
SEMIOSIC PROCESSES AND DESIGN PROCESSES

INVENTIVENESS, DIALOGUE, NARRATIVITY, TRANSLATION

Salvatore Zingale

ABSTRACT

Design semiotics could lead to two lines of research: the study of design products and the study of design processes. As much as the analysis of artifacts has significance, the survey about semiotic processes inside design processes is the one that defines the unique nature of semiotics in the design context. This investigation follows “the pragmatist route” to design semiotics, for two reasons: (1) because it understands design as an activity that leverages the concept of inventive abduction and can provide answers to cognitive challenges; (2) because the work of design is never to be conceived as concluded in the final result, but embedded in a flow of unlimited semiosis.

I will focus on the concept of semiosis according to Peirce’s semiotics, understood as a process of production of sense. In this way, I will deal with the following four processes:

- 1. Inventiveness, whose logical model refers to abduction, the process that enables exploration of the ways to possible meanings.*
- 2. Based on Bakhtin’s literary theory and Bohm’s epistemology, dialogicity, which will be considered as the social interaction model underpinning every social idea of design.*
- 3. Narrativity, understood as the general scheme that is implemented in a project, understood as a series of actions leading to the achievement of a goal, and as a process of transformation.*
- 4. Translation, considered not only as an interpretation process that takes place between different forms of expression, but especially as a transition from a problem or desire to an “interpretant artifact.”*

#semiotic, #inventiveness, #dialogicity, #narrativity, #translation

https://doi.org/10.21096/diseagno_2022_2sz

1. SEMIOTICS AND DESIGN

Inventiveness, dialogue, narrativity, and translation: these are the topics that I place at the basis of semiotics that is intended to make an epistemological contribution to the culture of design. They represent the field of research and teaching that I have experimented with for several years at the School of Design of the Politecnico di Milano.¹

I am aware that these are not the only aspects of semiotics relevant to design; but they are the ones that I think best represent the methodological direction taken by the teaching of semiotics in the School of Design in Milan since 1995, at the initiative of Tomás Maldonado.² Before that, semiotics had been introduced to design by Maldonado himself at the Hochschule für Gestaltung (HfG) in Ulm in the 1950s.³ From Ulm several important research projects started to develop: in the German area, for example, the contributions of Klaus Krippendorff (1961), Gui Bonsiepe ([1965] 2010), and Max Bense (1971); in Italy the teaching experiences of Umberto Eco, first at the Faculty of Architecture in Florence, then at the Politecnico di Milano. Also in Florence, the semiotic approach to design was “pioneered” by Giovanni Klaus Koenig (Zingale 2020b).

Other important contributions are those of the Hochschule für Gestaltung in Offenbach from the 1970s onwards, known as the *Offenbacher Ansatz* (Schwer and Vöckler 2021), where the question of the “language of the industrial product” (*Produktsprache*) was posed. In this context, the reflections of design professors such as Bernhard Bürdek, Dagmar Steffen, Gui Bonsiepe, and Klaus Krippendorff stand out. The latter would later promote *The Semantic Turn* (2006).

Although incomplete, the authors and research in this brief survey constitute an essential outline in my opinion. For a broader picture, I would like to point out the importance of Michela Deni’s work on how semiotics is interested in design (2015). As is clear in this contribution, semiotics’ interest in design developed out of the theory of the signification of objects, beginning with Roland Barthes’ *Mythologies* (1957), which understands the *artefact* as a particular form of *text*. Only later did the question arise as to how semiosis and signification could be considered as processes inherent to design.

¹Among the academic publications concerning this experience I point out: Bonfantini and Zingale (1999), Zingale (2005, 2009, 2012, 2016a, 2016b, 2020a), Bonfantini and Terenzi (2004), Zingale and Domingues (2015), Deni and Zingale (2017), Domingues (2018).

²In 1993 the first course in industrial design was inaugurated at the Faculty of Architecture of the Politecnico di Milano (<https://www.designindex.org/index/design/scuola-di-design.html>). The first course in Semiotics was taught by Massimo Bonfantini in the academic year 1994–1995.

³Evidence of Maldonado’s interest in semiotics can be found in Maldonado (1974).

My contribution attempts to proceed precisely in this direction, and for this reason should not be considered in *competition* with what has been elaborated so far, but rather as a *complement* to it, at least because it calls into question semiosis processes that have found limited application in the field of design. The basic assumption can therefore be summarised as follows: the contribution of semiotics to design culture, even before that of signification, must take *semiosis* as its object of study, i.e., the processes of production of meaning and therefore of every design activity.

It is in this direction that the four vertices of the “semiotic rhombus” I will present here are to be understood: a scheme that begins with Charles S. Peirce’s pragmatism and the logic of abduction, continues by calling into question dialogical relations as a constitutive part of both design thinking and social relations, and revisiting the theory of narrativity, and concludes with a view of design as a translational pathway.

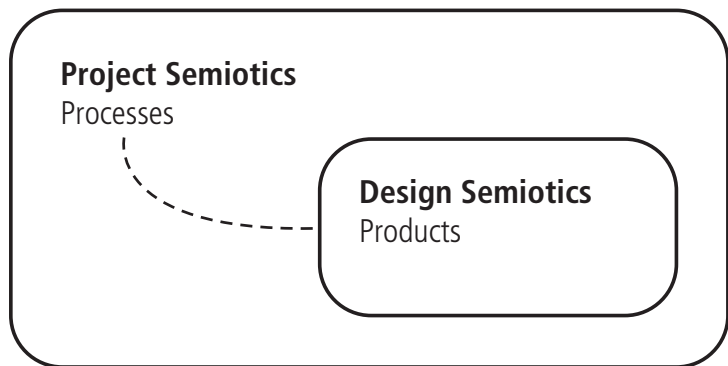
2. DESIGN SEMIOTICS AND PROJECT SEMIOTICS

It is therefore necessary to start with an inevitable preliminary question: *Design Semiotics or Project Semiotics?* What is the difference?

As I have underlined many times before (Zingale, 2016a, 2016b, 2020a), it is possible and necessary to distinguish between *Project Semiotics* and *Design Semiotics*. The study of what happens in the field of design can thus lead to two distinct areas of semiotic research, although the former includes the latter: (a) the study of project-making processes and (b) the study of the products of design. The former would take the name of “Project Semiotics” (Zingale 2012; Deni and Zingale 2017) whereas the latter should be referred to as “Design Semiotics” or “Semiotics of Design” (Mangano, 2008; Beyaert-Geslin 2012.)

These two branches can be shown perfectly in a diagram (fig. 1). Design Semiotics is part of Project Semiotics and consists of the analysis of products and their signification; Project Semiotics is the study of the processes that lead to design. The main objects of study

FIGURE 1. *Project Semiotics and Design Semiotics. Processes and Products.*



of Design Semiotics are the products of design, whereas for Project Semiotics the focus is instead on the processes underlying the project-making activity.

Therefore, Design Semiotics is an *applied semiotics*, a gaze over the artefactual texts, similar to text analysis of narrative and artistic texts, or of those particular ones called social practices. Project Semiotics, on the other hand, is a *specific semiotics*, comparable to text semiotics. The latter, as we know, can be divided, for example, into semiotics of literature, cinema, and painting, i.e., semiotics of a variety of texts of expressive nature.⁴

Analogously, different semiotics relate to different types of projects: an engineering project, for example, differs from a product design project, especially in terms of how much the forms, applications, and methodologies of design are able to multiply. However, the project-making activity does not only pertain to the *sciences of the artificial*, i.e., architecture, design and engineering, as Herbert A. Simon (1969) has called them. Projectuality (i.e., project-making attitude) is part of life itself. As Jean-Paul Sartre pointed out, we are what we project ourselves to be: “[...] l’homme sera d’abord ce qu’il aura projeté d’être,” “man is nothing else than his plan” (Sartre [1946] 1996, 30, my translation). Every phase of our existence is a project: a professional career, a lifestyle, even planning holidays or a dinner.

This means that the *project*—or more precisely, the project-making activity—must be understood as an object of study at the same level as a text. They are both *devices* for the generation of meaning, both *cognitive mechanisms* enabling the production of certain actions or functions.

However, there is one difference between the two. In a text, we look for a universe of meaning that is already *given*, because every text is a display of such a universe. In a project, conversely, meaning is merely (or still) possible, it is what we want or must build. In the analysis of a text, we can reconstruct what is logically (although not necessarily chronologically) located in the past, while in the project-making activity we build something that is located in a future logical time, i.e., in a future that influences our present, as Peirce points out:

To say that the future does not influence the present is untenable doctrine. It is as much to say that there are no final causes, or ends. The organic world is full of refutations of that position. (Peirce, CP 2.86)

The problem is how the future can influence the present and how we can prepare for such a future. Here is Peirce’s answer:

But it is true that the future does not influence the present in the direct, dualistic, way in which the past influences the present. A machinery, a medium, is required. (Peirce, CP 2.86)

⁴ On the difference between general, applied, and specific semiotics, see Eco (1984).

⁵ In Italy, the debate on Project Semiotics started a few years ago. See Deni and Proni (2008), Bianchi, Montanari, Zingale (2010).

⁶ On the semiotics of inventiveness, see: Bonfantini and Terenzi (2004), and Zingale (2012).

⁷ On dialogicity, see Zingale (2009).

In the sentences quoted here, it almost seems like Peirce had precisely the project-making activity in mind: to think and to prepare for the future, we need a *mediating mechanism*. Such a mechanism is the ability to make projects. A project is a *machinery* and *medium* directed towards the future.

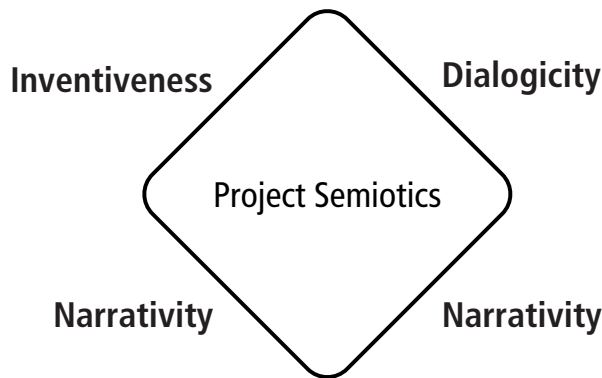
3. A SEMIOTIC RHOMBUS

Our problem is to understand what underlies the idea of Project Semiotics.⁵ It is a hard task, which will probably be the focus of research and reflections on semiotics for years to come.

In my personal experience as a teacher of semiotics in a design school, I have had the chance to trace some outlines of Project Semiotics, starting from the conviction that project-making processes are in fact semiotic processes. If on the one hand the analysis of industrial and media communication products may be relevant, on the other hand it is more important for semiotics to focus on the processes leading to the invention of such products.

From the many processes that we could consider here, I have chosen to present four: inventiveness, dialogicity, narrativity, and translation. At the 2017 congress of the German Semiotics Association (DGS) I sketched them in the form of a rhombus (fig. 2):

FIGURE 2. The rhombus of Project Semiotics.



Inventiveness, whose logical form is abduction (Bonfantini, 1987; 2021), informs us that every project must be intended as exploration of possibilities: in Latin *invēnīre*, from which the Italian *inventiva* and the English *inventiveness* come, means *to find*. In this sense, inventiveness precedes every kind of innovation.⁶

Dialogicity is a structural aspect of design and is one of the main traits that distinguishes design from art: in design, there is a direct or only hypothetical involvement of the user as actant of the project-making activity.⁷

Narrativity informs us that every project is indeed a transition from a status of desire to the concretisation of the project, and that the project-making process proceeds through stages similar to those of a narrative programme, i.e., through the relation of various actants: from the client (the Sender of a project-making task) to the designer (the Subject of the enterprise) and ending with the artefact (the Object of value).⁸

Lastly, translation is another process of transformation: a shift from an often indistinct and unstructured number of needs (e.g., a brief or start-up guidelines) to an accomplished artefact, intended as a text which fulfils the initial needs by translating them.⁹

⁸ On narrativity applied to design, see Penati (2013) and Proni (2012).

⁹ On the relationships between design and translation, see Baule and Caratti (2017).

4. DESIGN AS INVENTIVE ACTIVITY

The starting point is the following: design is an inventive activity whose form is abduction.

One of Peirce's most significant definitions of abduction is found in *A Syllabus of Certain Topics of Logic*, dated 1903:

An Abduction is a method of forming a general prediction without any positive assurance that it will succeed either in the special case or usually, its justification being that it is the only possible hope of regulating our future conduct rationally, and that Induction from past experience gives us strong encouragement to hope that it will be successful in the future. (Peirce, EP 2: 299)

From the many definitions, I have chosen this one because here he mentions three crucial aspects for design: (i) the notion of abduction as “a method of forming a general prediction”; (ii) the idea that abduction has an uncertain nature and no given success prospects, yet it is in constant evolution; (iii) the notion of abduction as “the only possible hope of regulating our future conduct rationally.”

Abduction means understanding the present state of things and imagining a future one. Abduction is the logical path taken in every interpretative route. This logical path moves from recognising a *surprising* or *problematic fact* and looking for its cause. This is how Peirce summarises the concept:

*The surprising fact, C, is observed;
But if A were true, C would be a matter of course,
Hence, there is reason to suspect that A is true.* (Peirce, CP 5.189)

A practical example of how the formula of abduction functions is the following:

C	I see the soil is moist (C)	<i>observation of a fact</i>
A → C	I know that if it rains (A), the soil gets moist (C)	<i>recourse to experience</i>
<hr style="width: 20%; margin-left: 0;"/>		
A	Hence I have reasons to think it has rained (A)	<i>formulation of the hypothesis</i>

As we can see, the conclusion is only a *possibility*, not a certainty, but this is precisely the strength of abduction. Thinking that it has rained because the soil is moist is a good reason, but not the only possible one. This is the reason why conclusions reached through abduction are always only hypotheses. However, even if abduction is uncertain and needs verification, it is the only explicative inference: it does not only explain facts, but also allows us to track them down and find them.

When we talk about abduction in relation to project, we need to bear in mind that the medicine of Hippocrates and the art of navigation are among the roots of semiotic thinking. Like in many other activities, the mind's ability to interpret present fact, object, or event plays guiding role: for example, interpreting the symptoms of illness or the position of the stars in the sky. Such knowledge is practical and *project-making*, the expression of mindset capable of adapting to ever-changing and problematic reality. Medicine and navigation can be defined as exploratory and inventive techniques.

Design also needs an ability to discover things, to be able to search and interpret. This is because design starts from the awareness that we live in a problem-world: the environment itself is a problem.

Projectuality acts with a double gaze: between the dissatisfaction and the search for pleasure; between a feeling of inadequacy and the prefiguration of an equilibrium; between a state of discomfort to a state of well-being. This double gaze is what Peirce identifies in *abduction*, the form of reasoning enabling the prefiguration of a possible absence. All artefacts, before being designed, are absent yet possible: if we are able to think them, it is only by way of abduction.

Abduction implies the ability to see beyond the surface and to make associations between our background experiences and those that are about to come. The ability to prefigure possible scenarios is one of the conditions for inventive thinking.

Inventing means *finding*, but in order to find we need to act, to set our hands and mind in motion, to rummage, hunt, in physical as well as in intellectual reality.

Inventing is therefore identifying a possible object within the constraints of available knowledge, whereas reality—understood as both physical and psychical—becomes the field for continuous interrogation and therefore interpretation. It is not by chance that the logical form of inventiveness is abduction, because it

looks for an answer to a question in ways that have never been attempted before.

4.1. Abduction as the form of inventiveness

Let us try to see abduction as a scheme for interpretation and design. No interpretation can be imagined without an *abductive jump*. Or better put, without such a jump interpretation would only mean decrypting through deduction or verifying through induction.

On the contrary, abduction is a kind of inference that is neither mechanically driven nor experimentally tested and it often happens unconsciously; even when vividly calculated, abduction always maintains a certain degree of openness where it can embrace randomness (serendipity), wonder (art), or free play (musement).

5. THE DIALOGIC PRAXIS

The starting point here is that the reason for every communication form is a dialogical reason. The dialogic modality is also the one through which investigation, research, thinking, and reasoning proceed, and hence the project-making activity too.

What is understood here by dialogue? Not only the practice of communicating (such as conversing), but also the cognitive process allowing the thought of every person as part of a common mind (what Peirce calls *Commind*, see EP 2:478).

Dialogicity is indeed present in Charles Peirce's philosophy, in his conception of the human as a community and in the dialogic nature of inferential thinking. It is also one of the main topics in Mikhail Bakhtin's concept of polyphony in Dostoevsky (1963), in Emmanuel Lévinas' philosophy of the other (1961), and in Jurij Lotman's semiotics of culture (1990).

In the field of sociolinguistics, dialogicity is investigated as a form of social interaction through *Conversation analysis*, which originates in Hervey Sack's enquiries (1992) and resonates in Erving Goffman (1969) and many other authors. Furthermore, in the theory of argumentation, this attention to the "logics of the dialogue" and the *dialogic logic* as a method for interpersonal verification of utterances can be found (Cantù and Testa 2006).

However, it is in epistemology that dialogicity is viewed as an indispensable heuristic method. In particular, the philosopher David Bohm (1990) highlighted that the dialogic practice is a process capable of leading towards a more profound understanding of scientific problems. Ludwik Fleck's theory of the *Denkkollektiv* (1935) was already pointing in a similar direction.

In short, the praxis of dialogue is possible because *dialogicity* exists as the basis of every form of communication.

In design, there are many cases where the emergence of dialogicity can be observed. I will describe three in detail.

5.1. Epistemological aspects of the dialogue

The first aspect is of epistemological nature, because it can be related to the logic of research. In this case, dialoguing comes to the aid of a process of research, as a method for forming hypotheses and looking for possible solutions. The cognitive activity of a designer can only be dialogic: dialogicity is an experimental semiotic status in constant research. In fact, dialogue works by asking and answering, asserting, and denying, with the aim of selecting, through a series of decisions, the most appropriate choice to suit the design intentions.

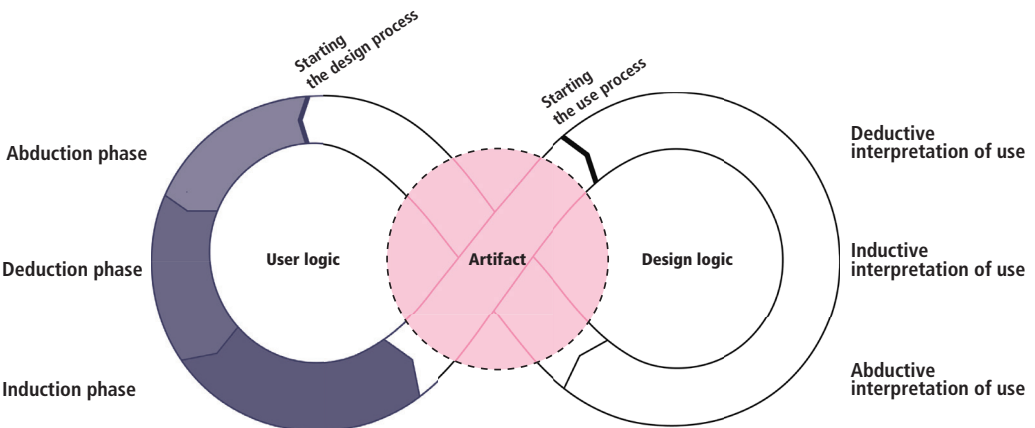
In such game of questioning and answering, the designer faces unpredictability, which is often the only way to arrive at solutions whose existence could not even have been imagined. Whenever there is a dialogue, even one within us, we know that we *are going* somewhere, but not exactly *where*.

5.2. Two logics in a dialogue with each other

Secondly, the relationship between the logic according to which an artefact is designed and the one through which such an artefact is used is inevitable. Dialogicity is a game between designer and user played remotely, with the artefact as medium. On the one hand, there is the *project logic*, from the product’s first conception to its distribution; on the other hand, there is the *logic in use*, the actions performed by means of such an artefact (Zingale and Domingues, 2016).

In this case, the dialogue consists of a series of inferences: the designer must be able to imagine the future modes of use of an artefact, while the user must discover which logic underlies an artefact as it is conceived (fig. 3).

FIGURE 3. Design and user logic.



5.3. The dialogic method of design

In the end, dialogicity can be exploited as a method. In this third case, the dialogic praxis is effective, a form of interaction between the subjects involved in the project.

As an example, let us think about co-design practices, especially in the field of social design, where the project-making ideas grow from exchange and confrontation.

However, dialoguing cannot rely on improvisation only, a method is required.

Following David Bohm's steps (1990), one of the main requirements for favouring dialogue and reflections upon the research is the ability to set our own assumptions aside for a moment. This should prevent the dialogue from revolving around pre-existing beliefs of the participants, which would be an obstacle in the search and acquisition of new knowledge.

Therefore, in the enquiring dialogue the ability to listen is more important than the ability to express.

Such dialogic praxis has to welcome the unexpected. The unexpected must always be embraced willingly. For a dialogue to be really heuristic, we need to expect that, to some extent, contents might emerge that we have never thought of before. The unexpected can come out either within the dialogue by association or sudden abductions, or beyond it thanks to accidental events happening by chance, "synchronised" with the topic of the dialogue.

In other words: no matter what object of value the dialogue leads to, it must nevertheless derive from the dialogue itself.

6. THE NARRATIVE PATTERN

The third element is a chiasm: every narration is a project, and every project is a narration. However, the stories that we hear or read are only the modality in which *narrativity* (as it is called in structural semiotics) manifests itself. Narrativity generates narrations, but also behavioural habits, everyday acts, beliefs, and lifestyles. Narrativity is the logical-syntactic pattern through which meaning is arranged in order to be expressed. It is also the way in which meaning is designed.

Narrativity pertains to the constant formal or generic features of every type of tale, as well as of every type of semiotic activity. Narrativity is the virtual scheme of actions, whereas every action only takes a value *depending* on other actions. There is narrativity every time a series of events are put together by a *consequential* chain of connections, that is to say whenever such events are not just merely in sequence. This concatenation can be expressed with the formula

X does x, so that Y can do y, so that Z can do z, ...

¹⁰ The terms for the six actants—Subject, Object, Sender, Receiver, Helper, and Opponent—will be capitalised to distinguish these nouns from their common usage.

¹¹ The French term *Destinataire* is more complex: it can either mean the actant who receives the task or the actant for whom the benefit of the narrative programme is destined.

In a narration, every event lets the following events be imagined according to a sequence of expectations, hypotheses, and surprises.

For example, how an exhibition is set up can influence how much viewers feel involved. This happens mainly because what is presented and how it is presented are elements of a possible story: these elements are not only pieces of information; they aim to resonate with the visitors and entice a multiplication of meanings.

At the same time, artefacts in use often enter our everyday life story as objects of desire or magical objects, or as angels guiding and helping us, and at other times as demons leading to addiction.

But why is the process of narrativity interesting for the project-making processes? The answer lies in Greimas' *actantial* model, which he elaborated in 1966. The model is "built upon the syntactic structure of natural languages" (Greimas 1966, 99; my translation). An actant, in Greimas' words, both *does* and *withstands* an action. We can add that actants *design* actions. Therefore, the question is: how does the actantial model apply to the project-making processes?

Narratives and projects share the presence of a *process of transformation*: a shift from one state of things to a new one. Moreover, such transformation is normally a *reevaluation* of pre-existing conditions: at the end of the narration, a given reality or identity takes new shapes or values. Lastly, transformation and reevaluation need a *mediating instance*, i.e., something or someone that can make the change of state possible.

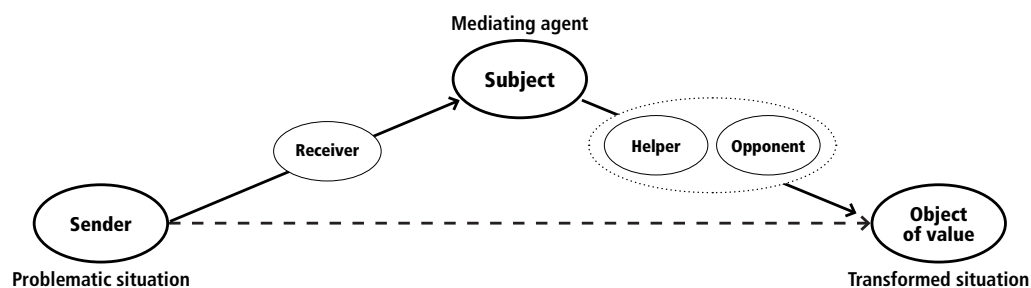
In project making, what activates the transformation is the *desire* to achieve certain value. According to Greimas (1966), everything revolves around the Object of desire pursued by the Subject.¹⁰ However, the Object of desire can be also placed one step before, in the Sender. Brunelleschi, who invented how to build the dome of Florence's Duomo, is example of this: he is the Subject that designed the dome but before that, with act of self-destination, he is also the Sender of this extraordinary enterprise. As in epic fiction, Brunelleschi (the Sender) assigns to himself (the Receiver)¹¹ the task of realising such project (the Subject).

However, the Receiver of this architectural work is also, and most importantly, the people of Florence, or in a certain sense, the whole of humankind.

As for the receiver's place, narrativity can be inscribed into two different frames. In a smaller frame, the receiver is the person who receives the project-making task; in a wider frame, the receiver corresponds to all the users.

In both cases, projectuality can be intended as the route from the Sender to the Object, i.e., the route of an intention towards its goal. This is because design starts from a problematic or unresolved reality, and the Object of value will be a transformed reality. What is design if not an effort to transform an initial problematic situation?

This is my reviewed actantial scheme (fig. 4):



The graph is composed of three knots and three arches: the three *actantial knots* represent the relationships between the main actants: sender, subject and object of value. In the terms of design, they correspond to the start of a project arising from a *problematic situation*, the search for a *mediating agent*, and the achievement of a *transformed situation*. The arches in the graph highlight the two intermediate relationships: the first is between Sender, Receiver and Subject; the second is between Subject, Helper/Opponent and Object. However, the main relationship of desire: from the Sender to the Object.

FIGURE 4. Greimas' actantial model re-written: the triangle of narrations.

This would mean that, in design, it is necessary to start from the *destination instance* underlying every project, and that such an instance must be put in relation with: (a) the *goal* to which it tends; (b) the *forms of mediation* that are chosen to achieve such desired goal. The three main actantial knots of the triangle of narrations must be detected every time among the social players involved in the project: client, designer, user, and the product itself too. Every place is connected to the others according to consequential principles. Things change entirely if the role of Sender is played by the client or by the designer, or if it is the product to drive our actions, because of a fascination with objects or commodity fetishism. Resorting to mediating elements allows, for example, to understand what social role the designer plays or should play. Every change of place of the players modifies, inverts, or reinvents the type of ongoing narration. Which means: the type of design that we have in mind.

7. DESIGN AS TRANSLATION

If we conceive design as the ability to “act as interpreter” of social instances and to give answers to questions or problems, then it becomes evident that translation processes can be used to better understand the semiotic nature of design (Zingale 2016c).

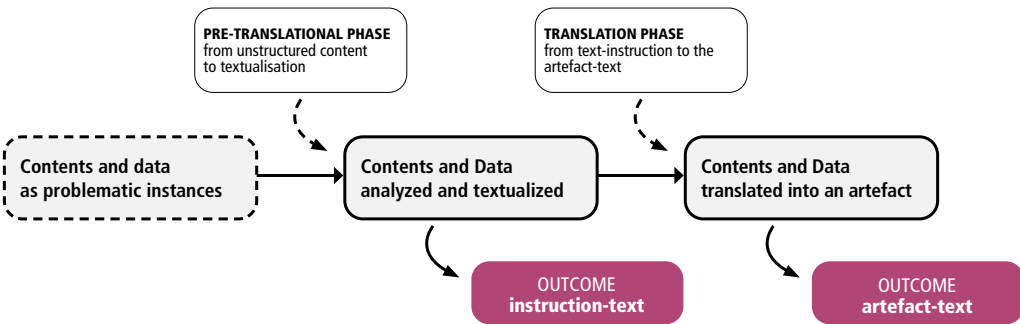
Nonetheless, semiotic theory faces a paradox here: while translation involves a shift between two structured entities, i.e., a movement from a *source text* to a *target text*, design follows different paths, as it has no source text to *translate from*, but rather a series of social instances that it needs to interpret. Design must first “translate” a generally unstructured entity with uncertain, open boundaries, an often incoherent and undetermined entity that seeks its own structure and form through design. Such an unstructured entity may be, for example, a company’s search for a visual identity, the cultural tone of a book series communicated to target readers, or how to present a bulk of statistical data. In each of these cases, the *object to be translated* lacks the cohesion of a text, but nonetheless the search for an artefact that can fully interpret them fits the concept of translation entirely.

Designers behave *as if they were* translators because they conceive their own activity as an interpretative process. However, such an interpretative process requires a first step: the unstructured entity needs to take formal structure before the whole project-making process starts.

Here, Louis Hjelmslev’s (1943) notion of *purport* comes to our aid: the purport is the *non-semiotic* world. It is a world made of mental and physical phenomena in search of a semiotic form. In design, translation is not used to let things be understood “in another language,” but to give a valid expressive, visual, or material shape to what was originally lacking shape or defined textual structure. In design, the act of translation is essentially a way of making an entire universe of content available to the user.

The translation process acting in design can be represented through a two-phase model (fig. 5):

FIGURE 5. The translation process of design.



The first phase is *pre-translation* and consists of the movement from the starting conditions. This means being able to grasp a problem from which a project-making process could start. In this case, it means also studying problems that are not yet part of our “common awareness,” problems that are not manifested in a precise social discourse.

However, grasping a problem is not enough. An understanding of how such a problem is experienced and felt socially despite its indistinctness is essential. This means to perceive *common thinking*—Hjelmslev's *purport*—and to reorganise it coherently by selecting pertinences and letting those traits emerge that could build a hierarchy in the objectives of sense.

This first phase has the aim of *textualising* social and problematic instances, i.e., of transforming them into a common discourse and place for a shared analysis.

The text originating from this phase will be called *instruction-text*, a text having structured and articulated features, but still lacking an adequate communication form. It is a text whose aim is to prepare for full signification. The instruction-text defines only the *content's form* of the project-making instances: the form of expression is still only virtual.

The second phase is that of explicit translation because it involves the passage from the *instruction-text* to the *artefact-text*. In this phase, the “raw” materials contained in the instruction-text turn into the “processed” ones of the artefact-text.

Design is a form of translation for at least three reasons.

1) Firstly, the translation activity in design can be intended as the ability to *explicitly say* something that was unexpressed before but that was already in the common mind and consciousness, as a content looking for a form of expression: in this case, the designer invents and elaborates appropriate forms of expression that were lacking or inadequate earlier.

2) Secondly, the translation activity operating in design is a way to *say clearly* what was obscure before and would have no other means of being understood: in this sense, the designer becomes an interpreter of semiosically undetermined content by inventing or elaborating a form of expression that can make such content accessible.

3) Lastly, designers are translators because they suggest ways of *saying differently* things that have already been said, but that have lost power over time due to a change in social conditions (historical, ethnic, geographical ones), or that could express wider or renewed semantic values by being reformulated, using tools and techniques aimed at enhancing their expressive efficacy.

8. CONCLUSIONS

The four vertices of the rhombus represent, even if not completely, the research and teaching perspective that I have so far experienced during my many years of service at the Design School of the Politecnico di Milano. However, I am fully aware that this figure can change and that we can imagine one with many other elements added. However, I am certain that each of these four vertices can open up further perspectives, and

that a more complete semiotics for the formation of the designer should be elaborated from the territory they delineate.

The prospects of Project Semiotics are still to be explored and articulated. My wish is that, in this way, Project Semiotics can be gradually integrated into design disciplines: no longer just a science aiding design culture, but an integral part of the project-making thought.

It is not by chance that in the last years, design theories have embraced topics and problems that, looked at carefully, were previously the focus of studies in semiotics. I can give some examples of those theories that appear to have an implicit link with semiotics, in particular ones that relate to the four vertices of my rhombus.

Firstly, as already pointed out, *Participatory design* is one of those project-making practices and studies that we can clearly see acting in a “dialogic” way, through an active participation of the various social players involved in the design practice. In recent years, we have seen the paradigm of narration—or storytelling—come into play in the fields of project making and management. It is no exaggeration to say that, since Vladimir Propp’s 1928 studies of fairy tales, language sciences have seen narration as one of the discourse practices in which human thinking best expresses itself. Nowadays, even data representation techniques have become forms of “narrative” because although the visual aspect of displaying data is surely important, there would be no real “communication” without a narrative, and thus informative, frame. Meanwhile, can we define data visualisation, i.e., the passage from an often-unstructured amount of data to a communicative artefact arranging them, as a form of at least intersemiotic translation?

Lastly, I would like to mention two further territories that, in my view, are implicitly linked to some aspects of semiotics: design thinking and speculative design. In both cases, the inventive action typical of abduction sneaks in. In the former case, abduction is an inventive action aimed at solving problems through methodologies and processes beginning with a deep understanding of a problematic event and ending with the elaboration of a solution by exploring and formulating alternative hypotheses. In the latter case, conversely, it is not a question of proposing solutions to a problem, but of searching for problems to be discussed and placed under the lens of a critical and projective interpretation. Hence the foreshadowing of future scenarios capable of helping us now question the implications that we can begin to highlight within our present.

No matter within what precincts Project Semiotics will be able to move, its task must be to integrate itself with the present theoretical studies inside design, constantly highlighting how much design is rooted in semiotics. The project- and product-making attitude can only be a semiotic activity, i.e., an interpretation of what may exist.

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