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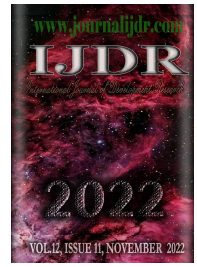
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A LANGUAGE OF DESIGN IN PRODUCTS BY ANALOGY

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ABSTRACT

Understanding the products and artifacts as part of a system of meanings analyzed within the field of Semiotics, this article intends to contribute to the paving of the epistemological reasoning pathway for Design, by taking it as Language. This paper is discussed in addition to the application of semiotic theory, the possibilities of using metaphor in product design. The objectives were to propose theoretical relationships between Linguistics and Design, to build analogies that would allow to give new light to communicative aspects of Design, and to clarify the various ways in which a product metaphor can be projected. While these classifications emphasize the enormous potential of metaphors, we also describe the risks and pitfalls associated with their use. With this clarification, it was intended to raise designers' awareness about the communicative possibilities of metaphors and expand the theoretical discussions of Design as Language.

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INTRODUCTION

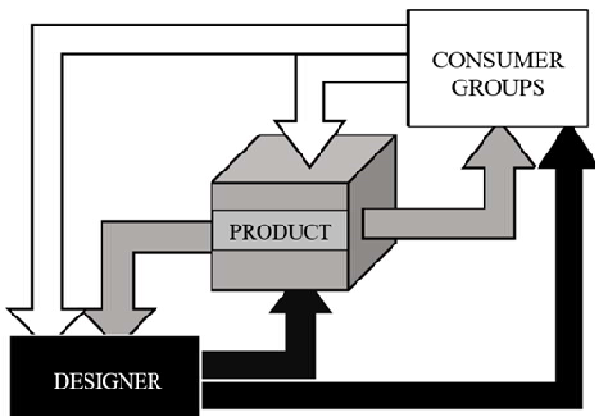
The language sciences have developed theories of analysis that comprise a multitude of communicational processes. For Saussure (1973), linguistics was part of a more general science he identified with Semiology. To study a language, it is necessary first of all to study it as a logical structure identifying what it has in common with other semiological systems. This meant, in general terms, that linguistic phenomena can be theorized from a supralogical process intrinsic to all languages, allowing not only the linguistic problem to be clarified, but also other manifestations such as rites, customs, etc. Charles Sanders-Peirce's semiotic triad is considered this universal theory of signs and corresponds to a logical construction applicable to any communication process, verbal or not. It is based on the principle that the human being produces representations of reality, by signs captured by the perception of the observer. For Peirce (1977), everything that exists is a semiotic entity and this notion applies even to an idea, for the competence that any idea has to refer to others. It should be clarified that an artifact is currently understood as carrying a message, and this message adds meanings. Once artifacts transmit messages and they are loaded with multiple meanings, we see a language being structured; not a verbal language, but something we can call visual language.

Although, as we will see later, only the visual does not cover the entire dimensions of the projected object. In this sense, we can remember that all communication relationship involves at least two actors: the sender and the receiver. We can understand the designer in the role of emitter and the user in the role of receiver. Thus, the artifact becomes the vehicle, how such a message can be sent. This object can always transmit messages that transcend the intent of those who designed it, becoming, to this extent, autonomous. During life, it meets filters when interacting with individuals. Physiological filters (such as perception acuity), cultural filters (environment and individual experience), and emotional filters (attention, motivation). From this arises how the product will be represented and perceived, and in turn, the importance of semiotics for design. At the same time, we can understand design and its interdisciplinary nature from visions constructed by new concepts. This means that a possible perspective is to use semiotics and communication to observe Design as Language, from its elements in a way that is tied to symbolic creations. In this sense, Design reflects a particular worldview and increasingly exercises dominion over the way we seize the world.

Design communicates symbolically: For Bomfim (apud BRAIDA, 2009), "there are several design definitions and a comparative analysis between them allows us to conclude that this activity aims at

configuring objects of use and information systems". However, this configuration does not occur in a "natural" way: it is constructed from different social relations. Obviously, design as a project activity maintains an intrinsic dialogical relationship with its social environment and this relationship changes as social forces develop new production structures. For Bomfim (in: COUTO et al., 2014:13), "throughout history the configuration of artifacts had three characteristic phases, defined according to the theoretical principles that underlie praxis and the means used for the production of objects": (1) moment of the master craftsman, (2) manufacturing and (3) industrialization. For Nojima (2008:9) "as a process, method, technique and tool for the creation, production, dissemination and communication of knowledge, Design tends to model and guide, rectify and reorient the cultural landscape of everyday life". Design represents ideas and beliefs in constructed forms and artifacts, by means of which we assimilate everyday materiality. In this sense, Design assumes a deeply symbolic character, evidencing itself as a means of communication.

For Santaella and Nöth (2004:24), "as well as communication, also signs, that is, symbolic production and exchange, have always existed and are factors of constitution of the human condition itself". We can, therefore, when looking at Design as a language marked by its sociocultural relationship, seek a theoretical analogy with the linguistic field. Dondis (2007:14) reminds us that the Greek word *logos*, "which designates language, also includes the parallel meanings of 'thought' and 'reason' in the English word that derives from it, logic." In the semiotic basis, Santaella (2005:56) points to the inseparable relationship between language and thought, considering that "signs can be internal or external, that is, they can manifest themselves in the form of inner thoughts or lodge in external, material media or means". We take language in this work as Santaella states: "an incredibly intricate range of social forms of communication and meaning" (NIEMEYER, 2003:3), which includes verbal, non-verbal, syncretic language... That includes design and how communicative process, a form of action on the world. Figure 1 visually schemes how the constructions of meanings in design are involved in a mediating relationship with the language of the projected products.



Source: Author, 2022.

Figure 1. The construction of meanings in Design

According to Ferrara (2002:6), there are several productive modalities of design that are understood as a phenomenon of language where architecture, the city, industrial design of objects, graphic design, communication, and visual programming influenced both by the complex global reality that affects all spaces and, above all, by the visual multiplicity of the image in the computerized world. In this sense, design understood in its semiotic and communicational principles, and considering the languages used in its production, is shown as a theoretical and methodological path pertinent to its epistemological approach. According to Niemeyer (2003:14), "semiotics illuminates the process in which the construction of a system of meaning takes place". The author also states that, "in this way, the design product is treated as a carrier of representations, participant of a communication process".

We can understand Design, then, to produce signs or systems of signs, which enter circulation in the world via semiosis processes. From this perspective, Design should be seen as a language and, for its approach, both Communication and Semiotics offer a fundamental theoretical contribution that we have become clarifying in the next section.

Semiotics dimensions of language: Semiotics encompasses three dimensions: both synthetic, semantic, and pragmatic. The first two are based on a dichotomous relationship between connotation and denotation. According to Braida&Nojima (2014) the syntactic would be the way the object presents itself, the arrangement of its components, its structure. It concerns denotative aspects, especially those linked to its visuality: joints, openings, holes, textures, scale and colors. In general, the syntactic concerns the sensitive qualities per se, its material particularity. The semantic dimension refers to the denotative aspects or the meanings attributed socially, historically, and strategically, to the same component elements of the syntactic now grouped into a recognizable and relatable whole to others. In other words, semantics should be understood as the set of expressive and representational qualities of an object. This semiotic dimension is the object itself, the thing meant; representations, the uniqueness of what is presented to us. The pragmatic dimension should be understood as the sum of the practical consequences resulting from use. Different materials, environments and social and cultural contexts can modify our use of an object, in addition to our own emotional or reactive condition. Pragmatics calls for rules of maintenance of communication and can be understood as the specific ordering that involves us together with the other semantic and syntactic dimensions. Thus, by understanding the syntactic as the shape of the object, semantics as its meaning and pragmatics its function, we carry the semiotic dimensions to the center of a design language (BRAIDA & NOJIMA, 2014). Form, function and meaning acquire status from basic elements of different design-linguistic manifestations. Focused on denotation and being more directly linked to utilitarian and functional issues, and therefore more objective, semantics in design has received more light. About this aspect, Eco (2004:200) states that the first message that the object transmits is its function, and this would occur even when it is not being used. For him, the object of use is the significant (connotated) of an exact meaning (denoted), which is its function. And the immediate recognition of its function directs the user to operate the product correctly, that is, the object itself instructs the user - it is didactic. Eco also points out that "the form denotes the function only on the basis of a system of expectations and acquired habits, and therefore, based on a code" (idem:200). And he adds that both a new form and a new function will only be functional if they are designed based on existing code. Niemeyer (2003:45) warns of an interdependence of dimensions and their impossibility of isolation by stating that "one cannot understand the pragmatics of a product if all its other dimensions are not considered". Thus, a design language is structured triadically following the phenomenological categories of Peircean semiotics. In table 1 below, we sum up these ideas from the original Braida&Nojima (2014:78).

To all artifacts is implied a floating network of meanings to which the interlocutor/user can select or reject, guided by the linguistic content seized from the shape of the object. For Barthes (1971), language has the role of sustaining this message to identify perceptual, denotative and iconic elements, avoiding errors arising from the various possible readings. However, this range of possible readings can be used as a stylistic resource, a sensitive appeal to the repertoire and simultaneously indicate a new use, function, form, etc. by making cognitive recurrences. In linguistics, this attitude characterizes the Figures of Language that we started to explain in the next section.

Language figures: Just as we can understand Design from the semiotic triad of language conceptually applied to form-function-meaning, a possible reflection from there is the occurrence of language figures. In Linguistics, the figures of the discourse assist in the composition of a style for the message. More than that, they allow the participants of the language to build new signs, interpretations,

modifications and mutual understandings. To advance in the work, it is necessary to clarify another fundamental topic: the understandings about these figures in the field of language sciences. Provocation, persuasion, information, estrangement, are only possible in communication due to the use of figures of language. They fulfill the function of redefining a given information field, creating attractive effects. In other words, they allow the word itself to be overcome in its communicative content. According to Jakobson (1976), the most recurrent figures of language are metaphor and metonymy and a differentiated organization of words, allows them to be understood as figures or tropes. The figures, are the words themselves, are the words per themselves, taken in their own sense, with their expressive load in sound, structure, function, and order. It relates to the connotation. Tropes are the words understood in their sense beyond, meta, figurative, contextual, and referential, thus linking to denotation. We use and can observe the constant use of figures and tropes in everyday communication, in countless expressions and discursive constructions. This constant and recurrent use creates a cocoon stereotyping words, erasing awareness of the linguistic phenomenon. For example, when by analogy, we use the expression dead fly in relation to someone, we do not realize that the use, the idea of the dead insect is what raised the term; there is no concern as to whether we are perpetrating a trope, the metaphor; we hold on only to the sense of expression. For Tavares (1996), the figures are more evident in the formal and colloquial languages. In this sense, it can be deduced that the freedom allowed by tropes, or figures of language, do not follow a pre-established rule and could not meet any rule, because they are inherent to one's own thought. Leaving the language theorists only the systematization of these phenomena as a way of understanding their mode of action. Dante Tringali (1988) tells us that the figures are modifications of language, or metabols (from Greek: repetition of the same idea, concept, meaning, meaning, through different words, expressions or phrases). And the modifications can be in the word (metaplasms, metasseme), in the sentence (metataxis, metalogism), or even at the level of expression, content, adding, subtracting, exchanging... with the aim of achieving an artistic, poetic or rhetorical, stylistic effect on communication. Grammatical metabols, those that change in code, when they occur on morphology bear the name of metaplasms, when changes occur on syntax are called metataxis. The logical metabols, whose change occurs in the content plane, when on semantics are called metassemes and on logic, metalogisms. In this sense, the existing figures, and the possibilities of the emergence of new ones are very great. To classify them, language theorists use the following criteria: either the figure is observed in the plane of the expression or content, or in the plane of the word or phrase. These modifications can act by accrual, subtraction, or barter. Table 2 below summarizes these criteria:

In the domain of metaplasms, all the figures that modify the graphic or sound aspect of the word (word) reside. They are called phonological figures, figures of diction and harmony. In the domain of metataxis, are the figures that mess with the structure of the sentence, inverting the order of words, for example. They're called grammatical figures, construction figures. The metassemes, concern the figures that modify the content of the word, changing its meaning. Semantic figures or tropes are classified here. In metalogisms, all figures that alter the logical value of the phrase, the reasoning underlying that construction, are classified. It's the thought figures. In summary, the figures are performed either at the phonological-graphic level, or at the grammatical level or at the semantic level. Once again, the semiotic triads of language become evident: the syntactic level, which corresponds to structure and form; the semantic level, which relate to meanings; and the pragmatic level, which is connected to logical construction. However, as a manifestation of Design from this Linguistic perspective, we made a clipping. We sought a more generic and simplified classification, which would allow the appropriate analysis of the objective, in a didactic way. We will therefore seek to establish a reasoning that considers the fundamental triads of design as components of language, specifically the use of the metaphor language figure.

Metaphor: It is only possible to establish a relationship if there are two or more parts that are involved, so it is necessary to consider, analyze and know the parties to understand the thread of their relationships and at the heart of the issue to build an interpretation. Not on the merits of chance, but by consequences of relationships, the parties can be interpreted in different ways if analyzed by different perspectives and each new relationship reinterpretation is drawn. They create crossed edlets, raised in different parts, different fields, and even opposite areas. In this context, we consider it important to clarify the linguistic concepts of Metaphor. The concept of metaphor, in recent years, and from different perspectives, has been gaining momentum and robustness in research. Literal or purely descriptive language has been unable to account for the complexity of reality, and in this sense poetics and rhetoric have manifested themselves as competent to express and build new meanings. In addition, it is remarkable the important role that metaphors play in science, since they create or provoke similarities between different aspects of a theme, operating as representational models. And it is in this sense that we can understand how metaphors have also paved the way for the study of expressions found in any type of communication, including non-verbal. Hekkert (2015) points out that several scholars are investigating the functions and meanings of metaphor in relation to art, gestures, marketing, cartoons, comics, mathematics, music, science, film and advertising. Figure 2 below illustrates the important components of a metaphor:

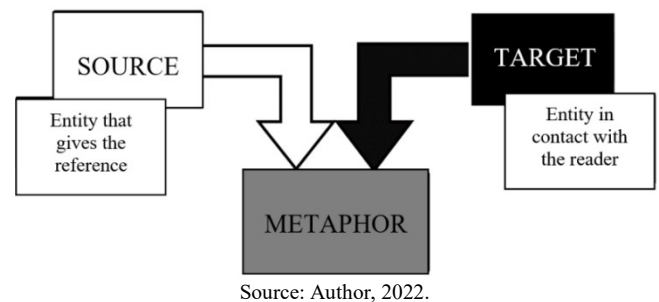


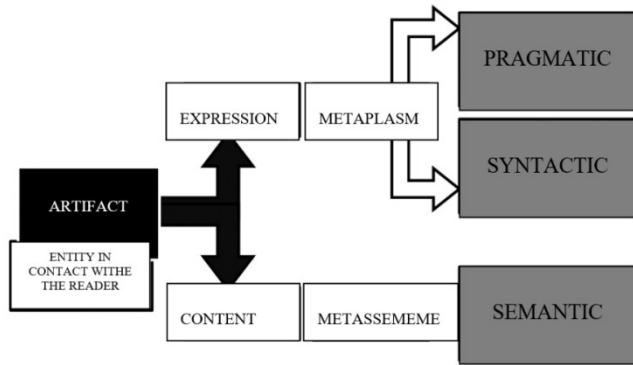
Figura 2. Metaphor components

Therefore, metaphor is not only an instrument of poetics, imagination and creation, but is also a cognitive tool. Analyzing the links between forms (signifiers) and metaphors (meanings) we can see and know beyond simple literalness. In this way, certain aspects of each are illuminated, others are underestimated, new insights emerge and deeper levels of meaning are elaborated. For this reason, metaphors are pointed out as cognitive instruments used by "creative artists" to build references that lead us to see things in a new light. Designers would be just one of those creative groups that use metaphors to create appeal and meaning to products. For Hekkert (2015), the designer can use metaphor to identify, frame and solve design problems; break with limitations imposed by design problems; justify design decisions; shaping the product by rendering the metaphor in physical form. This type of use of metaphors helps designers translate abstract concepts into concrete properties of the product, which eventually communicate functional, social, psychological and cultural meanings to users.

In the previous section (Table 1) we clarify that the language figures occur at different levels (Word and Phrase), and originate from different sources (Expression and Content).

- Changes in the Word that has as its source the Expression, are those that occur in the graphic, phonological, harmonic aspects: they are the metaplasms.
- Changes in the Phrase that has as its source the Expression, are those that occur in the structural, constructive aspects.
- Changes in the Word that is sourced in the Content, are those that occur in the aspects of use and whose target is the meaning.
- Changes in the Phrase that is sourced by the Content are those that occur in the rule, in phrasal logic, whose target is thought.

Now, we can build a theoretical analogy of how these concepts would be given in artifacts. We can define a product metabol as a product whose design intentionally refers to the physical properties (e.g., shape, sound, movement, smell, and so on) of another entity for specific and expressive purposes. As is the case with a verbal metabol, a product metabol also consists of an "association" between two entities: a target and a source. The target is the "artifact" being analyzed, whose shape (or sound, or movement, etc.) alludes to another, absent, represented entity; and the source is the remote entity whose characteristics are associated with this artifact to assign a particular meaning to it. Thus, when recreating Table 1 applying an analogy with Design we will have:



Source: Author, 2022

Figure 3. Metabols analogy in Design

The artifact alone would correspond to the level of analysis of the Word, assumed as a basic and fundamental element of the communication process. The level of the Phrase could be associated with the ideas presented in Baudrillard's Thesis System of Objects (2012). In this sense, it would consist in the expansion of the level of analysis, moving from a single and unique artifact to a wide system of artifacts, which could act without the obligation to make up a recognizable "family". In other words, this level of analysis would cover very different artifacts regarding usage and function, but with related expression and content: what we might call Style. We chose not to enter into this complexity here in this work with the objective of making the path more didactic, so this level of analysis was removed. The three dimensions of Design (BRAIDA & NOJIMA, 2014), appear interconnected as follows: the Expression of the artifact is associated with the Dimensions Syntactic and Pragmatic; corresponding to the metaplasms. While the content of the artifact, its significant/symbolic aspects are associated with the Semantic dimension, corresponding in this case to the concept of metassememes. From this analog reconstruction, we can move on to a more specific analysis regarding the use of metaphor in design. It is worth clarifying that, from a rigorous semiotic approach, there are important differences to be made between the concepts of symbol, metaphor and allegory, despite being constantly confused. Within our approach, although there is an underlying semiotic process, these important concepts have significant differences in theory, but very subtle to design practice. This leads us not to enter this bias, but it is worth clarifying that despite the common elements, symbol and metaphor present differences. In the metaphor, the subject already has his own image, consolidated and anterior to the one that lends the term. In the symbol, the subject does not yet have this own image consolidated. For example: what would be the image of sadness? Although there are sad people, sadness calls for a symbol. Sadness, joy, among other ideas are sustained by a metaphorical process. Allegories have a narrative character, proposing to be an expressive genre, which involves a very large set of metaphors (OLIVERAS, 1993). A designer can design an artifact in such a way that it evokes a reference without violating its own identity. This reference can be based on the syntax or semantics of what was used as the source of this application. The designer projects relevant physical properties of the font into generally compatible properties of the target, artifact. As we have seen, the metaphor concerns a well-dosed mixture between the recognized and the absent in which more than one property of the

source is transferred to a destination. In the following diagram (Figure 4), we materialize this idea:

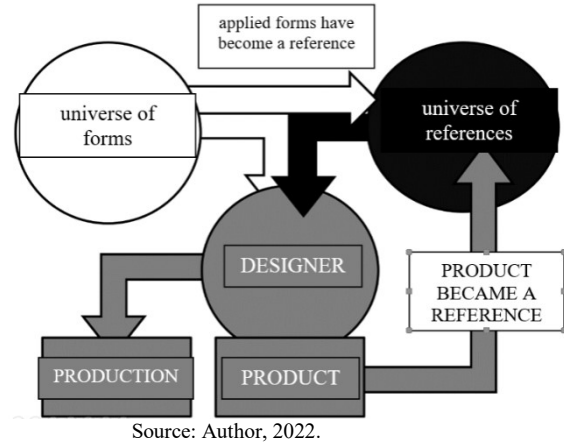


Figure 4. Metaphor layout

The target inherits the meaning that the source incorporates. Thus, when the dominant design characteristics of a jet aircraft are incorporated into the design of a car, any meaning associated with this plane (e.g. powerful, fast) is implicitly connected to the car. These and other different types of metaphors are applied in all fields of design. It is necessary to clarify some particularities of metaphors in design: target and source materialize in a single entity, in a single and singular artifact (HEKKERT, 2015). This fusion brings another particularity: it gives the designer the responsibility to conduct the sensitive manifestation of the characteristics he wishes to use, from the source towards the target. The designer is the projective exercise of metaphor, the construction of a communicative value; in other words, designers make something look like something else. This is powerful evidence of the language of design. Since design concerns the projected object and there is a huge variety of possibilities in each project with materials, shapes, sounds, textures, size and scale, proportion, weight, etc., a third particularity of metaphor in design arises: unlike the linguistic metaphor that is limited to a spoken or written manifestation, the designer has control over how and what the reference will manifest. Such particularities are intensely correlated with the dimensions of Design (BRAIDA & NOJIMA, 2014), so the search for a deeper understanding of linguistic issues as a possibility of analogy allows a conscious use of references and a rational exploration of metaphors. By generating a product metaphor, the designer has a communicative intention and evokes in users some kind of experience that in his repertoire is associated with the source sign. However, the construction of the meaning of this artifact will only take place in its contextual relationship. For this reason, there are products that offer the same practical function, but which are aesthetically distinct; products that offer similar aesthetics, but which are of totally diverse functions; products that in their use assume different functions; and finally, products that appeal to semantics, to emotion, but that fulfill the same practical functions of others.

This complexity also concerns another level of analysis, which we leave open because it still involves in a very particular way the concept of Usability and the very individualized relationship between user and this Object. We will focus on artifacts whose intention of using metaphor is to reduce the cognitive burden associated with the function and use of a product. In this sense, we will consider that the different uses that may be fulfilled by a product, are an extra unilaterally coupled by the user and sociocultural relationships, and not consciously designed by the designer.

What are the intentions of a designer when using metaphors?: This subsection aims to clarify the different intentions of the designer by using a metaphor in his project (SOARES, 2019). It is useful to reinforce the validity of the figure of language as an exciting, refreshing, renewing factor of the sense of products. In this sense, we can group the intentions into:

Table 1. Correlation between semiotic triads, design fundamentals and product functions

PHENOMENOLOGICAL CATEGORIES	DIMENSIONS SEMIOTICS OF LANGUAGE	DESIGN FUNDAMENTALS	DESIGN FUNCTIONS
FIRSTNESS	Syntactic	Form	Aesthetics
SECONDNNESS	Semantics	Meaning	Symbolic
THIRDNESS	Pragmatics	Function	Practice

Source: Author, 2022.

Table 2. Gramaticalmetabols

	EXPRESSION	CONTENT
WORD	metaplasm	metasememe
SENTENCE	metataxis	metalogism

Source: Author, 2022.

Table 3. Intentions and Objectives of use of metaphors by the designer

	EXPRESSION / Metaplasm	CONTENT / Metasememe
What is the purpose of applying the metaphor?	Syntactic references	Semantic References
What is the intention to apply the metaphor?	IDENTIFICATION assist users in recognizing the product and understanding the category to which it belongs. intuitively familiar gesture selection and application that can allow users to understand new or complex usage situations.	EXPERIENCE attribution of an abstract symbolic meaning to a product to tell a story. promote (or criticize) an ideology by incorporating an ethical, social or moral message into the product through metaphorical association Creating a surprising, unexpected or incongruous association between target and source triggers a pleasant reaction

Source: Author, 2022.

Identification: A product must evidence in its body information so that the user can infer its use, identify it or identify its function, its uniqueness. This is done using similarity primarily of form, but also of use and operation.

Experience: Metaphors can also be used with the intention of promoting richer and more emotional sensory experiences. This can be achieved by telling a story through the product, attaching an ethical or moral message to it, or creating something fun and witty. The following table summarizes a designer's intentions when avail of metaphors. As well as the fundamental dimensions of the products and the semiotic categories of language, the intentions of using metaphor are not exclusionary and coexist in an integrated way in the project that gives rise to it, highlighting with greater emphasis one or the other in each product.

RESULTS

To generate a metaphor, designers select a source meaning to associate with their product according to a variety of intentions. The selection begins with the perception of the relevance of this potential source to the target and with an adequacy of the intended meaning itself. To emphasize the solidity of a pair of skates, for example, a designer could use a font recognized for its speed and complexity: rockets or high-tech missiles. Other things such as cheetah, lightning and airplane are also fast, but do not demonstrate this property as the most prominent, or even have an associative use already established. In this sense, the source can come from any domain: other products of different categories, historical or cultural artifacts, natural entities, biological and geological phenomena, all living beings, all artificial nature already created, works of art of the most different eras and styles and also actions and gestures. The linguistic characteristics of Design are once again evident. After finding a source meaning to associate with the target artifact, the designer needs to consider how to communicate this to the user. At this stage, the metaphor is physically applied by transferring source clues to the target, that is, incorporating the specific details of the source or the general character into a newly reworked target. These suggestions should be the most prominent or salient properties displayed by a source, or the reference to that particular source will not be identifiable.

If someone intends to make a metaphorical reference to a cloud when designing a chair, for example, coloring the chair in white would not be enough to evoke that reference. To communicate the unambiguous source, the designer would need to (also) transfer other typical attributes of a cloud, such as cuteness, cotton and steam appearance. These properties are processed by the designer and suitable for the target artifact, transferring to it sensorially. In this way, the designer can use multiple transfer modes, which can rely on seven initial categories:

- **FORM** - The most effectively used medium. Fashion properties involve most of the product metaphors, and use specific details borrowed from the source meaning, such as the similarities of the Ferrari perfume packaging and the Ferrari automobile.
- **INTERACTION** – In general, used to educate the user about how the product should be used or operated. The way to interact with the source meaning is incorporated into the functionality of the target artifact: digital book readers virtually incorporate the turn-the-page gesture, as well as in physical books.
- **SOUND** – Covers, brackets and fittings can emit projected sounds: refrigerator doors that emit a differentiated sound when opened, car doors that sound heavy when closed; pen caps, pots and plastic containers with latch that have particular sound.
- **MOVEMENT** – A property that arises when part of the product or all of it, move and in this movement behave like the source: flip phones and their reference to the notebook, for example.
- **MATERIAL/TEXTURE** - A very recurrent property in the products. A simple example is metallized plastic trays that incorporate a source meaning attached to metal.
- **SMELL/FLAVORS** - Property that has been shown to be very efficient in the identification objective, but still little used. Melissa's products have a very characteristic sweet smell and are examples of using these properties.
- **NAME** – Name transfers imply a transfer of meaning: the user must gather the clues and build the reasoning that will make the use of that name meaningful. The Favela chair designed by the Campana brothers, despite the construction of the form and material, has in its name a more effective appeal for its meaning.

In general, it is clear that these modes of transfer of meanings do not occur in isolation.

As explained, the product is the result of a fusion in a single body of the target and the source and results in multimodal metaphors, with several references simultaneously (HEKKERT, 2015). These, in turn, can be projected in a literal or abstract way, with different levels of incorporation. A designer can make this adaptation quite basic by literally transferring properties from a source directly to a target, for example, causing the blade and handle of a knife to be like the blade and the handle of a samurai sword. A more elaborate strategy would be to adapt the source to the target, extracting its "essence" and infusing the target into it. As exposed in the work, the use of a product metaphor is clearly in the hands of the designer. However, there is one part that is not under control: user interpretation. As much as designers do their best to communicate their metaphor as clearly as possible, several and recurring types of communicative failures happen, reducing the efficiency of this exchange of meanings. Since it is a communicative process, users build their own interpretations of a product by combining its resources with its repertoire, expectations and previous experiences. In the case of a metaphor, it must be a cooperative, two-way and free act.

Whenever a designer presents a metaphor, there is a risk that the inferences taken may not be the intended ones. In this sense, the interpretative flaws result from three situations: from the designer not providing perceptible clues to the identification of the metaphor; users may assume that a metaphor in a given product is intentional, but not "draw" what the source is; users can misinterpret what the designer's intention was. Interpretation cannot be fully controlled because different people will construct different meanings depending on the context in which the product presents itself. As metaphorical communication is ambiguous, in addition to situations in which the intended metaphor is not recognized, what it refers to can also evolve over time or through use. In addition, the experience of a metaphor can also disappear over time, as with metaphorical expressions used extensively in our daily lives: the metaphorical power of a product disappears after encounters and frequent uses. The metaphor becomes an integral part of the user's knowledge structure and gradually disconnects from its origin. As with linguistic metaphors (we quote the expression *dead fly* to illustrate) the recurrent use stereotypes the meanings of products, erasing awareness of the linguistic phenomenon. In these cases, we speak of a "dead metaphor", such as in the design of digital interfaces, which are now seen as a category of their own; its form is no longer seen as a metaphorical reference to older analog interfaces. To be effective as a communicative function, metaphor must find a balance between its clarity and its interest, because even when metaphors are recognized by users, they may not be appreciated: they can be very intelligent, very forced or incomprehensible. It is necessary to identify what the reference is and whether this reference makes sense. Curiosity comes from the novelty of the metaphorical idea and the subtlety of the manifestation. For this reason, Hekkert (2015) clarifies that elaborating a product metaphor and solving the mystery it presents to us is what makes the metaphor attractive. And to create this mystery the target source relationship may not be so obvious, but enriched with subtleties and well-distributed clues in the product.

DISCUSSION

In the design of a product, it is always present a communicative intention (Nojima, 2006), which leads us to approach Design as a language, considering semiotics for this purpose. And if communication consists in "transmitting any influence from one part of a living or machine system to another party, in order to produce change" through messages, as Santaella (2006:2) indicates, a linguistic character is reaffirmed in the projected products. Our introduction sought to relate in a didactic way Design and Language, making analogies and references of one field with the other. We conceptualize Design as language, considering beyond the premises of the field of Communication, the theoretical support of Semiotics, understood as a structured system of signs and production of meanings. By deepening the themes of Linguistics in section 2, we seek to clarify the very close relationships between the projective reasoning involving the use of metaphors and the semiotic support of Design.

We highlight again the idea of Eco, which states that "the form denotes the function only on the basis of a system of expectations and habits acquired, and therefore based on a code" (2005: 200). And such code consists of Design. Thus, it is observed that Communication is concerned with the processes of production and consumption of messages and that in Design are present phenomena that can be analyzed from this perspective as the Figures of Language, adding, subtracting, exchanging meanings, in order to achieve a poetic or stylistic effect in communication. We dedicate a section only to clarify the figure Metaphor, which we take as a foundation. The section also connects the theoretical fields of Linguistics to Design, indicating the existence of *Metaboles* that can be classified as *Metaplasms* and *Metasmenmas*, which are the Syntactic changes and Semantic changes, respectively. It is important to recall the particularity of the metaphor in Design, which is the materialization in a single object of the references, both of the source and of the target. For this reason, the use of Metaphor involves an assumption-knowledge and creates an aura of mystery to which human beings remain curious to solve. In this sense, the Designer renders the metaphor in a physical form, translating abstract concepts into concrete properties of the product, hence the search for a deeper in the linguistic issues of Design that allows the more conscious use of references and even the intelligent exploration of metaphors. The classifications in Sections 4 were intended to show the richness that can be found in the generation and conscious application of metaphors, a process that we believe is a fundamental contribution to the ever-increasing field of user experience as well as product design. A designer's possible intentions were listed when making use of metaphors, as well as the variety of means at his disposal. As indicated, the separate categories in both classifications are not mutually exclusive, i.e. various intentions and different means combine very well, and our list is probably not an end point. We hope that our ranking will inspire others to identify categories we've lost, including expanding the level of analysis to an Object System. Also in section 4, we clarify that metaphors can be misunderstood and can give rise to several (erroneous) interpretations. We can reasonably conclude that metaphorical interpretations reside primarily in the observer. However, if a designer primarily intends to clarify what a product is for, or how it should be used, it is best to avoid the possibility of more than one interpretation; obviously, the metaphor should be clear and easy to understand. Experiential intentions, on the other hand, allow richer, more complex and more original metaphors.

CONCLUSION

The meanings/functions of any industrial good are associated with all possible interpretative responses and practical consequences derived from the social and also with individual responses that produce or could produce. In this sense, metaphor can be much more than a resource of style and creativity. In a world where we are immersed in metaphor and produce, like it or not, metaphorical images of the world, learn to read metaphors and learn how to produce them in an increasingly rich, more open and deeper way is the unappealable duty of every producer in a way like the designer. According to this thought, just mapping the source properties and transferring to a destination is not enough for the product to be interpreted as a metaphor. The use of metaphor should involve some form of transference, mainly of meaning, which modifies the experience of a product as a whole. If this is not the case, then there is only juxtaposition, not metaphor: a sofa that has the shape of a bear and a flower-shaped shower has shapes that have nothing to do with its use and meaning. They involve a physical mapping from origin to target; but not one make a meaningful conceptual association between these entities. In our definition of a product metaphor, as long as a designer (or user!) knows that two entities have been combined with a meaningful purpose, the result becomes a product metaphor. Throughout this article, we saw the metaphor in its relationship with the design of products, building a system of meanings. We begin by showing how metaphorical thinking is part of our perception of the world, and then gradually explore the specifics of a product metaphor and how designers can utilize.

Our goal was to reveal the power of design language and the inevitability of the use of metaphors in design practice, and thus inspire designers to generate good metaphors. However, the overriding issue here is not the possibility of projecting with metaphors or not. The point is to become a designer more aware that metaphors can be actively generated, experienced and studied, as we intended to show in this article. Since metaphors already make up design practice, we can delve deeper into its theoretical aspect and provide means for designers to understand how to apply metaphors in a way that leads to positive experiences with products.

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