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A new materialist cartography for converging architectural theory to practice

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Abstract
Architectural theory in the late 20th century, which often borrowed concepts and theoretical frameworks from other disciplines including post-structuralism and Marxist critical theory, faced criticism for failing to stimulate architectural practice and its eventual exhaustion. This theoretical crisis, coinciding with recent global crises, has led to a broader disciplinary impasse. In response, there is an urgent need for new perspectives to redefine architectural theory. This study introduces the new materialist perspective as a novel framework for understanding the complex fabric of reality, as a foundation to redirect architectural practice toward addressing real-world challenges. It proposes a conceptual cartography of architectural theories that critiques past issues in the theory-practice relationship and suggests solutions grounded in the new materialist perspective. This article adopts qualitative research, employing a cartographic strategy as its research methodology to present a cartography of architectural theory. It draws upon texts on architectural theory literature, new materialist philosophy and architectural texts that have been influenced by the new materialist perspective. The proposed cartography examines the adverse impacts of philosophical traditions on architectural theory and practice, while exploring potential frameworks derived from new materialism that emphasize transversality, socio-materiality, and non-representational approaches in architecture. Within this tripartite framework and cartography, conceptual trajectories are proposed to foster transversal disciplinary collaboration, situate practices in concrete conditions, and emphasize material realities. Ultimately, it aims to guide architectural practice in effectively addressing contemporary global challenges.

Keywords
New materialism, Non-representational theory, Socio-materiality, Theory-practice divergence in architecture, Transversality.

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1. Introduction

Given the extensive historical background in architectural literature, the persistent divergence between theory and practice remains a critical issue that warrants prioritisation, particularly in the current era of global crises. It is now more imperative than ever that architectural practice to be guided by a well-developed theoretical framework. Architectural theory has historically made significant use of critical and post-structuralist theoretical frameworks. However, while these borrowings are rich in philosophical and conceptual complexities, their influence on architectural practice has often been limited, as they have not effectively guided the application of architectural theory in many contexts. It is therefore evident that there is a requirement for the development of theoretical frameworks that facilitate the formation of more intrinsic and transversal disciplinary relationships in order to provide practical guidance to transform focus of practice in order to respond effectively to real-world challenges.

Influenced by post-structuralism, previous human-centred socio-cultural analyses in architectural theory, which view everything as a social construct, have been inadequate to grasp the complexity of material processes beyond human behaviour and culture. In contrast, the new materialism challenges the dualistic categories of nature-culture and matter-culture, offering a more comprehensive approach to addressing the systemic problems of our time. As Maria Voyatzaki proposes, the new materialist paradigm offers a superior understanding of environmental, demographic, geopolitical, and economic challenges by underscoring the indivisible link between environmental instability and socio-cultural formations (2018b, p. 5). Architectural theory can benefit from emphasizing real-world experiences, interactions, and non-representational material relationships, as highlighted by the new materialist approach, which has the potential to transform architectural practices and align them more closely with real-world problems.

This study considers the new materialist perspective, which offers a novel framework for understanding the complex fabric of reality that engages more effectively with daily and material life, as a fruitful school of thought that can provide a framework for integration of contemporary architectural practice and theory closer together. In this context, the hypothesis of this article posits that employing new materialist perspective as a theoretical background to transform the focus and approach of architectural practices can render architectural theory more applicable and practice-oriented. This study aims to explore the opportunities presented by the new materialist perspective, which offers a significant potential to broaden the focus of architectural practice by addressing real-world issues such as social and environmental challenges, while also tackling the historical difficulties in architectural theory that have contributed to the theory-practice divide. Accordingly, this study seeks to establish a cartography of architectural theory that presents conceptual trajectories, progressing from critiques of past challenges in the relationship between architectural theory and practice to proposing solutions based on the new materialist perspective. The ultimate objective is to introduce, discuss, and develop a philosophical framework that can inform future academic research and architectural practices, fostering a more integrated relationship between theory and practice within the architectural domain. To outline these conceptual trajectories, this study adopts qualitative research, employing a cartographic research strategy to facilitate navigation across various theoretical sources. These theoretical sources included literature related to the theory era and post-theory discourses in architecture, literature pertaining to the proposed new materialist perspective, emerging or existing new materialist effects in architectural theory and practical examples. The conceptual trajectories of this cartography have been organised into three subheadings: ‘From interdisciplinarity to transversality’, ‘from social culture to socio-material culture’, and ‘from representational to

non-representational and situated'. Examples illustrating at least one of these proposed subheadings have been analysed and interpreted, while the cartographies visualizing the conceptual trajectories of the research have been created and evaluated.

2. Literature

The distinction between theory and practice in the field of architecture can be traced back to the Renaissance period. During this time, architecture began to be understood as a product of the mind rather than a craft, and the idea of architecture was privileged over the physical reality of the building (Kaminer, 2007, p. 64). However, the period between the 1960s and the 2000s, often referred to as the 'theory turn' in architectural theory, witnessed a significant intensification of this dichotomy. This era witnessed a proliferation of theoretical concepts that were exchanged with other disciplines, including philosophy, linguistics, and sociology. Hays (1998) posits that this period was characterised by the ascendancy of Marxian critical theory and post-structuralism. Nonetheless, these theoretical frameworks were subjected to criticism for their restricted practical applicability (Sykes, 2010). From the latter half of the 1950s onwards, structuralist theories, informed by Saussurean structural linguistics, began to exert an influence on the social sciences and arts, leading to what has been termed the 'linguistic turn' (Loeckx & Heynen, 2020, p. 31). During this period, there was a notable increase in the number of intellectual approaches to architecture, influenced by linguistics. Similarly, with the development of post-structuralism, these approaches began to draw from post-structuralist literary theory. Consequently, a growing distinction emerged between theorists and practising architects, which led to the establishment of architectural theory as a full-time academic discipline (Heynen & Wright, 2012, pp. 41-42).

During the same period as post-structuralism, neo-Marxism provided a critical perspective on the field of architecture. However, at the beginning of the 21st century, seminal essays by Michael Speaks and Somol and Whiting challenged the functionality of critical theory, advocating for more adaptable frameworks for architecture (Baird, 2004). In the early 2000s, the efficacy of critical and linguistic theoretical approaches was called into question as a consequence of the advent of the new pragmatist perspective. This period in architectural history is frequently designated as 'post-critical' or 'post-theory'. The growing influence of the new pragmatism in the culture of architecture has been attributed to its practice-driven structure, which provides an action-based alternative to critical theory (Lefebvre, 2017). In the second half of the 1990s, the work environment of architecture was re-evaluated in the context of neoliberal economic theory, which resulted in the introduction of pragmatism into architectural theory. During this specific era of architectural theory and practice, the prioritization of tangible results and the integration of architectural procedures with capitalist principles resulted in a diminished emphasis on crucial social and environmental consequences.

This article puts forward a novel theoretical framework based on the adoption of new materialism, with the objective of overcoming the limitations that have previously been encountered in the application of theoretical approaches to architectural practice. The term 'neo-materialism', which is characterised by a distinct understanding of materiality, a novel perception of reality, and a unique ontological framework, was first introduced in the late 1990s by Manuel De Landa and Rosi Braidotti (Dolphijn & van der Tuin, 2019, p. 126-137). The tenets of new materialism emphasise the interconnectedness of material and discursive elements, adopting a relational ontology that considers them on the same ontological ground (Coole & Frost, 2010). Notable figures associated with new materialism include Karen Barad, Donna Haraway, Jane Bennett, Graham Harman, Bruno Latour, Timothy Morton, Quentin Meillassoux, Elizabeth Grosz, and many others (Coole & Frost, 2010; Dolphijn & van der Tuin, 2019; Kissmann & van Loon, 2019).

The new materialist school of thought is comprised of a number of distinct sub-currents, including vital materialism, agential realism, new materialist posthumanism, feminist new materialism, and non-representational theory. A criticism of dualism that advocates for an integrated comprehension of materiality, encompassing cultural, social and discursive elements (Barad, 2007; Bennett, 2010), is a unifying feature of all sub-currents. This idea is predicated on the notion that all causalities of existence are contingent upon the interdependence of social context and material conditions, which is also referred to as socio-materiality.

Nigel Thrift's 'non-representational theory', which falls under the umbrella of new materialism, offers a critique on the prioritisation of representations as the primary source of evidence for understanding existence. This theory proposes a shift in focus towards material interactions and lived experiences, as opposed to the emphasis on discourse that characterizes social constructivism (2008). Furthermore, Donna Haraway's concept of 'situated knowledge' (1988) is complementary to non-representational theory, emphasising the significance of context-specific knowledge and practices. Both approaches have the potential to provide insights that can inform the development of architectural practices in analysing and responding to the complexities of the planet.

The distinctive perspectives proffered by new materialism have begun to gain prominence in architectural literature since the 2010s. Architectural theory has been expanded to encompass discussions of interactions between humans, non-humans, materials, objects, and discourses (Yaneva, 2012; Adler, 2017). Goodbun and Jaschke (2012) posit that the perspective on matter espoused by new materialism can provide novel insights for the field of architecture.

The *New Materialisms* book series, edited by Iris van der Tuin and Rosi Braidotti and published by the University of Edinburgh, comprises eight volumes, two of which address architectural content. One such book is the 2017 edited volume by Andrej Radman and Heidi Sohn, entitled *Critical and Clinical Cartographies: Architecture, Robotics, Medicine, Philosophy*. The book departs from traditional architectural analysis by drawing on theoretical and philosophical traditions associated with architecture as a material practice, including but not limited to the fields of robotics, medicine, and philosophy. The book entitled *Architectural Materialisms: Nonhuman Creativity*, edited by Maria Voyatzaki (2018a), assembles a collection of essays that explore the emerging field of architectural materialisms from the vantage point of new materialist thought. These works emphasise the significance of material processes in architectural discourse, as well as the influence of contemporary materialist ideas on theoretical and practical approaches. From this perspective, there is considerable potential for bridging the gap between theory and practice by reorienting the architectural focus from discursive dimensions to materiality. By mapping conceptual trajectories from criticisms of this theory-practice gap to the possibilities offered by new materialism, this paper investigates this equilibrium. In this context, a cartography structured around three main conceptual trajectories has been provided. The first conceptual trajectory, 'from interdisciplinarity to transversality', critically examines architectural theory's previous entanglement with linguistics and semiotics in the social sciences. At this point, new materialist approaches, which focus on concrete material processes, indicate a theoretical redirection by fostering intersections between the social sciences, natural sciences, and positive sciences. The second theoretical trajectory, 'from social culture to socio-material culture', evaluates the problematic structure of architectural theory's historically anthropocentric engagement with social culture in informing practice. This section maps a conceptual trajectory that explores the potential of new materialism's intertwined understanding of social and material realities. The third theoretical trajectory, 'from representational to non-representational and situated', critiques the representational qualities of previous architectural theory,

which distanced theory from practice by remaining disconnected from reality. It then considers the potential of non-representational theoretical approaches in new materialism to bring architectural theory closer to addressing real-world issues.

3. Method

This study adopts qualitative research, employing a cartographic research strategy to present a cartography of architectural theory. Braidotti defines cartography as a theoretically grounded engagement with the present, establishing a subject position that prioritises a perspective beyond theoretical considerations (2013, p. 164). In alignment with Braidotti's definition of cartography, this study adopts a critical subject position informed by readings of the history of architectural theory. From this foundation, it draws conceptual cartographies that navigates from critiques of historical challenges to architectural theory toward the opportunities offered by the new materialist perspective. The value of this study lies in its comprehensive and multi-faceted analysis, facilitated by the utilisation of the cartographic research strategy, which enables the establishment of interconnections between diverse fields of knowledge. These fields include philosophical traditions and their impacts on architectural theory, the history of architectural theory and criticism, the philosophy of new materialism, and architectural texts influenced by new materialist thought. The cartography of architectural theory developed in this study is constructed through the mapping of connections between the categories and subcategories identified during the analysis of these fields. As previously mentioned, the study specifically presents a new materialist cartography composed of three subcategories proposed as a theoretical framework for architectural practice. At a broader scale, these three subcategories are integrated into a cartography that encompasses five fundamental categories; the 'philosophical traditions' that significantly influenced the theory-practice divide emerging in the second half of the 20th century; the 'general influences of philosophical traditions'; the 'effects on architectural theory and practice'; the 'potential frameworks from new materialism'; and the 'practical examples'. These categories have been jointly interpreted within this framework, culminating in assessments, recommendations, and discussions. The most recent example of the application of cartographic strategies in the field of architectural studies is the essay *Alive again: A cartography for 'post-theory' in architecture* (2022) by Furkan Balcı and Funda Uz (Balcı & Uz, 2022). However, the scope of this study differs, as Balcı and Uz (2022, p. 163) examine the intricate interrelationships between the vitality discourse of post-theory and traditional architectural theories.

4. Cartographic trajectories through a new materialist approach to converge architectural theory and practice

This section presents cartographies constructed to delineate a theoretical framework for architectural practice through the perspectives of new materialism. As previously stated, the creation of these cartographies involved the identification of three key subheadings: 'From interdisciplinarity to transversality', 'from social culture to socio-material culture' and 'from representational to non-representational and situated'. These subheadings were derived from historical challenges in architectural theory, new materialist viewpoints with the potential to elicit positive responses within architectural theory, and emerging or existing new materialist effects in architectural theory. The fourth subheading involves the analysis and interpretation of architectural projects that reflect the recommendations derived from the preceding three subheadings, thereby facilitating a deeper understanding of their applicability to architectural practice. The fifth subheading provides an evaluation of the cartographies through the use of visual representations.

4.1. From interdisciplinarity to transversality

As a result of theoretical discourse prioritizing conceptual abstraction over the practical application of architectural theory, the significance of architectural theory has been confined to the exclusive domain of academic discourse, limiting its interaction with broader architectural practice and general public. This section presents a cartographic framing of a conceptual trajectory that begins with a critique of the predominant interdisciplinary interactions of architectural theory with the social sciences and progresses towards the adoption of transversal disciplinary intersections in architectural practices, aligned with the principles of new materialism. The transversal approach, with its capacity to intersect and integrate multiple disciplines to comprehend the multifaceted dimensions of reality, offers a perspective that brings architectural practices closer to addressing real-world issues.

In the latter half of the twentieth century, architectural theorists began to incorporate concepts from a variety of fields, including philosophy, linguistics, sociology, phenomenology, and anthropology (Hays, 1998; Sykes, 2010, p. 14). This engagement that architecture has predominantly established with the social sciences has enhanced its intellectual depth but has also introduced significant challenges. The attempt to incorporate concepts from other fields has led to a notable increase in abstraction and conceptual complexity within architectural theory. One noteworthy influence was the integration of Derrida's post-structuralist tenets into architectural theory through 1980s deconstructivism, as exemplified by Eisenman, challenged conventional notions of meaning and form in architecture, emphasizing their inherent instability and ambiguity. Pauline Lefebvre (2017, p. 24) challenges the reliance on linguistic analogies, noting that a significant number of architects have reduced complex philosophical concepts to mere superficial formal exercises, thereby stripping them of their inherent political and cultural significance. Similarly, Speaks (2002) and van Toorn (2017) highlight the disconnection between theoretical frameworks of architecture and real-life architectural practice.

In the light of aforementioned points, it can be posited that one of the principal challenges encountered in the integration of architectural theory into practical projects during the second half of the twentieth century was the influence of social constructivism, structuralism and post-structuralism, which gave rise to an increased tendency towards abstraction and literal interpretation within theoretical discourse. The perspective promoted by these philosophical traditions, which posits that all phenomena are social constructs, strengthened the connection between architecture and the humanities. Alejandro Zaero-Polo criticises the perspective of architecture as a 'social construct' and its predominant focus on the social sciences (2008). The epistemology of the social sciences is characterised by abstraction and a lack of physicality. It is therefore necessary to adopt a more practice-oriented focus in architectural theory, addressing real-world challenges while retaining the discursive insights cultivated through engagement with the social sciences. In order to reclaim its transformative potential, it is essential that a balance is struck in architectural theory between intellectual depth and practical utility. This will facilitate a dialogue that bridges theoretical frameworks with real-world applications. Moreover, the agenda of architectural theory should be expanded to encompass engagement with real-world problems intersecting with fields such as the life sciences and the positive sciences.

The creation of frameworks that transcend the dichotomy between theory and practice is a key objective of new materialist theorist Rosi Braidotti's concept of 'post-disciplinarity'. This approach entails moving beyond the conventional academic boundaries to construct integrative frameworks between different scientific and professional fields that emphasize interconnectivity and the necessity to transcend dualistic distinctions, such as the separation between the humanities and the sciences (Braidotti, 2021). This

approach fosters new forms of collaboration across various fields within the humanities and the sciences to address complex challenges such as climate change and social inequalities. Pelin Tan's text, entitled *Transversal Materialism: On Method, Artifact and Exception*, provides a complementary perspective by focusing on the interconnectedness of disparate fields through material practices. Tan posits an approach that transcends the boundaries of traditional disciplinary knowledge, thereby facilitating a nuanced understanding of the connections between tangible realities and social dimensions in architectural practices. This perspective highlights the necessity for practices that engage with multiple disciplines in a transdisciplinary manner, examining the material and social dimensions of spatial practices from a spatial perspective. Furthermore, it encourages the implementation of applications that recognise the value of both human and non-human actors (2016). A transversal disciplinary approach interlinks the methodologies and epistemologies of various disciplines, thereby enabling a deeper comprehension of the complex structure of reality and systemic challenges. This approach calls for the integration of tangible realities from the site into the design process, rather than relying on abstract assumptions, in order to more effectively address the challenges faced by communities and ecosystems. The application of this perspective in architectural practices entails not only a comprehensive examination of the social contexts of architectural projects but also an exhaustive analysis of their material realities. In this context, it is proposed that architectural practice should be guided by beginning with the tangible conditions of the project site and its surroundings, integrating all related fields of knowledge and practice into the architectural process. It is recommended that theoretical and practical studies be conducted with a transversal disciplinary approach to identify potential intersections between architectural practices and disciplines such as the humanities, the positive sciences, and the natural sciences.

4.2. From social culture to socio-material culture

This section presents a cartography that frames a conceptual trajectory, commencing with a critique of the dominance of social culture in architectural theory and progressing towards the adoption of a socio-material perspective in line with the tenets of new materialism. In the latter half of the twentieth century, architectural theory underwent a significant shift in focus, with an increased emphasis placed on the interrelationship between social and cultural factors and the built environment. This shift was markedly influenced by the developments in critical theory, semiotics, structuralism and post structuralism. Post-structuralism and its precursor, structuralism, forms semiotic base for architectural theory, where phenomena are treated as signs reflecting prevailing ideologies via linguistic analysis. Jonathan Culler suggests that employing linguistics in the analysis of cultural phenomena is predicated on the recognition that social and cultural phenomena are not merely physical occurrences but are imbued with meaning and thus function as signs (1976, p. 4). It is evident that there was an analogy between critical theory in architecture and semiotics, in that both seek to understand the underlying power structures that inform the formation of the built environment. Furthermore, the year 1968 marked a pivotal moment in architectural history, where the critical potential of the discipline came to the fore, superseding its aesthetic dimensions (Loosen et al., p. 9). The contributions of prominent figures such as the Marxist critical theorist Tafuri (1976) serve as pivotal examples of architectural criticism that perceive architecture as an integral component of the economic and cultural superstructure. In the consequence of these influences, architectural theory has undergone a shift in focus, with an increase emphasis on the analysis and critique of human-centred social culture. This pivotal shift in architectural theory has prompted a re-evaluation of architecture through a socio-cultural

lens, often overshadowing the material and tangible aspects.

In contemporary architectural theory and practice, anthropocentric perspectives remain dominant, with a considerable focus on societal issues pertinent to human culture. A significant proportion of academic and practical efforts in architecture concentrate on urban areas as the foundation of human culture, frequently neglecting to address the global-scale impacts of architecture on other living beings and the planet in a more holistic manner. In the field of architecture, academic and practical efforts addressing issues of ecology, resource use, and energy efficiency remain insufficient. In contrast, new materialist philosophy provides a theoretical framework that establishes a more balanced approach between human societies and material dimensions. Voyatzaki (2018c, pp. 294-295) posits that post-humanist perspectives challenge this anthropocentric orientation, paving the way for assessments that encompass both human and non-human entities. The new materialist approach, which considers all entities in the universe as equal and mutually interconnected within a flat ontology and regards the social and material dimensions as intertwined rather than categorically separate, is posited to have a beneficial impact on architectural practices.

In the new materialist paradigm, it is acknowledged that reality is shaped by both social constructions and material processes, with non-human entities exhibiting agency and vitality (Barad, 2007; Bennett, 2010). The integration of materiality as a theoretical framework within architectural practice provides a lens through which architectural practice can be brought closer to the complexities of reality. This approach encourages a more profound comprehension of the interrelationships between social and material components within the field of architecture.

As an emerging influence of the new materialist paradigm, material studies are gaining importance in architectural practice and research, signifying a shift towards understanding the broader implications of materials and their interactions with the world. Gerald Adler characterizes this phenomenon as the centralization of materiality and material conditions in architectural discourse (2017). This focus on materiality has facilitated intersections between architecture, sociology, and anthropology, emphasizing the need to investigate materials, technologies, budgets, and tools (Yaneva, 2012). The growing emphasis on materiality within scientific culture and architectural theory positions theory as a socio-material construct, aligning it more closely with the complexities of reality. It is crucial to recognise the interconnectedness of human and non-human actors and to acknowledge the agency of non-human elements in architectural practices that adopt such a theoretical framework.

The new materialist approach has the potential to affect a positive shift in the focus of architectural practices, guiding the development of designs that consider not only the needs of human communities but also the needs and experiences of non-human actors. In light of this framework, it is proposed that holistic investigations be conducted into the environmental, social, and economic interactions of all entities, from a grain of sand on the ground to building materials, from water sources to atmospheric factors, and from social rituals to animal behaviours and needs. These investigations would facilitate a better understanding of the potential impacts of architectural practices and expand their ontological scope. The socio-material framework of new materialism facilitates the generation of practical insights to guide the development of sensitive and inclusive architectural practices. The advancement of this approach as a guiding framework for architectural practices is proposed to expand the scope of responsibility in architecture, integrating human culture and material dynamics in a more comprehensive manner.

4.3. From representational to non-representational and situated

Architectural theory shaped by meaning-focused linguistic approaches is critiqued in this section for its representational nature and its detachment from the actual

knowledge of place. Building on this critique, it is proposed that adopting non-representational and situated theoretical frameworks, which place greater emphasis on the reality of place, can facilitate a departure from representations and abstractions in architectural practice. Accordingly, a conceptual cartographic trajectory has been developed around these ideas.

As previously mentioned, the influence of structuralism during the 1960s and 1970s became prominent in architectural discourse, enriching theoretical discussions but resulting in an undue emphasis on uncovering symbolic meanings and representations, while the practical and material complexities of architecture received insufficient attention (Loeckx & Heynen, 2020). Nevertheless, despite the advancement of theoretical discourse that these perspectives have facilitated, they have not succeeded in bridging the gap between theory and practice. Notable works such as Aldo Rossi's *The Architecture of the City* (1984) and Venturi, Scott Brown, and Izenour's *Learning From Las Vegas* (1977) exemplify a focus on symbols and representation within semiotics, thereby underscoring its limited engagement with the material and practical intricacies of architectural design.

Meaning-focused linguistic approaches, which rely primarily on linguistic representation, are unsuitable for architecture because the field is fundamentally rooted in concrete and experiential elements. In the field of architectural theory, shaped by meaning-focused linguistic approaches, the distinction between theoretical discourse and practical application has become increasingly pronounced, prompting criticism also from post-critical theorists. Theories within the textual and representational paradigm pose significant challenges for integration into practice, largely due to their reliance on post-structuralist philosophical references and abstract conceptual structures. Amir Djalali posits that, in contrast to language, architecture organises bodies and creates order through activities, sensations, and affects rather than dividing subjects and objects (2017, p. 1296). Similarly, Christopher Wood criticises the linguistic analogies employed by theorists such as Eisenman, arguing that they are inherently incompatible with the field of architecture, which is more closely aligned with real-time experiences, dynamics, and empathic interactions (2002).

One of the proposed cartographic trajectories is based on Nigel Thrift's (2008) 'non-representational theory', which circumvents the linguistic constraints of post-structuralism. Phillip Vannini describes non-representational theory as a successor to postmodern theory and a significant shift away from cognition, symbolic meaning, and textuality (2015, p. 2). This evolving research paradigm underscores the ever-shifting and dynamic nature of life while directing theoretical focus towards lived experiences, rather than representations. Similarly, the concept of 'situated knowledge', as developed by Donna Haraway, posits that, in contrast to cultural theories that treat the planet as an externality, knowledge production should be non-generalising, subjective and partial. Furthermore, it suggests that the world should be observed from an intimate and situated perspective (1988). Haraway's approach supports contextualism in architecture, advancing it in a direction that emphasizes real-time, subjective perspectives that are intimate, situated, and immanent.

There are alternative textual essays by theorists that address the representational constraints that reduce the permeability between architectural theory and practice. To illustrate, Jane Rendell's site-writing method challenges the conventional paradigms of representation in architecture, prompting a situated exploration of the material, political, ideological and sensory aspects of locations, and rethinking our relationship to place (2020). This method bridges the gap between theory and practice by generating site-specific, real-world knowledge through a material and discursive perspective aligned with new materialist views on situated knowledge.

In her book, *Kissing Architecture*, Sylvia Lavin also puts forth the proposition of a shift away from verbal dis-

course on the social and physical aspects of buildings towards an emphasis on the affective experience through physical means. Lavin argues that "no one can speak when kissing", suggesting that a focus on sensory interaction rather than verbal description and representation is more appropriate for architectural discourse and theory (2011, p. 14). The question of representation is also addressed by anthropological approaches through an examination of the axes of subjectivity, objectivity, and situatedness. For instance, Albena Yaneva advocates for situated theoretical assessments, which can be achieved by critically addressing and overcoming the subject-object dichotomy, the privileged position of the subject, the inefficient representation of reality in human consciousness (2012).

In the light of the aforementioned considerations, it becomes evident that architectural theorists have devised novel textual and practical methodologies in response to the constraints imposed by representational theories. These approaches are designed to more effectively encapsulate the intricate nuances of architectural reality, emphasising its tangible, experiential, and material dimensions. For instance, some approaches engage intensively with particular sites, prioritising sensory and affective experiences over verbal representations, while others emphasize the material-discursive potential of theory. These examples demonstrate the importance of shifting the focus of architectural theory from conceptual, abstract, and symbolic representations to expressions that are situated, immanent and directly engaged with real-world issues. The advancement of non-representational and situated methodologies is pivotal for attaining an immanent and profound comprehension of particular sites. It is therefore recommended that design decisions be informed by a multifaceted analysis of specific sites, encompassing a multitude of dimensions, including social, material, sensory, and political aspects. To achieve this, it is essential to incorporate situated analyses, community engagement, local narratives, and situated cultural, natural and ecological references into the design process.

4.4 Assessment of practical examples

In this subheading, examples that are considered to reflect at least one of the tripartite conceptual trajectories outlined in the previous three subheadings are examined and interpreted. These examples include the 'Floating University Berlin', 'Northerly Island', the 'As Close as We Get' project, and 'Superkilen'. Additionally, the general approach of the 'ROTOR' bureau, rather than focusing on a specific project, is highlighted as an example for its alignment with two aspects of the new materialist tripartite framework.

The Floating University Berlin is a project by the architectural collective Raumlabor, which repurposed an area originally constructed in the 1930s as a rainwater retention basin for Tempelhof Airport into a "nature-culture learning site" in 2018 (Talevi & Karjevsky, 2024). This redesign is consistent with the tenets of new materialist thought, which rejects the conventional dualism between nature and culture and instead espouses their intrinsic interdependence. Raumlabor adopted Haraway's concept of "natureculture" (Talevi & Karjevsky, 2024) and implemented modest spatial interventions with the objective of preserving natural elements to the greatest extent possible. The project facilitates interactions between human communities and natural elements through the implementation of biennial Climate Care festivals and nature-themed workshops hosted in this space. The project is not merely a design for human use; it also serves as an experimental and experiential space for exploring the coexistence and interaction of human communities, built environment elements, natural features, and non-human life forms. By adopting this approach, the project embraces a socio-material perspective that values both human needs and non-human material entities, rather than prioritising anthropocentric requirements alone.

Similarly, the Northerly Island project by Studio Gang embodies a socio-material balance. Designed for Chicago's lakefront, the project focuses on habitat restoration, including the creation of a lagoon with a reef to

support fish spawning and calm wave activity. Landscapes and topographies were designed to encourage wildlife habitation (*Northerly Island*, n.d.). By allowing nature to restore itself, the project demonstrates a departure from human-centred designs, challenging dichotomies such as nature-culture and subject-object. It evaluates all material entities—whether living or non-living—within a flat ontology framework. By incorporating architectural and urban elements such as amphitheatres and walking and cycling paths, the project enables people to experience this natural space within the city, reinforcing the integration of human culture with nature.

The As Close as We Get project (2022) by SUPERFLEX, in collaboration with DTU Sustain and By & Havn, similarly reflects a socio-material perspective. The project aims to mitigate the negative impact of the declining Danish rock reefs on marine ecosystems and to preserve and enhance marine biodiversity. Special concrete types were developed and tested to create suitable environments for algae and marine animals when placed in Copenhagen Harbor (*As Close As We Get*, n.d.). The goal is to use this concrete in structural components such as bridge and pier foundations, thereby addressing not only human needs but also those of other life forms. The project challenges dualities such as human-non-human and nature-culture while reflecting a transversal materialist approach through collaboration with marine biologists and engineers, aligning with two dimensions of the tripartite framework proposed in this study.

The Superkilen project, designed by BIG (Bjarke Ingels Group), SUPERFLEX, and TOPOTEK 1 in 2009 and completed in 2012, is a public space located in Copenhagen's Nørrebro district. The project aims to foster a sense of belonging among diverse ethnic groups by integrating objects from 60 different countries (*Superkilen*, 2012). These objects exemplify how the material world influences social and cultural relationships, highlighting the embedded and non-representational qualities of new materialist thought, which transcends social structures, linguistic mediation, and representation. By emphasizing the cultural attributes of material objects related to religion, language, and ethnicity, the project creates an intercultural space for socialization and interaction that transcends these distinctions. In doing so, it embodies an awareness of socio-material culture, showcasing how material objects are integrated into social life.

ROTOR is a multidisciplinary bureau specializing in the research, consultancy, and implementation of reused construction materials. The team assesses the reuse potential of materials before building demolitions, performs material extraction processes, and subjects these materials to physical and chemical treatments to make them reusable. These materials are then offered for sale at discounted prices, accompanied by consultancy services on their integration into design projects (*About us*, n.d.). Consequently, the ROTOR team comprises not only architects but also experts from diverse fields such as environmental science, chemistry, materials science, and biology. By adopting a transversal materialist approach, ROTOR addresses complex issues like resource scarcity through interdisciplinary collaboration, ultimately enhancing resource efficiency. Moreover, ROTOR's reimagining of the built environment not merely as a component of human culture but as a repository of reusable materials reflects a socio-material perspective that respects and emphasizes sustainability.

4.5 Assessments of the new materialist cartography developed for converging architectural theory to practice

This section of the study examines the conceptual trajectories derived from the issues analysed under the tripartite framework in the previous section. The conceptual cartography is constructed through the visualisation of these trajectories in diagrams, and evaluations are conducted based on this cartography. In delineating the conceptual trajectories, the study employs four fundamental categories: The "philosophical traditions" that influenced the theory-practice divide

that emerged prominently in the second half of the 20th century; the "general influences of philosophical traditions"; the "effects on architectural theory and practice"; and the "potential frameworks from new materialism" that can positively redirect the focus of architectural practice. The interconnections between the subcategories that emerged from the primary categories form the basis of the conceptual trajectories that underpin the cartography. Initially, the categories were analysed both individually to reveal shared themes and in pairs to explore their interconnections, resulting in the presentation of a comprehensive schematic cartography that incorporates all categories.

The analysis examining the connections between "philosophical traditions" and the "general influences of philosophical traditions" reveals that impacts such as "increased abstraction and conceptual complexity", "reliance on linguistic interpretation", and "emphasis on textuality and symbolic meanings" are associated with the influences of "structuralism", "poststructuralism", and "semiotics". Similarly, the impacts such as "reduced focus on material reality", "reality regarded as a social construct", and "growing divide between the humanities and sciences" stem from the influences of "structuralism", "poststructuralism", "social constructivism" and "critical theory" (Figure 1).

The impacts of these philosophical traditions on architectural theory and practice are polarized into three distinct categories: the prevalence of "interdisciplinary" interactions, the dominance of "social culture", and the reinforcement of "representational" tendencies (Figure 2). In architecture, the predominance of interdisciplinary connections influenced primarily by social sciences has exacerbated abstraction and conceptual complexity. The categories of interdisciplinarity and social culture together have given rise to issues such as "philosophical concepts reduced to linguistic analogies" and "philosophical concepts constrained to superficial formal exercises". Additionally, the centrality of social culture in architectural theory has caused architectural projects to focus disproportionately on "prioritization of social data over material data", "insufficient attention to non-human elements", and "human needs prioritized over material reality". The dominant

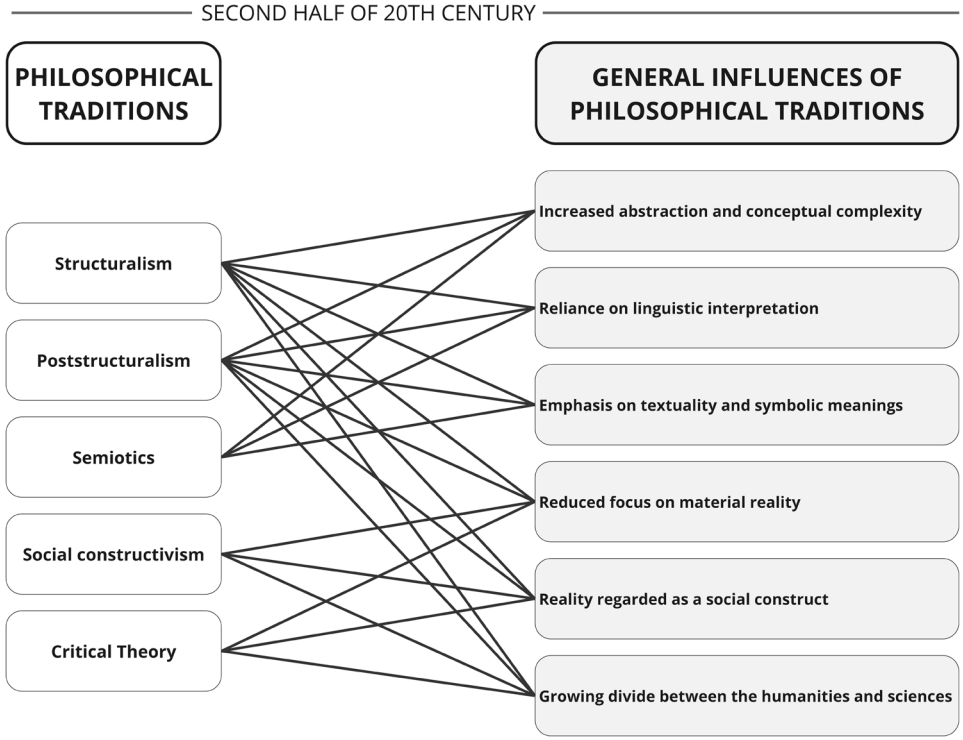

Figure 1. *The "philosophical traditions" and the "general influences of philosophical traditions" categories (Created by the authors, 2024).*

philosophical traditions, characterized by extensive linguistic and semiotic references, have led to the proliferation of indirect and representational approaches in architecture, resulting in the subcategory of "mediates architectural theory's engagement with reality primarily through representation". At the intersection of increased interdisciplinarity, socio-cultural dominance, and representational tendencies, key subcategories emerge, such as "weakened connection between architectural theory and material reality" and "reduced connection between architectural projects and real-world problems".

The conceptual frameworks offered by new materialism provide potential responses to the aforementioned issues, polarized under three categories, as illustrated in the diagram below (Figure 3). Within the "transversality" category, subcategories include "linking methodologies and epistemologies across disciplines", "integrating diverse forms of knowledge into architecture", and "connecting architecture with other scientific and academic fields". The "socio-material culture" category has the potential to generate positive impacts such as the "recognition of the agency of non-human entities", "supporting designs that address the needs of both human and non-human actors", "advancing inclusive and responsive architectural practices", and "aligning architectural theory with complex realities through materiali-

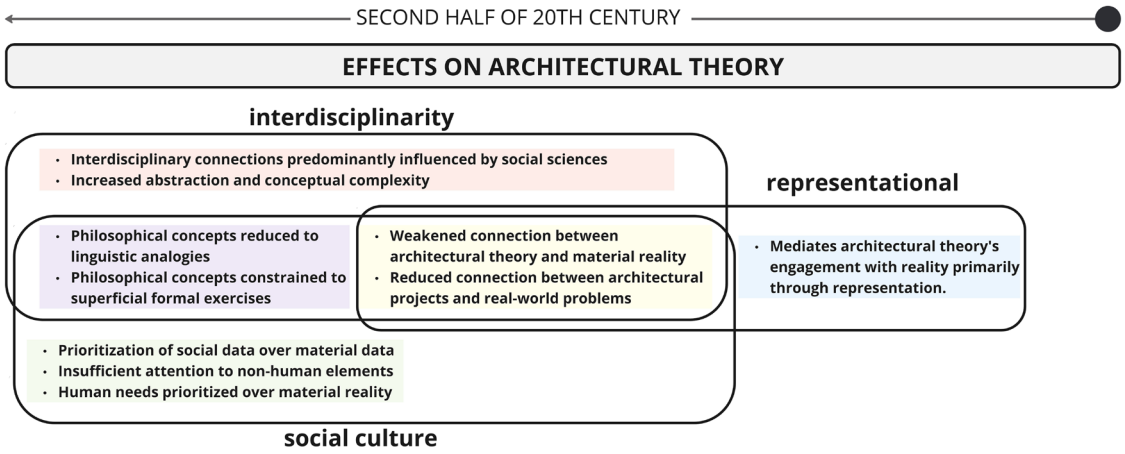

Figure 2. *The "effects on architectural theory" category (Created by the authors, 2024).*

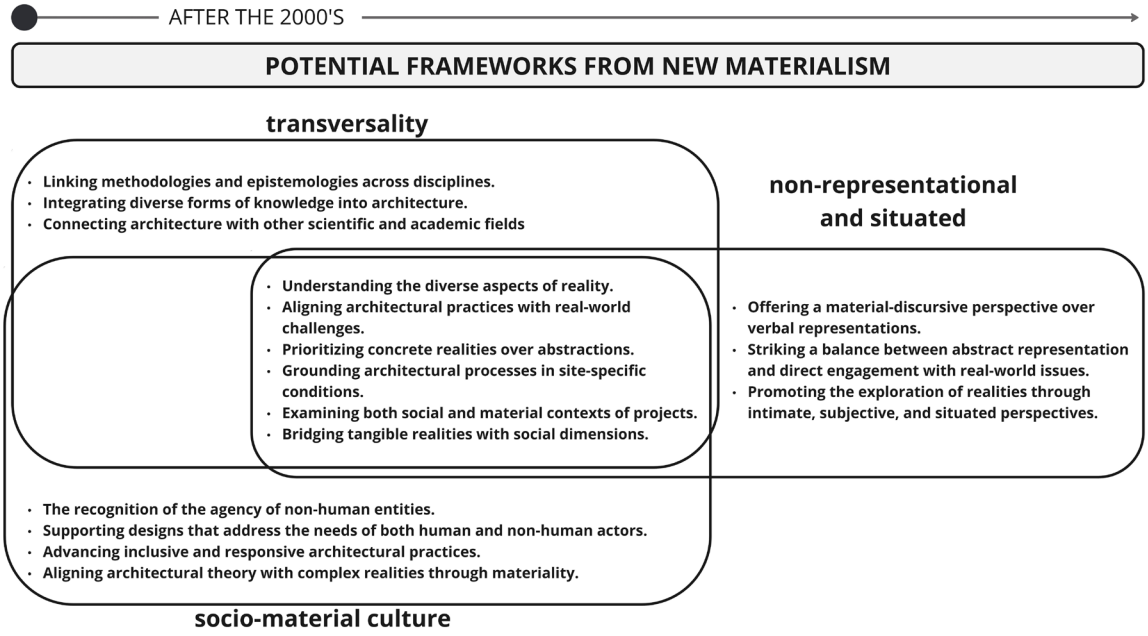

Figure 3. *The "potential frameworks from new materialism" category (Created by the authors, 2024).*

ty". The new materialist framework of "non-representational and situated" perspectives offer potential conceptual trajectories in architecture, including "offering a material-discursive perspective over verbal representations", "striking a balance between abstract representation and direct engagement with real-world issues", and "promoting the exploration of realities through intimate, subjective, and situated perspectives". At the intersection of these three categories, shared subcategories emerge, such as "understanding the diverse aspects of reality", "aligning architectural practices with real-world challenges", "prioritizing concrete realities over abstractions", "grounding architectural processes in site-specific conditions", "examining both social and material contexts of projects", and "bridging tangible realities with social dimensions".

The "effects on architectural theory" category, which outlines the negative impacts of philosophical traditions on architecture, is juxtaposed with the "potential frameworks from new materialism" category, which emphasizes approaches redirecting architectural practice toward concrete, material, and situated real-time issues (Figure 4). This comparison makes the limitations of previous philosophical traditions evident, while new materialist frameworks are proposed as a viable response. Between these two categories, diverse conceptual trajectories emerge, highlighting intellectual pathways with the potential to bridge theoretical shortcomings and practical advancements. For each issue listed under the

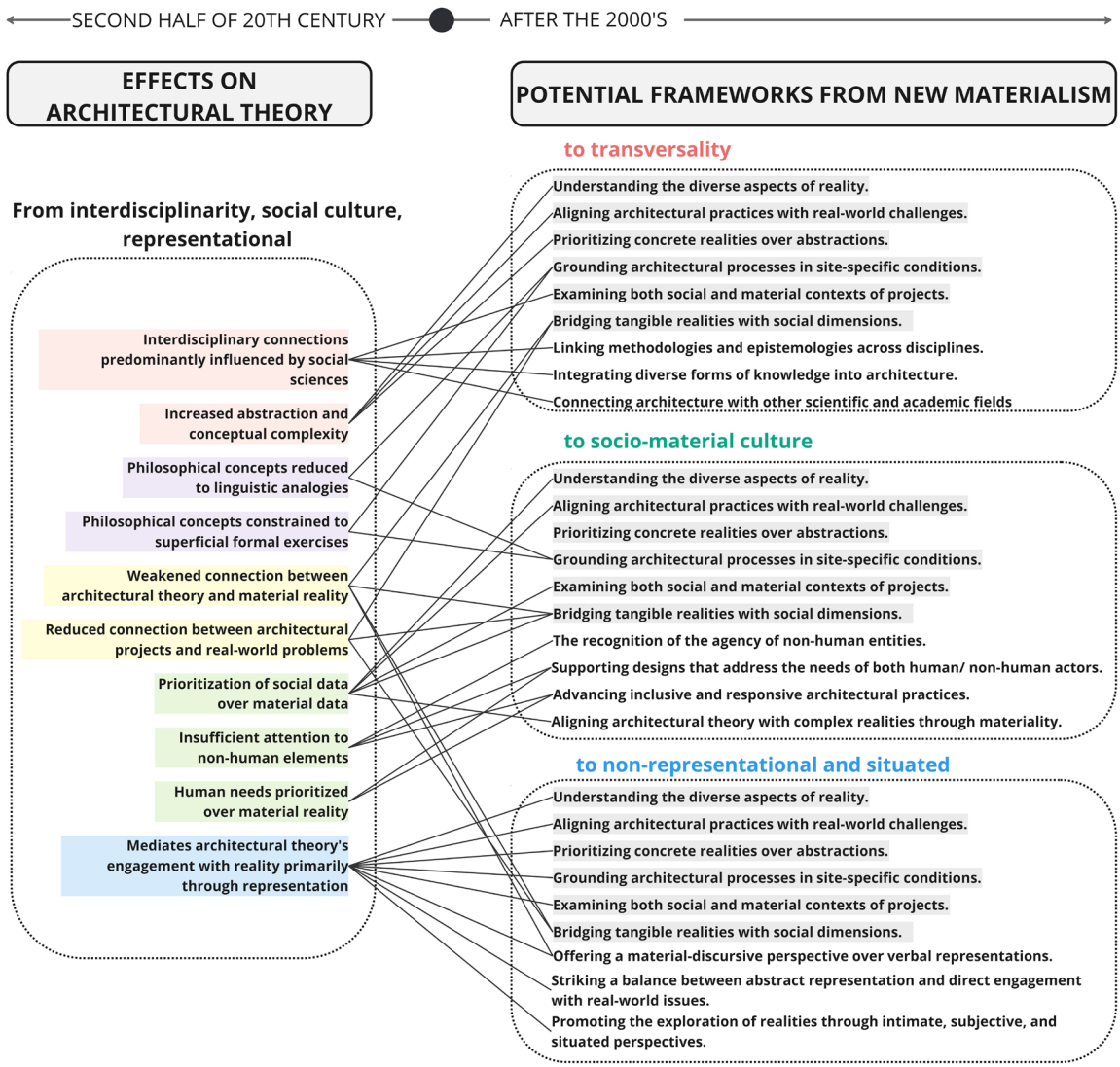

Figure 4. *Juxtaposition of the "effects on architectural theory" category with the "potential frameworks from new materialism" category (Created by the authors, 2024).*

former, responses are identified within various subcategories under the latter, resulting in a cartography encompassing multiple conceptual trajectories. This dual diagram, which constitutes the foundation of the tripartite conceptual framework in the study, represents the unique section of the research where the shortcomings of architectural theory are addressed, and conceptual trajectories from new materialism are proposed as responses. For instance, under the themes of "interdisciplinarity" and "social culture", the issue of "philosophical concepts reduced to linguistic analogies" is addressed by the shared emphasis on "grounding architectural processes in site-specific conditions" within the categories of "transversality" and "socio-material culture". Similarly, within the "representational" category, the issue of "architectural theory's engagement with reality primarily through representation" is resolved through the propositions listed under to "non-representational and situated", offering advancements toward a more directly engaged architectural theory. Another example appears under the "socio-culture" category in architectural theory, where the issue of "human needs prioritized over material reality" is countered by new materialism's emphasis on promoting "socio-material culture". This includes propositions such as "supporting designs that address the needs of both human and non-human actors" and "advancing inclusive and responsive architectural practices". These examples collectively underscore the transformative potential of new materialist approaches in fostering a balanced perspective within architectural theory and practice.

When the headings "philosophical traditions", "general influences of philosophical traditions", "effects on architectural theory and practice", and "potential frameworks from new materialism" are combined with the heading of "examples of practice", the comprehensive conceptual cartography of this study emerges (Figure 5). This cartography is significant because it moves beyond a one-dimensional focus on identifying shortcomings in architectural theory and proposing responses. Instead, it adopts a holistic approach by incorporating the underlying philosophical traditions and their broader impacts, which contribute to the existing issues in architectural theory. Additionally, practical examples aligned with the principles of the new materialist philosophical tradition are integrated into the cartography, enriching the study with both theoretical depth and practical applications.

5. Conclusion and discussion

In today's era of crises, the need for theoretical frameworks that reinforce the responsibility of architectural practice in addressing real-world problems is evident. This study contributes to this discourse by examining the potential of the new materialist perspective, which holds promise for providing practical guidance to transform the focus

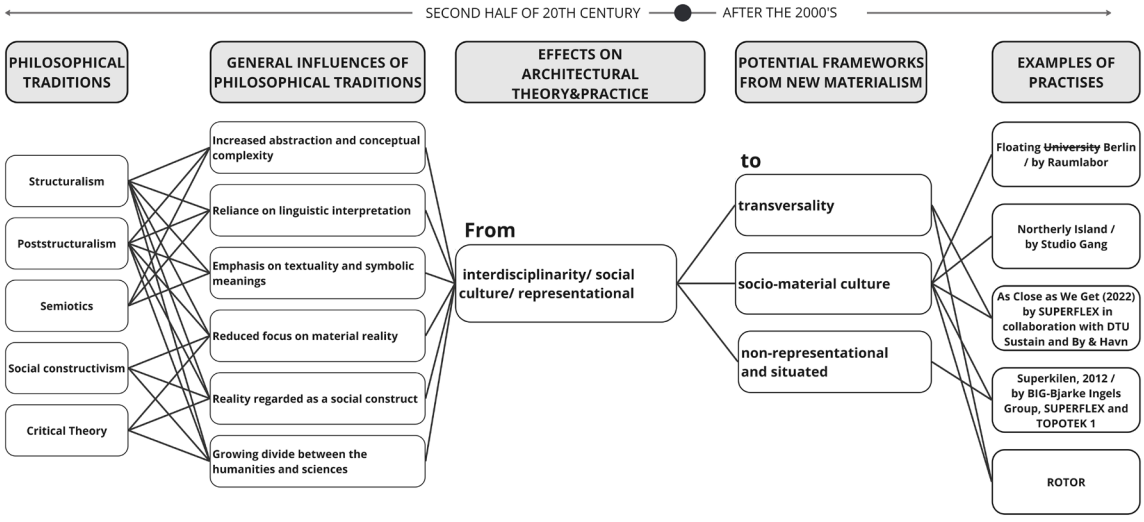

Figure 5. *New materialist cartography for converging architectural theory to practice (Created by the authors, 2024).*

of architectural practice. Tripartite conceptual trajectories were developed, comprising the headings 'from interdisciplinarity to transversality', 'from social culture to socio-material culture', and 'from representational to non-representational and situated'. This framework was supported by the creation of a conceptual cartography. Within this tripartite framework and cartography, conceptual trajectories were proposed that encourage intersectional collaborations, grounding in concrete conditions, and a focus on material realities. These trajectories aim to guide architectural practice toward a perspective that addresses real-time, complex, and systemic challenges.

Future research is recommended to evaluate the insights and proposals presented in this study through practical applications based on the tripartite framework. Considering that the discussion of new materialism within architectural theory is still in its nascent stage, it is difficult to identify substantial opposing views. However, the new materialist paradigm has been subject to criticism. Flatschart argues that the paradigm's foundation on flat ontology, which assumes all entities possess equal ontological status, makes critical discourse challenging by complicating the analysis of distinctions and differences (2021). This lack of critical analysis in architecture could potentially weaken resistance to economic or political domination targeting the discipline of architecture. Furthermore, the emphasis on subjectivity within new materialist tenets may risk privileging individual interests over collective benefits. While this research does not delve deeply into these critiques, it is essential for future studies to rigorously investigate these perspectives.

The cartographies and frameworks established in this study are open to further development and refinement if required. Additional new materialist frameworks and conceptual trajectories could be incorporated into the tripartite framework proposed in this study. Increasing both the quantity and visibility of studies that explore the growing academic alignment between new materialism and architecture in academic and professional environments is therefore of great importance.

The cartography developed in this study serves as a draft that facilitates the evaluation of the philosophical traditions that have shaped the theory-practice divide in architecture, their broader impacts, their consequences on architecture, potential philosophical frameworks emerging from new philosophical approaches, and practical examples (Figure 6). This cartography enables the formation of diverse conceptual trajectories through interconnections between subcategories, offering various proposals to address the shortcomings of architectural theory.

This cartographic draft allows for new readings that investigate the potential of different philosophical traditions in addressing the shortcomings of architectural theory across various periods. Due to the scope of this article, the focus has been limited to the period starting from the second half of the 20th century, where the theory-practice divide became particularly pronounced. It is recommended that future research use this cartographic draft to conduct studies covering different time periods. Moreover, while this study has explored the potential

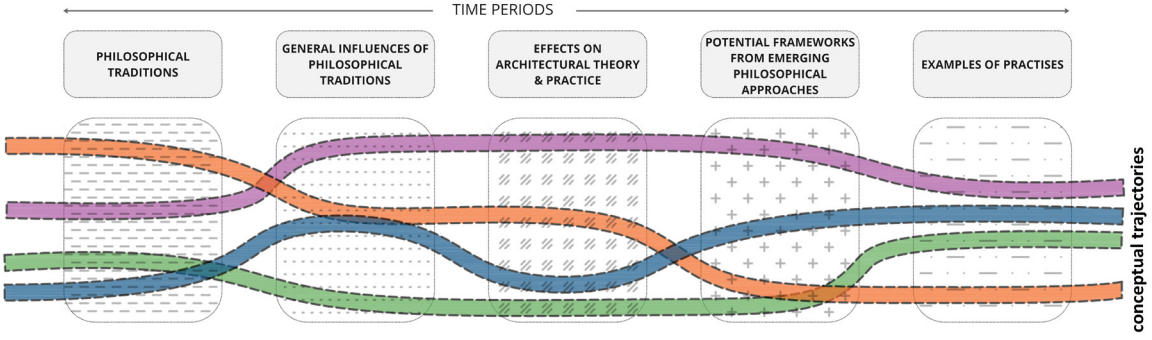

Figure 6. *A cartographic base for converging architectural theory to practice (Created by the authors, 2024).*

of the new materialist perspective, this cartography could be employed to generate new insights through the lens of other philosophical approaches. Given the professional responsibilities required by today's crisis environment, there is a pressing need for increased academic research exploring new theoretical perspectives that can guide architectural practices toward addressing real-world problems.

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