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Visual Images and Language in Architecture: Signifier Semiotics and Meaning Semiotics †

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Abstract: This contribution arises from the interest (on the themes of semiotics and communication of architecture, even in its deep meanings) derived from studies and comparisons with Renato De Fusco, Maria Luisa Scalvini, Pio Luigi Brusasco, Pier Tosoni, Alberto Borghini. A question has been confirmed: what can be the meanings of architecture, especially in the visual field? What are its own contents, and what are "other" contents? Around this subject a research team with scholars of the Politecnico di Torino (called "Alpha Group") was constituted; which has now resumed in a convergent manner to investigate and experiment semiotic in architecture; paying attention to languages of vision. The approach of the chosen method is inspired (in a comparative experiment) to the *Nouvelle Rhétorique*, the *Groupe μ* of Liège (with Greimas, Hielmslev, Perelman) internationally known for the definition of an applied rhetoric model—a classic of the human sciences—dedicated to interdisciplinary research, which crosses the aesthetic approach with semiotics, theory of linguistics and visual communication. The first conclusion tends to reinforce the in-depth analysis of the method, and the enhancement of interdisciplinary comparisons, first of all the one with semiotic.

Keywords: visual semiotics; image; metasemiotics; expression plane; content plane

1. Introduction

The reasons for this contribution have origin in my interest (about semiotics and communication of architecture themes, even in its deep meanings) by the lectures of History and Styles of Architecture held in the Seventies of the Twentieth century by Renato De Fusco [1] and by the expanded reading of texts such as *Architettura come mass medium* [2] and *Semiologia e architettura*. [3]. This is how the question arises: what can be the meanings of architecture, especially in the visual field? The fruitful exchanges with figures such as Maria Luisa 'Billi' Scalvini and her reflections on architecture as connotative semiotics [4] were also fundamental. Since 1995, this passion has expanded and deepened (if not articulated), within a disciplinary experience for me equally formative: the course of Perception and Visual Communication held in the innovative Degree course in Scienze della Comunicazione at the Faculty of Letters of the Università di Torino, through profitable debates with prestigious scholars, such as Gianni Vattimo and Nicola Tranfaglia.

At the end of the Nineties, the resumption of the same course at the Politecnico di Torino (inexplicably canceled in this academic year) allowed me to keep alive and mature the same interests: the debate with colleagues such as Pio Luigi Brusasco [5] or the anthropologist Alberto Borghini [6], without forgetting Pier Tosoni [7] was valuable. It was therefore natural the developing of a research group with young colleagues (called "Alpha Group") on the same topic, which has now taken on a

convergent way to investigate and experiment the 'applied rhetoric', paying attention to the languages of vision, first of all the signs, but most important the images. It is also to pay homage to the issues of this conference. The research team includes: Roberta Spallone, Massimiliano Lo Turco, Ursula Zich, Marco Vitali, Elena Marchis, Martino Pavignano.

2. Semiotic and Vision: Schools of Thought

In the classification of the sign, many authors include images in the third category, the one of analogic or iconic seeds: therefore, the most complex, versatile and dense of meanings.

Regarding visual communication, it is important to repeat that, what seems to be a mere 'natural' perception, derived from immediate reactions of our sensory apparatus, actually derives from the most theoretical of the senses, to consider, if not just like 'exact science', surely through 'logical' and clear disciplinary rules.

As in all types of communication, an indispensable aspect is the signification: it is fundamental, together with the control of scientific and technical approach (cultural, artistic, emotional), in line with the figures (for example) by Algirdas Julien Greimas [8–13], by the *Groupe μ* from Liège [14,15] and by the *Nouvelle Rhétorique* school by Perelman [16], or by Louis Hjelmslev [17,18]. For the latter, the distinction between signifier and meaning is articulated in "content plane" and "expression plane"; in the first, the meaning coincides with the ideas conveyed by the sign; in the second the signifier is the material and sensible manifestation. And the sign itself, both in the expression plane and in the content plane, consists of two aspects: its substance and its form.

Hjelmslev also calls "connotative semiotics" those whose plane of expression is semiotic and instead calls "meta-semiotics" those in which the content plane is a semiotic, analogously—so it seems—with the term "meta-language" when it contains in itself part of the content of the message.

Let's consider here the term "semiotics" in the sense of De Saussure [19], as the "science of signs", which tends to an overall and general analysis of the mechanisms at the foundation of knowledge, communication, languages and all human activities interpreted as languages.

Architecture as a sign is also part of the semiotic universe: Maria Luisa Scalvini interprets it as "connotative semiotics". For a first preparatory lineage to the issues now outlined, the references are vast and varied: among these are Roland Barthes [20,21], Umberto Eco [22–24], Claude Levì-Strauss [25], Jan Mukarovsky [26], Jorge Luis Prieto [27] and others [28–34].

3. Communication Models and Rhetoric of Vision

In a complex interdisciplinary interplay between semiotics and representation, one of the first matrices—in the organization of visual narrative—is born by the processes and models of communication in marketing and advertising, in the business field (and more recently, in didactics and training) also declined for cultural purposes. The models in the branch are numerous: among them, Shannon and Weaver, Petty and Cacioppo [35–37], Cooper and Floch [38], McGuire and Viganò [39]. From these are derivable, through critical selections, rhetorical ways, themes, phases, semiotics carefully selected, up to the lowest significant signs. And more generally, up to the rules that can allow to plan in the best way the composition of the visual field in its complexity.

To others exents—more historical-critical markedly—among the most pertinent approaches, some may be recalled, such as Wölfflin's [40] (of a programmatic empirical character) «for a 'story' not about the works and the artists, but about the categories or schemes of vision that make those works and artists possible: these patterns can be called visibility categories. However, their parallel tendency is manifested, they are not derived from the same principle (...) for which they may appear to be rather overturned [...] because they do not exactly correspond to pure forms of intuition, pure concepts of the intellect or schemes or aesthetic ideas». And similarly, we can reflect on the thought of Riegl [41], Warburg [42], Gombrich, but even Ryckwert [43] and Norberg-Schultz [44], until Maffei and Zeki, interested in neuroscience, applied on communication of visual art.

4. Towards a Semiotic Image Translation: The *Traité du Signe Visuel* by *Groupe μ*

Formed in the fruitful cultural atmosphere of the Seventies of the Twentieth Century, Liège's team (better known as *Groupe μ*) is internationally known for the definition of an applied rhetoric model intended to become a classic of human sciences. The team, in which figures as Francis Edeline, Philippe Minguet, Jean-Marie Klinkenberg stand out, was devoted to an interdisciplinary research, crossing the aesthetic approach to semiotics and the theory of linguistic and visual communication.

But how is it possible to translate this rhetorical approach into the language of vision? The *Traité du signe visuel* provides the basis to answer some questions.

It was born from communicative needs essentially used in business, marketing and advertising, and it can be considered one of the most important theoretical and applied contributions to the visual argumentation strategies, to the construction of an interpretative model that is far from considering the rhetoric as an ornament of speech, it is confirmed to be of fundamental importance for the sake of reasoning and arguments, supporting ideas and structuring them, especially in a systematic process. Aware of the necessity (but also of the criticality) in governing such a wide and complex process, Klingenberg points out: "always reserving the time for a meticulous check and the risk that the approach is a little forced, we can say that the evolution of the graphic material follows the same ways of language, that is, basically: assignment of information; reinforcing redundancy; encoding of top-level units and formation of closed repertories; assembly rules for the second level". In the same book, Klinkenberg presents some interesting and sharing positions to problematize and systematize some aspects in the structure of visual rhetoric; for example, with the role of geometric constructions. This part could be supplemented with configurational (gestaltic) geometries or an approach that also includes other types of geometric conception (up to the golden section), according to Charles Bouleau [45]. Also, particularly interesting is his position about the new problems for a semiotic of visual icons with four basic elements: referent; stimulus; signifier; type, with four double relationships that have analogies—even if within different conceptions—with the ancient Apuleio's "logical square", characterized by two binary categories, derived from classical rhetoric: aversion, contradiction, complementarity. This part, though dense with interesting ideas, appears (as the author admits) still uncoordinated and expressed in a way that is not always clear and unambiguous.

5. The Visual Semiotic According to Greimas and His 'Narrative Grammar'

From Apuleio's "logical square" (without indulging in misleading trivializations or automatisms) to the *Nouvelle Rhétorique*, the sign (also as an image) is confirmed into the foreground with its classifications and characterizations: sign as form, icon, symbol, color and more. But—as we have anticipated—the great innovation of this cultural movement is all in the essential convention, which broadens the concept of 'sign' to a complex relationship between 'expression plane' (signifier) and 'content plane' (meaning), up to reach the application of signifier semiotic and meaning semiotic, and this can also be verified for the visual translation, to an experimental application of the *Traité du signe visuel* as illustrated above, for a rhetoric of the image (and not only).

According to Marsciani [12] (p. 49), the representation of the semiotic square in its purely morphologic form (therefore regardless of the mental operations that introduce to the mechanisms of narrative) for the reader of the 'Elements for a narrative grammar' [9], could be shared. Many things change however during the reconstruction of the phases for the constitution of the model in Greimas, after *Sématique structural*, passing through the "interactions of semiotic constraints" (1968). The difficulties overcome, whose traces are removed from the presentation (in some ways axiomatic, 1968 and 1969), cannot be recovered otherwise than by comparing the 'Greimas' square' with its logical and linguistic ancestors and commensurate with the distance separating it from its antecedents. Again Marsciani emphasizes that "first of all it is clear that the semiotic square has nothing to do with the square of Aristotele or rather Apuleio: the last one concerns propositions (marked A, E, I, O), while the level on which Greimas works is the one of analysis of the significance of the seeds, that is by the units that are to lexemes as the distinctive traits are to phonemes (it is through this trait that the Interactions [...] and then the Elements [...] relate to structural Semantic)". Secondly—the Author keeps on—the "opposites, in the square of Apuleio, rely on the choice of two

pertinent traits of propositions: the quality (affirmation-negation) and the quantity (universal-particular), from which results the sense attributed to the contradiction as a complete opposition between the universal affirmative (A) and the particular negative (O), and between the universal affirmative (I) and the particular negative (E), and the aversion as partial opposition between the universal affirmative (I) and the particular negative (O). By Greimas, therefore, contradiction and aversion are not distinguishable on this basis, because S1, non S1, S2, and non S2 are, as seeds, simple terms. It is true that this is not about propositions, but predicates belonging to the same category of thought, but these predicates are lexical terms, while in Greimas the basis of construction is constituted by the semantic axis connecting the seeds. Contradiction then becomes a total inversion (black square vs. white circle, black circle vs. white square) and the opposition a partial opposition (black square vs. white square, etc.). From the two things it can be derived the relationship: A and B; not A and B; A not B; not A not B".

Always according to Greimas and Klingenberg, in this preliminary phase, some of the essential parameters in visual encoding and decoding can be mentioned: the topological organization in the space (even geometric) of the composition; eidetic organization, that is of the lines, (the sign as a graphic trace); chromatic and luministic organization; figurative analysis, up to symbolic or semi-symbolic correlations. That said, it still seems tough and pave the way to put into practice the first foundations of a *Nouvelle Rhétorique* translated into visual terms, systematically organized, crossed and validated. Reconfirming the approach by the *Groupe* μ, the Alfa Group members have experimented with a scheme (included between 'expression plane' and 'content plane') applied to the critical reading of architecture and its visual narrative for phases and contents, for methodological approaches, disciplines, chronologies and themes. This mode of investigation is explicitly illustrated by the following illustrations: the visual narrative was therefore freely inspired—we want to emphasize—to Greimas' theories, for which recognition and subsequent interpretation are made through a grid of reading the world (a kind of 'mental model' linked to the experience and the culture of the perceiver/observer) that he calls 'natural world'. In the dialogue between the two 'planes', Greimas' thought was interpreted not according semiotics strictly taken as signifier/meaning, but more simply according to visual qualities equally expressive and symbolic, even in metaphorical terms, relating to the cultural matrices of derivation. For more extensive references to semiology, architecture and vision, we can mention the works of: Cullen [46], Forssman [47], Gamberini [48], Maggiora [49–51], Marazzi [52], Marotta [53], Polidoro [54], Ragghianti [55], Traini [56,57], Vercelloni [58], Volli [59], Zevi [60].

6. A Shared Procedure in the Experimentation

The examples below stated are a first application of this approach to architecture.

If the objects investigated—decorations in Islamic ceramics, door *exempla* in the *Libro estraordinario* by Serlio, the human figure in Barbaro's translation of Vitruvio's treatise—are different, first of all from the ontological, dimensional and spatial points of view, they have in common, however, the relationship with Architecture and geometrical matrices. These matrice se are manifested in isometric transformations such as symmetry and rotation, in the case of Islamic motives, in the geometrical-formal structure that guides the composition of the 'rustic' and 'dilicate' doors, in the analogy between the human figure and the architecural order of Palladio's engravings for Vitruvio's text.

Individual insights are then declined in different directions, but complementary to the first assumptions: so the geometric matrix of Islamic patterns takes on different values depending on the relations between colors that make up the *tesseras*; the geometrical-structural level of the doors is investigated through the verbal oppositions identified in the text on the content plane and on the expression plane; the dual modularity of the human figure and order are replicated in an opposing pair of drawings by Palladio.

Interesting and useful, for the development of investigations on architectural construction and on specific case studies, it could be the approach outlined for a formal and semiotic reading of *ornatus* in architecture [61,62].

7. Towards a Possible Semiotic Interpretation of Islamic Decorations (E. Marchis, M. Lo Turco)

The decorations of Islamic architecture can be divided into three types: calligraphic, floral and geometric ones. At the regard, a special attention has been paid to the geometric patterns, since the very beginning, from the simplest tiling to the more complex tassels [61–64], even because of the religious ban to reproduce representations of a naturalistic-figurative nature.

The grid is based on the module that is constructed through the use of the circle and of a subsequent composition by multiplication, rotation, subdivision and symmetry, of the different polygons inscribed in it (triangles, squares, hexagons and pentagons, which we could redefine our sememe in the context of this specific semantic investigation) as well as by the combination of precise points that derive from the intersection of certain lines [65,66]. Once the base module is completed, the pattern is derived from the next and subsequent repetition to cover any type of surface, creating complex geometric structures and highlighting a great variety of new shapes. There are also other methods to generate geometric patterns such as the use of isometric triangular grids, or squared and hexagonal ones on which the patterns have been drawn.

In a such complex and articulated scenario, it was tried to verify the applicability of the semiotic square introduced by Algirdas Julien Greimas. By working on the expression level, it was then possible to identify the semantic categories (or definitions) that subsume (in other word, included in a larger subset that can contain them) the relationships of controversy, subcontrariety and subalternity.

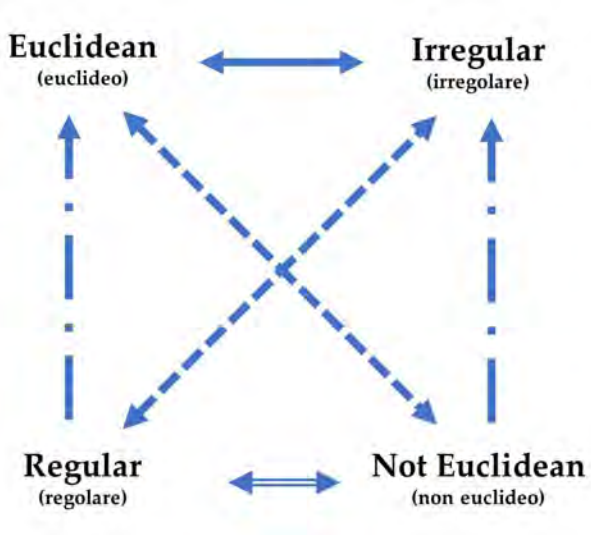


Figure 1. Greimas's semiotic square related to the geometrical/mathematical aspects typical of Islamic architecture.

By working on significant semiotics, with particular reference to the purely geometric/mathematical aspects, we propose a reading referring to the application of methods and techniques derived from semiotics: the square of oppositions summarizes four categorical statements, which shows (Figure 1):

- the complex term and the contradiction relationship (these two statements can not be both true, although both may be false) is created between the 'euclidean' and 'irregular' attributes;
- the neutral term and the subcontrariety relationship (these two statements can not be both false, although both can be true) is created between the 'regular' and 'non-euclidean' attributes;
- the subalternity relationship (these two statements may be both true or both false) has been created between the 'euclidean' and 'regular' attributes in the first column, to the left and between the attributes ' irregular' and 'non-euclidean' in the second column to the right;
- the contradiction relationship (these two statements can not be both true or both false) is explicated diagonally, between 'euclidean' and 'non-euclidean' and 'irregular' and 'regular' attributes.

The construction of Greimas's Square on Euclidean/Non-Euclidean and irregular/regular statements opens new perspectives around the analysis of the geometric dowelling of Islamic art. In a non-Euclidean dimension, we can state that Poincaré's discontinuity, characterized by the use of hyperbolic polygons, allows to broaden the way of thinking to new dimensions, not just visual. Hyperbolic polygons appear more and more small as they approach the edge, though they are (in the hyperbolic and therefore non-Euclidean geometry) always of the same magnitude. What appears on the plane becomes anything else on a curved surface, as can be that of a dome.

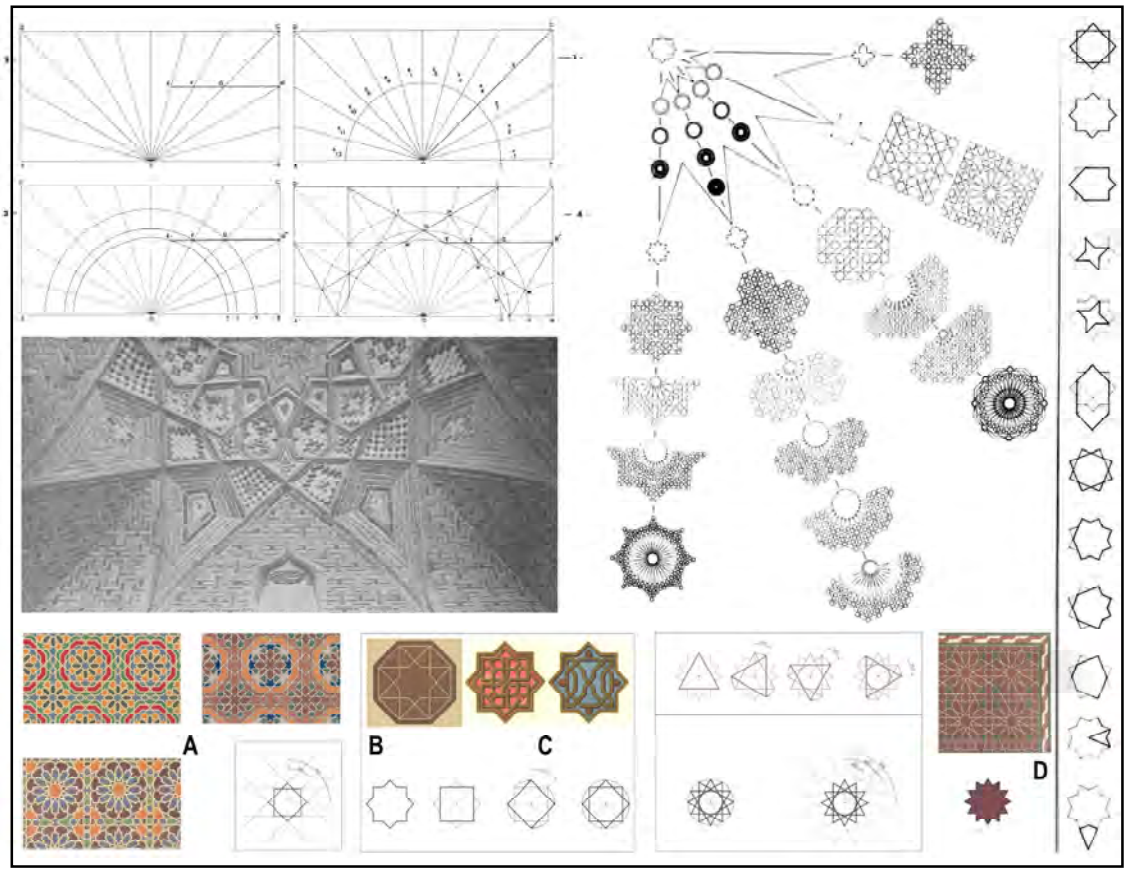


Figure 2. From Anna Marotta's elaborations [67]: on the left, some geometric constructions to obtain complex decorations. On the right, elementary geometric matrices and subsequent composite derivations: the khatem as sememe. Starting from the basic star (the *khatem* or the Prophet's ring) we can describe all the shape developments resulting from the nature of the star's rotation on its center. The big stars are formed by a rose composed by petals regularly arranged around a center, externally bounded by a polygonal line called the belt; outside this belt, the star joins a composition of simpler motifs, structured to form a set that can be repeated for symmetry. Because the star joins harmoniously outside, it must have the privileged direction of the *khatem*, so the number of petals will be a multiple of eight. Below, from left to right, Mihrab of the Cheykhoun Mosque (**A**). In the center, Thelay Abou-Rezyq Mosque, Il Cairo (**B**) and Alhambra, Granada (**C**); On the right, A. Racinet, *Handbook* of Ornaments in Color Moorish art, Table 37, No. 1, p. 81, vol. III, Hardcover, 1978 (**D**).

At the regard, the Islamic art has founded its epistemology on the geometric decoration, the dualism irregular/modular assumes new shapes and changes their structures, and, on the curved and vaulted surfaces, undermines the concepts usually analysed on a plane surface.

Compared to other issues typical of the Islamic architecture, even if strongly connected and linked to the previous, it is possible to argue on other categories of the Islamic architecture, as the colour analysed from the point of view of its signification, i.e., in its relation between signification and signifier [66,68]: it is difficult to separate Symmetry and Colour and in particular the function of the colour in emphasizing or in inhibiting the symmetry perception in the floor or wall decorations (see figure 3). In the field of architecture, it is not easy to determine what its content is, or better its

signification, in the sense of the semiologist Luis Jorge Prieto, within the complex attempt of reasoning about meta-semiotics. Moreover, referring to the Islamic architecture, the colour of ceramics from the origin has accompanied these works by assuming in the time meanings of large semantic relevance, so well analysed in some deepening texts [69]. In this new context the structure of the semiotic square assumes the shown form with close attention to the interior and exterior decoration of mosques and palaces. The relationship colour-signification can be overturned in the respective negation where the colour negation does not necessarily imply absence of a symbolic value of the decoration itself. The same can be reflected about the absence of a symbolic value of the decoration. Particularly the primary structure of the semiotic square on the linguistic plane con be transferred to a narrative level in the architecture formalism where, if "signification/symbolic" and "colour" can be assumed as sub-contrary, the relations "signification/symbolic—colourless" and "colour—non symbolic" can be bounded to a complementary relation, from which it is possible start with an effective semiotic investigation full of implications (figure 4).

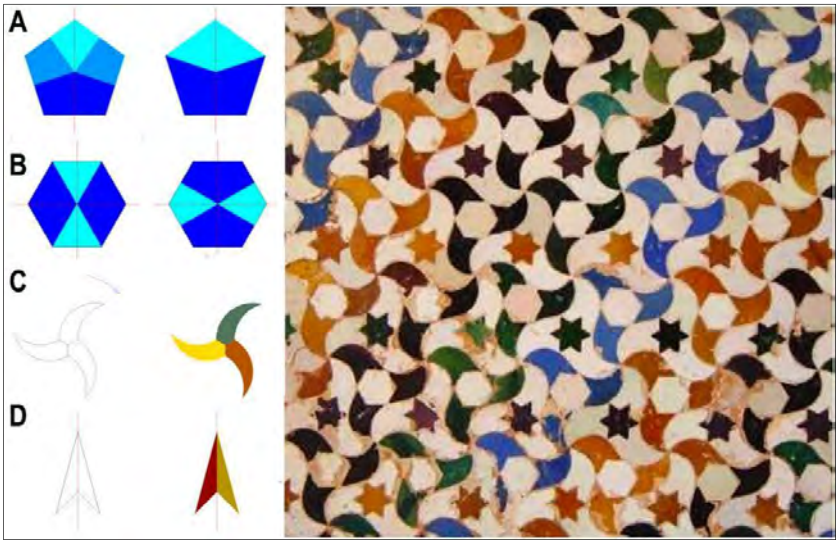


Figure 3. On the left some examples of geometric patterns, represented in b/w line and coloured: instinctively it is difficult to identify the same symmetries of the b/w pictures and the trend will be the interpretation of the colour as a decisive factor, by reducing from one side the symmetries number (the one of reflection and the other of rotation for the pentagon (**A**)—identity—and two of reflection and two of rotation for the hexagon (**B**)). This operation fixes clear preferential alignments. Doing that, it is possible even to inhibit rotation. In fact, in figure (**C**), if also the colour is taken into account, the picture in the right logically has no symmetry. So, an element with a single clear symmetry may be in the condition of losing it through the use of the colour. Similarly, the picture of figure (**D**) on the right side is not symmetric, except the identity, in the sense that the reflection one changes the colour position and only a double reflection leads to the initial state. On the right side a part of the Alhambra decoration. [68].

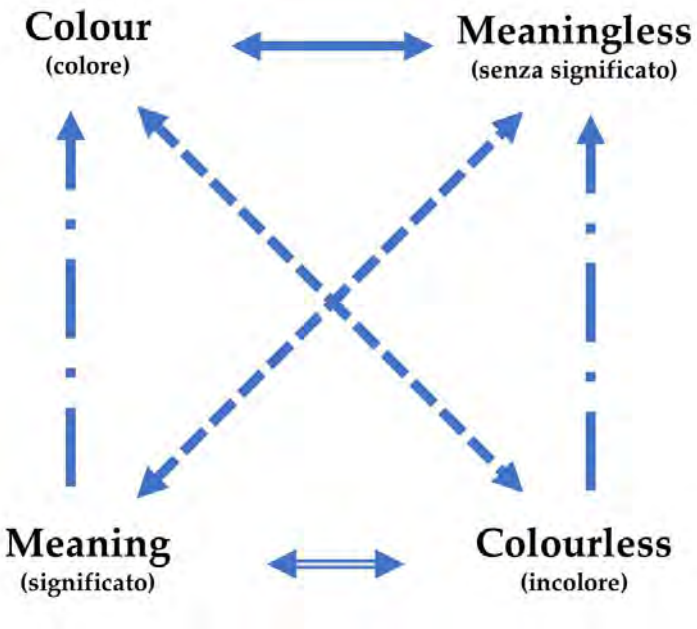


Figure 4. The Greimas semiotic square referred to the oppositional couple Colour/Colourless and Meaning/Meaningless with the identification of the complex term Colour / Meaningless in the Islamic Architecture decorations.

Every investigation on the decorations of the Islamic architecture lends itself to a number of interpretations, which, beyond the immediate formal analysis, can start new study horizons. In our society, more and more pervaded by images, this approach can bring us to define new iconic paradigms that go further the simple pictorial interpretation, with implications that can lead to new areas, from psychology to storytelling, from design to cognitive sciences.

With reference to the Islamic art it is possible to find the narrative and interpretative paths that, enhanced in the semiotic oppositions, look at the drawing and colour symbology in relation to their negations and contradictions. In fact significations rich of interpretative values in the geometric pattern nesting as in the chromatic symbology exist. With reference to them it is necessary to proceed with an analysis embedded in the context where such representations origin find their historical and cultural reason.

8. A Proposal of a Semiotic Interpretation of the 'Porte Rustiche' and 'Porte Dilicate', between Content Plane and Expression Plane in the *Libro Estraordinario* by Sebastiano Serlio

"If there were no strangers to some men, one would not know the modesty of others. I could have made this door in pure Doric style, as it can be seen, without breaking its beauty interrupting it with bands and ashlars. But as there always were, there are and there will be bizarre men looking for novelty, I wanted to break the beautiful shape of this Doric door. The cautious architect will be able to use this door by putting aside the rustic bands from the sides of the columns, the ashlars that break the architrave and the gables. And in the same way he will be able to remove those bands that cradle the columns so that the door will be pure Doric, with a *Dilicata* craftsmenship, taking away the *Rustico*" [70] (p. 29v).

The *Libro estraordinario* by Sebastiano Serlio, published in Lyon in 1551, is a text that wasn't expected in the original author's plan: it is a "very representative document of the method used by Serlio … and … it highlights in an unmistakable way the development of the manneristic poetics" [71] (p. 452).

In the Libro "are shown thirty Rustic doors in mixed work with several orders: and twenty Delicate doors of different species" [70] (p. 2). Composed by plates described by rich captions, the treatise is exemplary of the "manneristic dialectic between rules and exceptions in Serlio's works" [71] (p. XIII).

Rosci, author of a monographic study, defines the *Libro estraordinario* as "a kind of huge and maniacal decorative variation of very few themes and fundamental schemes; ... by breaking the barrier of the Vitruvian rules with the combination of architectural orders and *Rustico*" [72] (p. 48) he shows their simple combinatorial mechanism.

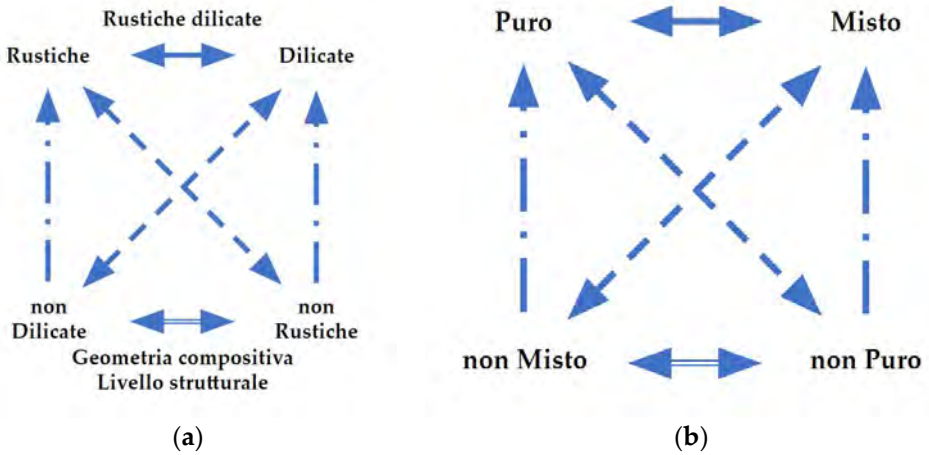
In the dedication to the readers Serlio justified his breach, that he named licence, of the rules of architectural orders he explained in the libro IV with the need of innovation of the commitments. For this reason, he stated, "Sometimes I broke a frontispiece to place a panel, or an emblem. I have banded many columns, pillars, and gables, breaking sometimes the friezes, the triglyphs and the racemes. By removing all these and adding the frames, where they are broken, and ending those columns that are imperfect, the artifacts will remain complete and in their first form" [70] (p. 2). At the end of the dedication he stated again the value of the Vitruvian teaching and specified the recipients of his writing: "But you, architects based on Vitruvius doctrine (which I supremely praise, and from which I do not intend to distance myself) excuse me for the many ornaments" [70] (p. 2).

The dialectic between *Regola* (Rule) and *Capriccio* (Fancy) [73] (p. 193), very important in the Mannerist era and well known by Serlio, can be widely expressed in the *Libro estraordinario*: "Now that I have ventured the oddness in mixed and licentious things, it is good that I debate of regular ones" [70] (p. 32v).

The idea of *capriccio* shows itself in Serlio's treatise through varied shapes that is possible to restore. As said by De Fusco, in Serlio's poetic the variation and restore theme, that is versatility, make him "an experimental innovator of the linguistic lexicon on the basis of the double dialectic need … to confirm a rule and, at the same time, to reach the discretion to break it", even if remaining inside the system [71] (p. 454).

Conversely Tafuri, when he writes about *eresie inibite* (inhibited heresies), states that "the starting point is always a known shape, of classical derivation, that by further variations articulates and disfigures itself showing the absolute claim of its original shape" [74] (p. 44).

The dialectic between Rule and Fancy can be assumed in order to launch the series of oppositions: with *Regola*/*Capriccio* the couple *Rustiche*/*Dilicate* defines a first level of analysis on the content plane that can be investigated through the 'semiotic square' by Greimas (Figure 5a). It highlights the relationship of contraries (*Rustiche*/*Dilicate*) and of contradictories (*Rustiche*/not *Rustiche*; *Dilicate*/not *Dilicate*), the definition of the *complex term* (both *Rustiche* and *Dilicate*) 'Rustico dilicato'—used by Serlio for the description of some doors (i.e., the doors represented in the plates 4, 10 and 19)—and, abstracting from the architectural characters, the identification of a *neutral term* (both 'not *Rustico*' and 'not *Dilicato*'): the neutral term can be named, in general sense, 'Compositional Geometry' or, in the strict sense of the decomposition of architectural orders [75], 'Structural Level'.



(**a**) (**b**)

Figure 5. (**a**) The Greimas' semiotic square referred to the oppositional couple *Rustiche*/*Dilicate* (content plane), with the identification of the complex term (*Rustiche dilicate*) and of the neutral term (Compositional Geometry—Structural Level); (**b**) The semiotic square referred to the oppositional couple *Puro*/*Misto* (expression plane of).

Argan noticed the presence in the treatise of theoretical categories to define the doors: "So little Serlio felt the figurative meaning of this formal repertoire, that he didn't find other possibility of definition except in the theoretical categories of *sodo* (hard), *semplice* (simple), *schietto* (frank), *dolce* (sweet), *morbido* (soft), *debole* (weak), *gracile* (slight), *delicato* (delicate), *affettato* (affected), *crudo* (raw)" [76].

These categories, with many others that can be found in the text, can be organized in opposing pairs: referring to the 'content plane' with contrapositions as *Debole/Forte* (Weak/strong), *Sodo/Morbido* (Hard/Soft), *Regolare/Licentioso* (Regular/Licentious); on the expression plane with matches as *Puro/Misto* (Pure/Mixed)—or *Bastardo* (Bastard)—, *Intero/Rotto* (Whole/Broken), *Schietta* (or *Semplice*)/*Affettata* (or *Stravestita)* (Frank or Simple/Affected or Concealed). As an example, we propose the development of the *Puro/Misto* pair with the Greimas 'semiotic square' (Figure 5b): for this example, it does not seem so straightforward to find the 'complex term' and the 'neutral term' without digress to other semantic fields.

The terms of the listed opposing pairs are applied and transposed graphically into the plates of the treatise, from which, through a suitable selection, we attempt here to construct opposing pairs of doors which have a comparable geometric-formal structure: arched or architrave openings, simple or twisted columns, single or tripartite pediment, giant or superimposed architectural orders, windows between a pair of columns (Figure 6).

Figure 7 shows as, starting from a couple of plates with opposite doors, it is possible to highlight, by means of graphical analysis, two possible readings of the 'neutral term' of the 'semiotic square' associated to the opposition *Rustiche/Dilicate.*

Figure 6. Oppositional pairs of doors 'rustiche' and 'dilicate' with a comparable geometric-formal structure, from the *Libro estraordinario*.

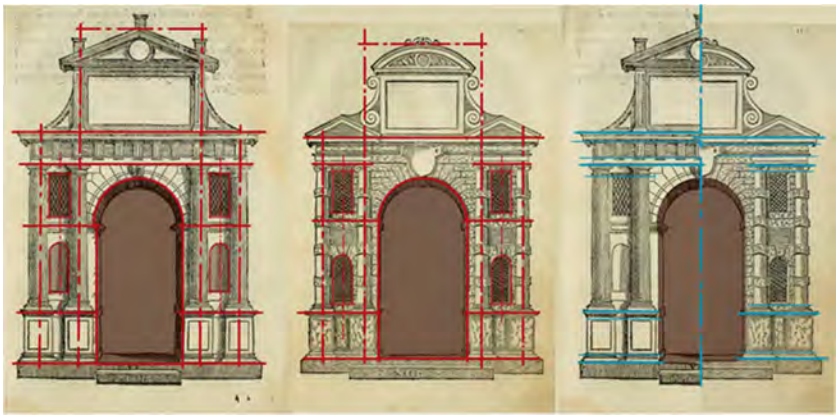


Figure 7. Couple of drawings of opposed doors from the *Libro estraordinario* with the two graphic readings of the neutral term of the semiotic square related to the opposition *Rustiche/Dilicate*: in red two schemes related to the 'Compositional Geometry', in cyan the comparison between the two examples on the 'Structural Level'.

9. A Proposal of Semiotic Interpretation of Marco Vitruvio Pollione's Anthropocentric Module, from Daniele Barbaro's Translation of the *Dieci Libri D'architettura* (M. Pavignano, U. Zich)

The applications of semiotics, "the discipline studying the phenomena of meaning and communication" [56], lead us to distinguish between semiology of communication, or connotative semiotics, which tends to a specific willpower to communicate a message, and semiology of meaning, which object is not that of communication [57].

The difference between signifier and meaning is based on Louis Hjelmslev's work, which separates the content plane (meaning, or the ideas awakened by the sign), the expression plane (signifier, or the material manifestation of the sign) [59].

Since architecture, which has always been identifiable as a macro set of micro-elements, is part of the semiotic universe, what do applications and semiotic expressions connotate its theoretical and practical production? And if a multitude of objects were constructed without the expression plane and without use, but with symbolic, technical and practical meanings indirectly assumed in everyday life [5], what are the connotations that architectural poetics undergoes on the content plane?

Referring to the architect Marco Vitruvio Pollione's treatise *De architectura libri decem* (I Century, D.C.), the Author provides the reader with a semiotic explanation of the function and meanings of the three Greek orders. The Doric is a representation of the powerful Heracle, hence of the warrior's prowess, the Ionic is the petrification of matrons' decorum, the Corinthian is the expression of maidens' virginal purity of the [77]. After Vitruvio—whose drawing and graphic representations did not reach our times—many authors have tested themselves with the representation of these metaphors. Among them, for example, John Shute (in 1563), did exegetically represent these metaphors [78,79] [43] (pp. 34-35)Three orders must be understood in this way, thus used in the construction of temples to be raised to the deities of Olympus. It follows that Vitruvio applies a kind of semiotic reasoning to the aesthetic/compositional sense of the architectural order, separating the plane of expression, the structural physicality with which the 'system' formed by base, column, capital and entablature is shown to the observer, from the plane of content: the more theoretical meaning of the forms and the aesthetics of the architectural order or subordinated to the idea that generates it.

If we analyse these semiotic references proposed by Vitruvio, in the second edition of Daniele Barbaro's translation of the *De architectura libri decem* we read that:

"[…] in ogni altra cosa, come specialmente nell'Architettura, queste due parti si trovano cioè la cosa significata, & quella, che significa". [80] (p. 11).

For Vitruvio, the "*cosa significata*" is the signifier (or the object itself). On the contrary, the "cosa […] che significa" becomes the meaning (or the rational/intellectual speculation that defines the idea of the "cosa"—the object—in the Architect's mind).

It follows that:

"[…] chi fa la professione d'Architetto pare che nell'una & l'altra parte esser debbia esercitato cioè nella cosa significata, & nella significante. Dove & ingenioso, & docile bisogna che egli sia, percioche né lo ingegno senza lo ammaestramento, né lo ammaestramento senza ingegno puo fare l'huomo eccellente" [80] (p. 12).

In other words, the Architect must be an expertise both the signifier and the meaning sides of architecture.

As pointed out by Cesare Marco Calcante in his introduction to the rhetoric of *De architectura*, Vitruvio imposes on architecture, usually an aniconic art, a semiotic model characterized by a "high degree of figurative density" typical of the iconic arts [81].

But what connotative semiotic modes reveal iconicity? First, he 'iconizes' architecture through a mimetic relationship, which will be repeated throughout the Renaissance, between the architectural meta-language and the human body.

In fact, Vitruvio, starting from theoretical assumptions of Greek philosophy, uses the human body as a model of a modular system, on which the concept of harmony of his aesthetics is based. In this way, human being is about to be understood more as a physical 'body', so model for a modular system, than as an individual 'human being' [82,83]. Indeed:

"Io esponerò seguitando gli ingressi della prima natura, & di quelli, che i principij del consortio humano, & le belle, & fondate inventioni, con gli scritti, & regole dedicarono, & però come io sono da quelli ammaestrato, dimostrerò. Et dilettandomi delle cose pertinenti al parlare, & alle arti, & alle scritture de' commentarij. Io ho acquistato con l'animo quelle possessioni, dalle quali ne viene questa sommadi tutti i frutti, che io non ho più alcuna necessità, & che io stimo, quella esser la proprietà delle ricchezze di disiderare niente piu" [80] (p. 12).

In other words, this means that the architect, to be able to juggle between signifier and meaning, must be hungry of knowledge in all the arts and sciences that might be useful to his practise, demonstrating acumen, learning abilities, and remodeling his own knowledge.

Without going into the seas of the Vitruvian linguistics or of the philological correctness of Barbaro's translation, it is still possible to extrapolate the basic concepts underlying Vitruvio's descriptions and, thus, to experience their comparison through the Greimas' 'semiotic square' [8]. If we work on meaningful semiotics related to the human figure, as Vitruvio used to refer to, it is possible to oppose the terms of 'human body' and 'human being' (Figure 8), where the first indicates man and woman's physicality—the one underlying the anthropometric conception of Vitruvian architecture—while the second subsumes the spiritual part of man, not used by the Author. If we analyse the concept of a man who Vitruvio supports, the two terms are contradictory. For the same reason, there may be two non-human being and non-human body terms, subcontracting between them. Contradictory relationships between human body and non-human body/human being and non-human being exist for the same reason that makes true the complementarity between human body and non-human being/human being and non-human body.

But, since the plates belonging to the 'Latin' editions of the *De Architectura* did not come to us and only a few have been hypothesized through recent studies [84], is it possible to graphically visualize what Vitruvio meant?

If we go through the figurative apparatus produced by Andrea Palladio for the Vitruvian edition of Barbaro [85] it is possible to find a critical interpretation (of what Vitruvio has argued) in the representations of the Caryatids' legend and in the fable of Greeks' victory over the Persians.

In the first case (Figure 9a) women of the won city, made slaves, personify a Corinthian order, with a basket of acanthus/capital juxtaposed on their heads. In the second case, Persian men are called upon to support an explicit Doric entablature, even if inserted in a context that refers to elements of Palladio's eidetic thinking, other than 'just Doric'.

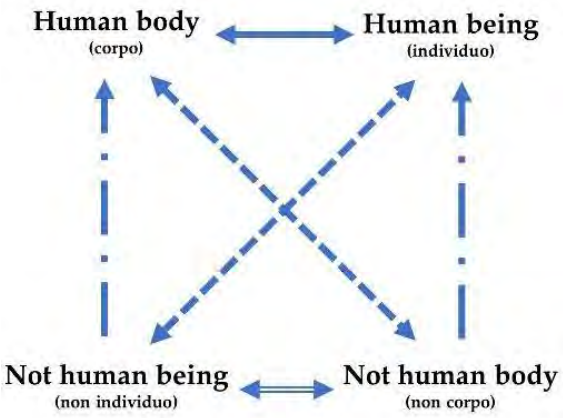
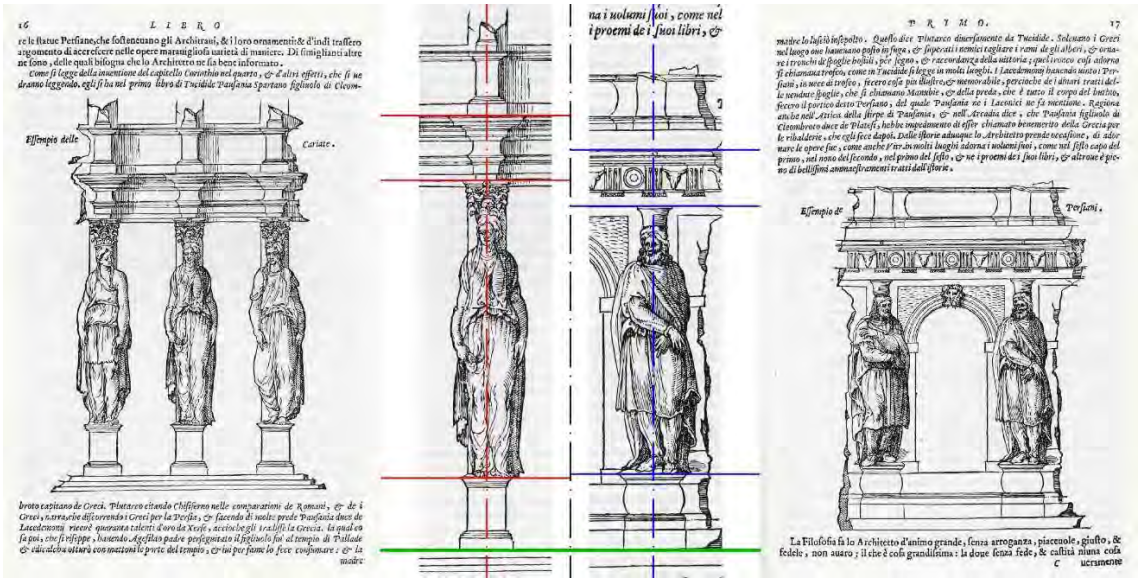


Figure 8. Greimas' square in the experimentation of possible semiotic relationships in the Vitruvian text: human body-human being, not human being-not human body.



(**a**) (**b**) (**c**) (**d**)

Figure 9. (**a**) *Essempio delle Cariate* [80] (p. 16) (**d**) *Essempio de Persiani* [80] (p. 17). Figures can iconize the Vitruvian concept of man or a woman's body as a measurement/proportioning system; (**b**,**c**) If we compare the represented subjects (and keeping the proportional scale desired by the author of the publication), it is evident that, although there is no direct correlation between the two modules at the basis of the different systems, figurative compositions tend to strengthen the Vitruvian concept concerning the type of human/architectural order correlation to whom the building is dedicated (although in the specific case, the two proposals do not refer to temples or buildings dedicated to a deity, but to architectures designed to graphically express both the caryatids' origins myth and the Greek's victory over the Persians tale). Red and blue lines show the respective patterns of 'compositional geometries' of the presented cases, both growing from the green line.

10. Conclusions

After the brief overview of application examples, this last paragraph cannot (does not intend) submit assertive conclusions, as no valid results have yet been made. Better, and more consciously, some of the questions listed below come up. What are the problems and the critical issues? What are signifier and meaning semiotics, depending on the objectives of the research? In what ways will it be possible to clarify the "rules of the game" that each of them can be applied to? Lastly, it should be recalled that—once located in the most appropriate semiotic ones—the need of identifying the most suitable parameters for the selection of "pairs" in each structure of "semiotic squares", pairs to be placed in oppositions, contradictions or complementarities, proposes again in a lower and more articulated level. The "degrees of freedom" inherent Greimas' methodology, while on the one hand offers—for every applicative and experimental case—a useful elasticity in the choice of signifier and meaning semiotics, on the other hand requires a series of attentive and precise assumptions of responsibility in their critical selection.

Vision and representation, therefore, in all their possible expressions (from the most theoretical to the most concrete, from the oldest to the most innovative) are confirmed as a useful laboratory, if not even a privileged observatory, for the comparison and evaluation of transdisciplinary investigations.

The main methodological objectives are the verification of the scientific reliability of sources and data, systems and methods; the validation of the level of authenticity of the reconstruction, including, in relation to the chronological phases identified, the hierarchies and conventions to control the representation and definition of the display criteria, without affecting the understanding of the architectural syntax of the subject being examined.

Among the first goals achieved there is a unified return (at least comparable in part) of the various integrated experiences, through a critical selection of outcomes and related data—destabilized and recomposed in a targeted manner—consistent with the chosen methodologies. The goals achieved have

led to greater awareness in the analysis and interpretation of the architecture examples dealt with. For a better and wider disclosure, and a view of the hypotheses as a support for verifying the binary (opponent and/or complementary) categories selected, tested, evaluated.

All the elaborate "images", of standard and non-standard nature, have (and still form) a coherent visual language (meta-language), a kind of *fil rouge* of thought in the cultural territory of reference, before in the one of cognitive and communicative experience of architecture, and its relative outcomes.

And this can also be applied to graphic analyses, signs and visuals, "traditional" and not. Thus, even in the new digital and virtual world, it will be very useful to start reflections on the possible ways in which the relationship between the two new faces of "signifier" and "meaning" will be declined, through the language of realistic simulation, of immaterial or mimetic, of symbolic/metaphorical (and even more …).

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