Position Paper on Metaphor

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My research has focussed mainly on conventional metaphor built into the conceptual system on which our everyday language is based. What I and others have found is that metaphor plays a major role in semantics. It is the means by which domains of experience that are not highly structured on their own terms get structured on the basis of other, highly-structured domains. Domains need structure so that one can reason about them. The major function of metaphor is thus to supply structure in terms of which reasoning can be done. What we have found is that an enormous amount of our reasoning is metaphorical (see Lakoff, 1986b; Lakoff and Johnson, 1987; Johnson, 1987; Turner, 1987; Holland and Quinn, 1987; and especially Quinn, in preparation).

Metaphors are systematic structure mappings from one domain of experience to another. Metaphors occur at the level of concepts, not linguistic expressions, and in most cases they are fairly general, occurring at a superordinate level rather than the basic level. A single such general metaphor will give rise to many individual metaphorical expressions. I have encountered four general types of metaphor:

(1) Complex schema mappings: These map complex schemas in one domain (e.g. WAR) into corresponding schemas in another domain (e.g., ARGUMENT). Each such mapping applies both to entities (the source ontology is mapped onto the target ontology) and relations holding among the entities (knowledge about the source is mapped onto knowledge about the target).

(2) Image-schema mappings: Image-schemas are general topological and orientational structures that are kinaesthetic in nature. They have an analog rather than digital character. And they have sufficient internal structure to permit inferences. Examples include: containers, paths, linear scales, center-periphery, force, links, balance, contact/noncontact, cycles, front/back, etc. A great many conventional metaphors are based on such schemas. For example, purposes are understood metaphorically as destinations, and achieving a purpose is understood as traveling along a path to that destination.

(3) One-shot rich-image mappings: Consider the word *dunk* as applied to (i) to cookies and milk, donuts and coffee, etc. and (ii) to basketball. There is a conventional rich image for cases like (i); it involves a hand putting a piece of food through the rim of a cup or glass into liquid. In (ii), a hand is putting a basketball through the rim of the basket. There is a partial

mapping from the image in (i) to the image in (ii). The extension of the word *dunk* from food to basketball is a metaphorical extension based on this mapping from one conventional image to another. This is a 'one-shot' mapping. That is, there is no system of concepts being mapped. The mapping sanctions the lexical extension of only one word.

(4) Aristotle's metaphor: This is a single, very general metaphor of the following form: SOMETHING IS WHAT IT HAS SALIENT PROPERTIES OF. It relates entities in one domain to enties in another domain, on the basis of common properties. Unlike other general metaphorical mappings, which have fixed domains, this general metaphor seems to have variable domains. It is this metaphor that gives rise to relatively boring cases like *Man is a wolf, Harry is a pig*, etc., which are unfortunately the cases most cited in the classical metaphor literature. Oddly enough, little of a systematic nature is known about this metaphor (e.g., whether there are restrictions on its domains).

Actually, these four types of metaphor are not mutually exclusive and mixed cases are common. For example, (3) and (1) are sometimes combined in cases where complex knowledge about the source image is carried over into the target domain. Moreover, since complex schemas tend to have image-schmatic subparts, it is common for cases of (1) to also be cases of (2).

On the whole, I have found (1) and (2) the most interesting types for a number of reasons:

(A) They are not based on similarity; though they may create structural similarities.

(B) They tend to create structure and even entitites in the target domain.

(C) They are used in reasoning; indeed, that is their main function.

The image-based metaphorical mappings -- (2) and (3) -- are interesting for another reason: they cannot be adequately characterized in finitary terms. Any digital rendering will miss generalizations.

I have found (4) to be the most boring, and also the rarest of the types (though none of them is particularly rare). Cases of Aristotle's metaphor become interesting mainly when they are combined with metaphors of other types, as when the similarities they are based on are created by other metaphors.

Literary metaphor

A great many literary metaphors are extensions of ordinary conventional metaphors of type (1) and (2). Allegory appears to be a case where an existing conventional metaphor of type (1) is sustained over an entire literary work (see Turner, 1987). It is useful to distinguish such stable metaphors in a literary work from fleeting metaphors (those that occur once and disappear). Fleeting literary metaphors tend to be of types (3) and (4), which incidentally are based on similarity and are not used all that much in reasoning.

Scientific analogies

Some scientific analogies are extensions of conventional metaphors of type 1. For example, the mind-as-computer metaphor is an extension of the old mind-as-machine metaphor. In general, useful scientific analogies seem to have the properties of metaphors of type 1; that is, they are systematic, well-defined, and map high-level abstract relations such as causation. They thus give rise to a great many metaphoric entailments. In this way, useful scientific analogies are structurally just like most ordinary conventional metaphors and like stable metaphors (including allegories) in literary works. Correspondingly, scientific analogies are unlike most fleeting literary metaphors (those of types 3 and 4).

Constraints on the Mappings

Perhaps the central theoretical question in metaphor research today is: What determines the details of the mappings. What determines the choice of source and target domain? What determines which entities get mapped onto which other entities? A partial answer comes from the theory of experiential bases: regular recurrent correlations in experience between source domain and entities and target domain entities determines the ontological mappings. This works for a certain range of image-schema mappings (those of type 2). In cases of complex schema mappings, explanations are sometimes attainable (see Lakoff, 1986b) in terms of inferences based on other metaphors with experiential bases and their interaction with folk knowledge. In general, our knowledge at present is sketchy, to say the least.

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