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Theoretical structure of metaphors in emotional design

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Abstract

The concept of metaphors, originated from linguistics and rhetoric, has often been employed as a method by which designers express their emotional inspirations and intangible design concepts. As Lakoff and Johnson (1980) defined metaphor as "understanding and experiencing one kind of things in terms of another", metaphor can be used to help designers to express the abstract and intangible substance of a design concept (something) through a metaphoric expression (something else). Since a figurative comparison is a part of our cognitive process to make sense of our world, designers tend to use a metaphoric comparison between a design offering and a design concept they want to connote to. The original rhetoric structure of metaphor, "X is Y", however, is sometimes improperly employed and used in limitation by designers, especially for students or novice designers. As a result, they sometimes produce a clichéd design outcome (e.g. kitsch) that is just a visual mimicry of a proposed metaphor. The visual resemblance of a metaphoric expression, however, is a limited way of using metaphor in a design process, which is closer to "similes", whose rhetoric structure is "A is like (as) B". Given the confusion above, this paper attempts to investigate the fundamentals of metaphors and proposes the syllogistic configuration, "X is to T what T is to Y", where T refers to the attributes of the metaphor and the concept of new design. Furthermore, a diagram to compare the attributes of both target and source is proposed to emphasize the association of the metaphoric design rather than taking its visual appearance only. Potentially, I hope this study helps designers to see metaphor not just as a complete and static image but as a way to create a manifold relationship so that they embellish their new design concepts and emphasize distinctive product properties.

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1. Introduction

Metaphor is a figurative language defined as "understanding and experiencing one kind of things in terms of another" [1]. It literally relates one thing to another unrelated thing to highlight certain associated attributes between the two. Rhetorically, metaphor is more powerful than simile because it does not use any distancing words such as "like" or "as" but equates the two things to achieve such effects as association, comparison or resemblance. In design, metaphor has often been employed as a way to stimulate people's imagination so as to let them comprehend partially what is difficult to understand such as feelings, aesthetics, moral practices, spiritual awareness, etc. Due to such natures, designers tend to use metaphor in order to design emotional products through a figurative comparison between the source of metaphor and their design outcomes. However, it is also true to say that some (e.g. students or junior designers) inappropriately or naively use metaphors, which may result in clichéd or kitsch-like design works that look mostly like a literal or visual mimicry design. In design education, particularly, it is critical to provide a clear explanation of the fundamentals of metaphor so that students could employ the method without confusion.

In this paper, the author argues that it is critical for designers to understand the fundamentals of metaphors to employ it appropriately during a design process and discuss the theoretical background of metaphors. Specifically, it has been emphasized that the importance of identifying the attributes of a metaphoric expression by elaborating the rhetoric structure of metaphor, "X is Y", to syllogistic structure, "X is to T (attributes) what T is to Y", which emphasizes the relationship between the metaphor and that of design concepts. Based on the understanding of this fundamental, this paper argues that metaphor should not be a complete and static image but as a way to create a manifold relationship between a design concept and our experience so that designers are able to explain the abstractness of their design concepts to *more concrete and tangible design solutions.*

2. Metaphor in design

The innate ability of metaphor is to "see something as something else". Through the inherent nature, metaphor has been understood as a figurative speech that helps designers to reinterpret an abstract design concept into a tangible design feature. [2] In other words, designers could use metaphor as a tool to communicate their design intent when it is difficult to explain such things as behavior, feeling, emotion, symbolic meaning, and humor. The *office* metaphor, for example, has been used to introduce the behavior of a new computer operating system (figure xx). Because a computer was known as a product mostly used in an office environment, the office was an appropriate source of the metaphoric expression to introduce the concept of the new system. Icons such as a folder, a trash can, a diskette are examples of the *office* metaphor that are commonly used in an office environment. Recently, the "*office* metaphor" is gradually replaced by the "*home* metaphor" due to the huge demand of new types of computers like a tablet PC and a smart phone, which are mostly used in a home environment rather than in an office environment (Figure 1).
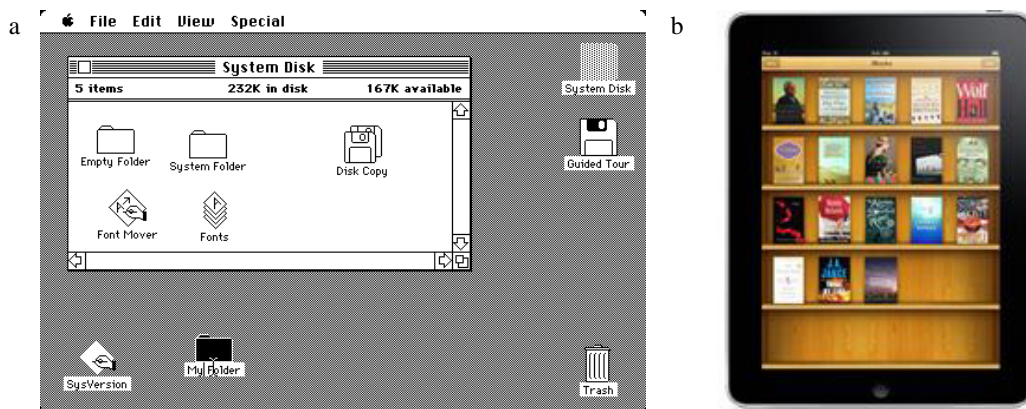

Fig. 1. (a) Office metaphors; (b) Home metaphors.

However, designers, particularly junior designers or design students, are often found to use metaphor improperly or have a difficulty in appropriately employing it in their design process, which results in literal and/or naïve design outcomes. Some serious product designers disregard metaphoric features on a product's presence and consider the feature as a naïve form of kitsch, an expression of bad taste. To overcome the discrepancy and to employ metaphor in a more proper manner in product design processes, the author attempts to investigate its theoretical background and proposes its proper application in the practice of product design because without such proper explanation, metaphor might create a great confusion.

3. The syllogistic structure of metaphor

In the book, "Metaphor we live by", Lakoff and Johnson (1980) emphasizes that "the essence of metaphor is understanding and experiencing one kind of thing in terms of another". This definition, then, can be explained by an equation, "X (one things) is Y (another)", where X is called a target and Y is called a source [2]. In the conventional metaphoric expression, 'Time is Money', for example, *time* is a target and *money* is a source, and the abstract nature of the target (i.e., *time*) can be concretized by the characteristics of the source, (i.e., *money*).

$$X \text{ (Target)} = Y \text{ (Source)}$$

The conventional metaphor, then, can be sharable with people living in the contemporary era because it is reflected by our everyday life situation (Table 1). Hearing this metaphoric expression, thus, provides people with immediate emotional attachment because of the closed association between the target (i.e., *time*) and the source (i.e., *money*).

Table 1. Metaphorical concept "Time is Money" in contemporary English [1]

You're wasting my time.
This gadget will save your hours.
I don't have the time to give you.
The flat tire cost me an hour.
I've invested a lot of time in her.
You're running out of time.
Do you have much time left?
I lost a lot of time when I got sick

These metaphoric expressions create immediate understanding because we share the ideas that "Time is a valuable commodity" and "limited resources" that we use to accomplish our goals. Upon hearing a metaphoric expression, however, we also immediately recognize that the target and the source are not the same. Because the target and the source are not the same substance, it is important to understand the association between the two.

Aristotle (1946) said that "metaphor should be considered as a syllogism of which the middle term must be found, developed, or constructed by the listener (or observer) in order to understand the metaphor." This statement is important because it provides rationale to expand the conventional metaphoric structure; X is Y, by placing an item T in the middle referring the association between target and source. Thus, the basic equation of metaphor should be

$$X=Y \text{ at the same time } X \neq Y$$

"X is to T what T is to Y".

Fig. 2. Equation of syllogistic structure of metaphors.

Then, the given metaphor, "Time (X) is Money (Y)", the attribute (T) should be an intrinsic nature of both *time* and *money* that we share in our experience such as a "limited resource" and a "valuable commodity" [1]. Thus, the equation, X is Y, should be revised as "X is to T what T is to Y" [4]. In other words, it means that "if X is Y in a metaphorical sense, then the T is located in the middle, so that X is to T what T is to Y."[4].

3.1. The syllogistic equation of metaphors in literature

By employing the syllogistic equation discussed above, let's take a look at how a poet employed a metaphor in writing a poem.

Fog

The fog comes
on little cat feet.
It sits looking
over harbor and city
on silent haunches
and then moves on.

Carl Sandburg (1878–1967).

Through his creative imagination, the poet tried to describe his feeling about fog in a harbour by employing a metaphor, "a cat". Due to the similar innate nature between fog (i.e. target) and a cat (i.e. source) such as mystery, sneak and slow, grey or white colour and silence, soft, etc., the poet attempts to jog readers' memory and experience between the two to guide readers to see what he also feels. In this situation, the immediate recognition of the association between the target and the source is critical because metaphor is a comparison of two unlike things with no comparison words (like or as) being used.

Like poets, designers often employ metaphor from existing things during their design process. For example, a car designer often chooses an animal like a shark, an eagle or a horse as a source of metaphor because those animals have inherent characteristics that can invoke the similar characteristics of a car they want to express such as strength, speediness, aggressiveness, and power. By adopting the syllogism above, then, a metaphoric expression, " the X (a car) is Y(a shark)" can be developed to

" *if X (the car) is Y (a shark) in a metaphorical sense, then the T (e.g. strong, speedy, fast, aggressive, and powerful) exists between the two, so that X (the car) is to T (the attributes) what T (the attributes) is to Y (a shark)."*

In the metaphoric expression above, the intended attributes of a car (e.g. strong, speedy, fast, aggressive and powerful, etc.,) can be made clearer by borrowing tangible characteristics of the metaphor (i.e. a shark). In this way, the metaphoric design invites comparisons between a target and the source to express design concept, emotion, and point of view in a figurative way. For example, the salient and aerodynamic line of a shark can be incorporated into the design of a car and the meaning associated with the shark (e.g. powerful, fast) then becomes attached implicitly to the car (Figure 2).

Fig. 2. A car design whose metaphor is a shark.

3.2. Metaphor as experience

In a metaphoric design process, designers have been led to think of metaphoric expressions such as "a car is a shark, a chair is a flower, and wine opener is a lady" and so on (Figure 3). Usually, the selection of the sources of metaphor comes from the unique combination of designer's experiences and imagination, or sometimes just happens by accident. Specifically, the experiences should be natural kinds of experiences which are products of human nature in the following sense;

- Experience through our body: perceptual and motor apparatus, mental capacities, emotional makes up, etc.
- Experience through our interaction with our physical environment: moving, manipulating objects, eating, etc.
- Experience through our interaction with other people within our culture: in terms of social, political, economic, and religious in situation.

The experience is then conceptualized and defined in terms of other domains of experience like a shark, a flower, or a lady through designer's imagination. In this situation, designers should use metaphor carefully. For example, instead of directly borrowing the visual appearance of the source of a metaphor which often causes a literal design, designers should see metaphor to establish coherence understanding of a proposed design concept based on sharing experience (e.g., a car looks like an actual shark). However, it does not mean that a literal design is wrong and prohibited. As long as it has strong rationales to explain why the way of "literal" works in terms of enhancing the concept of the new design, the literal design would be completely fine. For example, the juice carton container (Figure 4) designed by Naoto Fukasawa, presents strong rational for using a literal design because of the resemblance to the objects the design is intended to represent, which provides consumers with quick comprehension of their intended use. The carton design literally resembling actual fruits invokes strong emotional association with freshness among their users.

Fig. 3. Examples of metaphoric design whose source is a shark, a flower and a lady.

Fig. 4. Naoto Fukasawa's tactile juice boxes.

Offerings	Attributes
Car	Strong, speedy, fast, aggressive, powerful

Attributes	Metaphor
Dangerous, fast, aggressive, powerful	Shark

Fig. 5. A chart to compare the attributes of both a design offering and a metaphor.

4. Evaluation of a metaphoric design

It is important for designers to select appropriate metaphor. Often, designers make a mistake by selecting an inappropriate metaphor to represent the whole concept of a design. As it is understood "to see something as something else", metaphor could help designers to see the abstract and intangible substance of a design concept (something) through a metaphoric expression (something else). Because metaphor has been used to make sense of the world, designers prefer to use them to make sense of the things that they design. At the beginning of a design process, designers are asked to design something by clients providing specific attributes of the design or develop the attributes by themselves which are normally in abstract terms such as modern, sleek, powerful, beautiful, elegance, speedy, masculine, etc. Based on the designer's previous experience with a kind of "poetic" imagination, he or she suggests new (generative) metaphor that may inspire new uses or emotional attachment with products they design. To visualize this process, the chart can be filled out by a designer to compare the attributes of a product that they are designing and those of metaphor they want to employ.

For the purpose of evaluating whether metaphor is appropriately used, this paper suggests the quadrant map below based on the clear understanding of the association between *target* and *source*, and the quality of the execution of the association in metaphoric design. (Figure 6).

The first quadrant of Figure 6 (upper right corner) represents the products that represent clear association between the product and the metaphor, according to the immediate recognition of design intents. Figure 6 shows the example of the ashtray that helps smokers to quit smoking. The shape of a human lung as an ashtray gives a message of warning how smoking makes their lung in bad shape. This is the good example to point that, the association between the target and the source is well related each other and the source of metaphor were properly used. The second quadrant of the map (bottom right corner) represents a product that has a clear association but a poor execution in design. The attribute, beauty, from a flower would be a good association for designers to design a beautiful chair; however, it is poorly execute and is too literal. This is the case where a literal design is made by junior or student designers. The third quadrant (bottom left corner) contains the products that have poor association and unclear association. There is the no logical association between a human heart and tomato ketchup bottle, though there is an intended metaphor with the ketchup and the blood, but has no relevant association between the two. The last quadrant (upper left corner) is the place where products have unclear association between *target* and *source* but good execution are located. The lamp in the map shows only visual resemblance of the light bulb with an ice cream to create only a fun aspect. It seems to be "simile-like" design which is literal but not much meaningful to the product.
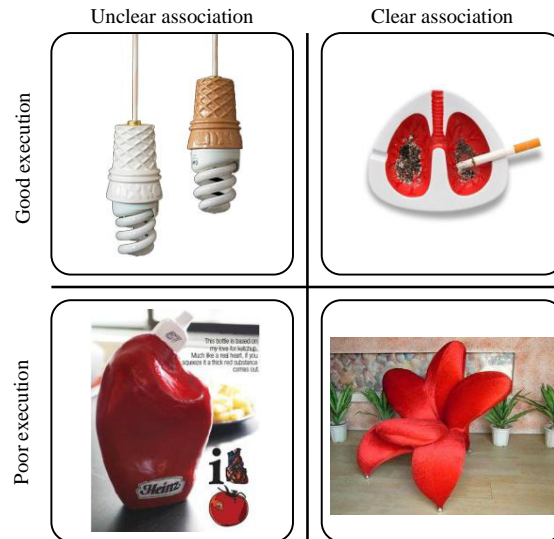
Fig. 6. The quadrant map based on association of metaphor and design execution.

5. Conclusion

The primary objective of this paper is to investigate the theoretical background of metaphor so that designers can use it as a tool to improve the effectiveness of their design outcomes. As it makes the abstract and unfamiliar design concepts to concrete and familiar, metaphor provides a richer way to understand, reason and infer the abstract design concepts. The current paper argues that the clear understanding of the theoretical background of metaphor will be the touchstone to guide junior or student designers to employ an appropriate metaphor for their design process and proposes syllogistic structure of metaphor instead of a dichotomic structure.

It is also asserted that a new and generative metaphor suggested by designers has to be based on cultural and social congruence with others; otherwise, the inappropriate and unfamiliar metaphor can cause errors, anger, frustration, or disappointment. Finally, the quadrant map to evaluate the relevance of experiences of suggested metaphor is proposed to assess the appropriateness of the metaphoric design by individual designer as well as other members in a project team. [5] In this sense, metaphor could support a team to maintain a common understanding of a project and makes it easier to negotiate our physical and contextual experiences with the suggested design.

In conclusion, this study emphasizes that metaphor should be a medium for designers to rationalize their novel design concept, to help to identify desired attributes of a product they design and enhance to visualize the attributes into certain form or function so that it gives a clear sense to its users.

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