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canine’. Strictly, a formal language has a fully defined vocabulary and syntax. Ideally, the vocabulary is a specified set of symbols whose forms and correlated meanings are fully defined, all possible combinations of vocabulary items in the metalanguage are generated from fully specified syntactic axioms and rules of syntax, and the meanings of syntactically well-formed structures are fully specified by semantic axioms and rules for the metalanguage.

A metalanguage is, in effect, a translation of the object language (Carnap, 1937: 228); so, defining a formal metalanguage for natural language semantics requires that it have the same expressive power as a natural language. In order for the metalanguage to be understood and used by human beings, it must be communicable and, hence, translate into a natural language. If you understand neither Polish nor Swahili, there is little point in my using Swahili as a metalanguage for the semantic analysis of Polish (or vice versa); for example, my saying that to jest pies means ‘ni mbwa’ will not help you at all. Using English as a metalanguage, I would say to jest pies means ‘it’s a dog’; using English as a metalanguage, I would say to jest pies means ‘ni mbwa’ (in Swahili), which means ‘it’s a dog.’

The advantages of a formal metalanguage are the explicit definition of primitives and standards of rigor and exactitude that tend to be ignored when using an informal metalanguage. The proper formalization of the metalanguage permits proofs of particular conclusions about semantic structure and so prevents mistaken conclusions deriving from faulty assumptions and/or inference procedures. However, none of these advantages of a formal system is necessarily unobtainable using an informal system such as a natural language metalanguage for semantics. Given two metalanguages with the same descriptive and explanatory capacities, the only way to choose between them is to be guided by gut feeling: favor the one you are happier with. A metalanguage is the product of an analyst’s mind; the analyst not being God, every metalanguage is limited by the beliefs, perspectives, and purposes of its creator.

See also: Formal Semantics; Natural Semantic Metalanguage; Operators in Semantics and Typed Logics.

Bibliography

Metaphor and Conceptual Blending

Metaphor was defined by Aristotle (Poetics XXI, 1457b) as “… giving the thing a name belonging to something else, the transference being … on the grounds of analogy.” More succinctly, Quintilian (VIII, VI, 1) defined metaphor as “the artistic alteration of a word or phrase from its proper meaning to another.” Traditionally, then, metaphor is defined as a trope, a nonstandard meaning used for its literary effect. On this view, any cognitive significance attributed to metaphorical phenomena is of a negative character. Hobbes (Leviathan), for example, argued that metaphors are “… ignes fatui; and reasoning upon them is wandering amongst innumerable absurdities …”

In contrast to the view of metaphor as a literary curiosity, cognitive semanticists such as Lakoff and Johnson (1980), Sweetser (1990), and Turner (1991) have argued that metaphor is a pervasive phenomenon in everyday language and, moreover, that it represents the output of a cognitive process by which we understand one domain in terms of another (see Cognitive Semantics). Cognitive linguists define metaphor as reference to one domain with vocabulary more commonly associated with another domain. Thus construed, metaphoric language is the manifestation of conceptual structure organized by a ‘crossdomain mapping’: a systematic set of correspondences between two domains, or conceptual categories, that results from importing
frames or cognitive models from one domain to another.

**Conceptual Metaphor Theory**

In ‘conceptual metaphor theory,’ metaphorical expressions are the linguistic manifestation of underlying conceptual knowledge. Whereas traditional approaches have tended to consider metaphorical uses of words and phrases on a case-by-case basis, cognitive linguists have pointed to patterns in the metaphorical uses of word meanings. For example, in (1) through (4) we see a number of examples that employ words whose literal meaning concerns the domain of vision, used metaphorically to characterize the domain of understanding. In such cases, the real topic of discussion (e.g., understanding) is known as the ‘topic’ or ‘target’ domain, while the domain characteristically associated with the vocabulary (e.g., seeing) is known as the ‘vehicle’ or ‘source’ domain.

1. The truth is clear.
2. He was blinded by love.
3. His writing is opaque.
4. I see what you mean.

In these and many such examples of this metaphorical mapping, the relationship between the domains is systematic: if seeing corresponds to understanding, then not seeing corresponds to not understanding, faulty vision corresponds to faulty understanding, and so forth. In conceptual metaphor theory, the systematic nature of the relationships between domains in the metaphor results from mapping cognitive models from one domain onto counterparts in the other. This results in a transfer of images and vocabulary from the source domain onto the target. Moreover, it also involves the projection of inferential structure so that inferences from the source domain can be translated into parallel inferences and counterparts in the target. For instance, in the SEEING domain, if someone is ‘blinded’ he will be unable to see. Analogously, in the KNOWING domain, if someone is ‘blinded’ he will be unable to apprehend certain sorts of information. For this reason, metaphor is considered a conceptual phenomenon, rather than merely a lexical one (see Meaning: Cognitive Dependency of Lexical Meaning).

Viewing metaphorical language as a manifestation of the conceptual system explains why the correspondences between elements and relations in the two domains of a metaphor are systematic rather than random. Cognitive linguists argue that the systematicity in the usage of source and target domain terminology derives from the fact that some of the logic of the source domain has been imported into the target in a way that maintains the mappings from one to the other. Consequently, there are parallels between the source and target domains, both in word meanings and in the inferences that one might draw from sentences that use those word meanings. Although the objective features of the two domains in a metaphor are often quite different, the two domains can be seen as sharing abstract similarities.

Analyses of conceptual metaphors are typically stated in terms of the domains that are associated by the metaphor. The domain of vision, for instance, is metaphorically linked with the domain of knowledge and understanding. Consequently, these utterances are said to be instances of the KNOWING IS SEEING metaphor. Alternatively, metaphors can be described in terms of the high-level mapping between the two domains, as in Seeing → Knowing (Table 1). The latter notation is especially useful when the analyst wants to outline the correspondences between the two domains.

Conceptual metaphors such as KNOWING IS SEEING make up a pervasive repertoire of patterns in language and thought. The many expressions we can remember or create that conform to the pattern have been taken as evidence that, just as the metaphoric meanings of many of these words are conventional, so too are the metaphoric mappings. Consequently, a lexical analysis of metaphor is not complete unless it refers to the underlying mapping patterns.

The idea that knowledge of metaphoric mappings constitutes part of the linguistic competence of the speaker is supported by the use of conceptual metaphors in novel, poetic language (Lakoff and Turner, 1989). For example, in To the lighthouse, one of Virginia Woolf’s characters describes moments of insight as “illuminations, matches struck unexpectedly in the dark.” Although many of the linguistic expressions in this excerpt are creative, the conceptual mappings conform to the pattern in the KNOWING IS SEEING metaphor. Just as a match affords the possibility of seeing one’s surroundings for a brief period of time, a moment of insight allows one to understand something for a brief moment of time. The seer in the match scenario corresponds to the knower, and

**Table 1** Example of domain mapping

<table>
<thead>
<tr>
<th>Seeing</th>
<th>Knowing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seer</td>
<td>Knower</td>
</tr>
<tr>
<td>Thing seen</td>
<td>Topic of understanding</td>
</tr>
<tr>
<td>Quality of vision</td>
<td>Quality of understanding</td>
</tr>
<tr>
<td>Visual ability</td>
<td>Intelligence</td>
</tr>
</tbody>
</table>
the quality of vision corresponds to the quality of understanding.

**Higher-Level Mappings**

In addition to KNOWING IS SEEING, cognitive linguists have identified a large number of conventionalized metaphors, such as DESIRE IS HUNGER (sex-starved, sexual appetite), HOPE IS LIGHT (dim hopes, ray of hope), or LOVE IS A JOURNEY (we’ve come a long way together, their marriage is going off-track, we’re just spinning our wheels) (see Lakoff and Johnson, 1980, 1999). That is, there are many expressions about desire, hope, and love that systematically exploit vocabulary from the domains of hunger, light, and journeys, respectively. As noted earlier, the systematicity derives from the fact that the mappings between elements in the source and the target domains are typically constant from expression to expression, and that many source domain inferences map onto analogous target domain inferences.

Moreover, many conventionalized metaphors such as LOVE IS A JOURNEY can themselves be seen as instantiations of more general crossdomain mappings. LOVE IS A JOURNEY, along with A CAREER IS A JOURNEY and even LIFE IS A JOURNEY, are all instantiations of a more general mapping between long-term purposeful activities and progress along a path. Indeed, the latter is part of a very abstract mapping scheme known as the ‘event structure metaphor’ (Lakoff, 1993; Lakoff and Johnson, 1999). As outlined by Lakoff (1993), the event structure metaphor includes the mappings outlined as follows.

<table>
<thead>
<tr>
<th>States</th>
<th>Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Changes</td>
<td>Movements</td>
</tr>
<tr>
<td>Causes</td>
<td>Forces</td>
</tr>
<tr>
<td>Actions</td>
<td>Intentional movements</td>
</tr>
<tr>
<td>Purposes</td>
<td>Destinations</td>
</tr>
<tr>
<td>Means</td>
<td>Paths</td>
</tr>
<tr>
<td>Problems</td>
<td>Impediments to motion</td>
</tr>
</tbody>
</table>

Particular metaphor expressions such as dead-end relationship can thus be seen as motivated by metaphoric mappings at multiple levels of abstraction (LOVE IS A JOURNEY, LONG-TERM PURPOSEFUL ACTIVITIES ARE JOURNEYS, and the event structure metaphor).

**Primary Metaphor and Experiential Grounding**

One important claim in conceptual metaphor theory is that ‘primary metaphors’ are grounded in correlations in experience. For example, the metaphorical mapping between quantity and height (MORE IS UP) is thought to be motivated by correlations between the number of objects in a pile and its height, or the amount of liquid in a glass and the height of the fluid level. In traditional accounts dating back to Aristotle, metaphors were based on similarities between the two domains invoked in the metaphor. By contrast, Lakoff and Johnson (1980) highlighted the existence of a large number of metaphorical expressions, such as big idea, whose two domains have no inherent similarities, arguing instead that such metaphors are experientially motivated.

The experiential motivation of metaphors is consistent with the fact that the mapping between the domains and entities in a primary metaphor is directional. For instance, although the conceptual metaphor KNOWING IS SEEING allows us to utter an expression such as I don’t see what you’re saying to indicate the existence of a comprehension problem, it does not license I don’t understand your face to indicate a problem with visual acuity. Directionality is thought to reflect the underlying cognitive operations in metaphor, in which an experientially basic source domain is exploited to reason about a more abstract target domain. Indeed, many entrenched metaphors involve the use of a concrete source domain to discuss an abstract target. For example, importance is expressed in terms of size (as in big idea or small problem), similarity is construed as physical proximity (as in close versus disparate philosophical positions), and difficulties are discussed in terms of burdens (as in heavy responsibilities).

Primary metaphors originate in primary scenes in which critical aspects of the source and target domains cooccur with one another. For example, the KNOWING IS SEEING metaphor is thought to be motivated by contexts in which visual experience brings about understanding. In fact, corpus research shows that child-directed speech contains many utterances in which both the perceptual and the cognitive meaning of see are simultaneously present as in (5) (Johnson, 1999).

(5) Oh, I see what you wanted.

In fact, children produce many such utterances themselves, prompting the suggestion that the meaning of words such as see evidences ‘conflation,’ as the word refers simultaneously to the visual and the cognitive experience. Learning the metaphorical meaning is not a matter of generalizing from a concrete meaning to an abstract one, but rather requires ‘deconflation,’ in which the child gradually dissociates and distinguishes between the two domains in the metaphor (Johnson, 1999).

Primary metaphors such as KNOWING IS SEEING are directly grounded in experience, while other metaphors are only indirectly grounded. For example, the THEORIES ARE BUILDINGS metaphor is supported by examples like (6) to (8) from Grady.
(1997), in which theories are discussed with verbiage that might appropriately be applied to buildings.

(6) You have failed to buttress your arguments with sufficient facts.

(7) Recent discoveries have shaken the theory to its foundations.

(8) Their theory collapsed under the weight of scrutiny.

However, it is unlikely that many people have correlated experiences of theories and buildings. Moreover, many experientially basic aspects of our concepts of buildings are not exploited in this metaphor, as in (9) and (10) (Grady and Johnson, 2002).

(9) This theory has no windows.
(10) I examined the walls of his theory.

Instances in which source domain language (in this case pertaining to buildings) has no target domain interpretation reveal ‘metaphorical gaps.’ Primary metaphors, however, do not evidence these gaps, as virtually any word that is meaningful in the source domain can be metaphorically interpreted in the target domain (Grady, 1999). Consequently, Grady (1997) suggested that the THEORIES ARE BUILDINGS mappings that underlie (6) through (8) arose from a combination of two primary metaphors: ORGANIZATION IS PHYSICAL STRUCTURE and PERSISTING IS REMAINING UPRIGHT. Unlike the proposed mapping between theories and buildings, experiential grounding of a mapping between persistence and remaining upright is quite plausible (Grady, 1999).

**Conceptual Blending Theory**

Much of the linguistic data accounted for by conceptual metaphor theory can also be analyzed in terms of ‘conceptual blending theory’ (Fauconnier and Turner, 2002). An elaboration of ‘mental space theory’ (described later), the conceptual blending framework (also known as ‘conceptual integration’ and ‘blending theory’) assumes many of the same claims as conceptual metaphor theory, such as the idea that metaphor is a conceptual as well as a linguistic phenomenon and that it involves the systematic projection of language, imagery, and inferential structure between domains. However, in contrast to the emphasis on conventional metaphors in conceptual metaphor theory, conceptual blending theory is intended to capture spontaneous, online processes that can yield short-lived and novel conceptualizations. Furthermore, blending theory reveals connections between the cognitive underpinnings of metaphor and a variety of other linguistic phenomena handled by mental space theory.

**Mental Space Theory**

Mental space theory (Fauconnier, 1994) is a theory of referential structure, a level of conceptual organization between the situation being described and the linguistic structures that describe it (Langacker, 1993). Although motivated by linguistic data, mental spaces are not specifically linguistic in nature and reflect the operation of more general cognitive processes. In this framework, words do not refer directly to entities in the world. Rather, linguistic cues prompt speakers to set up elements in a referential structure that may or may not refer to objects in the world. Created to solve semantic problems created by referential opacity (see also **Factivity**) and indirect reference, mental spaces can be thought of as temporary containers for relevant information about a particular domain.

A mental space contains a partial representation of the entities and relations of a particular scenario as perceived, imagined, remembered, or otherwise understood by a speaker. This representation typically includes elements to represent each of the discourse entities, and simple frames to represent the relationships that exist between them. Mental space theory deals with many philosophical problems of meaning by employing multiple spaces to represent a single sentence. Although different spaces can contain disparate information about the same elements, each individual space is internally coherent, and together they function to represent all of the relevant information. In contrast to traditional approaches to meaning construction, the bulk of the cognitive work involves tracking the mappings between spaces rather than the derivation of a logical representation of sentence meaning.

(11) Orlando Bloom is the new James Bond.
(12) Iraq is the new Vietnam, as protests return to the airwaves.
(13) The new James Bond wears jewelry everywhere he goes.

In the context of a newspaper article about the signing of British actor Orlando Bloom to play the character James Bond in an upcoming spy movie, example (11) prompts the construction of two mental spaces, one for reality and one for the movie. Element *a* represents Orlando Bloom in the reality space, while element *a’* represents James Bond in the movie space. An ‘identity’ mapping between *a* and *a’*
represents the fact that in this context \( a \) and \( a' \) are the same person, even though Orlando Bloom the actor may not share all of his character James Bond’s qualities.

\[
\begin{array}{ccc}
\text{Reality} & \rightarrow & \text{Movie} \\
a & \rightarrow & a' \\
\text{Bloom} (a) & \rightarrow & \text{Bond} (a')
\end{array}
\]

In the context of an article about the increasing involvement of musicians in antiwar protests, (12) prompts the construction of two mental spaces: one for 2004 and one for 1970. Element \( w \) represents the American war with Iraq in the 2004 space, whereas element \( w' \) represents the American war with North Vietnam in the 1970 space. The link between these two elements is not identity, but rather analogy. Similarly, there is an analogy link between the contextually evoked protests in the 1970 space (\( p' \)) and the explicitly evoked protests in the 2004 space (\( p \)).

\[
\begin{array}{ccc}
\text{2004} & \rightarrow & \text{1970} \\
w & \rightarrow & w' \\
\text{Paris} & \rightarrow & \text{Vietnam} \\
\text{Location} \text{(w, Iraq)} & \rightarrow & \text{Location} \text{(w', Vietnam)}
\end{array}
\]

Once elements in different mental spaces are linked by a mapping, it is possible to refer to an element in one space by using language more appropriate for the other space. For example, one might utter (13) to convey Orlando Bloom’s penchant for wearing necklaces. As in (11), (13) would involve the construction of two mental spaces: one for reality and one for the movie. Element \( b \) stands for Bloom in reality space, whereas \( b' \) stands for Bond in movie space, and (given that wearing jewelry is unlikely for the very macho James Bond character) the predicate wears-jewelry pertains to \( b \) and not \( b' \). Thus, in (13), the speaker refers to \( b \) (Bloom), only indirectly by naming its counterpart \( b' \) (Bond). In mental space theory, the possibility of using a term from one space to refer to a linked element in another domain is known as the ‘access principle.’

\[
\begin{array}{ccc}
\text{Reality} & \rightarrow & \text{Movie} \\
b & \rightarrow & b' \\
\text{Bloom} (b) & \rightarrow & \text{Bond} (b') \\
\text{Wears-Jewelry} (b)
\end{array}
\]

The access principle is in fact central to the account of metaphor in mental space theory.

(14) Paris is the heart of France.

(15) The heart of France is under attack.

On Fauconnier’s (1994) account, a metaphor such as (14) is handled by setting up two mental spaces: one for the source domain (anatomy) and one for the target (geography).

\[
\begin{array}{ccc}
\text{Anatomy} & \rightarrow & \text{Geography} \\
\text{Heart} & \rightarrow & \text{Paris} \\
\text{Body} & \rightarrow & \text{France}
\end{array}
\]

The heart is linked to Paris, and the body is linked to France by analogy mappings. Once these spaces are linked, one can refer to Paris as the heart of France, as in (15). Moreover, as in conceptual metaphor theory, cognitive models that detail the importance of the heart to sustaining the body are cognitively accessible to the target domain and can be mapped onto target space counterparts.

**Conceptual Blending and Metaphor**

Fauconnier and Turner (1998) suggested that metaphoric mappings were one manifestation of a more general integration process that crucially involved the construction of blended mental spaces. ‘Blended spaces’ are mental spaces that are built up online to incorporate information from different frames, as well as local contextual information. Central to conceptual blending theory is the notion of the ‘conceptual integration network,’ an array of mental spaces in which the processes of conceptual blending unfold (Fauconnier and Turner, 1998). These networks consist of two or more input spaces structured by information from discrete cognitive domains, a generic space that contains structure common to the inputs, and a blended space that contains selected aspects of structure from each input space along with any emergent structure that arises in the course of comprehension. Blending involves the establishment of partial mappings between cognitive models in different spaces in the network and the projection of conceptual structure from space to space.

One motivation for blending theory is the observation that metaphoric expressions often have implications that do not appear to originate in either the source or the target domain. For example, although neither butchers nor surgeons are customarily considered incompetent, a surgeon metaphorically described by his or her colleagues as a butcher does not have a good reputation. In blending theory, appreciating this metaphor involves establishing mappings between elements and relations in the source input of butchery and the target input of surgery. As in conceptual metaphor theory, there is a mapping between surgeon and butcher, patient and dead animal, as well as scalp and cleaver.

However, blending theory also posits the construction of a blended space in which structures from each of these inputs can be integrated. In this example, the blended space inherits the goals of the surgeon and the means and manner of the butcher (Grady et al., 1999). The inference that the surgeon is incompetent...
arises when these structures are integrated to create a hypothetical agent with both characteristics. Behavior that is perfectly appropriate for a butcher whose goal is to slaughter an animal is appalling for the surgeon operating on a live human being. Table 2 shows the conceptual integration network for That surgeon is a butcher. The fact that the inference of incompetence does not originate in the source domain of butchery is further suggested by the existence of other metaphorical uses of butcher – such as describing a military official as the butcher of Srebenica – that recruit structure and imagery from the butchery domain but do not connote incompetence. Differences in the implications of the butcher metaphor in the domains of medicine and the military highlight the need for an account of their underlying conceptual origin.

Blending can also be used to explain how the target domain influences the meaning of metaphorical expressions. For example, the metaphorical idiom digging your own grave is used to imply that someone is unwittingly contributing to their own failure (see Idioms). While this metaphor depends on conventional metaphorical mappings between death and failure, the meaning of the metaphor in the target domain does not seem to result from a straightforward projection from the source domain of grave digging. If the target domain concerns a case where one’s ill-advised stock purchases lead to financial ruin, the digger maps onto the purchaser, the digging maps onto the purchasing, and the digger’s death maps onto the purchaser’s financial ruin. However, note that in the realistic domain of grave-digging, there is no causal relationship between digging and the grave-digger’s death. The blended space thus invokes its imagery from the source input space but obtains its causal structure from the target input (Coulson, 2001; Fauconnier and Turner, 2002).

Furthermore, unlike metaphor theory, which attempts to explain generalizations in metaphorical expressions via the conceptual mappings that motivate them, conceptual blending theory attempts to explain meaning construction operations that underlie particular metaphorical expressions. Consequently, blending theory can address the meaning construction in metaphorical expressions that do not employ conventionalized mapping schemes. For example, the italicized portion of this excerpt from an interview with philosopher Daniel Dennet involves a metaphorical blend: “There’s not a thing that’s magical about a computer. One of the most brilliant things about a computer is that there’s nothing up its sleeve” (Edge 94, November 19, 2001). The input domains here are computers and magicians, and the blend involves a hybrid model in which the computer is a magician. However, the connection between these two domains arises purely from the context of this example, as there is no conventional COMPUTERS ARE MAGICIANS mapping in English.

Blending also can be used to explain how a number of different kinds of mappings can be combined to explain the meaning of a particular example such as (16) (from Grady et al., 1999).

(16) With Trent Lott as the Senate Majority Leader, and Gingrich at the helm in the House, the list to the Right could destabilize the entire Ship of State.

This example involves an elaboration of the conventional Nation-as-Ship metaphor, in which the Nation’s policies correspond to the ship’s course, leadership corresponds to steering the ship, and policy failures correspond to deviations from the ship’s course. The Nation-as-Ship metaphor is itself structured by the more abstract event structure metaphor. The source input is the domain of Ships, which projects an image of a ship on the water, as well as the concept of the helm, to the blended space. The target input is the domain of American politics, which projects particular elements, including Trent Lott and Gingrich, to the blend, where they are integrated with the sailing scenario.

Example (16) describes the ship listing to the right. However, in the realistic domain of ships, neither the presence of one individual (Trent Lott) nor the beliefs of the helmsman are likely to cause the ship to list. The logic of this metaphorical utterance comes not from the source input but rather the target input in which the Senate Majority Leader and the Speaker of the House can affect national policies and the overall political orientation of government. Furthermore, the standard association between conservatism and the right as against liberalism and the left is clearly

Table 2 Example of conceptual integration network

<table>
<thead>
<tr>
<th>Surgeon Input space</th>
<th>Blended Space</th>
<th>Butcher Input space</th>
<th>Generic Space</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgeon</td>
<td>S/B</td>
<td>Butcher</td>
<td>Agent</td>
</tr>
<tr>
<td>Patient</td>
<td>P/A</td>
<td>Animal</td>
<td>Patient</td>
</tr>
<tr>
<td>Scalpel</td>
<td>S/C</td>
<td>Cleaver</td>
<td>Cutting instrument</td>
</tr>
<tr>
<td>Goal: Heal patient</td>
<td>Goal: Heal patient</td>
<td>Goal: Heal patient</td>
<td>Goal: Kill</td>
</tr>
<tr>
<td>Means: Precise cuts</td>
<td>Means: Slashing cuts</td>
<td>Means: Slashing cuts</td>
<td></td>
</tr>
</tbody>
</table>
| Emergent inference: Incompetent (S/B) |"
not based on the ship model, as it is frequently encountered in other contexts. However, because the scenario in the blend involves spatial motion, the literal notion of rightward movement is integrated with the other structure in the blend to yield a cognitive model of a ship piloted by Newt Gingrich that lists to the right.

Consequently, Fauconnier and Turner (2002) proposed that metaphorical utterances are mentally represented in networks of mental spaces known as ‘integration networks.’ As noted earlier, conceptual integration networks are comprised of four mental spaces. The source and target domain each structure one input space; the generic space represents abstract commonalities in the inputs; and the blended space inherits structure from its inputs as well as containing emergent structure of its own. Rather than emphasizing the extent to which metaphorical utterances instantiate entrenched mappings between source and target domains, conceptual integration networks only represent those cognitive models that are particularly relevant to the mapping supported by the utterance. While mappings in the integration network require knowledge of conceptual metaphors, such as KNOWING IS SEEING, blending theory is best suited for representing the joint influence of input domains and the origin of emergent inferences in particular metaphorical utterances.

Metaphor, Conceptual Blending, and Linguistic Theory

In part because of its origin in mental space theory, conceptual blending theory suggests that the meaning construction operations that underlie metaphoric meanings are but a subset of those involved in other sorts of indirect reference. By treating all sorts of mappings as formally identical, it is possible to understand the transfer of structure in metaphor as being fundamentally similar to the transfer of structure in nonmetaphorical instances. Thus, regardless of whether or not the information being combined originates in different domains, the integrative operations can be understood as requiring the construction of mappings between partial structures that originate in different mental spaces.

This formal identity allows for the unification of the treatment of metaphor – which principally recruits analogy mappings – with the treatment of ‘counterfactuals’ and ‘conditionals,’ conceptual blends that often recruit identity mappings. A number of researchers working within the framework of conceptual blending have addressed its implications for counterfactuals (e.g., Coulson, 2000; Fauconnier, 1997; Oakley, 1998) (see Counterfactuals). Similarly, the formal treatment of all sorts of mappings is useful in explaining the variety of complex combinations coded for by modified noun phrases. For example, blending theory has been used to explore issues of noun modification in seemingly simple cases like red pencil (Sweetser, 2000), more exotic cases like land yacht and dolphin-safe tuna (Turner and Fauconnier, 1995), and privative constructions such as alleged affair and fake gun (Coulson and Fauconnier, 1996) (see Compositionality: Semantic Aspects).

The most obvious application of conceptual metaphor and blending theory, however, is in lexical semantics, or the study of word meaning (see Lexical Semantics: Overview). The pervasiveness of metaphoric meanings suggests that metaphoric extension is a major factor in the emergence of new senses, and thus plays an important role in ‘polysemy’ (see Polysemy and Homonymy). Polysemy is the phenomenon in which a single word form has many related senses, as in cut paper, cut the budget, and cut corners. Because most words have an array of interrelated senses, metaphor and blending can be used to explain how these different senses can be seen as extensions and elaborations that arise as a function of different contextual circumstances.

Another productive process for creating word senses is ‘metonymy,’ in which words are used to refer to concepts closely related to their more customary referents (see Metonymy). For example, in (17), Shakespeare refers not to the man, but to the plays authored by the man. Similarly, in (18), the White House refers not to the building but to the people who work in the building.

(17) Kenneth loves Shakespeare.

The interaction of metaphor and metonymy has recently emerged as a major focus of research in cognitive linguistics (see, e.g., Dirven and Poerings, 2003).

Accounts of both metaphor and metonymy are important for the study of how meanings change over time (Sweetser, 1990; Traugott and Dasher, 2001). Conceptual metaphor theory can identify conventional mapping schemes, such as the event structure metaphor, to describe patterns of semantic change, and the experiential grounding of primary metaphors might help explain why some patterns are more pervasive than others. Moreover, conceptual blending theory, with its capacity to describe the integration of general knowledge and contextual circumstances, might be used to address historical, social, and psychological causes of semantic change.
See also: Aristotelian and the Stoics on language; Cognitive Semantics; Compositionality: Semantic Aspects; Counterfactuals; Factivity; Idioms; Lexical Semantics: Overview; Meaning: Cognitive Dependency of Lexical Meaning; Metonymy; Metaphor: Philosophical Theories; Metaphor: Psychological Aspects; Metaphor: Stylistic Approaches; Metaphors in English, French, and Spanish Medical Written Discourse; Metaphors in Political Discourse; Metaphors, Grammatical; Polysemy and Homonymy; Speech.

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