Metaphor and Metonymy in Mobile Interface Design

Essay Catalyst

The use of metaphor and metonym are crucial to user interface design, especially for the mobile landscape, because we are investigating those signs, signifiers, and sequences that relate to some fundamental and deep-rooted structure of how humans interact with their visual environment; a visual environment that has been augmented with portable electronic devices.

Abstract

Tremendous amounts of research and effort are being focused on the design (drawing) and development (programming) of user interfaces for consumer products and digestion of electronic information. This makes sense because the interface, the interactive space where a human manipulates and connects with electronic data, can establish an emotive connection between the human user and their device that has numerous effects in the business, cultural, and pedagogical spheres. Yet most of the information collected and published lacks reference to the fundamental aspects of human interpretation of imagery- there is little discussion of how metaphor and metonymy elicit emotive and cognitive effects within the human user. Additionally, the usage of fundamental design principles can easily be pointed to in the creation of any user interface, but again, a discussion of why certain imagery resonates with humans and how that can be manipulated is lacking outside studio lunch breaks and classrooms.

So-called Introduction

This essay (as an attempt) discusses the deficiency of ‘art speak’ in the realm of user interface design where a conversation of human relation to metaphor and metonymy seems a good starting point for mending human relations to fine art principles with human relations to computer interactions. Through an understanding of the relationship humans have with metaphor and metonym, I believe we become empowered to create more effective user interfaces for the purposes of learning, entertainment, and advancing human cognition. The mobile form factor is chosen because it is arguable that our mobile devices are increasingly the most important tools for carrying out our daily tasks.

This work is inspired by my own interest in user interface design, specifically for mobile products (software and hardware), and discussions led by Charles Gaines, a Los Angeles based artist and teacher at the California Institute of the Arts. I am taking the definition of essay as ‘attempt’ and therefore do not intend this essay to be a totalization of the topic presented; I would rather it exist as a spoke in a discursive wheel of critical thought on art, design, and human interfaces.

The information presented here is not new- a remarkable amount of information regarding metaphor, metonymy, interface design, cognition, and linguistics has been developed over

centuries. The unique aspect of this contribution is the combination of these ideas. As this is not intended to be a formal attempt (I would call it pseudo-academic), and the amount of relevant literature available through search is great, citations are minimal, the language is at times personal, and any feedback can be directed to james@jamesbrush.com.

Attempt

The Setup- Historical Importance of the Metaphor/ Metonym Process

Metaphor, as utilized by the Greeks, was typically confined to the analysis and construction of poetry. For the Greeks, poetics were separate from the arts, which consisted of crafts- unlike our culturally agreed upon definition of the arts today which includes much more than masonry or metal fabrication. Interestingly, the poetic, which I'll define as an elemental representation of human emotion, persists in the contemporary critical discussions of art. When presented in the physical world, the poetic element is an interface between one human's emotive experience and another human's potential cognition. The ink on the page is the interface between humans. Of course, we do not need to stick with the Western reference of the Greeks, as other even more ancient cultures such as the Japanese or Egyptians, also heavily employed metaphor for the purposes of learning, task achievement, and emotional experience. Even further back, we can excavate the use of drawing in the caves at Chauvet. These indications of the metaphor and metonym arising so early in human development, and the persistence of their usage, serve to underscore the importance of understanding how these tropes function in society in our moment in the mobile landscape.

Quick Cognitive Linguistic Review of Metaphor/ Metonym

Theoretical considerations of metaphor and metonymy developed largely through the rise of cognitive linguistics and structuralist theory. Ferdinand de Saussure's work Course in General Linguistics is often cited as the first revelation of a dichotomy between metaphor and metonymy. Saussure introduces the vocabulary of langue and parole and immediately a distinction is made between the use of grammar (langue) and the spoken use of words for communication purposes (parole). For us, we can interpret from Saussure that metaphor relates to langue and metonym relates to parole. Plotting langue and parole on two separate axes, Saussure refers to the vertical langue axis as the axis of simultaneity and the horizontal parole axis as the axis of successions. Synchrony, a term evoking the shared language rules and constructions of individuals from the same language group, is embedded into the axis of simultaneity. Within the axis of successions, diachrony, or the evolving property of language, naturally resides due its time-related dependency.

Another important player in the metaphor/metonym investigation is Roman Jakobson who published his findings in "Two Aspects of Language and Two Types of Aphasic Disturbances," which details Jakobson's account of two aphasiac disorders named "similarity disorder" and "contiguity disorder." Where the similarity disorder deals with a dependence on syntactic context, Jakobson's contiguity disorder describes a condition of language that is independent of syntax that

essentially arrives in communication as a “word heap.” Essentially, word choice selections fall into the metaphorical category and the combination of words (syntax) can be categorized as part of the metonym camp.

The distinction between metaphor and metonym, and its proposed binary structure, are important for user interface design because this construct separates the elemental pieces of information that elicit user cognition (the metaphors) from the time-based sequencing of metaphor presentation (the metonym). Through a separation of the pieces creating the whole, it becomes easier to critique and analyze the entire interface. Breaking down the complex form into smaller, easier-to-analyze, elements is a process we undertake constantly, so it makes sense that if we want to better understand human interface design, we can naturally apply this task at the deep-rooted metaphor/metonym level. It also becomes easier to apply fundamental design principles (such as contrast or shape) as a second layer of construction to the individual pieces and help unify the interface- if each element is specifically designed (controlled), there is design (control) across the interface.

We can also appreciate the metaphor element in a visual interface as part of a system, a universal and fundamental biological system within all humans, which functions on the basis of the interpretation of signs through visual reception. All humans with the ability to visualize simultaneously have the ability to interpret metaphor- regardless of the fact that the interpretation could be different. On the other hand, metonymy by definition, is not a universal system- its effective use relies on a culturally agreed upon meaning based on a sequence of metaphors. This is critical to the development of user interfaces for people of different cultures; and the collapsing distance of communication and commerce worldwide heightens this criticality.

Breaking Down the Metaphor and Metonym

If we follow the teachings of Saussure, we are also introduced to the temporal and spatial facets of metaphor and metonym. This is appealing to interface design, and especially user experience design, because of the interest in the time and space based aspects of interaction. An interface can be analyzed not only in terms of navigation from one element to another on a screen, possibly employing Hick’s or Fitts’s Laws for testing, but also by the time elapsed during the cognition of individual metaphors presented. Using this principle, one could imagine mapping the initial designs of an interface based on the time it takes to understand the metonymic structure of metaphors- the design would appear as numbers in place of buttons, graphics, or other visual user interface elements.

Here, at perhaps the deepest and most fundamental level of design, the level of the metaphor and metonym, it is possible to begin construction of an interface that is highly designed with superior control over the presentation of elements and anticipated cognition of a user. At this level, by beginning the design process with the metaphor/metonym structure outright, there is extraordinary potential to achieve the greatest emotive relationship between and amongst a human user, their mobile tool, and the designer (company or individual). In terms of capitalism (or hyper capitalism) and the corporate environment, customer satisfaction, brand loyalty, and the bottom line can be maximized. In terms of human development, there is the potential to maximize learning, interpretation, and task achievement. The processes of mobile users, including conducting business, communicating with others, enjoying entertainment, and fulfilling personal satisfaction through information gathering and memory casting, can all be heightened when design occurs at the metaphor/metonym level.

Of course, this process is already employed- icons represent other things, the layout of an application may represent the layout of another more familiar interface. Since we understand our world through metaphor/metonym, it's obvious that we would reconstruct other visual worlds by the same process. However, there is a lack of documentation of the use of metaphor/metonym in user interface design and user experience literature and an almost unconscious use of the binary in design and development. We tend to take the usage of the power of metaphors and metonyms for granted.

In most user experience literature, there is a scientific approach to understanding visual interpretation; and inherently in any scientific examination, there is study bias arising from several factors (in the study environment, in sampling [amazon mechanical turk], user tasking, participant compensation). Individual designer bias (a personal and culturally developed property) exists in the interpretation of a user's cognitive abilities during interface creation. All of these approaches toward interface design utilize metaphor and metonym, but utilize them without deep recognition. The researchers and designers are aware of metaphor and metonym in the interface under investigation, but fail to account for the metaphor/metonym baggage that every human being carries. Without this accounting, there is an assumption of a 'totalization' of human-device interaction and intensive critical discourse on interface design is lacking. Less inferential feedback and user testing is necessary by way of a critical analysis of the metaphor/metonym dichotomy in place.

Following Through the Attempt

There is an emphasis on design in economics, politics, and social relations. In mobile interface design there is a quickening collapse between reality and the metaphor for the user. Therefore, it is crucial, in our moment, to understand and appreciate the use of the metaphor/metonym dichotomy in the future design and development of interfaces across the disciplines of programmers, designers, and researchers working in the field.

For Further Reading and Reference Search These Out:
Google Publications User Experience, Marshall McLuhan, Charles Gaines, Roman Jakobson, Ferdinand de Saussure, Immanuel Kant