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SPG22. Teoria social no limite. Novas frentes/fronteiras na teoria social contemporânea

Práticas semio-materiais: por uma sociologia cultural do espaço construído

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Introduction[1]

In recent years, a growing number of sociologists have applied cultural perspectives to the study of the built environment. But while a general consensus has emerged in the literature that both meanings and materiality play a role in shaping social practices, different explanatory and interpretive frameworks have been deployed to analyze how these two aspects of social life are connected. Many of these studies, inspired by Durkheim's writings on totemism, have analyzed the symbolic meaning of the production and use of buildings for nations, social movements, and political regimes. Other contributions, inspired by the literature on Ethnomethodology and Science and Technology Studies, have emphasized the effects of buildings on social interaction and knowledge production. Finally, recent studies more or less influenced by the work of Michael Foucault stressed the role of the built environment as part of apparatuses of governmentality and on the operation of state power.

Although all of these literatures take seriously the fact that meanings and the built environment (or materiality, more generally) mutually condition each other, they have not sufficiently explored *how* that mutual conditioning operates. Also, most contributions to those literatures either tended to focus on just one modality of the cultural operation of material signs (i.e., signs as symbols or as icons), or tended to emphasize the social embeddedness or social function of built structures, without a more detailed analysis of the semiotic codes that orient how they become part of social practice.

The cultural sociology of the built environment would benefit from a more developed conceptual framework for the different modalities of meaning-making that connect social practices and material objects (and the built environment in particular). To address these concerns, I address one central question in this article: how do physical objects—and the built environment, in particular—become incorporated in circuits of meaningful social practice?

To answer this question, I propose a theory of *situated semio-material practices* that combines Bourdieusian field analysis with Peircean semiotics. Socially situated sets of semio-

material practices orient how individuals interpret the built environment and engage with it. Also, this article investigates the theoretical consequences of shifting the analytical focus of a sociology of the built environment to the larger problem of objectification—or of the different material and semiotic practices involved in the production, circulation, and meaningful use of material objects, and of built forms, in particular. Semio-material practices orient how the built environment is understood and how it becomes consequential for social life in three different moments of their objectification: design, construction, and inhabiting.

My effort to theoretically clarify the interconnectedness of built structures and meanings assumes that signs are material—a clear break with the idea that culture can be analyzed as sets of semi-autonomous discourses or immaterial codes (Alexander and Smith 1993). Many recent important contributions to material studies have attempted to break with the idea that language provides a model for the analysis of all aspects of culture (Gell 1998; Keane 2003; Miller 2005). These studies developed Charles Peirce's critical insight that signs are material (in opposition to the Saussurian sign, which is an arbitrary idea), and that different kinds of signs have different material aspects. Also, sociologists have recently emphasized the analytical potential of Peirce's pragmatist explanation of meaning making for the analysis of social practice (e.g., Emirbayer 1997; Tavory and Timmermans 2013). Nevertheless, I argue that the Peircean theoretical framework cannot provide a full account of how systems of meanings are socially situated. In order to clarify this problem, following Bourdieu, I show that a theory of semi-autonomous social fields provides a platform to explain how semiotic codes are situated in the social space. By combining these two perspectives is it possible to provide a full account of how the built environment becomes meaningful and how they become part of circuits of social practice.

The remainder of this paper unfolds according to key elements of my theoretical argument. In the first section, I critically review the recent literature in cultural sociology that has addressed the problem of the relation between meanings and materiality. Next, I develop a novel theory of situated semio-material practices that extends the contemporary literature on meanings and the built environment and addresses its major shortcomings. In order to do that, I build on Peircean material studies, focusing on the concept of "semiotic ideology," and show how it can be complemented by a field analysis that draws from the work of Bourdieu. Then, I propose that a cultural analysis of the built environment has to account for the semio-material practices involved in three different moments: design, construction, and inhabiting. For each of these

moments of the "social life" of the built environment, I will provide examples—some of which drawn from my research on the politics of low-income housing in Brazil— of how semio-material practices condition different forms of engagement with the built environment.

Meanings and the Built Environment in Contemporary Sociology

The relation between meanings and materiality is a classical philosophical question, but also a problem that reoccurs in several of the classical writings of the sociological canon. Many of the central concepts and topics developed by the founding thinkers of the discipline mobilize—or at least assume—some type of relationship between the two. For example, Marx's concept of "fetishism" is based on a certain understanding about what ideas emerge (or fail to emerge) when individuals in capitalist societies interact with a certain kind of material object, i.e., commodities. Durkheim's analysis of "totemism" provides a blueprint for the study of the relations between symbols and shared ideas of what it is to be member of a certain social group. Simmel and the founding scholars in the Chicago School of Sociology explored the relationship between urban form and the emergence of an urban culture, or a type of "mental life".

Many contemporary social theorists and cultural sociologists have built on those critical insights. A main thrust of much of the contemporary literature has been the need to avoid any form of unidirectional determinism, whether material or cultural. This literature has emphasized that culture and the built environment are intertwined, and that social practices necessarily involve the deployment of meanings and materials (e.g., Alexander 2010; Gieryn 2002; Glaeser 2000; Jones 2011; McDonnell 2010; Mukerji 1997; Wagner-Pacifici 2005; Zubrzycki 2013). Most sociologists of culture agree that objects are bearers of social meanings, but also that those meanings are further re-elaborated and renegotiated through the production of and interaction with those non-humans (Jerolmack and Tavory 2014; Sewell 2005).

Despite this broad emerging consensus, it is important to note that there are some important differences in analytical emphasis in this literature. Indeed, I argue that there are at least three main approaches worth considering. While these different approaches are not alternative paradigms in dispute, they do tend to emphasize different aspects of the problem of how built structures—and objects in general—become meaningful, leading to different methodological and theoretical styles of analysis. These traditions place analytical emphasis on either the symbolic dimension of the built environment, the structuring impact of the built

environment on the production of social articulations and emergence of new forms of knowledge, or on the import of built forms for the operation of state power and social regulation.[2]

The symbolic approach

The analysis of buildings as symbols of collectivities or as representation of state power is probably the most influential approach among cultural sociologists to the problem of the built environment. Many scholars in this tradition take Durkheim's quite specific analysis of totemism (Durkheim and Mauss 1963; Durkheim 2008) as a generalizable model of representation, usually complemented by other theoretical traditions, in particular structuralist semiotics (Alexander 2003; Bourdieu 1979; Saussure 1998), the anthropological literature on rituals (Turner 1995), commemoration (Halbwachs 1992), and memory (Nora 1996). Certain aspects of the built environment are analyzed as "cultural objects"—as "shared significance embodied in form" (Griswold 1987:23)—and, as such, are studied as materialized representations of commemorative events, memories, or shared values and traditions for a certain community. Methodologically, most of these studies rely on the construction of social narratives and other symbolic systems associated with the group under study, and then proceed to trace the connections between those and significant built forms. This approach thus emphasizes the *symbolic modality of signification,* according to which semiotic codes that circulate in a certain society (even if those codes are contested, which is usually the case) might be materialized in the built environment, usually reinforcing those codes.[3] Contemporary scholars have deployed this symbolic approach to analyze the relationship between places of memory and the constitution of nationalist movements (Zubrzycki 2006), the commemoration of controversial past events (Scott 1996; Wagner-Pacifici and Schwartz 1991), and the expression of social cleavages and disputes (Harvey 2005; Hayden 1982; Molnar 2010). All told, this approach has emphasized how the built environment materially represents the classification of people, leading to the constitution and reinforcement of collectivities.

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[2] Although this review draws from many of Gieryn's critical insights in his review on "places" in Sociology (Gieryn 2000), this article has a different purpose: it addresses only works that directly contribute to an understanding of the relation between materiality and culture, and proposes a new framework for the study of this problem.
[3] Jerolmack and Tavory (2014), addressing the problem of the relation between human practices and nonhumans, describe this approach as "constructivist." Despite their different theoretical concerns, particularly focused on problems of social interaction, many of their critiques to the constructivist and the ANT literatures on non-humans are relevant to the problems I am addressing here.

The structuring approach

Several social theorists have emphasized a crucial aspect of our everyday experiences with the built environment: buildings and other built forms produce effects on patterns of social interactions and affect knowledge production and circulation. In other words, buildings do things (Gieryn 2000). Scholars writing in the ethnomethodological tradition have observed that buildings, and the built environment more generally, are not simply innocuous vessels in which social life unfolds, but they are consequential to the formation of self and group identity. That is, they play a role a role in the structuring of the relations between the self, intersubjectivity, and the social. These scholars build on Simmel's insights into the consequence of spatial forms for mental life (Simmel 1971), Mead and Blumer's analyses of the role of objects and the physical environment in the formation of a generalized other (Blumer 1986; Mead 1934), and Goffman's emphases on the importance of the spatial dimension of social interactions for impression management (Goffman 1990) and for the organization of total institutions (Goffman 1961). More recently, scholars have pointed out that particular characteristics of a built form may alternately intensify *or* undermine social interaction (Allen 1984; Smith and Bugni 2006; Whyte 2001), and some buildings may even be consciously planned so as to hinder the accumulation of shared experiences and understandings (Jansen 2008).

The literature on Science and Technology Studies shares several concerns with ethnomethodology and symbolic interactionism. But whereas the latter focus on the situated production of social order, science and technology studies emphasize how certain sets of practices, patterns of interaction, and material constraints may lead to the construction of new (or the reaffirmation of old) forms of knowledge, as well as the creation of technological artifacts. Laboratory ethnographies (Gieryn 2002; Knorr Cetina 1999; Latour and Woolgar 1979; Owen-Smith 2001; Woolgar 1988) have shown that physical settings plays a role in the establishment of routinized practices in science. Other studies have pointed out that a built environment can function as a "truth-spot," providing credibility to scientific practices and claims (Gieryn 2006), reinforcing the hierarchies that command the organization of scientific work (Galison 1997; Owen-Smith 2001), or presenting challenges to definitions of authorship (Knorr Cetina 1999). In short, these studies emphasized that individuals' perceptions and subjectivities, as well as the result of their practices, are constituted also through their interaction with and through the built environment.

The power approach

Many studies across the social sciences and humanities have recently emphasized that the built environment can be a medium for the manifestation power (particularly state power) and for the regulation of social relations. Methodologically, most of these studies combine a macro-analysis of social hierarchies and power dynamics with a close investigation of how particular built environments contribute to the maintenance of social control and the reaffirmation of state power. These commonly emphasize two mechanisms through which this functions: built forms convey power either through the effective regulation of bodies in space, or through the iconization of power. Michael Foucault's work on the apparatus of surveillance in modern society and of the function of a paradigmatic building—the Panopticon (Foucault 1977)— provides the most fruitful model for scholars that emphasize the role of spatial forms for the regulation of bodies.[4] Other cultural scholars have emphasized how the built environment can be organized as a iconic representation of state power or of a political regime, leading to a visual portrayal and a spatial patterning of social practices that reinforces the institutional and symbolic mechanisms of power (e.g., Zukin 1993). Chandra Mukerji's study of Louis XIV's gardens of Versailles (Mukerji 1997) provides a detailed narrative of the material manifestation of state power through the management of nature, technique, and built form. The creation of those gardens paralleled the creation of the French national state, so the gardens can be studied as both the iconic materialization of the state power in the moment of its constitution, and as a laboratory of that same power.[5]

The limits of current approaches

Each of the three approaches presented above offers important contributions to the cultural study of the built environment. Although emphasizing different aspects of space, each is a part of a broader project of "bringing the built environment" back in Sociology (Zubrzycki

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[4] This analytical model, in which a certain built/social form is elevated to the status of a paradigmatic "dispositive" of power, has been very influential in recent debates in the humanities and social sciences. Just to cite one example, Agamben's analysis of the concentration camp as the fundamental political formation of modernity (Agamben 1998, 2005) draws heavily on Foucault's analysis of the relation between space, surveillance, and social control. Scholars working on urban planning and architecture in colonial settings (Mitchell 1991; Rabinow 1995; Wright 1991) or on cities organized according to the spatial repertoires of high modernist urban planning (Scott 1999) have also contributed to this approach.

[5] This study (but also Mukerji 2002, 2009) illuminates how the manipulation of nature and the production of built forms is a political resource for the manifestation of one crucial aspect of modern political power: territoriality (see Mukerji 1997:35; also Mitchell 2002; Scott 1999), or the realization of power "…through successful intervention into the realm of nature, making it the object of territorial ambition" (Mukerji 1997:38).

2013). This literature shares similar concerns with some of the most important recent innovations in the social sciences and the humanities in approaching social life through reinvigorated forms of "cultural materialism" (Bennett 2010; Latour 2007; Mol 2003)—a theoretical program that attempts to overcome old analytical dichotomies like the divide between nature and culture (also Descola 2013; Viveiros de Castro 1998). Regarding some of the most influential methodological and theoretical traditions in cultural sociology and cultural studies, these three approaches move beyond the very common strategy of restricting the study of culture to the analysis of discursive formations. In that sense, they assimilate many of the most productive recent theoretical perspectives in the discipline, particularly the ideas of the primacy of practice (Bourdieu 1992; Gross 2009; Swidler 1986), and the incorporation of non-humans in the definition of social structures and the explanation of social processes (Jerolmack and Tavory 2014; McDonnell 2010; Sewell 2005; Tavory and Swidler 2009).

Nevertheless, I argue that these studies have not led to a an analytical framework that explains these multiple dimensions of the relation between culture and the built environment—or a theoretical framework that explains how the built environment, in different contexts, can participate in each one of these manners in circuits of social practice. The achievement of a synthetic theoretical vocabulary is important for several reasons. First, as I mentioned initially, these approaches are not presented in the literature as conflicting perspectives, but as alternative lenses for the study of the problem. As a lens, each selects particular aspects of the problem, leaving others unattended. For example, studies of the symbolic or the power approaches rarely deal with the semi-autonomous nature and the social situatedness of the field of designers and place-makers. The structuring approach offers a more "practice oriented" perspective, but it rarely addresses in a systematic fashion how individuals connect the cues from the built environment to the many possible semiotic codes available—in other words, it lacks a theory of how the cultural repertoires of individuals are socially situated, and how they become operationalized in specific cultural-material settings or in particular interactions.

Second, most of this literature focuses exclusively on certain analytical and temporal moments in the process of design, construction, and use of built forms. Studies in the ethnomethodological tradition focus almost exclusively on the use of buildings, and the symbolic approach rarely deals with the moments of construction. This focus on particular moments prevents the formulation of new questions and empirical studies about how each one of these

moments in the life of buildings are connected. Each of these approaches, taken separately, fails to offer an analytical vocabulary to the study of the how construction workers and built environment users consent to or subvert the initial intentions of building designers or state officials (or other clients that might have commissioned a certain building).

Third, most of this literature has not dealt with the problem of materiality itself.[6] Materials impose resistance to their manipulation, circulation, and consumption to a much higher degree than the resistance imposed by language. Language is more malleable than bricks, steel, glass, and concrete, what makes linguistic or symbolic elaboration more "materially" autonomous than most form of material construction, for that matter.[7] Materials are not docile (Latour 2007): they impose limits to their manipulation, and in many cases act as quasi-independent causal agents. As the philosopher Jane Bennett said, human experience "…includes encounters with an outside that is active, forceful, and (quasi)independent" (Bennett 2010:17). Nevertheless, this imposition of limits, and most aspects of materials' and objects' participations in circuits of practice, only becomes significant when culturally and practically incorporated by humans (Jerolmack and Tavory 2014; Vandenberghe 2002), according to socially available semiotic codes and repertoires of practice.[8]

In summary, each of these approaches, separately, leaves unexplained fundamental problems about the material and cultural projects involved in the production of the built environment, particularly the labor and semiotic and social process that connect design, construction process, and the use of buildings.

Toward a theory of situated semio-material practices

In order to address these shortcomings, this paper proposes to expand this perspective in order to develop a "sociology of building(s)"— building both as a verb (the process of designing and constructing) and as a noun (buildings as material objects themselves, with their many possible uses). In other words, the sociology of the built environment that I propose is a cultural

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[6] McDonnell (2010) Zubrzycki (2013) are important exceptions.

[7] That's not the same as saying language is not material as well – speech demands the command of a diversity of bodily skills and is also affected by the environment. Some literary genres (poetry in particular) consciously play with the material dimension of language.

[8] This lack of attention to the problem of materiality also leads to the omission of one important aspect of the social production of the built environment: the different practices and forms of labor that continuously mediate the work of clients and designers, on one side, and building users, on the other (Ferro 2006).

analysis of the process of production of the built environment, and of buildings as material-cultural objects, in the different moments of *design*, *construction*, and *inhabiting*.

In this section, I formulate the concept of situated semio-material practices that will be later deployed to analyze each one of these moments in the social life of the built environment. I argue that Peircean semiotics, and recent works that attempted to extend Peirce's conceptual framework to the study of materials and objects, can provide the theoretical basis for an analysis of socially situated semiotic engagements with the built environment. I first explore the main tenets of Peircean semiotics and Bourdieusian field theory in order to develop my own theory of situated semio-material practices.

Peirce's theory of signs and the concept of semiotic ideologies

A growing group of sociologist have recently incorporated Peirce's semiotics and his analysis of scientific inference into current discussions about social practice (Emirbayer 1997; Gross 2009; Shalin 2007) and the pragmatics of sociological explanation (Tavory and Timmermans 2013; Timmermans and Tavory 2012). Simultaneously, several scholars working on materiality have deployed a model of culture that is deeply influenced by the writings of the American philosopher Charles Peirce (Gell 1998; Hull 2008; Keane 1997, 2003; Miller 2005). According to these authors, signs are processes that fully incorporate the materiality of the world; the "…materiality of signification is not just a factor for the sign interpreter but gives rise to and transform modalities of action and subjectivities" (Keane 2003:413). Three important aspects of this literature provide analytical tools for my concept of semio-material practices: the idea that signs incorporate the objects that they signify, the analysis of different types of signs, and the idea that meaning making is processual.

One of the main reasons for Peirce's influence in the interdisciplinary field of material culture is the fact that Peircean semiotics offers better tools for linking meaning to social context (Mertz 2007:338) than the main alternative model of Saussurian linguistics, which relies explicitly on the separation between linguistic structures ("langue") and speech ("parole").[9] The

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[9] It is widely known that the Saussurian sign is composed of a signified (a mental image) and a signifier (a sound image) (Saussure 1998). The relationship between these two aspects of the sign is understood to be arbitrary. Also, a Saussurian analysis focuses on the system of signs itself, and not on the relation between signs and the material and social worlds. Further, the Saussurian analysis of signs is fundamentally synchronic—it devotes special attention to the structure of systems of signs than to either the historical processes leading to the constitution of those systems or the actual instances of discourse by language users. This focus on the synchronic explains why it has been

main difference between those two models of cultural analysis lies in their contrasting conceptualization of the *sign*. Peirce's model of the sign relation is triadic and diachronic. Peircean sign relations are composed of a sign, an interpretant (the effect of the sign on someone who comprehends it—an idea, a sensation, a habit, among others), and an *object*. Based on this definition of signs, Peirce develops several possibilities of sign classification.[10] Most famously, Peirce explained that signs can have three different relations with the objects they signify: they can be icons (signs that resemble the object; e.g., a picture is an icon of a person), indexes (signs that indicate connection or causality; e.g., smoke is a sign of fire), or symbols (signs based on arbitrary social convention; e.g., a flag is a sign of a country). Each of these three different modalities influences how signs are going to be perceived and how they might be incorporated in practice. Signs only exist and function in a certain way when they are perceived as such, since they are functions of practices of interpretation and exchange (Keane 1997:32).

One crucial modality of signification that has been relatively neglected by the different approaches reviewed above is that of indexicality. Indexes, as briefly described above, are signs that point to causality or direct connection—for example, a brushstroke is an index of an artists' hand gesture. Indexes permit a cognitive operation of "abduction of agency" (Gell 1998)—that is, the observer, when facing an index, can make tentative causal inferences about the type of social agency that was responsible for producing a specific material sign; as in any process of abduction, those inferences are subject to further revision (Timmermans and Tavory 2012:171). Through the indexical mode of signification, artifacts have the capacity (not always exercised) to "index" their origins in the act of their manufacture.[11] In this sense, the type of social agency indexed in any object is not only defined by its materiality (although the object might motivate a certain type of interpretation instead of another – idem:67), but also by the social possibilities of reception of a certain work in particular contexts, and by the place it occupies in a network of social relations (idem:123)—in other words, by a socially situated semiotic code. Although indexes are less arbitrary than symbols, they still rely on the availability of socially shared codes

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particularly challenging to develop a concept of practice exclusively based on Saussurian linguistics (Bourdieu 1992; Sewell 2005).

[10] The number of possible classification varies throughout the development of his semiotic theory. For an overview of Peirce's semiotics, see Lee (1997:95–134).

[11] Also, the possibility of drawing inferences about different types of agencies varies in the course of an object's life: a Salvador Dalí painting can index Dali's dream-world, Dali himself, the material of which the painting is made, or the public of a modern art gallery (Gell 1998:57).

and practices that lead them to be interpreted as indexes. This is crucial for an analysis of the built environment, because different sets of semio-material practices might lead to the abduction of different forms of agency: the architect's, construction workers', users', or clients' agency. Usually, the interpretation of design buildings tends to emphasize the architect's agency to the expense of all other agencies involved in their process of production.

A third important aspect of the Peircean model of semiosis—or the process through which signs are produced and interpreted—that has been explored by material studies is the idea that signs are processual. Each practice of sign interpretation leads to new interpretants, in a continuous process of signification that might lead to the formation of a *habit* as final interpretant. Signs (and meanings more generally) are part of chains of causal connections that link material and non-material things, as well as human and non-human beings.[12]

Peirce's suggestions about the various possible relations between signs and objects—of which icons, indexes and symbols are the most commonly discussed (Peirce 1991)—opens possibilities for the analysis of multiple modes of objectification, and of the formation and operation of "semiotic ideologies," or the "…basic assumptions about what signs are and how they function in the world" (Keane 2003:419). Semiotic ideologies[13]—composed both of explicit theories and discourses, and implicit tendencies and embodied dispositions—organize understandings in a certain time and space about what possible agents can exist, how indexes and other signs should be perceived, and how objects become incorporated into social life (Keane 2003:419-20; Hull 2008; Strassler 2010). Keane points out that one of the main characteristics of materiality is that any object is a "bundling" of many qualities—e.g., there is no "redness" in the material world; "redness" can only be materialized in a certain material, in a certain shape, etc. (Keane 2003; Peirce 1991). McDonnell (2010), for example, shows how the bundling of material qualities in AIDS mass media campaigns in Ghana enable different meanings and uses of specific posters, billboards and other materials—i.e., content cannot be taken in isolation from the other elements and qualities of a particular (material) message or sign. Signs might have

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[12] This relation between semiosis and practice is an important aspect for recent rehabilitations of pragmatism in sociology (Emirbayer and Goldberg 2005; Gross 2009; Joas 1993, 1997; Tavory and Timmermans 2013). Tavory and Timmermans (2013), in particular, emphasize this aspect of Peirce's semiotics for the theorization of meaning making and the establishment of causal claims in ethnographic research.

[13] With this concept, Keane expands the influential idea of "linguistic ideologies" (Silverstein 2003) to non-linguistic signs, particularly to material signs. There are noticeable similarities between Keane's use of "semiotic ideologies" and Umberto Eco's concept of "semantic fields" (Eco 1978:89).

more than one order of signification—they do not only denote, but they can also connote more than one meaning (Barthes 1977)— which depend on socially accepted arbitrary conventions of understanding. These socially available ideologies establish parameters and models for individuals and groups to make sense of the many possibilities of interpretation of any sign, since any sign is at least relatively arbitrary.

Semiotic ideologies provide "instructions" for signs to be made apparent and for the accomplishment of different modalities of objectification and the different forms of subjectivity, practice, action, and possible reflexivity that they entail (idem, p. 422; Keane 1997:11). They guide the attention of an observer to "what matters", and provide a culturally shared set of signposts that can be mobilized when facing any object. For example, there is a widely accepted semiotic ideology of nationalism in the US: many different signs, particularly when used in public collective rituals, are understood as referents to the US nation, commonly leading to certain forms of habitual behavior. Consider that the act of burning a piece of cloth is not a problem, unless it is *perceived* as a flag. When most Americans (and non-Americans, for that matter) see a piece of cloth with thirteen horizontal stripes alternating red and white with a blue rectangle bearing fifty stars, the semiotic ideology of nationalism bias their attention away from the material of which it is made, its size, etc., focusing on the totality of the flag as a symbol of the nation. It is interesting to notice that, when placed in unusual contexts (particularly in contexts in which other semiotic ideologies are predominant), the flag becomes a much more ambiguous symbol: the abduction of that symbol does not guide the observer as unequivocally to the "interpretant" of the American nation. Think, for example, of Jasper Johns' use of the imagery of the US flag in many of his paintings: in the context of those pictures, it is not clear if they are still flags, i.e., if their interpretation connects that bundling of colors, shapes, and materials to the idea of the nation.

From semiotic ideologies to situated semio-material practices

Peircean material studies provide a vocabulary to describe possible modalities of signification and the dominant semiotic ideologies in certain contexts. Nevertheless, this literature has at least one major shortcoming. Although it provides powerful analytical tools for analyzing the social practices that connect individuals and material objects in circuits of meaningful social practices, this literature has not devoted enough attention to how the semiotic ideologies that organize the perception of material signs is embedded in social relations and in

specific realms of social life. That is, while Peirce's semiotics calls attention to the role of the interpreter as part of the sign (a sign is always produced "for someone"), his theoretical scheme does not shed any particular light on the partitions of the social, and on the historically situated forms of perception. This means that we could misread the significance of forms of perception of signs that only circulate within specific social fields. For example, one could identify a semiotic ideology that orients architects' perceptions in certain places and times, and that ideology might not correspond to the general ideologies that non-architects mobilize for making sense of the same buildings; also, the perception of symbols of state power is not the same across society—it might vary by region, ethnicity, class, and so on (Hall 1981).

Furthermore, the idea of "ideology" can lead to problematic readings. Most authors who employ this concept tend to emphasize the practical dimensions of the mobilization of semiotic ideologies. However, the concept might still lead to a mentalist understanding of what those guidelines to interpretation are. Therefore, instead of describing these guidelines for meaningful action and interpretation as ideologies, it is more appropriate to describe them as *socially situated repertoires of practices*. The idea of practice also emphasizes the process oriented and situated aspect of semiosis that Peirce correctly pointed to in his writings. Furthermore, given the prevalence of non-material models in sociological interpretations of culture, it is pertinent to emphasize that those socially shared guidelines of interpretation are also material, since any sign has some kind of materiality associated to it. Combining Peircean semiotics with Bourdieusian field analysis in a theory of *situated semio-material practices* can remedy these problems.

Bourdieu's cultural sociology provides a complementary explanation for how semio-material practices emerge, how they circulate in different social realms, how they affect social practice more broadly, and why they work more or less effectively as shared repertoires of practices.[14] These practices that guide the interpretation of and the engagement with the built environment or any object are situated in the social space. Not all members of a certain society necessarily share certain understandings about how to make sense of certain signs. For example, a brutalist building is a site of dispute of different semiotic material practices: a large numbers of architects understand these buildings as iconic manifestations of certain tendencies in modernist

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[14] Several sociologists have recently pointed to the similarities between Bourdieu's and pragmatism's theories of action (e.g., Bourdieu and Wacquant 1992:122; Dalton 2004; Emirbayer and Goldberg 2005), and attempted to combine them in a theory of situated, structured action that also attends to the creative nature of social practice—an aspect that, as many critics point out, is neglected in Bourdieu's work (Gross 2009:366–367).

architecture, and their display of brute materials (particularly unpainted concrete) as indexes of their processes of production. But a considerable number of individuals consider those buildings outdated, ugly, aggressive, "concrete shoe boxes" (Pogrebin 2012). These different understandings usually lead to divergent political and practical understandings about how to inhabit those buildings and about the need preserve them.

This situated character of material semiotic practices can be further clarified by Bourdieu's theory of social fields. The concept of field (Bourdieu 1990, 1996, 2005) has been very productive in preventing two common tendencies in traditional sociologies of knowledge and art.[15] First, field theory provides a detailed understanding and theoretically solid set of tools to understand how particular theories, artistic works, practices, and repertoires become accepted as legitimate. This is a crucial analytical gain when compared with the loosely defined idea of "context", commonly employed in many exemplary works in history and sociology of ideas, but also in material studies. Besides, the concept of field draws analytical attention to the semi-autonomous nature of many social practices. This is a productive response to the tendency of traditional sociologies of knowledge – particularly Mannheim's influential work, but also many versions of reductionist Marxism and Durkheimian sociology—to rely on a direct relation between "social being" and "thinking" (or the material world and the world of ideas), leading to oversimplified ideas such as "bourgeois art", "proletarian thought", or to constructions such as "the physical layout of their village defines their conception of space" (Glaeser 2011:41–42).[16]

Many sets of material semiotic practices emerge from social fields, and they might become influential outside their fields of origin. Particular semiotic practices can also be reinforced and disseminated in the social space after their initial development within specific fields – e.g., without the development of the field of psychoanalysis, a cigar might just be a cigar,

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[15] Most attempts to study the built environment from a Bourdieusian perspective have focused specifically on *architecture* as a cultural field. Bourdieu suggests in more than one passage that, although architecture is not as autonomous as painting or literature, the theoretical principles he develop to study the work of Flaubert or Manet could be equally deployed to the study of architectural practices (see Lipstadt 2003:391–392). Scholars who deployed the concept of "field" to the analysis of architecture have placed special emphasis on the struggles for the delimitation of the field of architecture itself (Stevens 2002); the very limited autonomy of architecture from the field of power (especially when compared with literature or art) resulting especially from the propensity of states and nations to mobilize the built environment in order to advance forms of solidarity (Jones 2011), identity, and structures of power; and "design" as the specific form of capital in the field of architecture (Lipstadt 2003).

[16] These analytical advantages of field analysis led to a recent proliferation of studies of several social fields, such as American post-war poetry (Büyükokutan 2011), world literature (Casanova 2004), and German colonialism (Steinmetz 2007).

not the iconic index of a "castrated phallus." In the case of the built environment, several material semiotic practices that are developed within a field only later become disseminated more broadly. For example, the idea that certain materials (especially concrete, glass, and steel) represent modernity emanates from the practices and discourses of architects from the late 19th century to the mid-20th century, only later to become assimilated in popular discourses and practices (Forty 2012).

The development of these sets of practices is always contested, both within the field and when it influences individuals outside the field. Fields can also have internal differentiation. Different sectors of a field can develop certain kinds of semio-material practices that are not widely available in other sectors. For example, the field of architecture is commonly divided between a more artistic, avant-garde sector and more commercial sectors (Stevens 2002). The practices of design will vary considerably in these two poles: the former valuing originality, signature buildings, and solution to unique problems, the latter attaining to already tested and economic solutions.[17]

The concept of field is particularly helpful in emphasizing one important dimension of the social operation of signs and social practice more broadly: they tend to correspond to the partition of the social, and to either reinforce or challenge that partition. But not all semio-material practices operate within or emerge from fields. Social stratification more broadly is usually associated with a diversity of semiotic practices, or with what Volosinov called "multiaccentuality", or the idea that different "accents" intersect in a sign (Volosinov 1986:23). Also, some semio-material practices are either consciously mobilized or unconsciously deployed to efface social difference—the semio-material practices of (inclusive) nationalism and the Marxist understanding of capitalist exploitation through the semiotic and material practices of labor under a wage contract are examples of these practices.

Semio-material practices and circuits of social practice

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[17] Also, the idea of semio-material practices extends the relatively immaterial Bourdieusian understanding of social practice, averting the risks of a mentalist fallacy that could ensue from the application of his analysis of the literary field to the study of fields of material production. It is known that Bourdieu's concept of habitus is deeply material; the habitus is an embodied set of dispositions that is formed by an engagement with the built environment, among several other processes. Nevertheless, Bourdieu never fully integrated the built environment in his account of social practices, or attempted to provide a more developed account of the semiotic mechanisms that orient the interchanges between individuals and the material world.

The discussion in the previous two sections provides the basis for a synthetic elaboration of the concept semio-material practices. Semio-material practices are socially shared and individually effective sets of repertoires of practices that guide the interpretation and condition the forms of engagement with the built environment. These practices are socially situated, either in social fields, across fields, or within certain sectors of the social space. They provide conscious guidelines or unconscious dispositions about how to draw inferences from the built environment and how to engage it in social practice. Also, they can be transformed through those many possible forms of engagement, because those sets of practices of interpretation and engagement are always precarious (i.e., they are open to further revision and re-elaboration), and because the built environment also challenges the adequacy of those sets of practices.

The availability of repertoires of semio-material practices in a certain context conditions how individuals mobilize them when faced with certain situations. Semio-material practices can only be effective in case individuals have the embodied dispositions to perceive signs in specific ways, among all the possibilities of interpretation of any set of signs. These sets of practices do not determine individual instances, but they provide embodied or conscious repertoires that might be mobilized when individuals interact with and in the built environment. In other words, these repertoires are experienced and can be described as habits: they are "relatively coherent repertoires for thinking and acting" (Gross 2009:371) that condition how an individual will navigate the built environment and incorporate it through practice.

More specifically, these repertoires of practices are deeply conditioned by the material environment itself. As mentioned before, objects, and the built environment, have "projects": they age, decay, fall apart, grow, rot, resist manipulation, and impose conditions of success or failure. This is certainly consequential to how they participate in social processes. Materials have a quasi-independent life, either when their interaction with humans is limited for historical circumstances—ruins and archeological remains are primary examples of that. A border wall between the two countries has multiple social meanings, but it also materially imposes limits to circulation or, in other words, the semio-material practices in which it becomes engaged are both socially and materially conditioned. Also, a ruin, for example, is another example of a type of built environment that only exists by means of material processes that condition the forms of cultural engagement with it. A ruin is a semiotic-material object, and it exemplifies nature's mastering "…over the work of man"; nevertheless, these built environments are only socially

experienced as ruins because they are "infused with our nostalgia" (Simmel 1959:259). This combination of a material (decay) and a cultural dimension (nostalgia) are at the origins of the different semio-material practices through which ruins participate in social practices—ruin gazing, for example (Hell and Schönle 2010; Steinmetz 2008a).

Repertoires of semio-material practices are consequential for how the built environment becomes entangled and consequential for circuits of social practices. Those circuits are characteristics of many different social realms, including the ones described by the recent literature on meaning the built environment: nationalism, group formation, knowledge production, interactions, and state formation, among many others. In this sense, the concept of semio-material practices provides a theoretical entry point to explain *how* the built environment becomes meaningful—and, for that reason, how it becomes part of social structures.[18] For this reason, they can also provide an entry point to the analysis of how the built environment incorporates, sustains, and challenges power. Repertoires of semio-material practices can be generated, deployed, or subverted for social domination, resistance, or contention. The concept is particularly helpful to understand the political dimension of materiality, since it provides an entry point into the analysis of different, contested, and socially situated understandings about agency, possible uses of space, hierarchies of labor, and social value.

Semio-material practices of design, construction, and inhabiting

The concept of semio-material practices can be particularly helpful in making sense of how individuals produce, understand, and navigate buildings. In this section, I propose an analytical framework for the deployment of the concept of semio-material practices.

My central argument here is that different sets of semio-material practices constitute each phase of the "social life" of buildings. Most of the sociological literature on meanings and materials neglects one crucial aspect of the built environment: built structures have a history—or a "life." This life does not begin when buildings are ready to be used, but it begins when it only exists as ideas and drawings, that later will guide a tentative and dynamic process of material manipulation. Also, the use of buildings involves many practices that conform to, but also go

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[18] For a discussion about the relationship between meanings and materials in the definition of social structures, see Sewell (2008, 2005) and Steinmetz (2008b). The concept of semio-material practices provides a framework to understand how the two components of social structure in Sewell's last rendition of his theory are connected—i.e. semiotic codes and the built environment.

against the initial program for which the built was designed and built. Looking at the semio-material practices mobilized in each phase in the life of built structures clarifies one crucial aspect of culture, an aspect that Miller defined as the *dialectics of objectification*—or how "…the things that people make, make people" (Miller 2005:38; also Keane 2003; Miller 2009). This process is not unidirectional: through objectification, the "…semiotic status of things is transformed across historical processes" (Keane 2003:418), but also the interaction with the material environment leads to the transformation of the initial practices.

In order to provide a more encompassing framework for the cultural analysis of the built environment, I propose the analysis of semio-material practices involved in three analytical moments of the built environment: design, construction, and inhabiting.

Design

Most buildings are not designed by professional architects—i.e., by groups of individuals recognized as endowed with the technical and aesthetic skills to fulfill this function, and who detain the necessary social consecration and recognition for that (Bourdieu 1998). Nevertheless, even in the case of vernacular buildings, certain shared ideas of what a building should look like and how it should fulfill a certain function still circulate and are effective in the production of new spaces (Oliver 1998, 2007). An analysis of this moment in the process of objectification of the built environment should address what practices are mobilized by designers, through what channel previous models impact the formulation of each new design, and how the semio-material practices of design channel broader social and political expectations about the spaces being designed (see, for example, Molnar 2005, 2010).

The field of architecture, in its many national and regional manifestations, tends to reinforce the semio-material practices of design. In fact, the separation between "design buildings" and vernacular buildings is an effect of the social recognition of a set of semio-material practices, usually reinforced by the field of architecture. The central idea of this set of practices is that *design* is the crucial moment in the process of objectification of a building; also, design is strictly associated with the mental work of the architect. The historical formation of the field in the last five centuries involved a fundamental effort and a continuous struggle to separate the practices of designers and builders (Ferro 2010; Lipstadt 2003; Stevens 2002). The consequence of this set of practices is that architectural built forms index the mental labor of the

architect, steering the process of interpretation away from other forms of labor involved in the process of production.[19]

Several of the semio-material practices of architecture reinforce this understanding about how buildings come to be in the world. Architectural competitions, for example, are structured practices that reinforce the moment of design and produce a "field effect", or an illusion of semi-autonomy of the practice of designing (Lipstadt 2003). During competitions, architecture, as a set of semio-material practice of design, becomes relatively immaterial—or, more precisely, it's materiality is primarily "iconic" in the form of plans, blueprints, elevations etc.—, given the character of plans and blueprints as non-built objects. The technical language of representation mobilized in the field of architecture reinforces the broader operation of the semio-material practices of design as the separation between mental work and the manual labor of construction.[20] In fact, in most Western societies, architectural education is deeply focused on the practices of design (Stevens 2002:188–189). This idea strongly orients the self-understanding of architects, and it frames most discourses mobilized to legitimize its practice, as well as a considerable proportion of academic analyses of architecture, and the public perception about "design buildings" (Lipstadt 2003; Stevens 2002; Whyte 2006).[21]

In my own research on the politics of low-income housing in São Paulo, I have observed how the semio-material practices of design only represent a partial aspect in the life of buildings. One of the housing projects that I have been studying, Cecap Zezinho Magalhães, in the metropolitan region of São Paulo, was designed in the late 1960s by a group of eminent architects from São Paulo (including Vilanova Artigas, the leading figure in the field in the

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[19] In the case of prestigious architects, the semiotic ideology of design indexes buildings to the architects themselves—it is not uncommon to describe specific buildings as "a Corbusier" or "a Frank Gehry."

[20] Stevens (2002:97) points out that, amongst architects, drawings of buildings are in many cases even more important than the objects that they refer to and, in some cases, "…an honorable mention can be superior to winning a competition, for it means that the architect does not have to undergo the risk of losing symbolic capital by having his or her project tampered with, should it ever be built" (idem, p. 97). Furthermore, the study of notorious unbuilt projects is part of architectural education: it is very unlikely that any student of architecture, at least in most of the Western world, will not be exposed to Le Corbusier's unbuilt project for the League of Nations or Gropius' design for the Chicago Tribune, just to cite two examples

[21] The material semiotic practices of design marks the development of the field of architecture at least since the 15th century—i.e., it functions as a crucial factor for the creation and reproduction of this field, in its many national or regional manifestations. Most medieval cathedrals were built by guilds of construction workers, many of them experts in particular techniques (masonry, for example) (Ferro 2006; Ingold 2013; Lipstadt 2003). In this sense, forms were not yet independent from the process of making. Modernist architecture, since the late 19th century, has been deeply marked by a "utopia of form" as a way of organizing the perceived chaotic, disorganized experience of modernity. That marked the obsession with planning—and the plan, as materialization of that impulse—of many artistic and intellectual traditions, specially architecture (Tafuri 1979:62).

1960s), who understood it not only as a set of buildings with housing functions, but as an experiment, and a platform for the industrial development of the country. In this case, the semio-material practices of design functioned as a form of experimentation of many of the discursive and spatial utopias developed in the field of architecture in São Paulo.[22] In this project, the idea of "design" was presented as a manifestation of a larger understanding about the importance of planning and on the role of an avant-garde for the liberation of the "people," but the realities of construction (limited funds, unavailability of certain construction technology, and the attachment of the workers to traditional methods of construction) deeply subverted the initial intentions. This is not an isolated case: during the moments of construction and use of those "architectural artifacts," other semio-material practices come into play, either reinforcing the initial ideology of design or challenging it. For this reason, beside design, it is necessary to look at two other moments in the process of production and use of the built environment: construction and inhabiting.

Construction

Construction is a neglected moment in the analysis of the production of the built environment[23]—and in the history of architecture as well (Ferro 2010). Nevertheless, the study of construction practices reveal a lot about the different assumptions regarding how buildings should be understood, about the relation between design and final objects, and about the role of labor, materials, and technology in the production of the built environment. Also, construction is a central moment in which the idea that materials resist practices of interpretation and manipulation comes to the fore. An analysis of the semio-material practices o construction should address techniques of construction, forms of manipulation of materials and tools, practices of interpretation of plans and blueprints, and organization and hierarchy of labor and expertise.

As Ferro (2006, 2010) points out, the study on the construction site opens a new terrain to re-write the history of the built environment, since it sheds light on aspects of social hierarchy,

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[22] But also as an example of many of shortcomings and frustrations (e.g., the impossibility of developing industrial processes of production) and tensions (particularly the fact that progressive architects were designing buildings to be financed by an authoritarian military regime, and that the technology of prefabrication was not available at a large scale at the time)

[23] Recently, science and technology studies have provided many examples of the practices involved in the production of technical and scientific artifacts (Bijker, Hughes, and Pinch 1987; Latour 1996, 1999; MacKenzie 1993), showing the potential of looking at practices of construction.

social control, and the denegation of labor that one could not observe only by looking at designers or users of buildings. Ferro et al (1987) analyzed the construction Le Corbusier's Couvent de la Tourette. Contrary to the common emphasis on the role of Corbusier as designer, this analysis stresses the many problems, solutions, and translations involved in the material production of that building, and how the many practices of construction available at the time impacted the final built form.[24]

In my own research, I have noticed how different political programs for low income housing place different emphasis and propose different sets of practices for the moment of construction, leading to divergent expectations about the aesthetic, functional, and political nature of those buildings. One of these programs—of which the aforementioned Cecap Zezinho Magalhães is a primary example—is mostly influenced by a modernist paradigm of design and construction, in which the role of the designers is complemented by an understanding that construction should only be understood as the materialization of initial ideas (a frustrated objective, given the resistance of materials, the change of plans by the governmental institutions that funds the program, and the new ideas about how to build that emanate from the construction site itself), but also as a blueprint for the industrialization of construction in the entire country. An alternative program emerged in the late 1970s; in this new program, houses were built by the future owners, by means of an association between groups of young progressive architects and local branches of the growing São Paulo housing movement. This new program de-emphasized the semio-material practices of design, and deeply politicized the practices of "auto-construction," through community-based design and the use of traditional materials, such as brick and mortar, instead of the concrete favored by modernists. Looking at the semio-material practices of different modalities of construction—what kinds of techniques and materials are used, how the construction site is organized, how blueprints and plans are interpreted, etc.— leads to new understandings about the cultural and political life of the built environment.

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[24] Also, a cultural sociological analysis of "starchitecture"—a term that has been commonly used in the last decade to denote the work of some of the most eminent and disputed international architects, such as Norman Foster, Rem Koolhaas, and Frank Gehry—that contemplates the moment of construction leads to an important set of sociological questions about the relation between designers, states, and construction workers involved in the production of those structures. One example: recently, Zaha Hadid, one of the most celebrated contemporary architects, argued that "It's not my duty as an architect to look at it", i.e., the alleged death of more than 800 workers in the construction of stadiums and other infrastructures for the Soccer World Cup in Qatar (Riach 2014). This claim is clear example of the operation of the semiotic material practices of design, which commonly separates the realms of design and construction.

Inhabiting

Shared cultural guidelines shape the use and interpretation of buildings. The definition of spaces as public or private, as spaces of work or leisure, or as dangerous, inspiring, etc., is based on shared semio-material practices that are culturally and socially situated. In most cases, different sets of practices clash or complement each other in defining expected or appropriate uses of spaces—for example, private spaces are arenas of negotiation and despite of different repertoires of practices available at a certain moment (Fehérváry 2011; Hayden 2002). Also, the use of buildings might subvert the initial intentions of designers or developers. This is particularly clear in the use of public spaces during moments of contention (Gould 1995; Harvey 1989; Tilly 2000). The analysis of the semio-material practices of inhabiting sheds light on the structuring effects of the built environment, but also on the continuous negotiation of building users, either in the form of the creation of new repertoires of spatial practices, or through the reconstruction or reform of those spaces to fit new needs, meanings, and intentions.

A built form can only function as the iconization of state power (or any form of power) if a certain set of material semiotic practices available allows for that interpretation. For instance, a medieval cathedral only functions as a representation of divine power due to the shared availability of a set of understandings—many of which derived from scholastic philosophy (Panofsky 1976)—that connect ideas of verticality, non-human scale, and light to an image of a Christian god. Brasilia only works as a symbol of the Brazilian state and modernity because of the prevalence of a repertoire of semiotic material practices at the time that connected a set of signs (ampleness of space, grandiosity, whiteness, readability of the plan…) with the ideas of modernization and the image of a centralized nation state responsible for conducting the project of modernizing Brazilian society (Gorelik 2005; Holston 1989).

But it is important to notice that not always the semio-material practices expected from building users are the ones that come to play. Certain built structures sometimes just fail to signify that which clients and designers intended—the case of the early reception of the Vietnam memorial by war veterans and many public officials shows this tension between expected practices and the real ones (Wagner-Pacifici and Schwartz 1991). In my own research on low income housing in São Paulo, I encountered many cases in which the practices of inhabiting— e.g., how to use public spaces, decisions about new additions to the buildings, the construction of walls surrounding the housing projects, etc.—directly challenged the initial conceptions about

the use of those spaces, as elaborated by the state and the commissioned architects. For example, at Cecap Zezinho Magalhães, the initial project did not plan for the construction of any surrounding walls, and that was deeply justified and theorized by the design proponents. In the last fifteen years, several of the building ensembles built these walls, making that housing project look much more similar to the middle class gated communities that abound in São Paulo (Caldeira 2001), to the chagrin of all the architects who were involved in the project that I interviewed. These walls also reinforce a material and symbolic separation between insiders and outsiders, or between that housing project and the rest of the city. In the case of Brasilia, one of the most example of modernist design, the literature has emphasized how the spatial practices of users challenge the initial expectations of Lucio Costa and Oscar Niemeyer's design (Gorelik 2005; Hollanda 2000; Holston 1989).

Conclusion

The concept of semio-material practices and the analytical framework that emphasizes the three moments in the life of the built environment presented here incorporate crucial insights from the recent sociological literature on the relationship between meanings and materiality, but it also provides a new lens for looking at this problem. The sociological value of this approach is ultimately an empirical question. That notwithstanding, I argue that the approach presented in this article is more flexible than any of the four current sociological approaches, since it is able to shed light on the semiotic practices through which individuals engage with material things, in different realms of social practice. At the same time, it provides a greater degree of terminological accuracy, drawing on Peirce's distinction between icons, indexes, and symbols to explore how each of these leads to different interpretations about material objects. And the framework, drawing from the concept of social field, provides a better explanation about the social situatedness of sets of semio-material practices.

Most sociological analyses of the built environment have paid insufficient attention to the important moments in the process of the objectification of buildings. Although this is not necessarily a problem, since these moments can be analytically distinguished, I argue that a broader frame that addresses these three moments leads to a better understanding about the importance of built forms for social life. In this sense, the analysis of semio-material practices of design, construction, and inhabiting leads not only to more thorough studies of each one of these moments, but it also motivates new research questions that address all of them. Analyzing these

three moments also helps avoiding the analytical trap of allowing semio-material practices to dictate the relevant research questions—instead of asking questions that could show how certain practices and codes are partial or aspects of reality.[25]

Beyond the specific contribution to the cultural study of the built environment, the theory presented here provides a platform for a constructive articulation of the problem of materiality in some of the most important contemporary literatures on social practice: pragmatism, Sewell's theory of social structure, and actor-network theory.

This article partakes in the recent revival of pragmatist social theory, addressing the role of materiality for the operation of circuits of practice. This recent literature reintroduced critical ideas about the creative nature of social action (Joas 1993, 1997), and provided important contribution for a theorization of social mechanisms (Gross 2009), collective action (Emirbayer and Goldberg 2005), and meaning making (Tavory and Timmermans 2013). This article complements those efforts, showing how individuals incorporate the built environment in circuits of social practice through creative, abductive processes of material and sign manipulation, but also how the built environment itself limits the possible repertoires available for its social engagement.

This combination of the Peircean and Bourdieusian theories also extends a definition of social structures as semiotic codes as the built environment (Sewell 2005). Although Sewell points toward the mutual constituency of semiotic processes and the material world, he still separates the two rather drastically, even when trying to explain how they are intertwined as social structures (Steinmetz 2008b). The concept of situated semio-material practices allows for a better explanation of how those two dimensions become intertwined in circuits of social practice.

Finally, this article takes seriously the challenge presented by the materialist turn in the humanities and social sciences, but it also partakes in a humanist critique of that literature (Jerolmack and Tavory 2014; Vandenberghe 2002), and conceptualizes a sociological mechanism through which non-humans become causal. The concept of semio-material practices

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[25] As we have seen, certain semio-material practices actively conceal one or more of these moments—for example, the practices of design tend to keep from sight the role of labor, and construction more broadly; or a semio-material practice that emphasizes the iconization of power tends to steer attention away from important stages in the process of design and construction, and to forms of use and inhabiting that subvert the iconic interpretation of those structures.

emphasizes both the active, forceful nature of the built environment, but it also provides a corrective to extreme version of post-humanist material studies, emphasizing that this causation is commonly associated with social practices of material interpretation and engagement.

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