

Metaphor Is A Constellationⁱ

For thousands, perhaps tens of thousands, of years, if not even more, human beings have looked up at the night sky, pointed at random groupings of stars, and remarked “that is the Great Bear”, “there is a famous hunter”, or “that one is a mighty hero”. These have become the constellations that sailors have guided their ships by, that astrologists have guided their lives by, and that children have been taught for generations. Even if these constellations have become more or less strictly formalized through the years, children and adults alike continue to look at cloud formations in the sky, and say, “I see a polar bear cub”, “that one is an elephant charging through the dust”, “over there is a flying dragon”, or “there is a phoenix... you can still see the steam flowing off its wings!” Although it might not be immediately apparent to all of us, there are, in fact, two traditionally separate phenomena in operation in these scenarios. The first is an example of literary metaphorⁱⁱ, as it is rather obvious that a certain cloud pattern is not literally a polar bear cub, no matter how much it might resemble one. The second is that, when we say that a random visual image is a certain form, it is because we *perceive* certain features that invoke that form; a condition that I shall refer to as *Perceptual Metaphor*, in reference to, and distinction from, *Conceptual Metaphor*, which shall be discussed presently.

In his book “Bio-Linguistics”ⁱⁱⁱ, Talmy Givon notes that the neural processing centers of language parallel, and are adjacent to, the pathways for visual image processing; with a ventral “who” or “what” stream and a dorsal “where” or “how” stream for each modality. Furthermore, these processing streams are adjacent, or in very close proximity to related key sound processing centers. Although Givon originally invoked this research to argue that human language might have evolved through the medium of gestural communication (which might indeed be the case), this fact might have more direct significance suggesting the incorporation of visual (or, perhaps, multi-sensory) meaning into linguistic semantic structures, and that the two processes might, in fact, involve essentially the same cognitive phenomena.

There appear to be two, seemingly distinct, principle paradigms that inform our treatment of semantic development. The first involves our cognitive structure of “reality”, as determined by the various modalities of sensory input that we receive; notably: sight, sound, and touch.

The second is the cognitive semantic structure developed through the various modes of language and communication, such as speech, reading and writing, and gesture.

In the “reality” paradigm, our senses work together to create a holistic perception of reality^{iv}, although vision typically becomes the dominant modality early in life. In this paradigm, we construe our sense of reality by identifying an assortment of objects and actions (a function of the who/what stream), and analyze them in terms of a given context (where/how stream). Interestingly, we are capable of assigning various levels of reality to the images we identify, as well as construing a relationship between the unreal, or less real, and a real counterpart.

In the language/communication paradigm, we classify elements according to their lexical function, and their syntactic/grammatical roles. The function of the former is essentially to identify stative elements (isolated features, entire objects, or groups) or conditions (states of being or action), which corresponds to the function of object definition and recognition in vision and other sensory modalities. The function of grammar is to establish a working contextual relationship that can not be determined through the lexical information alone. The one notable distinction within this paradigm is that language/communication involves an intentional presentation of symbolic representations of objects/actions and manipulation of the contexts based upon projected expectations of the associations that will be stimulated within the audience. It is important to note that all language/communication occurs through the medium of one or more of the sensory modalities, thus the parallels between the two paradigms should not be unexpected.

It has been some thirty years since George Lakoff and his associates first proposed the subject of Cognitive, or Conceptual, Metaphor. The fundamental principle of Conceptual Metaphor is that a relatively well-known, well understood, source domain is mapped onto, or blended with^v, a lesser known target domain. A second principle is that there is an inexact correlation between the features being mapped. The first principle is central to the concept of embodied meaning, in which all abstract understanding and meaning is ultimately derived metaphorically from our experiential (primarily physical) interactions with the outside world. The latter principle might provide some insights, if not some explanation, for the nature of creativity. Although there remains some debate among linguists concerning the validity of Conceptual Metaphor, there is growing evidence, both linguistic and neurocognitive^{vi} (largely involving the recently developed technique of Cognitive Interferometry), supporting the psychological reality of this phenomenon, at least in principle^{vii}.

Similarly, Perceptual Metaphor also presupposes a(n inexact) mapping between two domains, this time between a known, possibly idealized, holistic^{viii} source domain and a partial, possibly (as yet) unidentified, target domain. Examples of Perceptual Metaphor are found not only in the visual realm, but in each of the sensory modalities. This phenomenon is the foundation behind such metaphoric expressions as “tastes like chicken” and “smells like a wet dog”; the occasional (and sometimes embarrassing) oral misunderstandings that lead one to ask “what did he just say? It isn’t possible he actually said what I heard”; as well as the traditional Halloween game where children are blindfolded, given bowls filled with unknown substances (usually jellied candies, hard boiled eggs, beef jerky, etc), and told that they are holding slimy worms, human eyes, and bat wings. This broad range of instantiation in different modalities suggests that the phenomenon of Perceptual Metaphor is inherently cognitive, rather than being the product of any singular perceptual processing modality.

Although the exact mechanisms for visual-semantic processing remain largely unknown, we *do* know some of its inherent characteristics. Human visual processing allows us to identify and analyze objects and actions from virtually any point of view, including a rather large range of distances, different positions relative to our own directional orientation (the vertical or horizontal placement, or viewing angle, within our field of vision), different aspects relative to the line of sight (the presented angle of the object rotated around its three axes), and a virtually unlimited range of possible postures or configurations; all of this must be accomplished, while still being able to distinguish the object from an unlimited variety of background arrangements (often while simultaneously identifying and tracking a number of other objects).

Additionally, our visual processing allows us to identify objects observed under different visual conditions such as a wide range of brightness and contrast levels, various color or tint distortions, and (an often changing) degree of visual clarity or diffusion (image sharpness). Another variable affecting the visual condition is the presence of line-of-sight obstacles, which present to us only a partial image of the object we are attempting to identify.

Not only are we able to identify objects under these conditions, we are also able to distinguish specific objects from other like and unlike objects, and to classify objects according to a degree of likeness. We can then identify objects as members of a class.

Finally, one particularity of human visual processing that appears to be limited to a quite small selection of species is the ability to associate non-real images and patterns with real-world counterparts. It is this ability that allows us to recognize the subjects of mirror images,

photographic images, paintings, drawings, caricatures, etc (and to distinguish them from the real world counterpart).

Interestingly, some of the same traits that allow us to perform such feats appear to be responsible for a number of deceptive visual illusions and misidentifications.

The majority of these visual processing traits have synonymous counterparts in the other sensory modalities. The principle commonality is the ability to recognize and distinguish a sensed entity from incomplete, corrupted sensory information.

Remarkably, many of these traits, in both the positive and negative aspects, have parallels in language.

At the most basic level, vocal exclamations and interjections tend to provoke immediate physical and attentional responses in those who hear them, in exactly the same manner as they would respond to sudden visual, tactile, or (other) auditory stimuli. Likewise, descriptive statements can influence one's conception of the real world, acting upon the information provided in the same way as one would act upon remembered sensory information, or new sensory information that is provided remotely (through televised images, for example). On a third level, both sensory and communicative information can be deceptive, either subject to illusion or intentional misdirection (a magician's or con artist's tricks are the visual equivalent of a well-conceived lie). Finally, as has already been observed, both the sensory and linguistic realms are subject to Metaphoric phenomena.

Although it will be some time before we can identify the actual mechanisms associated with perception, it can be reasonably deduced from the nature of perceptual conditions above that the inexact feature mappings associated with Metaphor must necessarily be an inherent component of the process of recognition. It is suggested here that Perceptual Metaphor is the bi-product of a singular cognitive organization^{ix} of our sensory processes that has evolved to allow us to perform the perceptual tasks mentioned above; namely, to extract the maximum possible usable (and often vital) perceptual information from poor perceptual sources or conditions. The same cognitive organization responsible for allowing us to extract enough information to accurately perceive and identify objects under poor sensory conditions produces cognitive associations resulting in our perception of objects in random patterns. Given the parallels of visual and linguistic processing, it is reasonable to suggest that an extension of this fundamental process is the foundation for the related linguistic and cognitive functions of Metaphor.

ⁱ Although some supportive research shall be cited in this document, this presentation does not yet constitute a formal study.

ⁱⁱ In this document, “metaphor” and “metaphoric” (etc) is being used to refer to a class of related phenomena including simile, metonym, allegory, etc.

ⁱⁱⁱ Givon, 2002

^{iv} Although it is unquestionable that much sensory processing is performed independently of the other modalities, recent research has demonstrated that the modalities become intertwined in developing a perception of reality. Refer: Lupyan et al, 2009

^v Concurrent with Lakoff’s development of Conceptual Metaphor, Mark Turner and Gilles Fauconnier proposed the notion of Conceptual Blending. Although many linguists assumed that these were opposing theories, Lakoff and Fauconnier have jointly asserted that there is no inherent contradiction between the two theories proposed, and instead serve to complement one another. Refer: Fauconnier & Lakoff , 2010

^{vi} Refer: Physorg News, January 2010; Physorg News, March 2010; Physorg News, June 24, 2010; Frak et al, 2010; Oliveri et al, 2009

^{vii} This does not mean that *all* instances of Cognitive Metaphor are necessarily psychologically real.

^{viii} In this instance, “holistic” is referring to a recognized whole, or one’s understanding of a specific completed entity.

^{ix} This “singular cognitive organization” does not necessarily refer to a single neurological or cognitive component or structure, nor even a single common locality.

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