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Rethinking Semiotics in Architecture: ARCHITECTURE AS A PERCEIVED SIGN

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Abstract

The emphasis on the meaning of architecture according to semiotics has been prominent since ecology and social concerns became essential issues in architecture. The article revisits semiotics in architecture in light of recent neuroscientific research on perception, as an inhabitant can only read space through perception, which historically has been reserved for theories related to phenomenology and experience. Following a historical account of semiotics in architecture in the 20th century along with its impact on architectural thought and shortcomings, Umberto Eco's semiotics of architecture in its connection to Hjelmslev's linguistics has been elaborated to describe the potentials of an architectural sign model providing meaning and critical notions through its physical presence and existing cultural codes. In conclusion, an integrated version of the Hjelmslev-Eco model of architectural sign and multimodal perception theories is proposed to meet architectural semiotics' initial theoretical promise of reaching out to society by reaching individual experience.

Keywords

semiotics, language, communication, design, meaning in architecture, experience, perception, neuroscience, Umberto Eco

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Introduction

Ecological thinking, green economic needs, and social inclusivity reflexes have recently brought the architectural artifact's ideological aspects into the spotlight in a refreshing way concerning the context and human experience as essential. Perception has been one of the vital issues for decades as the interface of the building and the experience of using it. The current focus on design processes and the life cycle of buildings brings the process perception of spaces by inhabitants to the forefront as the condition of the emotional states the spaces generate and the message they deliver. Thanks to new neuroscientific discoveries and psychological research, we have contemporary models of perception which are much more interrelated with cognitive practices than we thought. Thus, we can link this to possible critical and ideological interpretations of the world. Architecture has been charged with technically excelling in ecological and economic aspects and going beyond to fulfil its various social missions. Architecture circles more than welcome perspectives integrating its purposes with form-making on an ideological basis and ensuring its perception so that, surpassing technical accomplishments, it transmits its drive.
Recently, Loeckx and Heynen mentioned in their book *Conditioning Architectural Theory: 1960-1990* (2020) that this atmosphere might be the right time to rethink semiotics in architecture, as it has focused on communication between the designer and end-user since general criticism of modernism emerged. Roland Barthes conceived of the urban environment as a sign; Umberto Eco, among others, emphasized the communicative aspect of architecture; and Derrida's deconstruction rigorously inspired a generation of architects until the technical abstractions of linguistics fell from grace around the turn of the millennium.

Semiotics and visual signs

At the beginning of the 20th century, the development of a general "theory of signs" was announced almost simultaneously by the Swiss linguist Ferdinand de Saussure (1857-1913) and the American philosopher and scientist Charles Sanders Peirce (1839-1914). In continental Europe, Saussure's ideas matured slowly within language studies and, from there, permeated other fields as an analysis of underlying systems of relations to constitute structuralism, which is characterized by the Linguistic Turn – a term popularized by Richard Rorty's 1967 anthology by the same name. The argument that "the problems of philosophy are problems of language" (Rorty, 1992, 371) emphasized that 20th-century thought has been closely associated with language. As Ludwig Wittgenstein elaborated in his well-known *Tractatus* (1921), "Whereof one cannot speak, thereof one must be silent"; language has been more than an object of philosophical inquiry; it has been an inspiration and model for thought. *The Linguistic Turn* parallels the prominence of logic around the same time and bears some vague yet crucial resemblance to philosophies emphasizing the human mind's inner workings, especially phenomenology. While semiotics and phenomenology have significantly differed in apparatus, namely structure versus interpretation, thinkers such as Paul Ricoeur built intermediate perspectives. The connection point can be that both focus on the media we encounter the world through, language and perception, as a form giver to our understanding of it – an idea that can be traced back to Kant.
Saussure's semiology, elaborated in his *Courses in General Linguistics* – a book summarizing his lectures from 1906 to 1911 – conceives of the main element of language as a sign, which is set up by two signifying operations that occur simultaneously and activate two forms of relationality: a positive association and a negative differentiation. The sign is the association of "the signifier", which is usually the sound of the word, and "the signified", defined as a concept that does not necessarily refer to "something" out there in the world. The association between them is arbitrary, as famously remarked. Saussure, however, understood language as a system held together by structural differentiation, which is connected to the sign's position within the overall system. In short, the sign acquires meaning in the simultaneous play of association and difference (Loeckx & Heynen, 33), creating a random connection between the form – acoustic or textual word – and the mental content.
From the late fifties onwards, the widespread success of structuralism, informed by Saussurean ideas, generated a spectacular resurrection of semiotics, not just in linguistics but also in social sciences and arts, which suddenly began to see their own object of study as structured just like languages (Loeckx & Heynen, 32). Roland Barthes corroborated Saussure's earlier statement that all domains of culture, science, and society, in fact, could be considered as various forms of language and that hence his linguistics, in the long run, might become just another part of a more general science of semiology that would deal with all kinds of languages. His 1957 collection Mythologies, in particular, opened a pathway toward a semiology of nonverbal languages. The book deals with various topics, such as the Tour de France, publicity posters, and even avant-garde car designs, considering all of them as languages.

Architecture as language

Seeing architecture as a kind of language is not entirely new. The tradition of classical architecture tends to conceive of architecture as an autonomous visual framework determined by a set of rules, as discussed by Tzonis and Lefaivre in their 1986 book, *The Poetics of Classical Order*. After the 19th century, several modernist architects and theorists turned against the classical conception of architecture as a language that opted for

symbolic representation instead of functionalism (Loeckx & Heynen, 33). In the aftermath of World War II, international modernism, marked by rectangular prisms developed from early avant-garde tendencies, might have become the de facto insignia of corporate identity despite refusing any representational attachment until the early postmodern implications. Still, during the legitimacy crisis of then widespread rationalist architecture, seeing architecture as a communication medium was considered to be a general way out, embodied by Charles Jencks's question "What is architecture about?" in 1980. One of the crucial postmodern arguments has been that architecture should be meaningful and able to interact with the community. How language or language-like systems, in this case, architecture and design, generate contact was the starting point of semiotics.

Fittingly, Saussure explained his linguistic concepts of syntagmatic stringing and paradigmatic selecting using an architectural metaphor, implying architectural semiotics as a possibility. He described how a column is "syntagmatically" connected with other parts of the construction, whereas the column itself is selected from a paradigmatic series of Doric, Ionic, or Corinthian versions, as underlined by Loeckx and Heynen (34).

Efforts in combining semiotics and architecture have also resulted in several crossovers. Charles Morris, the author of *Foundations of the Theory of Signs* (1938), which would resonate within architectural circles, in line with American semiotics, was closely connected with Bauhaus follow-up education programmes in Chicago and Ulm integrating different fields of knowledge (Mallgrave & Goodman, 38). Joseph Rykwert and Charles Jencks, among others, devoted significant efforts to the problematics of meaning in architecture in the late 60s and 70s while building the foundations for the future collaboration of Derrida with Eisenmann and Tschumi in a post-structuralist context. These endeavours mark the first half of the 1970s as the climax of semiotic interest among architects, but at the same time, the lack of success in applying it in any compelling way. The technical abstractions of linguistics soon pushed semiotics out of practice. As ironically put by Mallgrave and Goodman (39) in their history of architecture theory of the previous decades, "when the last Derridean converted to Deleuzianism in the early 1990s", semiotics in architectural theory had all but "burned in its conceptual excesses". There have already been a few decades of disinterest in architectural semiotics and the meaning of forms. Seen from a new perspective, is its potential to reinforce critical thinking in design worthy of consideration again?

Semiotics scholars have addressed the essential question of how a form, a visual sign, generates meaning. Charles Morris divided semantic signs into three groups of indices, icons, and symbols, pointing out the correlation between form and meaning, given that it is not arbitrary as in language. Indexical signs point to their meaning, icons exhibit properties of the content to which they refer, and symbols, by contrast, are culturally established signs. Roland Barthes elaborated on the various orders of signification, adopting the theories of one of the influential linguists from Copenhagen, Louis Hjelmslev, to explain how far-fetched references work. The first order of signification is that of denotation, a direct signification, while connotation is a second order of signification that uses the denotative sign (signifier and signified) as its signifier and attaches an additional signified to it. Namely, the connotation is a sign which derives from the signifier of a denotative sign. The mythological effects of visual signs result from the interplay between denotation (a straightforward, literal meaning based on a simple and direct relation between a clear signifier and an obvious signified) and connotation (a more layered and implicit meaning beyond the literal one). According to Hjelmslev, this reciprocity allows for the insertion of ideologies in the language of sport, publicity, or

design because the apparently innocent denotation functions as a vehicle for ideologically charged connotations.

Eco' s denotation and connotation

It was Umberto Eco, though, who urged for downright architectural semiotics following Barthes's cue. He proposed a model for architectural signs as a way of communication in his 1968 book The Absent Structure, translated into English a few years later in 1973 making a formidable impact, complemented by his article *A Componential Analysis of the Architectural Sign / Column/* soon afterward. According to Eco, if all cultural phenomena were systems of signs, any function must be related to communication. All architectural artifacts serve a communicative function by fundamentally communicating their function to be fulfilled before their actual use. For example, a cave promotes the act of taking shelter and signifies the existence of the possible functions in a given cultural context, just as a stair promotes the possibility of going up as a condition to be used by someone. He states that the form of stairs denotes the meaning of stair as a possibility of going up based on a code that one can work out and recognize as operative "even if no one might be going up that stair at present and even though, in theory, no one might ever go up it again" (1973, 60). An object of use is, in its communicative capacity, a sign of a denoted meaning, which is its function. The first meaning of a building is what one must do to inhabit it, as the architectural object denotes a form of inhabitation. The architectural form should make the function possible and, at the same time, communicate that function, making the function "obvious, necessary, and attractive" (1973, 59).

In the Anglo-Saxon tradition based on Peirce's philosophy of pragmatism, a sign has three components: signifier, signified, and referent – an object that the signified concept refers to in the real world (Atkin, 2023). Eco differs slightly from the Saussurean tradition by also defining the signifier as a physical object of use. Eco prefers the term sign-vehicle as a combination of the object and the signifier. This manoeuvre helps him describe the sign-vehicle as a physical space with specific functions to fulfil and communicate as a linguistic signifier. While the simultaneously used and perceived object is the signifier, the communicated function becomes the signified meaning. In this case, the term function is used in two senses. Firstly, the function of space refers to its practical use. Secondly, the function of communication denotes the information on how to inhabit that space.

The communicative function, however, has a twofold mechanism; it does not consist of only denoting practical use. Eco emphasizes, just like Barthes, the line between a direct signification of a meaning and an indirect, usually symbolic one: denotation versus connotation. While architectural signifiers denote precise functions, these strictly functional meanings (Eco refers to "the primary functions") of these signifiers can be extended, with successive meanings ("secondary functions") obtained via connotations. In addition to denoting going up and down, a majestic staircase can connotate power and prestige in the context of specific cultural codes. A cave, for instance, in his hypothetical model of the beginning of architecture, came to denote a shelter function, but, in time, it has begun to connote family, security, or familiar surroundings. If the seat is a throne, it must do more than seat one, he remarks, as "it serves to seat one with a certain dignity, perhaps through various accessory signs connoting regalness" (1973, 65).

Furthermore, Eco asks if its connotative nature, this symbolic function of the object, is less functional than the primary communicative function. While the denotation of practical use seems to be the sole functional content, symbolic meanings also have essential utility functions in architecture which get ahead of practical uses in some cases. The connotative or symbolic meanings

represent a real social utility of the object. So, the communicative function of the sign vehicle should be extended to all possible uses of utility objects as, in societies, the symbolic capacities of these objects are no less helpful than their utility capacities while shaping them according to their ideological purposes. Rather than a stark distinction, they constitute an interrelated twofold mechanism. To some degree, the primary function denotes its practical use symbolically, as the possible use is communicated through the form and needs to be learned instead of being necessarily intrinsic. Likewise, connotative functions only imply a symbolic meaning derived from practical use, as Hjelmslev and Barthes explained. The two types of information on how to use a space and what that space symbolizes work in tandem.

Eco does not further pursue the interaction between the information about use and symbol reference. Nevertheless, between being the user's handbook and abstract notions, the spectrum of signified meaning hosts various ideological variations directly linked to use. Each primary function is bent by some ideological connotation about how it should be performed in each case. No seat is only a seat which promotes the simple possibility of seating; in any given context, it refers to distinct versions of seating – in a class, in a job interview, with a loved one, in court, or in leisure time. An ideological connotation seems to be inescapable. Just as symbolic meanings are derived from primary functions, symbolic connotations, in turn, forge the function. Their interaction creates ideological subdivisions in any functional category and evokes further aspects regarding the political dynamics of a space. Representation of space as a concept and our experience of it pave the way for the production of space, as Henri Lefevre elaborated in a not-so-dissimilar discourse given the overlappings between post-structuralism and post-Marxism as mainstream critical tendencies. Eco, on the other hand, turns his attention to the artistic possibilities of architecture through semiotics. He explains how society needs cultural codes generated step by step in order to communicate. Anything publicly emerging enters the realm of codes and entangles itself with connotations, tracing itself and its own historical representation in collective memory. Even non-representational functionalism journeyed from embodying an overambitious dynamism of modern daily life to impersonal power relations and monotonous urban presence. Without the existing cultural codes and their tendency to extend themselves, incorporating any public visual object that appears in the public realm, utility functions, let alone symbols, would be unreadable. These codes are not as fixed as in language but are a system of "rhetorical formulas and already produced message-solutions" (1973, 78). The architectural message becomes expected and comprehensible only by resting on these codes. Eco notes that architecture, at times, just like arts, has moved in the direction of innovation, going against existing rhetorical and ideological expectations in history but not departing from given codes entirely, which makes architecture an artistic act but also draws the line between them. In a surprisingly – or not surprisingly – Adornesque output, he claims that breaking the existing codes is the artistic freedom of architecture. In other words, since all communication is ideologically loaded as each denotation incorporates connotation to a certain extent, seemingly purely functional objects can effortlessly and necessarily be redefined as signifiers that are always also symbolic. Based on a contextual ideological framework, critical engagement with codes is the stepstone for innovation. Nonetheless, each new architectural object revises the cultural codes and seems to be a confession of what design constantly does.

Perception of the architectural sign

Exclusively through formal appearance, Eco's architectural sign-vehicle acts as a signifier; in other words, the three-dimensional form

in semiotics assumes the task of being read and interpreted. At the outset, it is a carrier of functional affordance and a guideline to a particular way of using a spatial environment. The logical end of the connotative signification spectrum is where a form acts as a symbol with almost no apparent connection to how a space is utilized. The denotation of the function might remain so unrelated that the form itself, independent of its use, and thus independent of being an architectural sign, can connote formal notions. For instance, a swastika shape would have connotations overwriting all the functions behind them, given its political or cultural loads. Nevertheless, this is still reading and interpreting them on the background of codes. Semiotics might have allowed us to include the architectural function in aesthetic judgment as it is communicated through the symbolic aspects derived from the function, but the question of the formal impact of the form remains. Might the form, as perceived by the inhabitant, have an additional impact independent of the signified function it hosts? Can the form have a direct aesthetic effect preceding its connotative aesthetic message? Evolutionary psychology suggests that the organizational properties of senses facilitate our sensitivity of perception, which, as explained by Thomas Albright in his article *Neuroscience for Architecture* (2015), might evoke certain mental conditions or even emotions. For instance, Wölfflin's gravity theory or Gombrich's sense of order look for an intrinsic biological mechanism for aesthetic judgment. In any case, all physical surroundings are subject to embodied perception independent of whether they are an object of use carrying various symbolic notions or not. A dose of recent neuropsychological research inspiration seems only fair as visual semiotics solely works through the media of perception rooted in the awareness of surroundings, the body's physicality, and internal networks of the neurosystem.

Eco himself hints at the physicality of space that surrounds us. His real-life referent as sign-vehicle makes it possible to generate the primary meaning, while the cultural codes give context to any sign relative to the observer. Furthermore, he states that the abstract space itself is not the meaning; instead, it is established by several components related to each other (216) with reference to, once again, Hjelmslev emphasizing that no sign exists by itself in isolation. Louis Hjelmslev, born in 1899, has given a new rigor to the notion of connotation and influenced Barthes and Eco in certain aspects. His sign model includes the possibility of codes and materiality inherently, not as external extensions.

Hjelmslev (1961 [1948]) famously renamed signifier and signified, respectively, as expression plane and content plane. According to him, signifier and signified present another innate duality as form and substance. The substance is the physical materiality of the signifier, which takes a particular form on each occasion. On the side of signified, the potential of meaning itself or the possibility of all meaning constitutes the substance, whereas, for each sign, the meaning also takes a particular form, an articulation that differentiates a single meaning from all other possible meanings, just like a word is defined through its difference from other words. In other words, signifier and signified need a realm of existence where the difference from all other possibilities articulates them.

Eco, in his article *A Componential Analysis of the Architectural Sign /Column/* (1972), transposed this linguistic distinction into architecture. Each architectural object has material substance and a particular form that makes it unique and thus identifiable. Each function belongs to the realm of human inhabitation and has a particular form of inhabiting. The form manifests itself in materiality, and a particular function manifests itself in the capability of acting.

Toward a perception of space through semiotics

The advantage of adopting Hjelmslev-Eco's line in architecture is that the terminals of the sign

– the materiality, formal composition, proposed life, and arrangement of functions – are part of the awareness of any inhabitation of space, thus constituting the experience of it. The functional arrangements manifest themselves through the proposed life by design, yet they are also perceivable. The formal composition manifests itself through materiality, yet it is also perceived. Physical surroundings communicate their aesthetics as cognitive symbolism as secondary signified contents, and the perception process includes the recognition of visual data as a sign, thus, as an object of use, but – and it is a crucial but – it is also recognized as pure form. In this regard, the stimulus of space includes the perception of the form as form by itself, too.

As recent neuroscientific research has shown, perception is a multimodal process, as Sarah Robinson and Juhani Pallasmaa elaborates in the essential anthology *Mind in Architecture* in 2012, summarizing recent research and interpreting it in connection to architecture. As widely popularized by neuromarketing studies, certain decisions (such as the so-called reflex of an athlete) are taken before they appear on a conscious level. Emotion psychologist Lisa Feldman Barrett demonstrates in *How Emotions Are Made* (2017) that emotions, decisions, and first reactions partially occur or start to emerge before the conscious processing of the raw data is finalized. In other words, we feel an emotion before we know that we feel that exact emotion. Our consciousness is gathering data from the immediate environment and processing it together with senses at all times, and if we consider semiotics, it takes a period to recognize an object of use as a sign and read it. We react, or our visual cortex and somatosensory network initiate a reaction to the spatial form around us first, and only then do we cognitively read the form as a sign. The perception process can apply patterns to the raw data and, thus, is an active and constructive process dominated by evolutionary reactions and coaction by personal memory.

Our brains are not compartmentalized, but various regions work multifunctionally to bring about the so-called primary senses of seeing, hearing, touching, tasting, and smelling; it can be added that we have the sense of balance, gravity, temperature, pain, and other internal control mechanisms. Thanks to various neurophysiologically intertwined neural mechanisms, they work together with memory, imagination, and mental abilities. Perception is defined not only by the unique plasticity of a human brain but also by a person's past experiences, as memory and cognitive abilities are highly embodied. These notions (and facts) present an endless and creative interpretation of space, if not random, as Paul Ricoeur framed the art piece as a structural sign which opens up in readers' minds.

In this regard, we can define four aspects of experienced space that have interrelated yet individual impacts and thus design considerations: the perception of the form itself; symbolic associations of the form related to personal or collective memory, i.e., cultural codes; the evaluation of the function itself based on the practical inhabitation; and connotative, ideological associations based on function.

The form in itself presents the sensual perception of the purely material surroundings, and according to evolutionary aesthetics and as explained by Thomas D. Albright (2012), certain formal sensations trigger mental states based on our biology. The association world of the form offers to connotate a series of symbolic meanings and emotional states with the involvement of memory and regarding collective memory, such as a non-convex polygon, can hardly be conceived with the presence of the iconic representation of a star or how non-linear geometries trigger uncanny emotionality as described by Wigley in his manifesto of deconstructivism.

The perception of the signified function in itself results from reading and sensing the visual surroundings. This involves a cognitive mapping of the functional arrangement (as Eco describes denotative communication) and also bodily

movement as part of sensation. The association world of the function corresponds to what the functional program connotates in comparison to another similar place culturally, ideologically, and symbolically.

In semiotics terminology, perception constructively impacts reading a sign. Architecture is a text but an embodied and perceived text. More technically speaking, the form creates another sign, the signified being a formal potential effect, unconsciously "read" according to the inner workings of biology first, and still might have distinct connotations for cultural codes – as a visual sign, not necessarily as an object of use in this case. The individual messages of the form in itself and function in itself combined with unlimited possibilities of connotations emerge in and constitute the experience.

Understanding architecture semiotically has presented theoretical instruments for design to communicate with society, yet considering only perception processes, architecture as a perceived sign can reach individual experience to bring any social mission to a full circle. As the Cartesian division of body and mind collapses, our brains' neural connectivity allows us to unravel the architectural stimulus in connection with semiotics. In *T.S. Eliot's words* (1920), the spatial object can be the objective correlative of a desired critical experience to generate a channel between the designer and inhabitants in an age where ecological and social sensibilities are expected to be incorporated beyond technical excellence.

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References

Albright, T. D., 2015, Neuroscience for Architecture, Mind in Architecture: Neuroscience, Embodiment, and the Future of Design, Robinson, S. & Pallasmaa, J. (eds.). The MIT Press. Cambridge, Massachusetts.

Atkin, A., 2023, Peirce's Theory of Signs, The Stanford Encyclopedia of Philosophy, Zalta, E. N. & Nodelman, U. (eds.). Available at: https://plato.stanford.edu/archives/spr2023/entries/peirce-semiotics. [Accessed Feb. 12, 2023]

Barrett, L. F., 2017, How Emotions Are Made. Boston: Houghton Mifflin Harcourt. Boston.

Barthes, R., 1957, Mythologies. New York: The Noonday Press. Farrar, Straus and Giroux. New York.

Eco, U., 1986, Function and Sign: Semiotics of Architecture, The City and the Sign: An Introduction to Urban Semiotics, Gottdiener, M. & Lagopoulos, A. Ph. (eds.). Columbia University Press. New York.

Eco, U., 1972, A Componential Analysis of the Architectural Sign /Column/, Semiotica, 5 (2). Available at: https://doi.org/10.1515/semi.1972.5.2.97 [Accessed Feb. 12, 2023]

Eliot, T. S., 1998, The Sacred Wood: Essays on Poetry and Criticism. Dover.

Hjelmslev, L., 1961, Prolegomena to a Theory of Language. University of Wisconsin Press. Wisconsin.

Jencks, C., 1997, Toward a Radical Eclecticism, Theories and Manifestoes of Contemporary Architecture, Jencks, C. & Kropf, K. (eds.). Academy Editions.

Loeckx, A. & Heynen, H., 2020, Meaning and Effect: Revisiting Semiotics in Architecture, in Conditioning Architectural Theory, 1960s - 1990s, Loosen, S., Heynickx, R., Heynen, H. (eds.). Leuven University Press. Leuven.

Mallgrave, H. F. & Goodman, D., 2011, An Introduction to Architectural Theory: 1968 to the Present. Wiley-Blackwell.

Morris, C., 1938, Foundations of the Theory of Signs, International Encyclopedia of Unified Science, 1-2. University of Chicago Press. Chicago

Robinson, S., 2012, Nested Bodies, Mind in Architecture: Neuroscience,

Embodiment, and the Future of Design, Robinson, S. & Pallasmaa, J. (eds.). The MIT Press. Cambridge, Massachusetts.

Rorty, R. (ed.). 1992, The Linguistic Turn. The University of Chicago Press.

Saussure, F., 1959, Courses in General Linguistics. Columbia University Press. New York.

Tzonis, A. & Lefaivre, L., 1986, Classical Architecture: The Poetics of Order. The MIT Press. Cambridge, Massachusetts.

Wittgenstein, L., 2001, Tractatus Logico Philosophicus. Routledge.

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