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FOUND IN DESIGN TRANSLATION

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ABSTRACT
During any iterative design process some versions are of such character that they go beyond design iteration and constitute what could be called a design *translation*. Design translations can generate an important step forward in the designers understanding of the problem or product. In language translation, an idea can be rendered more clear through alternate language idioms, so too design translation can clarify the design idea through alternative renditions. Design practitioners who become skilled design translators may possess a more robust and reliable problem solving process. This paper proposes a theoretical basis, through Heidegger, for the value of design translation, and uses examples from the work of Eames, Jacobsen, and Prouvé along with a studio project to illustrate translation in design practice.

Keywords: Translation, language, essential, design theory

1 TRANSLATION OPENS UP A SPACE

The goal of language translation is to interpret the meaning of one text and to produce an equivalent text that conveys the same meaning in another language. In many cases there is not a word for word correlation between the source language and the target language. The translator strives for equivalence. Translation is a discipline that requires the translator to work within constraints of context, grammar, idiom, etc., to produce a competent rendering. Many view translation as an undesirable distortion of the original, always losing something that can never be fully expressed in the target language. The familiar term "lost in translation" succinctly articulates this point of view.

Martin Heidegger's thinking about translation offers another position. He views the problems inherent in translation as opportunities for further understanding of our own language. Parvis Emad, in his article about Heidegger's views on the subject, points out "The difficulty of attaining a total identity between languages and the irresolvable difference between translated terms, along with the existing differences between languages, provides translation with a unique revealing power." [1] Heidegger believes that "Translation is an awakening, clarifying and unfolding of one's own language by coming to grips [*Auseinandersetzung*] with the foreign language." [2] By confronting another language we are encouraged to examine our own. As such, the process of translation is not only an exchange between languages, but also most importantly a way to get at the core of a language.

Emad further explains that Heidegger's writing on translation also includes the concept of essential translation. Essential translation, according to Heidegger, is not an unambiguous word-to-word match between two languages. It is rather an instance of the target language "putting forth" a word (or words) that receives as translation the word of the source language. For example, Emad continues, in order for the "saying" of the Latin word *ratio* (calculative way) to be conveyed, German puts forth two words, *Vernunft* (make sense, reason) and *Grund* (grounds, reason, foundation) to receive the idea into German thought. [3] When the thoughts behind a word of one language truly meet the thoughts behind a word in the other language, when this depth and accuracy of connection takes place, it is called essential translation. Essential translations mark the instance of the revealing "showing power" of language.

Heidegger said, "Somehow, through language, the process of translation liberates the essential from the confines of chronological time, bringing subjects into non-linear, reciprocal relationships of understanding and application. Translation brings to the fore what is hidden in language, by opening a space."

This "space" can be revealing and may be used by the reader to better understand the essence of the concept, the meaning of the word and the languages in question. Can the practice and theory of

language translation inform design theory and practice? Could Heidegger's premise of essential translation be used as a criterion to help analyze the processes and products of design? Could designers use translation as a way to investigate a problem? Could thinking about language translation instruct design pedagogy?

2 EAMES TO JACOBSEN

The molded plywood chairs designed by the Eames office and produced by Herman Miller inspired Arne Jacobsen. [4] His translation of Eames' 1947 DCM Chair (Figure 1) to his own 1952 Ant Chair (Figure 2) is a rich instance of design translation. Both chairs are lightweight, strong, compact, and sculptural. They are essentially made of the same materials in a similar configuration. They differ from each other most obviously in two ways. Jacobsen's method of attaching the steel frame to the plywood seat and back is an intelligent reworking of Eames' system, designed to achieve a similar flexible effect. More tellingly, Jacobsen's original Ant chair has only three legs, a reductive practice that has long signified Danish furniture design.

Figure 1. Charles and Ray Eames' DCM Chair

Figure 2. Arne Jacobsen's Ant Chair

Jacobsen's Ant Chair design is a response that corresponds to the idea of the Eames' DCM chair. In other words, his translation unfolds a Danish "way of saying" molded plywood chair. He did not design a common copy of the Eames chair, but rather responded to the same essential idea that Eames did, received what Eames put forth, and expressed it in his own vernacular. As such, Jacobsen's response was an essential translation. His chair shows another way to the root idea and also points to the specific nature of US mid-century design as differentiated and clarified by Danish mid-century design. By attempting to get at the same idea using a somewhat different design language, the overall concept is brought into sharper focus and the revealing nature of translation is demonstrated.

3 MATERIAL TRANSLATION

During the iteration process, material investigation can "open a space" for finding the essential nature of the concept. The materiality of an object is at the core of how that object manifests itself to us. A design process that involves material translation can help the designer discover what is an essential material expression for a particular product.

Jean Prouvé's well-known side chair is an iconic design that can serve to illustrate how material translation can bring a fuller understanding of an object to the fore. The Standard Chair (also known as Chair no.4) is a sturdy practical chair that was first produced in France in the early 1930's. (Figure 3) It has wide folded steel legs in the back and tubular steel legs up front. With various versions produced throughout that decade the most well known version was produced in 1935 with a curved plywood seat and back. It was deployed widely in many French institutions and scores of Lycée students daydreamed through classes in this chair. [5]

Because of material shortages during the World War II, the Standard Chair underwent a material translation. The Atelier Prouvé redesigned the chair entirely out of wood. Through necessity a translation of the Standard Chair was produced. The wood version was made in oak and joined by visible tenons with a molded seat and back. (Figure 4) The shape of the leg follows generally the

shape of the steel leg, but in wood they loose the efficient, streamlined quality and appear clunky and a bit awkward. Though the chair as a whole is still solid and practical, this all-wood version is mostly unremarkable.

Figure 3. Jean Prouvé's Standard Chair

Figure 4. Jean Prouvé's Wood Standard Chair

The leg forms of the original metal version were derived from the properties of sheet steel and the processes used to fabricate them. "It was sheet steel that inspired me–folded, pressed, ribbed, the soldered," Prouvé said referring to his favored material. [6] Now realized in wood these leg forms are somewhat derivative of the earlier manifestation and have lost much of the form rationale that made the Standard chair so appealing. In terms Heidegger might have used, the wood translation is not an essential translation. It does not "make a way" to the idea of the original Standard Chair. It merely copies the form of the leg in the original material to the same form in the other material. This practice misses the root meaning of the original, namely that the material properties and production processes significantly determine the form of the chair. Those properties and processes differ considerably for wood and therefore, to be an essential translation, the form would likewise differ considerably. The essential nature of Prouvé's steel Standard chair is better understood when analyzed in relationship to the inferior wood translation.

Surely Jean Prouvé did not need this exercise of material translation to understand his Standard Chair was at its core a steel-legged chair. He probably would agree with the assessment that the wood version is inferior in many respects. But through this example we can see, when confronted with a translation (even a poor one,) we turn back to the original now viewed in sharper relief.

Material translation can bring a greater understanding of the impact of material choice on product form, a greater awareness of the essential nature of an object, and how a design pursuit can be used to gain these insights.

4 VIRTUAL – PHYSICAL TRANSLATION

Translations from virtual to physical and from physical to virtual states are major instances of design translation. Translation between these two states allow for non-linear simultaneous relationships to be created. These relationships can be revealing for the design student. In order to provide my students with a structured way to experience this type of translation, I created an exercise for freshman design majors.

The exercise involved a number of sequential steps, with group analysis and discussion at each step along the process. First, students drew a series of freehand curves on paper, studying the speed, direction, trajectory, gravity, etc., of the lines. Then students used 3D modeling software to recreate these lines on screen. The intention was not to copy exactly these lines, but to draw equivalent curves given the software tools available. Then they chose some of the curves to revolve around an axis and generate a revolved 3D solid. (Figure 5) Printouts of these solids were critiqued in class and revised. At this point each student had a series of computer generated virtual models along with their generating curves.

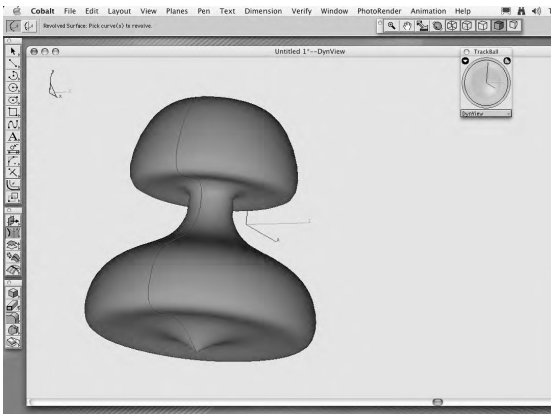

Figure 5. Revolved 3D solid model with curve

Figure 6. Turned plaster form and set-up

So far in the exercise, students have experienced one design translation, from hand-drawn curves to 3D models. The next step was to translate virtual models to physical models. To do this, students printed a generating curve and used it to make a template. We then used these templates as shaped scrapers along with a plaster turning wheel. Using this set-up, students made a series of turned plaster forms that corresponded to their 3D virtual models. (Figure 6) Again, not intended to be exact copies but equivalent translations. We also used these solid plaster models as patterns to create molds in order to study the solid form compared to the corresponding negative void.
The final translation in the project was to collect the output of turned plaster forms and create a stacked column to exhibit. (Figures 7 & 8) This last step was a way to amplify individual students' work by creating a cohesive composition to represent the class effort.

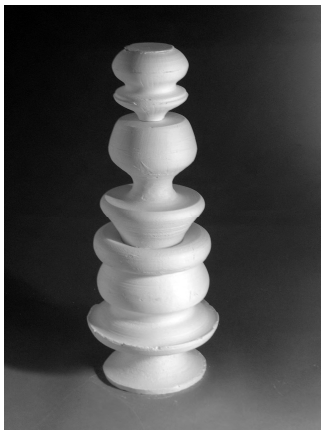

Figure 7. Stacked plaster forms

Figure 8. Hanging column of plaster forms

Perhaps the most instructive translation in this process was the move from computer generated virtual models to hand generated physical models. This step generated a number of vital discussions throughout the project. These beginning students are quite familiar 3D animated virtual objects experienced on-screen. They are also, of course, familiar with physical objects around them every day, although much less familiar with making them. But the process of translating from one to the other sharpens their awareness of the issues involved and raises salient questions.
Some of the questions posed by this assignment include: How is the presence of the plaster model as a volume and mass experienced in physical space? How is the virtual model experienced? What is the relationship of the physical and virtual objects to the body? What is real and how is reality determined or experienced? What effects do material expressions have on perception? What is a prototype? How is it defined? In what ways could this translation exercise affect design process? Etc.

5 CONCLUSION

Perhaps the conclusions drawn herein can be beneficial for the theorist, the designer and the design educator alike.

Heidegger's theory of essential translation can serve as a construct to think more deeply about the process of design. The phenomenon of one product of design influencing another, sometimes described as "inspired by" is perhaps more beneficially circumscribed by the concept of essential translation, one designer "putting forth" an idea as a way of receiving the idea of another in his own manner of "saying."

We have also seen that when a product undergoes a material translation, it can serve to demonstrate not only what materials may be most appropriate for that particular product, but it may also turn the designer to view the original idea with more clear vision.

Furthermore, exercises that attempt to provide students with virtual-physical translation experience can be used to generate rich and relevant discussion centered on the simulation-actuality problematic.

REFERENCES

[1] Emad, Parvis. "Thinking more deeply into the question of translation: essential translation and the unfolding of language" Ed. Christopher I. Macann"Volume III: Language." *Martin Heidegger: critical assessments*. New York, NY: Routledge, 1992, p.61.

[2] ibid.

[3] ibid., p. 71.

[4] Mount, Christopher. *Arne Jacobsen*. Ed. Marissa Bartolucci and Raul Cabra. San Francisco, CA: Chronicle Books, LLC, 2004. p. 14.

[5] Rowlands, Penelope. *Jean Prouvé.* Ed. Marissa Bartolucci and Raul Cabra. San Francisco, CA: Chronicle Books, LLC, 2002. p. 13.

[6] ibid., p. 11.