysis' of any kind is no more than one or a few 'readings' of a situation—understandings, interpretations." (Clarke 2005, p.xxvii) According to Clarke, it does not claim to scientifically confirm the "validity" of a hypothesis (ibid.). For this reason, I have modified the iterative-cyclical research model of traditional GTM according to Clarke's criticisms, as well as the specific requirements of the research project. This includes the opening up of the induction/deduction logical circle to accommodate the assumptions about knowledge production as theorised and used in situational analysis (Figures 7–11}.

42 As both, theoretical sampling and the production of design knowledge take place within open fields of enquiry, it is not coincidental that the GTM model bears similarities to the iterative design process in architecture and other creative disciplines. For a discussion about integrating conditions of openness to design teaching see Knoll et al. (2011, pp.21f, pp.62f). The GTM model also bears similarities to the field of technical invention. Donald Schön suggests in "Technology and Change. The New Heraclitus", that "the pattern of invention is frequently an interplay or oscillation between phenomena and theory." (Schön 1967, p.235)

43 Adele Clarke refers to statements/methodological propositions by Glaser and Strauss, without providing a specific source. The statement is in quotation marks. The corresponding published statement can be found in (Strauss 1987, p.26), for example.

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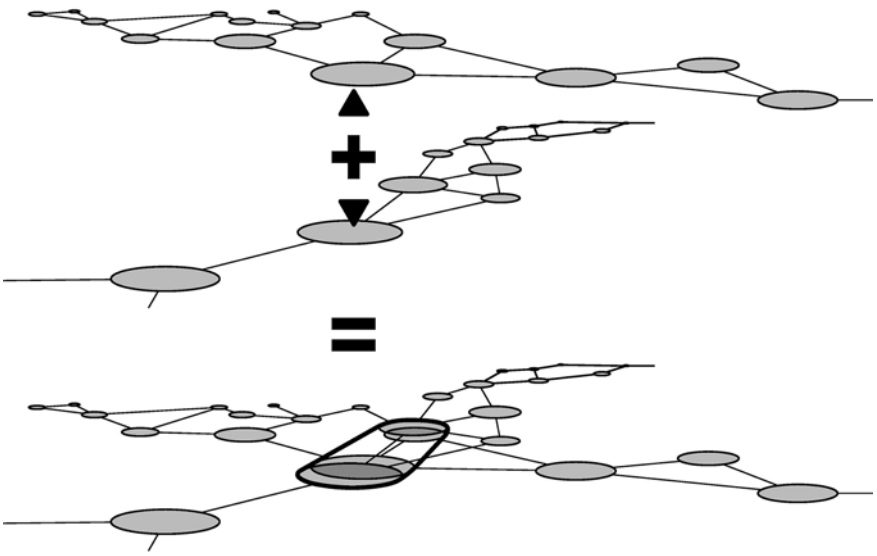
Figure 10: Conceptual graphic representation of analytical intersection. The two essay-based strands of enquiry are intersected to establish a higher-density construct.



5.2 Analytical Process A: Discursive-interpretative Analysis of Narratives

In Analytical Process A, the basic GTM model is adapted to establish a sequence of iterative cycles that move back and forth between the universe of architectural and urban narratives on the one side, comprising the full body of narratives developed, used and maintained by architecture and urbanism, and on the other side, the specific narratives of conflict and change that are extracted from the full body and in this way analytically (re-)constructed. The latter is also the side in the process where the narratives are examined in terms of the concepts and positions they hold.

Architectural and urban narratives are embedded in written texts, visual material, design work, or realised projects. As this mixture of different material does not lend itself easily to line-by-line analysis and coding, which is the standard way of processing data in traditional GTM (Clarke 2005, p.xxxi), I propose applying a discursive–interpretative mode of enquiry to the analytical process. The discursive-interpretative loop takes as its point of departure the initial choice of a narrative, which is connected with the observed phenomenon and/or research interest. In order to not loose orientation, memos are written during the explorative movements and the interpretation process. The analysis of a narrative is meant to produce a position or concept. In some cases more than one concept may be identified in a single narrative. The number of concepts/positions accumulates step-by-step as the analysis progresses. The side of extracted and (re-)constructed narratives and concepts is organised as two parallel strands, one for conflict and the other one for change. The insights and knowledge available at the end of each discursive-interpretative loop defines the starting point of the following cycle. It provides guidance for the next step of sampling, in terms of which narrative to choose and where to place the focus of enquiry. Generally, the theoretical sampling

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method provides orientation in the analytical movement from concept identification/development to the empirical field, but without targeting a pre-defined overall research goal. The steps of discursive access, memoing, interpreting and concept identification are distinct components conceptually, but they are closely connected to each other in the analysis. This is reflected by the style of short essays chosen for their representation and discussion in Chapters II and III.

In the iterative-cyclical model new research information is generated in a step-by-step process. Hence the process needs to include instruments that hold, organise, make available, and relate the preliminary research outcomes to each other. In GTM, this is for the most part achieved through memoing. In SA, this is complemented by mapping, which is primarily conceived as analytical tool, but which has also a holding capacity (Clarke 2005, p.xxii, p.xxvi, p.26, pp.125–124). The third kind of tool used for the holding, organising, and relating of information is 'anchoring', which I have purposely developed for the analytical movement through the narratives of conflict and change. The anchoring model draws conceptually from both, the GTM and SA tools, and is conceived as add-on that supports the analysis. It is a response to the condition of non-closure and the working with two parallel strands on the theory side of Analytical Process A. The model provides a horizontal, or linear connection between the concepts/positions that accumulate in each strand in the process. Each concept/position is conceived as anchor point that is related to other anchor points (concepts/positions). Together, they form a conceptual strand of malleable and preliminary fixations. The position of a single anchor point is not rigidly fixed in place. It is determined by the interpretative forces that act upon it as well as on its neighbours. In the proposed construct, each anchor point serves as potential origin of trajectories that probe the open field and influence the direction of the next move.

In this construct stabilising gravities are temporal in character, for they are challenged by each new concept that enters the process. Despite their conceptual holding capacity, the strands of connected anchor points have a tendency towards dispersion. They do not, conceptually, generate high levels of precision. My proposal for resolving this issue comprises several steps of focussing, starting with the conceptualisation of an intersection. In Euclidian geometry, the intersection of two lines produces a single and precise point. The strands in the above configuration are unlikely to produce a single point when intersected with each other. Moreover, if we think in terms of a single point in the intersection, we loose the conceptual quality, the malleable character of the relational construct. If we conceptualise the intersection more in terms of a matrix, which encourages movement through multiple combinatory readings, how could we avoid working with predefined categories and moments of premature closure? To resolve this problem, I propose adapting SA's 'positional map' and working with it in more than one way. Conceived by Clarke as mapping tool (Clarke 2005, p. xxii, pp.128f), the SA positional map represents positions that assemble around a contested problem, an issue, a concern. In our case, the key concern is concepts of change as represented in architectural and urban narratives of conflict and change. The positional map, as adapted for this project, is conceived as an intersection, as a high-density construct that brings together all the positions identified in the research process. It acts as memoing device for the overall process, it juxtaposes multiple and contradictory positions, and it has a heuristic capacity which will support the development of the

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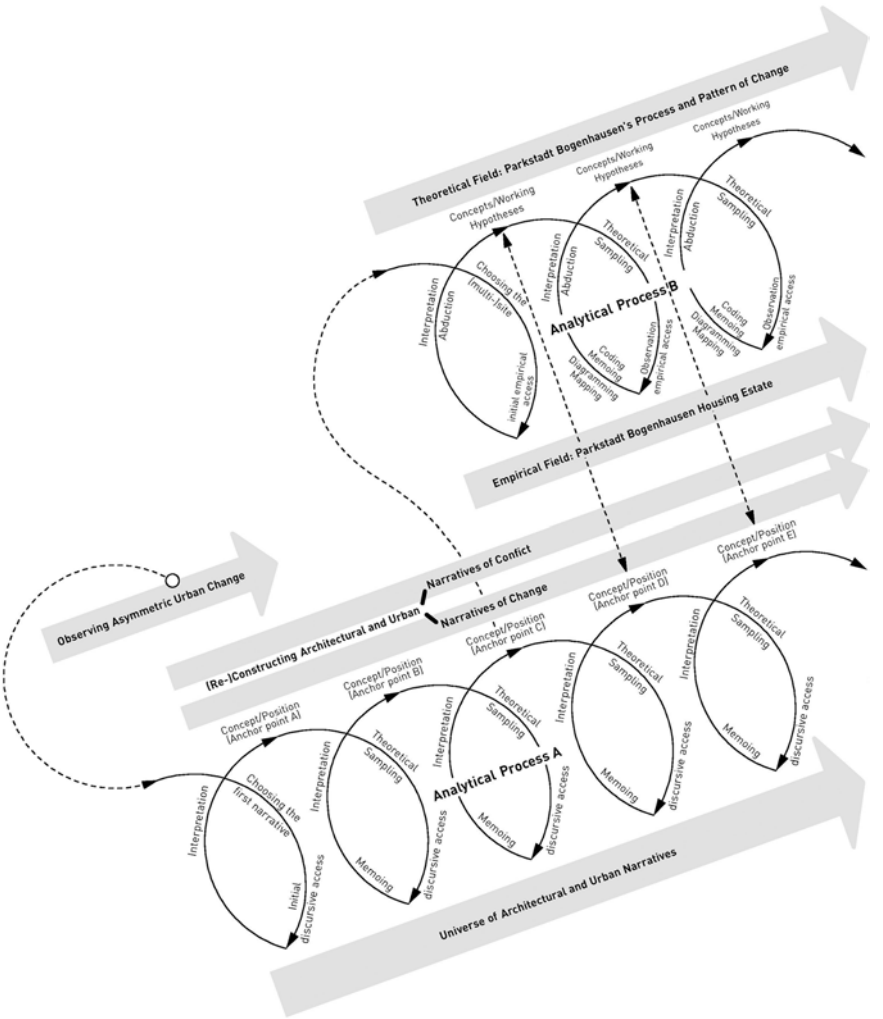
Figure 11: Combination of the two main areas of enquiry: Analytical Process A (essay-based analysis of urban and architectural narratives) and Analytical Process B (case study element, working with empirical data). The processes follow their own analytical methods, but are closely related to each other.



Redundant City concept. I will explain the positional map in greater detail in Chapter IV when intersecting the strands of conflict and change.

Based on the above methodological considerations, the main analytical tools and stages applied in Analytical Process A include

1. the iterative-cyclical research model, conceived as **discursive-interpretative process** (based on adapted GTM model and situational analysis)
2. **theoretical sampling** (incremental sampling of narratives, 'on analytic grounds')
3. **essay-based memoing, interpreting** of the narrative data, **anchoring** (malleable fixations)

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4. identification and constructing of **concepts/positions**
5. **two parallel strands of enquiry:** narratives of conflict and narratives of change
6. **intersecting** the two strands together with their concepts in the **positional map**

5.3 Analytical Process B: Case Study Element. Working with Empirical Data

The case study element in the second part of the analysis requires a different process design. In the case study, the analytical focus shifts from architectural and urban narratives to the empirical field. Again, the iterative-cyclical GTM model is at the base of the process, but this time it is combined with a two-stage coding exercise of text-based material (Strauss 1987, pp.27–33; Clarke 2005, p.xxxi) as well as extensive mapping and diagramming. The mappings draw conceptually from situational analysis. They are extended and adapted to the specific research context. The research logic within the loops follows the basic GTM movement, which oscillates between empirical field and theory. The outcome of the process are preliminary, or hypothetical, sub-concepts about the collective process of change in the Parkstadt Bogenhausen housing estate. They are further tested and elaborated in the synthesis stage of the overall concept development.

The main analytical stages and methods applied in Analytical Process B include

1. **case study** element (Parkstadt Bogenhausen housing estate)
2. iterative-cyclical research model, conceived as **empirical-interpretative** process (based on adapted GTM model and situational analysis)
3. **theoretical sampling** (sampling of multi-site data, 'on analytic grounds')
4. **coding, memoing** (two-stage coding of text-based empirical material)
5. interpreting the material
6. **diagramming, mapping** (social worlds/arenas, timeline, identification of negotiated concerns)
7. **comparative analysis** (the case study in context)
8. constructing of **sub-concepts/working hypotheses** about
9. **pattern of change** of the Parkstadt Bogenhausen housing estate

If we combine Analytical Processes A and B in a single graphic representation, we obtain two iterative-cyclical sequences that connect to their respective research areas, and to each other (Figure 11). In Process A, each new interpretation produces a new concept/position and new questions, which provide guidance for the selection and exploration of further narratives. The narratives not chosen in one loop define the pool of residues from which the samples in the subsequent loop are selected. Process B analyses the condition of change in the Parkstadt Bogenhausen housing estate, moving back and forth between empirical field and concept construction. I will discuss this process together with the kind of data chosen in the case study chapter. Both processes are conceived as open processes according to the previously defined perspective on the urban as open construct. They deliver the data for the final stage of concept development, in which the Redundant City concept is generated. For clarity and legibility, the graphic representation of the Analytical Processes A and B shows regular loops and arrows. However, this should not create the impression that the iterative-cyclical processes is linear and advances in a straight and predictable line. Rather, deviations and

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uncertainties are as much part of the enquiry as the directionality established through critical reflection and theoretical sampling.

Finally, I would like to make a brief remark as to the relationship between the critical approach, which I have outlined further above, and GTM, which I have discussed in the preceding sections. The research project is based on a multi-site/multiple-methods approach. Questions of compatibility inevitably arise in research designs that draw from different methods and methodologies. Adele Clarke's 'pushing of grounded theory around the postmodern turn', as well as the work of others who have aimed to move GTM in new directions, have strengthened the connections between GTM and the critical perspective. Kathy Charmaz asserts in her article "Grounded Theory in the 21th Century" (Charmaz 2005) that they may even reinforce each other. Her reflections on GTM in social justice studies seem to be general enough as to be applicable to a broad range of research designs, and which in this sense encourage the combination of GTM and the critical perspective:

> "A grounded theory informed by critical inquiry demands going deeper into the phenomenon itself and its situated location in the world than perhaps most grounded theory studies have in the past. This approach does not mean departing from grounded theory guidelines. […] Grounded theory details process and context – and goes into the social world and setting […]. Grounded theory contains tools to study how processes become institutionalized practices. Such attention to the processes that constitute structure can keep grounded theory from dissolving into fragmented small studies." (ibid., p.529)

6. Methodological Conclusions

Research in architecture and urbanism cannot be assumed to be a routine or pre-given process. Research in these disciplines occupies different epistemological locations and produces knowledge that is framed in different ways. The complex and at times contradictory nature of this knowledge needs to be addressed if naïve objectivism, compartmentalised discourses and the reproduction of partial knowledge are to be avoided. Because there are valid justifications for each of these framings, and because different bodies of knowledge contribute to architectural and urban research in different ways, researchers need to define which kinds of knowledge and research perspectives they intend to relate to – for each enquiry separately and anew. Rather than perceiving the diversity of knowledge as an obstacle to research, we can take it as a unique resource, in particular if we understand urban and architectural issues as something that cannot be grasped in isolation and from a single perspective.

Approaching the urban as open construct – for which I have argued at the outset of this research project – means to call into question the separation of macro and micro scales of conceptualisation, the uncritical adoption of concepts of static space, the insistence on hard disciplinary demarcations and reductionist framings of problems, the privileging of specialist positions, and the divide between social and material worlds. Drawing from the writings of Karl Popper, Bruno Latour, Neil Brenner, Adele Clarke and others, I have assembled a series of research propositions as a response to these challenges, that on the one hand address the methodological and epistemo-

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logical problems identified, and on the other set out an interpretative fabric through which I seek to raise questions and develop a different view of urban and architectural problems. I propose to refer to this particular form of research as a 'situated and critical project'.

Taking as a methodological starting point the idea of the urban as an open construct requires that an adequate level of non-closure be maintained in the research process, while ensuring research precision and scrutiny. For this purpose, I propose adapting the iterative-cyclical research model of grounded theory methodology (GTM) together with the mapping tools provided by situational analysis (SA). GTM and SA do not start with a predefined population in the empirical field, a hypothesis that is to be verified, or a systematics based on fixed and exhaustive categories. While demarcating draws a rigid frame around research objects, separating them from other disciplines and contexts, GTM and SA work with theoretical sampling, memoing and coding, respectively mapping, on the basis of an open research process. Rather than applying a predefined frame to the research problem, or accepting the systematic production of blind spots as a result of rigorous demarcation, they move conceptually along an incremental analysis of field-related data and generate theory or concepts in the course of the process. For the purpose of this study, I have developed 'anchoring' and 'intersecting' as additional memoing and analytical tools. 'Intersecting' is conceived as device for the assembling of concepts/positions in architectural and urban narratives of conflict and change, as well as a heuristic device for the development of the Redundant City concept. By means of intersecting, I seek to establish a high-density construct with the aim of adding an additional layer of research precision and depth to the analysis.

Based in these methodological considerations, the research process evolves along three main trajectories:

1. **Analytical process A** (discursive-interpretative analysis of narratives, intersecting conflict and change)
2. **Analytical process B** (case study element, working with empirical data)
3. **Concept development** (Redundant City concept)

Critical urban theory informs the interpretative fabric for the research project. Theory in the critical perspective is seen as being embedded within the time/space of history, and therefore mediated through power relations. There is no neutral standpoint from which to produce and engage with theory, which means research needs to reflect on itself. Critical urban theory challenges the generalisations of means-to-ends rationales that aim at optimisation and efficiency without questioning the dominant systems in which they operate, and which they ultimately reproduce. The critical approach views the wider framing as part of the problem under examination. Hence, if we intend to emphasise the critical rather than the dogmatic, theory requires a level of autonomy and abstraction that allows it to move beyond the constraints of the immediate and the specific. The critical approach emphasises the gap between the actual and the possible, the contradictions within urban reality, and the contingent nature of urban processes. It points towards alternative urban practices and other ways of 'doing'. In line with the critical perspective, the concept of 'matters of concern' assumes that the choice of methods, the methods themselves, and the way we interpret data are bound

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to expectations, to disciplinary fixations and to paradigmatic traditions. The concept addresses the political dimension of research and of knowledge by highlighting the instrumental nature of knowledge, its connectedness to power, as well as the problem of neutrality in scientific practice. If we conceive of the researcher as critical examiner, then it is a role that cannot be confined to narrowly defined scientific domains, for she or he will be expected to justify the research in terms of how it could – or should – be of concern. If orientation and directionality is required in this process, it may be sought in a double trajectory at once away from and towards – learning from our past mistakes, coupled with collectively produced ideas of and for the future, based on the view that things could always be different.

In perspectives that emphasise the relationship between the material and the social, architecture and human actors are seen as mutually co-producing spatial situations. Architecture and the built environment, equipped as they are with a multitude of institutionally, culturally, economically and otherwise produced properties, reflect back on the situation, as do human actors with their presence and intentions in the situation. I have outlined a research approach for the case study which works on the basis of analysing 'situations'. Situational analysis provides a range of methodological justifications and tools for a critical enquiry into mixed situations. SA integrates basic assumptions of GTM and social worlds/arenas theory to form a conflict theory. It has the capacity, among other things, to represent and analyse controversies, negotiations, commitment and collective action. It assumes that issues of broader concern are negotiated between and through social worlds that partially and temporally participate in arenas. Situational analysis assumes that all elements that are constitutive of a situation are present in the situation. The situation is thus both a conceptualisation and representation of social reality, as well as a site and unit of analysis. In SA, mapping and diagramming are instruments of empirical analysis as well as concept-building. I propose applying social worlds/arenas theory and situational analysis to the study of urban phenomena, assuming that they offer a unique perspective on urban and architectural narratives of conflict and change, as well as the pattern of change observed in the Parkstadt Bogenhausen housing estate.

Engaging with urban problems means engaging with different processes simultaneously and across different scales. The project combines theory with empirically grounded analysis. It is arranged around a multi-site/multiple-methods research approach. Based on an understanding of the urban as collective process rather than a mere aggregate level of individuals, the meso-level, or medium scale, is of particular research interest in this project.

Donald Schön suggests that "phenomena are always more than theory encompasses, and frequently outside or in conflict with theory." (Schön 1967, p.235) He asserts that phenomena that contradict theory, or that are not covered by existing theory are important "sources of novelty" (ibid.) through which new knowledge can be developed. In this sense, I have argued that architectural and urban research further extend their range of enquiry to explore more systematically the relationship between human and nonhuman actors, between collective action and the material world, between discursive controversy and space-generating processes – in particular if we wish to engage with complex phenomena such as urban change. I have brought together criticisms that raise doubts as to the usefulness of constructing intellectual and institutional boundaries if we intend to engage with complex urban, and therefore social, questions.

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I have argued for engaging with the urban as open construct, because of and in spite of the multiple mechanisms and interests that seek to achieve closure. In this research project, I seek to raise new questions by connecting architectural and urban theory to discursive arenas and to situations "where the action is" (Goffman 1967; Dellwing and Prus 2012, p.9). In doing so, I hope to expand the critical view of architectural productions and push the boundaries of what we can 'see' in the city.

Adding to architectural and urban enquiry an analysis of process and social action is not without risk, for it raises specific methodological difficulties and has to withstand the criticisms of more than a single discipline. Research conducted under the premise of openness will necessarily leave residual and unaddressed problems. It will not be exhaustive or systematically complete. However, I believe that this is offset by the chance to develop a richer, and thicker understanding of urban and architectural reality.

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