

Design/Arts/Culture

Vol 2 (2021)

Design | Arts | Culture —Open theme—



Towards a Discussion of the Generative Condition of the Architectural Model

João Couto Duarte, Teresa Belo Rodeia

doi: [10.12681/dac.27523](https://doi.org/10.12681/dac.27523)

To cite this article:

Couto Duarte, J., & Belo Rodeia, T. (2022). Towards a Discussion of the Generative Condition of the Architectural Model. *Design/Arts/Culture*, 2, 10-21. <https://doi.org/10.12681/dac.27523>

TOWARDS A DISCUSSION OF THE GENERATIVE CONDITION OF THE ARCHITECTURAL MODEL

João Miguel Couto Duarte¹ &
Teresa Belo Rodeia²

¹CITAD | Lusiada University, Lisbon

²ISCTE – Instituto Universitário de Lisboa

ABSTRACT

This paper proposes reflection on the model's place in the definition of the architect's thought. Architectural representation—including the model—is assumed as an instance where the design thought becomes comprehensible, and not just as a vehicle to communicate that thought. The generative condition of the model is assumed, decidedly, on the acknowledgement of the radical distinction that will always exist between the model and the object it represents. Both the apparent natural proximity between the model and the architectural objects, which is the result of the three-dimensionality and the building dimension that they both share, and the apparent natural concordance between the model and the architect's thought are called into question. Because the aim is to understand 'how' an architect thinks and not 'what' they think when they use a model, the subject is examined from the perspective of a horizon of 'anteriority', an 'anteriority' that is ontological and not merely chronological. The model will be examined as a means of ordering the design thought, that is, as a way of giving it existence. This reflection results from the crossing of previous research on the model and on drawing (Duarte, 2016; Rodeia, 2017). The paper proposes a confrontation of the 'generative power' of the drawing, as identified by Robin Evans (1997b), with the 'generative effect' of the model explored by Peter Eisenman (1981a; 1981b). The principle of 'logical Argumentation', as defined by Groat and Wang (2002), is assumed as the method of inquiry.

Keywords:

Architectural Model, Model's Generative Condition, Robin Evans, Peter Eisenman, Architectural Representation

1. INITIAL CONSIDERATIONS

Despite all the possibilities offered by virtual modelling—or, perhaps, in reaction to those possibilities—the physical model continues to be trusted by architects for thinking the world. The model is a singular representation. Singular because, of all the forms of representation available to the architect, the model seems to come closest to the architectural object, on account of its three-dimensional nature and its construction dimension. A natural similarity seems to be established between the model and the architectural object, which, in some cases, appears even more evident for the fact that the model figures as a quasi-architectural object, as is the case of larger-sized models whose interior can even be explored. But the model can also be thought as a singular representation with regards to its influence in organizing an architect's design thought, a subject that appears to be somewhat underdeveloped in architectural research contrary to the case with drawing, which has long been an object of scrutiny. The importance of the model is recognized in the belief that it allows the architect's thought to transpire. However, the role of a model in defining that thought is ignored even though it represents it. This question is all the more pertinent when one considers that, during a design process, the object of that thought is still in formation and therefore undefined. By resembling so closely to the respective architectural objects it represents, a model appears to be so naturally in line with the architect's thought, in a kind of complicity, that the implications of the model's condition of representation tend to be forgotten.

This paper proposes reflection on the model's place in the definition of the architect's design thought. The starting point for debate is identified, and the debate will necessarily be very much open. Representation—and, accordingly, the model—is assumed as an instance where the design thought becomes comprehensible, and not just as a vehicle to communicate that thought. Thus, the generative condition of the model is assumed decidedly on the acknowledgement of the radical distinction that will always exist between the model and the object it represents.

Both the apparent natural proximity between the model and the architectural objects, which is the result of the three-dimensionality and the building dimension that they both share, and the apparent natural concordance between the model and the architect's thought are called into question. Since the aim is to understand 'how' an architect thinks, and not 'what' they think when they use a model, the reflection is executed from a perspective of a horizon of 'anteriority', an 'anteriority' that is ontological and not merely chronological. The model will be examined as a means of ordering the design thought, that is, as a way of giving it existence. This reflection results from the crossing of previous research on the model and on drawing carried out by the authors of this piece (Duarte, 2016; Rodeia, 2017). The paper proposes a confrontation of the 'generative power' of the drawing, identified by Robin Evans (1997b), with the 'generative effect' of the model explored by Peter Eisenman (1981a; 1981b). The principle of 'logical Argumentation', as defined by Groat and Wang (2002), is assumed as the method of inquiry. In terms of its scope and its goals, this paper aligns with the definition put forward in that book: "[t]he works [based on the notion of 'logical argumentation'] tend to be ends in themselves; their entire mission seems to frame logical conceptual systems that, once framed, interconnect previously unknown or unappreciated factors in relevant ways." (Groat and Wang, 2002, pp. 301-302) Thus, a succession of arguments and counterarguments is proposed, establishing a line of rational thought based on the continuous and cumulative revision of theoretical reflections, supported by the long-standing relationship of the authors with models, both in design practice and in the teaching of architecture.

With the objectives already defined, this paper focuses on models that are adopted during the design process, i.e., models which, regardless of their degree of elaboration, the materials they are made with or their complexity and completeness, contributed, at least in part, to defining an architectural object (Figure 1). What is of interest, thus, is the objective underlying the use of the model, and not a specific type of model that can be identified on the basis of its material and form of expression. [1]



Figure 1: Model Archive. Casa da Arquitectura, Matosinhos, Portugal. Gilson Fernandes, 2018. © Gilson Fernandes, Casa da Arquitectura.

2. FROM THE ‘GENERATIVE POWER’ OF THE DRAWING, BASED ON EVANS...

The reflection on the place of the model in the architect's design thought process first requires reflection on the place that the drawing holds in that process. The way in which the drawing emerges in relation to the architectural object in a design process is very much comparable to the way the model does.

Out of the many theoretical arguments on drawing, one specifically considers the proposals of Robin Evans (1997b), in his 1986 essay "Translations from Drawing to Building". Evans refuses both the appreciation of the drawing as a repository, par excellence, of the architect's thought and its reduction to a plain instrument that serves in the execution of their work, which are precisely the ways in which the drawing is still commonly viewed today. Evans exposes his ideas, referencing in particular "the suspension of critical disbelief" (Evans, 1997b, p. 154) on which the work of the architect is based when they continue to entrust drawing with realizing the object of their thought, despite the fact it is clear that the translation to the architectural object of what is contained in a drawing—or a set of drawings—can

never be linear or univocal. The same can be said of the work of a translator transposing meaning between different languages. Whilst it is unquestionably present, this "enabling fiction", as Evans (1997b, p. 154) calls it, is not explicitly recognized, leading him to believe that this is the origin of an ambiguity that marks the evaluation of the drawing. As Evans states:

because of this inexplicitness a curious situation has come to pass in which, while on one hand the drawing might be vastly overvalued, on the other the properties of drawing – its peculiar powers in relation to its putative subject, the building – are hardly recognized at all. Recognition of the drawing's power as a medium turns out, unexpectedly, to be recognition of drawing's distinctness from and unlikeness to the thing that is represented, rather than its likeness to it, which is neither as paradoxical nor as dissociative as it may seem. (Evans, 1997b, p. 154)

Evans devotes some time to an analysis of *Die Erfindung der Zeichenkunst* [The Origin of Painting], a representation from 1830 of the mythical origins of painting by the architect and painter Karl Friedrich Schinkel (1781-1841) (Figure 2). According to the myth, painting is rooted in drawing, and drawing in the



Figure 2: Die Erfindung der Zeichenkunst. Karl Friedrich Schinkel, 1830. Inv. G 184. © Von der Heydt-Museum, Wuppertal / Photo: Antje Zeis-Loi, Media Centre Wuppertal.

outlining of the shadow of a person.

Contrary to most representations of this subject matter, that usually depict an intimate built interior environment illuminated by an oil lamp that casts shadows from a subject onto a wall, Schinkel chooses to present an ambience that is exterior, natural, public, and illuminated by sunlight, with the outline of the shadow being drawn on the surface of a rock.[2] As this was the first of all drawings, and the outline that was being delineated was the first artificial mark in an otherwise still totally natural environment, drawing is presented as preceding architecture. This anteriority of the drawing in relation to architecture, painting and sculpture, is something that had been theorized about for a long time. What makes Schinkel's representation so salient, in Evans' opinion, is the fact that this said anteriority is made explicit. There is, however, a particularity in the painting that Evans argues should be noted, even if it is only observed in an indirect manner. That is the object of the artist's work. Whereas in painting and sculpture the object of the artist's work could be found, above all, in nature

and thus exists before representation (at least up until the emergence of Abstractionism—but the degree of conceptualization involved in the process is not the issue here), with architecture, that is not the case. In architectural conception, the object that is represented only comes into existence after the drawing. This point is clarified by Stan Allen, again building on Evans' reflections.

In architecture there is no preexisting object to imitate: no body to cast a shadow [...]. Once codified, architecture tends to imitate preexisting architectures; but what does it originally imitates? Alberti, for example, states that architecture imitates nature by subscribing to the same set of abstract ordering principles. Architecture imitates nature, then, through harmony, number and proportion. In enlightenment architectural theory, the construct of the primitive hut is introduced; architecture imitates nature by finding its origins in the most basic and "natural" of architectural forms. But if classical architec-

ture imitates nature in the form of the primitive hut, it does so only through a highly abstract and idealized geometrical mediation. Even later attempts to link architecture more closely to a mimetic idea of nature – E. E. Viollet-le-Duc's idea that the logics of structure imitate nature, or Gottfried Semper's woven walls – do so through conventionalized (and abstract) means. Each of these stories of origins returns to a void space. The desire for stable origins always turns up empty. (Allen, 2000, p. 5)

Therefore, in a certain way, the drawing becomes the 'nature' on which the architect works, emerging as the object through which the architect confronts himself as he designs. As Allen (2000, p. 6) argues: "Buildings are both imagined and constructed from accumulated partial representations."

Returning to Evans' observations, he thus identifies a reversal of the sense of imitation that underlies classical artistic creation. In this light, the meaning of Schinkel's painting must be reassessed. "We might surmise, then, that the absence of an architectural setting in Schinkel's painting is a recognition of this reversal, by which the drawing must come before the building." (Evans, 1997b, p. 165) It is thus as an impossibility, and not merely as a circumstantial absence, that the non-architectural dimension of the scene in Schinkel's painting should be understood. Before the emergence of the drawing—and that is, one should remember, the very first drawing—there could be no architecture, as the means to anticipate it did not yet exist. The drawing thus becomes an instance that confers upon architecture the possibility of existence. For this reason, i.e., upon the premise that it constitutes a condition for the existence of architecture, it is more than just a means of representation: it has the 'generative power' that Evans attributes to it.

Drawing in architecture is not done after nature, but prior to construction; it is not so much produced by reflection on the reality outside the drawing, as productive of a reality that will end up outside the drawing. The logic of classical realism is stood on its head, and it is through this inver-

sion that architectural drawing has obtained an enormous and largely unacknowledged generative power: by stealth. For, when I say unacknowledged, I mean unacknowledged in principles and theory. Drawing's hegemony over the architectural object has never really been challenged. All that has been understood is its distance from what it represents. (Evans, 1997b, p. 165)

This power of the drawing does in no way negatively affect the value or the intellectual dimension of the work of the architect. Rather, the 'generative power' of the drawing should be examined and understood first and foremost as an order for the development of design thought—this will be confirmed further below when examined in relation to the model— and less so as a direct origin of the form of the architectural objects.

3. ... TO THE GENERATIVE CONDITION OF THE MODEL

Recognition of the 'generative power' of the drawing legitimizes the identification of the generative condition of the model, given that the model also emerges as something tied up to the inversion of the logic of classical realism that characterizes the creation of architecture. Like the drawing, elaboration of the model does not follow nature but, first and foremost, takes place prior to construction; it emerges, thus, not so much as a reflection of an entity that is external to it, but as the producer of a reality that will go beyond it. And like the drawing, the recognition of the model's generative condition entails the recognition of its distinctiveness from and its unlikeness to its object. As with the drawing, the relationship the model establishes with the architectural objects is stringently subject to conventions. They are mutually independent. As Gänshirt (2007, p. 153) points out, "[t]he deceptively convincing nature of models can easily mislead one into ignoring their essentially fictitious representational character as well as their inherent high degree of abstraction." The still widespread belief in the natural resemblance that models have with architectural objects, simply because they share a three-dimensional existence, is untenable. The completion of representation is decoupled from

resemblance, as Nelson Goodman (1976, p. 4) has already argued: “[p]lainly, resemblance in any degree is no sufficient condition for representation.” That one would consider something that is the result of a convention to be similar to a natural outcome is something that can only be attributed to habit. Representation is always a relationship governed by convention.

The existence of a ‘generative effect’ on the part of the model was already identified by Peter Eisenman in the catalogue of the exhibition ‘Idea as Model’ which was held at the New York-based Institute for Architecture and Urban Studies (IAUS) in 1976, edited by Kenneth Frampton and Silvia Kolbowski and published at a later date.[3] At the time, Eisenman was head of the IAUS.[4] The ‘Idea as Model’ exhibition is still recognized as marking the beginning of a new period of renewed focus on the architectural model. In the catalogue, Eisenman argues:

this exhibition had its origins in a long-standing intuition of mine that the model of a building could be something other than a narrative record of a project or a building. It seemed that models, like architectural drawings, could well have an artistic or conceptual existence of their own, one which was relatively independent of the project that they represented. [...] We wanted to suggest that the model, like the drawing, could have almost an unconscious, unpremeditated, even generative, effect on the design process, that is, a similar effect to that of a two-dimensional projection to provoke unforeseen ‘structural’ developments or even modes of perception in the process of design. (Eisenman, 1981a, p. 1)

Eisenman did not theorise on the ‘generative effect’ of the model. However, one can understand the importance of that notion based on a number of reflections he does on the adoption of the model in the well-known series of houses he designed between 1967 and 1975, which he numbered I to X, and also in certain other designs that followed.[5] At the time Eisenman was concerned with questioning the nature of architecture. On the one hand, one would have to rethink architecture as no longer being symbolic of Man; instead of referring

to Man, it referred to itself—it was self-referential. Architecture no longer had a representational dimension. On the other hand, as it was no longer confined to that representational dimension, with the elements that constitute it—walls, pillars, beams, etc.—no longer having a symbolic value but now being self-referential, architecture also no longer had a scale specificity. The same could be said for the manipulation of those elements, which no longer had to take place on a specific scale. A fruitful homology between architectural object and model was thus provided for:

my first houses began to question the nature of a sign in architecture, and how a sign is made. The first house was built like a model airplane – the connections between columns and beams were actually sanded down and glued together. House II was built to look like a model (often when the photograph of House II is printed in a magazine, it is mistitled a ‘model photograph’). Thus, while House I was built like a model, House II actually looked like a model. (Eisenman, 1981b, p. 121)

The distinction between model and architecture lost meaning, with the model simultaneously emerging both as a supporting element of the design thought, as well as the object of thought as such. Through its realization, the model realized the thought; it was to be simultaneously architecture and the representation thereof. This twofold condition is the culmination of the questioning of architecture that Eisenman carried out over the development of his series of houses.

The first two houses questioned the nature of the sign and the capacity of the sign to be self-referential; the next two houses questioned the relationship of this self-referential sign to the substance and the poetics of the sign; and finally the last two houses posed the problem of representation in terms of the idea of scale, which ultimately led to the idea of the model. (Eisenman, 1981b, p. 121)

Eisenman successively refers to House I and House II; House III and House IV; and finally, House X and House 11a. Thus, while the model for House II still emerges

as a representation of another object, as is the case when Eisenman states that “[i]n fact, as it turned out, the only way you could understand the structure of House II was through the model” (Eisenman, 1981b, p. 122), the model for House X—the axonometric model that was to become iconic—is already “an idea in itself [...]. It is not a representation of anything.” (Eisenman, 1981b, pp. 121-122) It is, therefore, as a model that architecture seems to achieve the desired non-representational condition, that architecture seems, accordingly, to reach its essential condition.

The ‘generative effect’ of the model, as identified by Eisenman, seems to take the form of the capacity to embody, and therefore support, the development of thought. This capacity is even more evident when the model is considered as the object of that thought, as opposed to the representation of another object. But the horizon of the ‘generative effect’ that results from this understanding of the model must be taken into consideration. The model carries that effect within itself, in that it allows for clarification of the definition of architectural objects—and even more so when their meaning is questioned. This effect is perhaps even more evident when the model becomes the objective of the thought. However, with Eisenmann the model is no longer considered as representation, and even less as a specific representation of an architectural object. It is in the very definition; it is in its concreteness devoid of any meaning other than that of being an idea, in and of itself, that the ‘generative effect’ of the model manifests itself. The effect is self-generative. It is absorbed in itself. So, thanks to Eisenman’s ideas, the very notion of model forfeits its meaning, given that a model also bears within it a condition of representation. That said, the way one seeks to question the generative condition of the model in the definition of architectural objects still remains to be by assuming its representational dimension, that is, by accepting the fundamental distinction that is always there between itself and the object it refers to. Eisenman’s reflections (1981a; 1981b), however, open the possibility of recognizing a ‘generative condition’ of the model regardless of its obvious representational function.

4. THE MODEL AS AN ORDER OF THE ARCHITECT’S THOUGHT

It is important here to return to Evans’ (1997b) reflections on the ‘generative power’ of drawing, recognizing that this power derives from the fact that throughout a design process the drawing exists before the architectural object, reflecting an anteriority that is ontological and not merely chronological. Drawing reflects the possibility of the existence of the architect’s thought, as well as the possibility of ordering it. Building on the ideas of Evans (1997b), to identify a generative condition to the model also means recognizing the presence of the model in the very genesis of the design thought. As with drawing, the anterior existence that a model has in relation to the actual building is more than just chronological. The model gives order to architectural thought, meaning that it gives it intelligibility and, thus, the possibility of development. This is the only way the objects that the model is associated with, namely, architectural objects, are made operable. The order of the model is interpreted as the order of its object; the order of the architectural object is engendered in the order of the model. Without that order, without any order, objects could not be conceived, as the thought could not make itself intelligible. The model gives thought the possibility to endow itself with meaning, thus saving it from indiscernibility. And that order is more than just geometric. By ordering their thought through the means of an architectural model, architects conform with how Man confers meaning to the world—i.e., gives meaning to Man’s own existence—on the premise that this order is part of the conceptualization of the architecture, which participates, in turn, in a certain conceptualization of the world. This understanding of the model is reflected in the words of Albert Smith:

[t]he architectural model is typically seen as a small-scale machine suggesting a representation of a possible future of a larger machine. In other words, the model machine is a scale device that helps humans extend their intellectual might in an attempt to understand and define the measure of a complex whole. [...] The architectural scale model is a

mechanism for developing definition, mediating between perceived chaos and human designs. Sitting between lifelessness and the uncanny, the model offers a measurable scale within which to develop narratives, myths, and buildings. (Smith, 2004, p. 64)

Whilst it is acknowledged that this power is based on the possibility of ordering that the model introduces to the design thought process, the extent of the generative power of the model is only fully understood only if one also recognises that this power is also manifest, from the outset, in the very elaboration of the model. The importance of the elaboration of the representation appears to be more evident in the case of the drawing, assuming that the act of drawing bears in itself a manifest heuristic dimension. However, the same condition must also be taken into consideration with regards to the model, even if its elaboration should be regarded as a process that is void of design value. The possibility that the elaboration of a model could be of value to the design process can be supported by comparison to the ideas of Corner (1999) and the way in which he understands the value of the construction of a map. Corner recognises —as indeed has already been recognised for the model— that, while it may appear to be the case, a map is never a neutral transcription of the reality (Corner, 1999, p. 215), and that, "[t]hus, I am less interested in maps as finished artifacts than I am in mapping as a creative activity" (Corner, 1999, p. 217). Corner goes on to point out (1999, p. 229) that: "[a]ctions precede conceptions; order is the outcome of the act of ordering. Thus, mapping precedes the map, to the degree that it cannot properly anticipate its final form." It is, thus, also in terms of its elaboration process that the order provided by the model to the architect's design thought can be understood.

Nonetheless, assessing the generative power of the model must not ignore the circumstances of the actual field of design practice. The model is adopted simultaneously with the drawing, with a process similar to the adoption of CAD/CAM. One must, accordingly, recognise that the order introduced into the

architect's design thought by the model may have been based on an underlying ordering provided by the drawing, given that the elaboration of a model is often preceded by the elaboration of drawings. Likewise, the drawing may emerge following the elaboration of a model when the latter is adopted as the more immediate expression of the thought process. This by no means diminishes the value of the elaboration of the model —or, indeed, of any form of representation— as a way of ordering the architect's design thoughts.

Acknowledging the fundamental condition of the representation in the formation of the design thought, particularly when one considers the common simultaneous adoption of various representation systems over the course of a design process, highlights the importance of the process of translation that is inherent in the adoption of any means of representation. Evans' observations on the impossibility of the translation of that which is contained in a drawing ever being linear, or univocal (Evans 1997b, p. 154), can thus be deepened by Rykwert's observations (Rykwert, 2005), which acknowledge from the outset the reach of the translation that goes beyond the design process and the realization of an architectural object. As Rykwert states,

[t]he passage from the mental conception to the built form involves a double translation therefore: first from the architect's mind to the graphic – usually his own – presentation, and secondly, from the drawing to the building, through the collaboration of those craftsmen who [...] would act as his hands. (Rykwert, 2005, p. 4)

Because the thought process occupies itself with an object that does not yet exist, one must recognize that, at any rate, what the model makes viable is a mere possibility. It is as a suggestion of a means of ordering the world, that the model enables the architect to challenge themselves. Through this act, the generative condition of the model is realized. And it is merely a suggestion, because only when concretized in an architectural object can that order be realized in full. Only then is the task of architecture achieved, recognizing, as Juhani Pallasmaa has well observed,

that “[t]he timeless task of architecture is to create embodied and lived existential metaphors that concretize and structure our being in the world.” (Pallasmaa, 2012, p. 76)

5. FINAL CONSIDERATIONS

In the end, one returns to the intention expressed in the initial considerations regarding the reflection proposed in this paper, as a starting point for discussion. The narrower scope of the model now gives way to the wider scope of representation.

Recognizing the ‘generative condition’ of the model, along with the recognition that this condition is being consecrated in the constitution of the model as an ordering of the architect's design thought, implies also recognizing the need to question the autonomy of thought in relation to representation. The status of both is in question. If the thought process is given through representation a possibility of existence, and not merely of transmissibility, then not only does representation cease to be thought of in a strictly instrumental dimension, i.e., as a transcription of the thought, but thought also ceases to be regarded as a meta-representational entity, that is, autonomous of representation. It is as representation, that architectural thought must be examined ontologically. The fact that a thought process can take the form of a model—or a drawing, a text, a photograph, a collage—is merely a circumstantial condition.

ACKNOWLEDGMENTS

The authors wish to thank Casa da Arquitectura for permission to use the image of the model archive. This work is financed through national funding from the Foundation for Science and Technology (FCT), under Project UIDB/04026/2020.

REFERENCES

- Allen, S. (2000). Constructing with lines: on projection. In S. Allen (Ed.), *Practice, Architecture, Technique and Representation* (pp. 1-29). Amsterdam, Netherlands: G+B International.
- Centre Canadien d'Architecture. Peter Eisenman fonds [online]. CCA. Retrieved from <https://www.cca.qc.ca/en/archives/380476/peter-eisenman-fonds>
- Corner, J. (1999). The Agency of Mapping. In: D. Cosgrove (Ed.), *Mappings* (pp. 213-252). London, United Kingdom: Reaktion Books.
- Duarte, J. (2016). Para uma definição de maquete: projecto e representação de objectos arquitectónicos. (Unpublished doctoral dissertation). Universidade de Lisboa, Lisboa, Portugal.
- Dunn, N. (2010). *Architectural Modelmaking (Portfolio Skills)*. London, United Kingdom: Laurence King Publishing, Ltd.
- Eisenman, P. (1981a). Preface. In: K. Frampton, K. & S. Kolbowski (Eds.), *Idea as Model* (p. 1). New York, NY: Institute for Architecture and Urban Studies and Rizzoli International Publications.
- Eisenman, P. (1981b). A Poetics of the Model: Eisenman's Doubt. In: K. Frampton, K. & S. Kolbowski (Eds.), *Idea as Model* (pp. 121-125). New York, NY: Institute for Architecture and Urban Studies and Rizzoli International Publications.
- Evans, R. (1997a). Not to be Used for Wrapping Purposes: A Review of the Exhibition of Peter Eisenman's Fin d'Ou T Hou S. In R. Evans, *Translations from Drawing to Building and Other Essays* (pp. 119-151). London, United Kingdom: Architectural Association. (Reprinted from AA Files, 10 (Autumn), pp. 68-78, 1985).
- Evans, R. (1997b). Translations from Drawing to Building. In R. Evans, *Translations from Drawing to Building and Other Essays* (pp. 153-193). London, United Kingdom: Architectural Association. (Reprinted from AA Files 12 (Summer), pp. 3-18, 1986).
- Förster, K. (2018). Institutionalizing Postmodernism: Reconceiving the Journal and the Exhibition at the Institute for Architecture and Urban Studies in 1976. In V. Patteeuw & L. Szacka (Eds.), *Mediated Messages: Periodicals, Exhibitions and the Shaping of Postmodern Architecture* (pp. 213-230). London, United Kingdom: Bloomsbury Visual Arts. <http://dx.doi.org/10.5040/9781350046207.ch-012>
- Gänshirt, C. (2007). *Tools for Ideas: Introduction to Architectural Design*. Basel Boston Berlin: Birkhäuser Verlag AG.
- Goodman, N. (1976). *Languages of Art, an approach to a theory of symbols* (2nd ed.). Indianapolis, IN: Hackett Publishing Company, Inc.
- Groat, L. & Wang, D. (2002). *Architectural Research Methods*. New York, NY: John Wiley and Sons.
- Moon, K. (2005). *Modeling Messages the Architect and the Model*. New York, NY: the Monacelli Press.
- Pallasmaa, J. (2012). *The Eyes of the Skin: Architecture and the Senses*. (3rd ed.). Chichester, United Kingdom: John Wiley and Sons.
- Pliny the Elder. (2003). *Natural History*. vol. IX, books 33-35. Translated by H Rackham. Cambridge, MA: Harvard University Press.
- Porter, T. & Neale, J. (2000). *Architectural Supermodels: Physical Design Simulation*. Oxford, United Kingdom: Architectural Press.
- Rosenblum, R. (1957). The Origin of Painting: A Problem in the Iconography of Romantic Classicism. *The Art Bulletin*, 39(4), 279-290. <https://doi.org/10.2307/3047729>
- Quintilian. (2001). *The Orator's Education*. vol. IV, books 9-10. Edited and translated by Donald A Russell. Cambridge, MA: Harvard University Press.
- Rodeia, T. (2017). O desenho como invenção do real : a pousada de Oliveira do Hospital : o processo projectual em Manuel Tainha. (Unpublished doctoral dissertation). Universidade Lusíada de Lisboa, Lisboa, Portugal.
- Rykwert, J. (2005). Translation and/or Representation [Lecture in text format]. Mellon Lectures Canadian Centre for Architecture Study Centre. Retrieved from <https://www.cca.qc.ca/cca.media/files/1488/1389/Mellon08-JR.pdf>
- Sandrat, J. (1675). *Teutsche Academie der Edlen Bau-Bild-und Mahlerey-Künste [German Academy of the Noble Arts of Architecture, Sculpture and Painting]* Vol. 2. Nürnberg, Germany: Jacob Sandrart. <https://digi.ub.uni-heidelberg.de/diglit/sandrart1675d>.
- Smith, A. (2004). *Architectural Model as Machine, a New View of Models from Antiquity to the Present Day*. Oxford, United Kingdom: Architectural Press.

NOTES

- [1] Model classifications tend to be based on their material characteristics —e.g., the materials they are made with, scale, degree of finish, etc. For a better understanding of the various model classifications, see Porter & Neale (2000), Moon (2005) and Dunn (2010).
- [2] Evans presents his observations on Schinkel's representation by contrasting it with a representation of 1773 of the same subject matter by the painter David Allan (1744-1796) titled *The Origin of Painting* ('The Maid of Corinth'). Representation of the origin of painting is commonly based on a story as told by Pliny the Elder (23-79 AD) in Book XXXV of *Historia Naturalis* (Pliny the Elder, 2003, pp. 371-373). The story is well-known: in order to make an image of her young lover who was about to go away, the daughter of Butades of Sicyon, a potter, drew an outline of his shadow that the light of an oil lamp threw onto a wall. Based on that drawing, Butades modelled the face of the young man in clay. Although it is associated with the birth of painting, the episode really tells the story of the origin of terracotta sculpting. That was the story taken into consideration by Allan. Evans states that it is generally accepted that Schinkel's painting also has its origins in the story by Pliny the Elder. However, the fact that Schinkel used daylight as his source of light, and not the light of an oil lamp, would seem to support the belief that he based his work on the story as relayed by Quintilian (c.35-c.95 AD) in *Institutio Oratoria*, Book X (Quintilian, 2001, p. 325). Quintilian identifies the outlining of the shadows of bodies projected by the sun as the origin of painting. The story is relayed in the context of a discussion on the insufficiency of imitation for invention. Evans underlines the unique character of Schinkel's representation in that it does not feature an architectural ambience, for which the only precedent he could find was a drawing on the same subject by Joachim von Sandrart (1606-1688) that features in his work, *Teutsche Academie der Edlen Bau-Bild-und Mahlerey-Künste* of 1675 (Sandrart, 1675, vol. 2, p. 2a). Sandrart presents a rural, unbuilt scene that is illuminated by the sun, in which a shepherd draws the outline of his own shadow on the dirt of the ground. The drawing is accompanied by a second drawing in which the episode is represented in a more conventional manner, i.e. in an interior ambience lit by a lamp. Sandrart thus confronted the Quintilian and Pliny the Elder versions of the story in his two drawings. For Evans, as he was unable to discern any reference to the Quintilian version of the story, the Schinkel representation was the result of a combination of the Pliny the Elder story and the Sandrart drawing, in which he also failed to identify any link to the Quintilian story, even though Sandart himself referenced it. On the successive representations of the birth of painting episode, see Rosenblum (1957).
- [3] It is possible that the proximity between the term 'generative effect' as identified by Eisenman and the term 'generative power' as explored by Evans is not coincidental. One should consider that Evans had access to the catalogue for the exhibition 'Idea as Model'. In 1985 Evans published the text "Not to be Used for Wrapping Purposes" (Evans, 1997a), a review of Eisenman's exhibition 'Fin d'Ou T Hou S', which was held in London at the Architectural Association Exhibition Gallery in 1985; it is thus clear that Evans was acquainted with Eisenman's theories.
- [4] Eisenman was one of the founders of the IAUS in 1967, and he remained a director up until 1982, the year he left the institute. The IAUS was set up as an institute for research on architecture, but also took on a teaching role. For a better understanding of the IAUS and the 'Idea as Model' exhibition, see Förster (2018).
- [5] The series of houses was made up of: House I (Barenholtz Pavilion in Princeton, New Jersey, USA, 1967-68); House II (Falk House in Hardwick, Vermont, USA, 1969-70); House III (Miller House in Lakeville, Connecticut, USA, 1969-71); House IV (Falls Village, Connecticut, USA, 1971); House V (1972); House VI (Frank House in Cornwall, Connecticut, USA, 1972-76); House VII (1973); House VIII (1975); and House X (Aronoff House in Bloomfield Hills, Michigan, USA, 1975). Only House I, House II, House III and House VI were actually built. The series of houses was succeeded by House 11a (Palo Alto, California, USA, 1978), unbuilt, and by House El Even Odd (1980), which was designed for the exhibition 'Houses for Sale', held at the Leo Castelli Gallery in New York in 1980 (Centre Canadien d'Architecture).



JOÃO MIGUEL COUTO DUARTE

João Miguel Couto Duarte (b. 1966, Lisbon, Portugal) is an architect, practicing since 1990, and an Assistant Professor at the Faculty of Architecture and Arts at Lusíada University of Lisbon, where he has taught since 1991. The relationship between architectural representation – drawing and models – and design practice has long been his main research field, authoring several essays and presenting multiple communications and lectures on the subject in both national and international conferences. João is a research fellow at Design, Architecture and Territory Research Centre (CITAD) at Lusíada University of Lisbon, co-coordinator, together with Maria João Moreira Soares, of the RPs “Mapping the Architectural Inter-relations Between Portugal and Japan in an International Context” [JAPOM] and “Filming Siza” [FILMS]. Aires Mateus: Matter in Reverse (2017), directed by Henrique Pina, was his debut in film production. More recently, João co-produced Body-Buildings (2020), also directed by Henrique Pina. João holds a degree in architecture from the Faculty of Architecture, at the Technical University of Lisbon (1990), a MSc in Art Theories from the Faculty of Fine Arts, University of Lisbon (2005), and a PhD in Architecture from the Faculty of Architecture, University of Lisbon (2016).

joao.mc.duarte@gmail.com



TERESA BELO RODEIA

Teresa Belo Rodeia (b. 1964, Santarém, Portugal) is an architect, practicing since 1987. She is a co-founder with architect Rui Reis Alves of RA+TR Architects, a Lisbon based architectural office. Teresa taught at the Faculty of Architecture and Arts at Lusíada University of Lisbon from 1988 to 2020. She is an Assistant Professor at ISCTE-University Institute of Lisbon since 2017. Representation in architecture is Teresa's main area of interest and research. The experience gathered as a practicing architect is the cornerstone of her teaching and research work. Teresa is a research fellow at the Design, Architecture and Territory Research Centre (CITAD) at Lusíada University of Lisbon. She has contributed to national and international events on design, and her work has been awarded several times and is published both national and international books and magazines. Teresa holds a degree in architecture from Faculty of Architecture, Technical University of Lisbon (1987) and a PhD in Architecture from Faculty of Architecture and Arts, Lusíada University of Lisbon (2017).

teresabelorodeira@gmail.com