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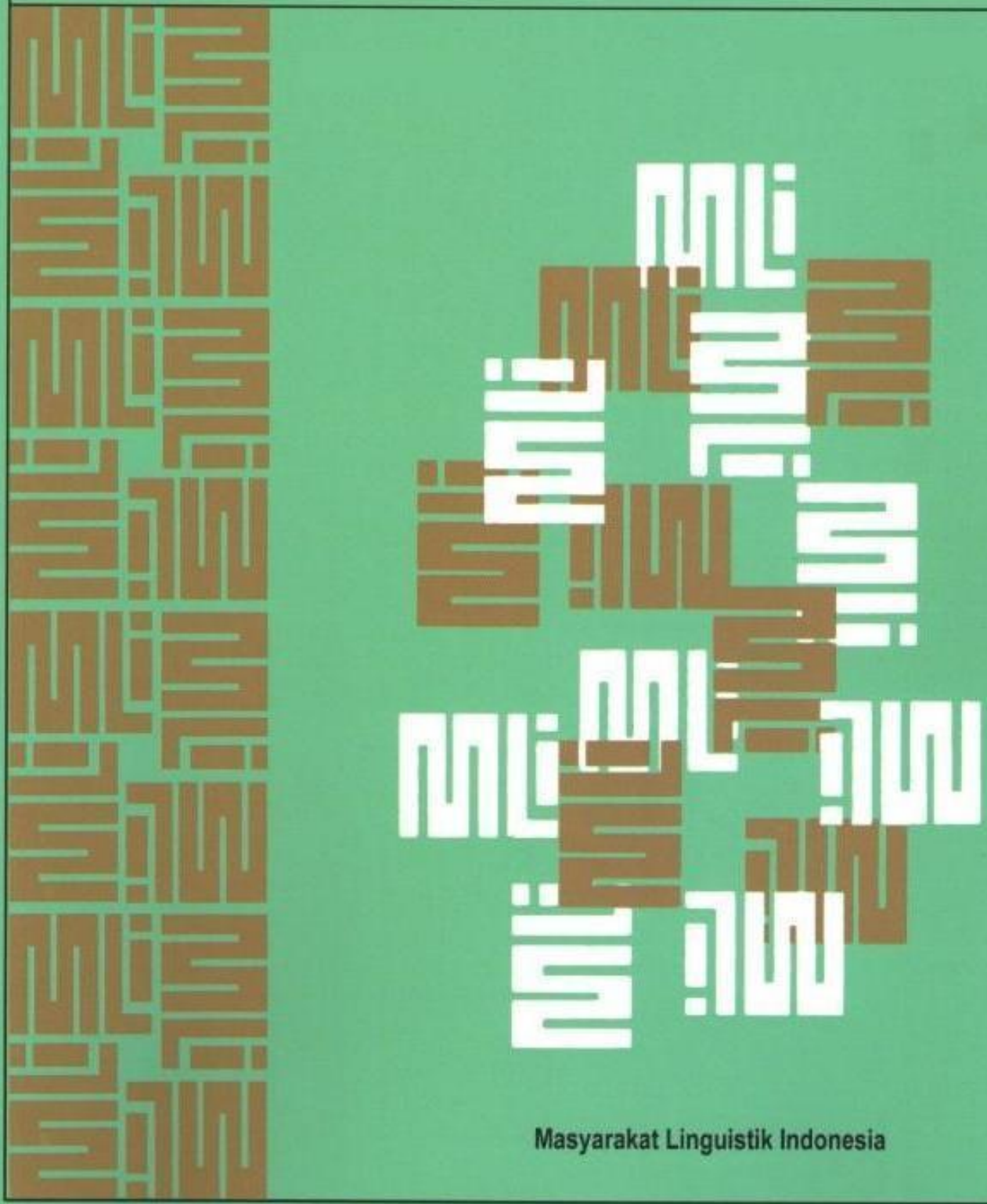

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A METAPHORICAL THEORY OF MEANING

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Abstract

Languages combine form and meaning in order to express an infinite number of ideas. Modern linguistics has developed sophisticated methods to probe the formal structure of languages from phonetics to syntax, but the study of meaning remains relatively unexplored. The lack of sophisticated methods to document the semantic structure of languages remains a significant problem for work with endangered languages. Research in semantics is limited by semantic theories that can be traced back to Plato and Aristotle. These theories assume that languages use a universal set of semantic elements to construct meaning. The classical theories cannot account for semantic change and an explanation of metaphor is completely beyond the scope of such theories. In this paper I propose a theory of semantics that puts metaphor at the center of semantics. Rather than create an artificial dichotomy between figurative and non-figurative language, the metaphorical approach to semantics assumes that all languages are figurative. This approach assumes that a basic sentence as "The cat is on the mat" combines figurative language with pragmatic information to communicate a basic proposition. This approach differs from that of Lakoff (1993) in that its focus is on metaphoric mapping within cognitive domains rather than between domains. The trick in metaphorical semantics is to learn how to detect the metaphors used in basic linguistic expressions and to construct a theory of semantics based on metaphor.

Keywords: *metaphor, theory of semantics, figurative language*

Abstrak

Bahasa menggabungkan bentuk dan makna dengan tujuan untuk mengekspresikan ide-ide yang tidak terbatas. Linguistik modern telah mengembangkan metode-metode yang canggih dalam pengkajian struktur formal bahasa mulai dari fonetik sampai sintaksis, tetapi kajian makna boleh dikatakan masih belum tereksplorasi. Ketiadaan metode-metode yang canggih untuk mendokumentasikan struktur semantis bahasa merupakan masalah yang serius dalam kajian-kajian yang berkaitan dengan bahasa yang berada di ambang bahaya. Kajian yang berkaitan dengan semantik hanya berkutat pada teori-teori semantik yang umumnya berasal dari Plato dan Aristoteles. Teori-teori ini berasumsi bahwa bahasa menggunakan sejumlah elemen semantis yang universal dalam pengkajian makna. Teori-teori klasik tidak mampu menjelaskan perubahan semantis dan metafora. Dalam makalah ini saya mengajukan sebuah teori semantik yang menempatkan metafora sebagai pusat dari semantik. Untuk menghindari dikotomi artifisial antara bahasa figuratif dan non-figuratif, pendekatan metafora dalam pengkajian semantik berasumsi bahwa bahasa pada dasarnya adalah figuratif. Pendekatan ini menganggap kalimat dasar seperti "The cat is on the mat" menggabungkan bahasa figuratif dengan informasi pragmatik untuk mengkomunikasikan proposisi dasar. Pendekatan ini berbeda dengan pendekatan Lakoff (1993) dalam arti bahwa pendekatan ini berfokus pada pemetaan metaforis dalam kerangka domain kognitif, bukan antara domain. Yang terpenting dalam semantik metaforis adalah mempelajari bagaimana mendeteksi metafora di dalam ekspresi linguistik dasar dan membangun teori semantik berdasarkan metafora.

Kata kunci: *metafora, teori semantik, bahasa figuratif*

INTRODUCTION

My interest in metaphor as a theory of meaning is motivated by the limitations of truth-functional semantics. To this day, textbooks on semantics discuss truth-functional semantics in detail, but devote little space to metaphor (e.g. Riemer, 2010). Truth-functional semantics provides a wonderful tool for modeling semantic interpretation but does not provide a useful tool for semantic research. The limits of truth-functional semantics become obvious when you attempt to implement such a system on a computer. Winograd (1972) famously wrote the computer program SHRDLU to direct a mechanical arm to manipulate blocks on a table in response to natural language commands entered on a computer. The program could respond successfully to instructions such as "Pick up a red block" but could not tell you what a block or a table is. The only reason that it could manipulate the blocks on a table is because the program had been given a complete description of all of the objects and their spatial coordinates beforehand. The program could not create a general concept for blocks.

Truth-functional semantics models meaning in the same way. Truth-functional semantics assigns the objects in its universe of discourse to pre-designated categories such as the set of blocks and the set of tables. Winograd's program is a faithful implementation of truth-functional semantics in the sense that the program contains assignment functions for blocks and tables that it accesses to decide whether a given object in its universe of discourse is a block or a table. Computer programmers have made immense progress in artificial intelligence as evidenced by the success of IBM's program Watson, but much of this progress is based on updating the program's database rather than machine learning.

Truth-functional semantics begins with a model of the world but cannot create a representation of the world. A semantic model does not provide a learning procedure for discovering new aspects blocks over time. Truth-functional semantics embodies a static correspondence theory of truth in which the "truth" never changes. This model does not match our evolving understanding of the world (Kuhn, 1993) nor does it offer an explanation of how children learn to generalize from a small set of examples to general categories that are only indirectly based on experience (Rumelhart, 1993).

Our understanding of the world and the things in it change constantly. The concept of a continent has changed from a fixed landmass to a moving plate that separates and collides with its neighbors. The concept of a planet has changed from a light that moves erratically relative to the stars (Ptolemy) to a body that orbits the sun (Copernicus) to a large round body that clears other orbiting remnants from its path (International Astronomical Union). Darwin and Wallace discovered that living organisms constantly evolve new forms. The evolution of drug-resistant bacteria is a reminder of how significant these changes can be for our own existence. Humans now manipulate the genomes of plants and animals to design pest resistant crops or create mice that glow-in-the-dark. At one point we might have taken the genome as the defining feature of each organism, but it is now obvious that gene sequences change in the same way that our definitions of continents and planets change.

My interest in semantics stems from my research on how children acquire word meaning. The Ptolemaic model of meaning, i.e. truth-functional semantics, simplifies the acquisition problem by anchoring meaning to a universal set of fixed concepts embodied in the brain. Learning can then be modeled as a process of matching the circumstances of an utterance to the innate concepts stored in the mind. Children match the word *block* to the block concept in their mind rather than to the table or cube concepts. Once a child makes the correct match, they

will use the word *block* in an adult-like manner. They should never apply the word in novel contexts.

The Ptolemaic model does not match empirical observations about children's use of words. For example, children often extend names for things to name actions they accomplish by means of a thing. Children talk about "brooming" a floor or "lemoning" a cake (Bowerman, 1978). While these inventions of children strike adults as cute, the children are using derivational processes that are woven into the fabric of language. Adult English speakers do not regard such expressions as "buttering toast" or "vacuuming the carpet" as novel. Languages regularly employ such derivations to coin new expressions for novel situations. Hearers do not experience any more difficulty understanding novel derivations than they do understanding words such as *house* and *louse* that date back to proto-Indo-European.

Metaphor unveils a creative aspect of language that points to a basic limitation of truth-functional semantics. To unveil something is literally to remove a facial covering. Truth-functional semantics begins by listing the truths about a model of the universe, such as the set of concrete objects that can unveil. Truth can then be assigned to a proposition with the predicate *unveil* if and only if its argument is a member of the set of things that can be unveiled. In metaphorically extending the action of unveiling to abstract objects such as the "creative aspect of language" we go beyond the predetermined set of things included in the truth set for unveiling. Truth cannot be assigned to the metaphorical proposition in the usual way and so philosophers claim that metaphorical propositions are non-truth-functional (Davidson, 1984; Searle, 1993) and therefore not semantic.

In this paper I explore the idea of putting metaphor at the center of semantic interpretation rather than brushing it to one side. I follow Richards (1936) who claimed that:

> The traditional theory noticed only a few of the modes of metaphor; and limited its application of the term metaphor to a few of them only. And thereby it made metaphor seem to be a verbal matter, a shifting and displacement of words, whereas fundamentally it is a borrowing between and intercourse of thoughts, a transaction between contexts. Thought is metaphoric, and proceeds by comparison, and the metaphors of language derive therefrom. To improve the theory of metaphor we must remember this (p. 94).

I suggest making metaphor the basis of human cognition. Metaphor adds a dynamic quality to a theory of meaning that is not part of the static categories of truth-functional semantics. In Richards' terms metaphor is a "transaction between contexts," and this transaction is the heart of the dynamic nature of metaphor. My approach rests on the advances to understanding metaphor made by Richards and Black (1962) as well as by Lakoff and Johnson (1980) and Cazeaux (2007). Ritchie (2013) provides an overview of the ancient and modern approaches to metaphor. In the remainder of this paper I first motivate the idea of a metaphorical basis for meaning. In the following section I explore a metaphorical account for core semantic relations. I end by noting the implications of a metaphorical approach to meaning for language documentation.

MOTIVATING A METAPHORICAL THEORY OF MEANING

Metaphor is deeply embedded in language. I consciously made use of metaphorical expressions throughout the previous section of this paper by way of demonstrating how much linguistic

description owes to metaphor. Metaphors occur in all uses of language from the scientific to the poetic. Much of our basic vocabulary is metaphoric in origin, and historical research shows how metaphors progress from life to death (Müller, 2008). The English word *window* comes from the Old Norse compound *vindauga* or "wind eye". A more recent English compound *lightbulb* derives from a metaphorical extension of the word *bulb* to anything shaped like the root of an onion. The word *salary* derives from the Latin word *salarium* "a pension or salary", which is derived in turn from the word for salt *salarius*. The soldiers in Rome's army were paid a ration of salt as their pension. Such words demonstrate how deeply metaphor becomes ingrained in the lexicon.

Referential flexibility is a primary motivation for metaphor. Natural language makes use of metaphor as a quick and dirty solution to labeling objects and actions in a complex world. We ignore the superficial differences between different types of objects and actions because we direct our attention towards goals that can be realized with a variety of instruments and movements. Metaphor provides a type of analogue to digital conversion that enables language users to ignore the superficial features of the world around them in order to avoid an information overload. We see a "stick" as useful for building a fire and "grass" as a safe place to walk without stopping to note the minute distinctions between different woods and plants.

The shapes and functions of objects provide a powerful motivation for categorizing things. The difficulty is that these shapes and functions are not inherent to the objects themselves. It is not as though sticks come in identical shapes with a label that says "burn me". We project our goals onto the objects around us and so we do not hesitate to use objects to fulfill multiple functions depending on the task at hand. We might use a stick to start a fire, but we also use sticks to prop open a door, to build a stool or to whittle a toothpick. Everything around us can serve multiple functions and each new function creates a metaphorical extension from the previous functions.

The purposes that we put objects to are most evident in the world of artifacts. We design an artifact to fulfill a specific purpose, but then we have to contend with the limitations of the finished products that inevitably fall short of the original concept. Can openers do not open every can, houses have wasted space or not enough space, and cups do not fit the hand or mouth exactly right (Petroski, 1990, 1993). Petroski observes that at any moment an artifact is a delicate balance between cost, material, design and function. The usual idea in engineering is that form follows function, but Petroski shows that form and function interact in response to changes in materials and needs. The evolution of the telephone illustrates this idea in that changes in materials and technology have led to changes in form and function to the point where voice communication with someone has become less important than googling restaurant information or checking a twitter feed. Metaphor allows the concept of a telephone enough room to evolve with changes to both form and function.

Caseaux (2007) points to the work that metaphor plays in continental philosophy beginning with Kant. These philosophers were concerned with how the mind constructs a reality from the different sense impressions that it receives. Our minds construct a visual world through the sense impressions on the eyes and an auditory world through the sense impressions on the ears. Caseaux (2007, p. 104) quotes from Nietzsche (2000, p. 55) who states that truth is "due to the fundamentally metaphorical nature of concept-formation, a series of creative leaps from nerve stimulus to retinal image (first metaphor) to sound as signifier (second metaphor)."

The mind constructs a stable visual world from the saccadic movements of the eyes that are necessary to fixate different parts of the visual scene (Carlson & Heth, 2010). The brain has to mask vision during these saccadic movements in order to avoid producing a blurred image. One type of saccadic movement occurs in response to auditory cues. Our view of the world is the result of the integration of cues from all of our senses in order to produce a complex of color, sound, texture and smells tied to the world around us. According to Caseaux (2007), Kant's basic insight is that our minds rely upon metaphor to interpret this complex of sensory impressions in terms of fixed objects. Rather than seeing each visual fixation or hearing each momentary sound as something entirely new, the mind can interpret the new scene metaphorically as an update of the previous visual and aural fixation. Metaphor enables the mind to connect sight to sound in order to connect an object reflecting light with the "same" object emitting sound.

The mind's use of metaphor can be tricked into interpreting two-dimensional drawings as actual objects. The Belgian surrealist painter René Magritte famously relies upon this metaphorical interpretation in his painting of a pipe (*La trahison des images* 'The treachery of images'). The metaphorical representation of reality also enables the mind to construct a reality from descriptions in ordinary language and interpret these descriptions as representations of both real and fictional worlds. In this paper I am using words to construct a metaphor for meaning.

The set of natural kinds also exhibits metaphorical extensions for ordinary words. Oak trees, for example, produce acorns and have a distinctive leaf shape, but there are many species and subspecies of oak trees, including the white oak (*Sect. Quercus*), the Hungarian oak (*Sect. Mesobalanus*), the Turkey oak (*Sect. Cerris*), the canyon live oak (*Sect. Protobalanus*) and the red oak (*Sect. Lobatae*). Oaks belong to the genus *Quercus* in the beech family *Fagaceae*. The application of the natural kind oak across distinct species is an instance of metaphorical extension. Even the use of oak for specific white oak trees is a metaphorical extension in that no two white oak trees are identical. Language users act as if they are the same natural kind, but evolution acts on the variation that occurs within members of the "same" species.

The extensions of words from one to another instance of the same kind are commonly held to be metonymic rather than metaphorical on the basis that metonymy denotes a relation between things within a category whereas metaphor relates objects in different categories. The distinction between metonymy and metaphor crucially depends on the definition of categories, which are notoriously fluid. Current research recognizes that metaphor and metonymy represent end points of a continuum that is based on the same cognitive process (Radden, 2000). I include metonymy as a type of metaphor in this paper because of my interest in their common underlying cognitive process.

My favorite example of metaphorical extension for natural kinds is *grass*. Many houses in the United States have grass lawns, but these lawns contain different species of plants commonly labeled "grass". My concept of grass is an undefined general term that applies mainly to lawns, but which includes non-prototypical types such as bamboo. Biologists recognize around 12,000 grass species that belong to 771 different genera grouped into 12 subfamilies. My concept is not refined enough to be able to include or exclude crabgrass or sea grass as a type of grass. Nevertheless, my ignorance about grass does not prevent me from walking on it or watering it. I metaphorically label different plants as grass irregardless of their actual botanical classification. Very little is natural about my use of the natural kind term *grass*.

There are also examples of metaphorical extensions of natural kind terms to entities that are not scientifically members of the same natural kind. The term *opossum* applies to various American marsupials in the family *Didelphidae* as well as to several Australian *phalangers*. The term *robin* is used for the European bird *Erithacus rubecola* as well as the North American thrush *Turdus migratorius* (Putnam, 1989). These words demonstrate how migrants to a new habitat metaphorically extend old natural kind terms to new kinds. Ordinary language users apply a limited set of words to an infinite set of natural objects without consulting the scientific experts. Life is too short. Metaphor provides the necessary flexibility to language that is needed in order to point to objects the real world.

A SEMANTICS OF METAPHOR

A metaphorical approach to meaning must supply an account of the basic semantic relations such as derivation, polysemy and synonymy. Lexical derivation is a core linguistic process. All languages use nouns as verbs or verbs as nouns. The derivation of verbs from nouns and nouns from verbs requires a metaphorical extension of meaning from the source to the derivation. The verb *cut* is interesting because its first entry in the Oxford English Dictionary as a verb dates to 1275. The word is not attested in Old English or in any West Germanic dialect. The noun derived from this verb only appears in Modern English in 1568. The noun *cut* refers to a physical stroke or blow with a sharp-edged instrument such as a sword (1616) as well as to an act of unkindness (1568) and the omission of a part in a play (1604). More recently, the verb *to google* something or someone was invented in reference to internet searches that used search programs devised by Google and other companies.

The derivation of a noun from a verb or verb from a noun entails a change in meaning that is metaphorical. The noun *cut* does not refer to an object that is identical to the action of cutting because objects lack the dynamic quality of actions. The noun's meaning has to freeze the action in some manner, most commonly by referring to the result that appears when the action is completed. The derivation depends upon a metaphorical process that selects one feature of the action and ignores other features such as its duration, manner and controller.

Compound words provide obvious examples of derived terms with metaphorically extended denotations. Blackboards were originally made from slate, not wood. The color of blackboards has changed from black to green and even to white. A cupboard is not literally a board, nor is it just used for storing cups. The dashboard was invented to screen passengers from water or mud dashed up by the animals hauling a wagon. The word *dashboard* has been metaphorically extended to vehicles that no longer depend upon animals for locomotion as well as to instrument panels on computer screens. Cotton candy denotes a candy with the texture of cotton although it lacks the color or taste of cotton. A cottonmouth is a snake that uses its white mouth as a defensive display. Its mouth has the color of cotton, but not its texture or taste.

The metaphorical nature of compounding becomes more obvious when you compare the literal and figurative interpretations of compounds in other languages. The Korean compound *kot elum* has the literal translation of "straight ice" but refers to an icicle. The Korean compound *isul pi* literally translates as "dew rain" but refers to drizzle. The Tzotzil Mayan compound *me' k'inobal* is literally 'mother mist' but denotes a rainbow. The K'iche' Mayan compound *rax tew*, literally "green cold," is the name for malaria.

The metaphorical aspect of meaning is also evident when verbs are combined with objects to form predicates. The types of breaking actions vary widely depending on the types of

object. You can break a ceramic mug by dropping it on a hard surface. In order to break a stick, however, you have to apply pressure with hands or feet. You can break a chair just by sitting on it. Each "breaking" motion is a unique combination of objects, instruments, forces and intentions. The English verb *break* is limited to severing one- and three-dimensional objects such as thread and chairs. The verbs *rip* and *tear* are applied to the "breaking" of two-dimensional objects such as paper and clothes.

Because no two objects "break" in exactly the same way, speakers must use the verb *break* metaphorically in every instance. The metaphorical extension of *break* is obscured by the use of a single word for so many actions. Lexicographers list the major distinctions in verb use as subentries for the verb, and linguists attribute these metaphorical extensions to polysemy. Every instance of polysemy in the lexicon is an instance of metaphor and further evidence for the underlying metaphorical basis of meaning (Lakoff, 1993).

Adjectives, like verbs, undergo metaphorical extensions when they are applied to different objects. The adjective *sharp* was originally applied to objects with sharp edges and sharp points as well as to prickly objects. It was metaphorically extended to a person with acute intelligence or vision as well as to someone with a keen wit. It was also extended to warriors who were keen to do battle, sudden movements or to sudden showers. The metaphorical extensions of adjectives are interesting in that they are based on different qualities such as form, sight, movements and onsets. The multidimensional quality of metaphorical extensions reflects the metaphorical interactions of the senses in the mind.

In motivating the metaphorical account of meaning I have already illustrated the role of metaphorical meaning in explaining the semantics of derivation, polysemy and predicate-argument interpretation. I have not yet discussed the role that metaphor plays in the semantic relation of synonymy. Synonyms are words and phrases that have similar meanings in many contexts. Examples include *automobile* and *car*, as well as *bachelor* and *unmarried person*.

Truth-functional semantics would hold that synonyms have the same meaning because the words denote an identical set of things. Truth-functional semantics provides a model of synonymy, but it fails to explain why synonyms exist in the first place. Metaphorical semantics accounts for both the similarity of meaning as well as the existence of synonyms. The similarity of meaning is explained by the similarity of the underlying metaphors. The existence of synonyms is explained by the evolutionary history of the underlying metaphors.

Consider the synonyms *automobile* and *car*. According to the Oxford English Dictionary, the earliest uses of *automobile* appear in 1876 in reference to tramcars that were self-propelled. This use was extended to road vehicles by 1895. The word *car*, on the other hand, descends from the classical Latin word *carrus*, which referred to a kind of two-wheeled wagon for transporting burdens. Its attested uses in 1320 and 1425 refer to wheeled vehicles. Its use was extended in 1783 to the passenger compartments of airships and gondolas. In 1826 the word was further extended to railway carriages and in 1847 to the carriage of an elevator. The word *car* was ultimately extended to motor-cars in 1896, which the OED states is now its usual sense. The synonyms *automobile* and *car* originally referenced different technologies, but came to refer to the same type of vehicle by way of separate histories of metaphorical extension.

APPLYING METAPHORICAL SEMANTICS

If the metaphorical account of meaning is on the right track then we should look for ways to formalize the idea. Traditionally formal semantics resorts to terms such as CAR and GRASS to

denote the meaning of the words *car* and *grass*. We can replace the meanings CAR and GRASS with the terms CAR and GRASS to denote the conceptual metaphors for cars and grass. The metaphors CAR and GRASS can be modeled as conceptual networks that constantly search for metaphorical connections to other conceptual networks. Predication is the result of fitting the metaphorical network for a nominal to the metaphorical network for a verb. A metaphorical interpretation for the proposition "The grass grew" is the result of connecting the metaphor GRASS to the metaphor GROW. The metaphorical composition is the same irregardless of whether GRASS is restricted to the stuff that grows on lawns or to the paperwork in a corporation. Doing semantics means understanding the production and comprehension of metaphors.

Metaphor semantics leads to a new approach to documenting how words are used in different languages. A Ptolemaic semantics licenses a simple approach to documenting the meaning of words by supporting the assumption that lexical concepts are basically the same in all languages. If a field linguist finds that the K'iche' Mayan word *-q'upiij* translates into English as the verb *break* then there is no need for further study. The Ptolemaic translation assumes that the underlying concepts are basically the same for the K'iche' and English verbs.

In fact, breaking verbs are some of the most difficult to translate across languages. K'iche' "breaking" verbs conflate many purpose features into their meaning, which makes it a challenge to translate them into English (Pye, 1996). Table 1 provides a sample of K'iche' breaking verbs.

Table 1. K'iche' breaking verbs

K'iche' Verb	English Translation
-paxiij	to break hard things
-pi'iij	to break soft things
-chikooj	to dash an object by throwing it
-ch'akatiij	to break off a small piece to feed to birds
-jochopiij	to break a banana by failing to support the whole bunch
-joyopiij	to break a banana from a bunch of bananas
-jol	to tear off corn leaves for fodder
-q'ol	to tear off corn leaves for wrapping tamales
-pi'iij	to break of a piece of bread to eat

The semantic field of separation is cross-linguistically diverse because the metaphors of separation are structured by the intention or lack of intention behind the separation. The English verbs *break* and *tear* are typically used for unintentional acts of separation, but they can be applied intentionally in order to break sticks for a fire or tear a section from a form. The verb *pick* describes the intentional separation of food from a plant, whereas *cut* refers to the separation of food from a grass-like plant such as rice or wheat. The verb *pluck* is used to separate feathers from birds or hair from eyebrows. Because the domain of separation is structured by specific cultural intentions linguists should document the metaphorical contexts of use for each verb rather than assume a one-to-one match between verbs of separation in all languages.

Placement verbs belong to a semantic domain that is opposite to that for verbs of separation, and like the verbs of separation, the use of placement verbs is guided by culturally-specific intentions behind the actions. English relies upon the general placement verb *put* in

combination with the particles *in*, *on*, *under*, etc. Placement verbs in other languages make distinctions that seem irrelevant to English speakers. Bowerman and Choi (2001) discuss the placement verbs in Korean as shown in Table 2.

Table 2. Korean Placement Verbs

Korean Verb	English Translation
kkita	"tight fit" (Lego pieces, ear plugs, top on pen, ring on finger)
nehta	"put in loosely" (wallet in purse, furniture in room)
kkocta	"put long object into a base" (flower in vase, book on shelf, hairpin)
tamta	"put multiple objects in a container" (fruit in basket, candies in bowl)
nohta	"put something on a surface" (pen on table, chair on floor)
ipta	"put clothes on body" (dress, shirt)
ssuta	"put clothes on head" (hat)
sinta	"put clothes on feet" (socks, shoes)

Like the verbs of separation, it is necessary to elicit verbs of placement in a language by experimenting with a variety of metaphorical contexts rather than assuming that verbs of placement are guided by the same underlying metaphors in all languages. It is often difficult for linguists to systematically sample verbs that apply to a given domain in that there are an infinite number of placements to be made and a limited amount of time to survey this domain. The metaphorical theory of meaning can help by questioning the gloss that we initially give to verbs in other languages.

I take my final example of cross-linguistic semantic diversity from the field of topological relations. The topological relations of *in* and *on* seem to be the most basic spatial relations. If any semantic term qualifies as a language universal it would be the terms for the topological relations of containment and support. Metaphorical extensions are evident for these terms in the English expressions "in my mind" and "on the page". For a thought to be in a mind, the mind has to be viewed metaphorically as a container as discussed by Lakoff and Johnson (1980). For a word to be on a page, the paper has to be viewed metaphorically as a place where the word is attached in the same way that we attach a poster to a wall. Levinson et al. (2003) show how the number of topological adpositions in a language varies between two for Yukatek and Lao, 50+ for Dutch and Yélî Dnye, and 100+ for Tiriyó. The languages in their sample generally divided the topological relations into relations of proximity (*at*), containment (*in*), support (*on*) and attachment.

The cross-linguistic diversity of topological relationships was clarified for me by the field research of my former student Nyoman Aryawibawa on the Indonesian language Rongga. Like English, Rongga has expressions for containment and support as shown in (1).

(1) Rongga topological descriptions

a. *Pita zhale* *one mok*
ribbon in Bowl
'The ribbon is in the bowl'

b. *Kain meja zheta* *wewo meja*
cloth table on Table
'The table cloth is on the table'

Unlike English and other European languages, Rongga restricts the use of its topological expressions to unexpected contexts. In ordinary contexts, Rongga speakers use the adposition *one* regardless of the differences in topological relations as shown in (2).

(2) Rongga expected topological descriptions

a. *Li'e munde* *one mok*
that orange in bowl
'The orange is in the bowl'

b. *Kain meja* one meja
cloth table on table
'The table cloth is on the table'

The difference between the context described in (1b) and the context described in (2b) is that the table cloth in the context of (1b) is not on the table in its usual manner. Instead of covering the table to serve its normal function as in (2b), the table cloth described in (1b) is unfolded or in a ball (Aryawibawa, 2008). The ribbon in the bowl in (1a) is not what Rongga speakers expect to find in a bowl. The division between expected and unexpected topological relationships in Rongga is a compelling demonstration of the work of metaphor in filtering the visual scene through the mind's eye. Words have different uses in languages because the speakers of these languages rely upon culturally specific metaphors to extend their words to different contexts.

CONCLUSION

Languages combine form and meaning in order to express an infinite number of ideas. Modern linguistics has developed sophisticated methods to probe the formal structure of languages from phonetics to syntax, but the study of meaning remains relatively unexplored. The lack of sophisticated methods to document the semantic structure of languages remains a significant problem for work with endangered languages. Research in semantics is limited by semantic theories that can be traced back to Plato and Aristotle. These theories assume that languages use a set of semantic elements with static denotations. The classical theories cannot account for semantic change and an explanation of metaphor is beyond the scope of such theories. Following previous work by Richards, Kant, and Nietzsche I proposed putting metaphor at the heart of human cognition and the basis for semantics.

Metaphors such as "Juliet is the sun" have the same syntactic structure as literal statements such as "The morning star is the evening star." My argument has been that the same cognitive processes support our ability to form and comprehend both metaphorical and literal statements. Putting metaphor (and metonymy) at the center of semantic research risks defining meaning in terms of a semantically anomalous concept, but then meaning has resisted many other approaches. At the very least, metaphor will enliven research on meaning.

NOTE

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REFERENCES

Aryawibawa, I. N. (2008). Semantic typology: Semantics of locative relations in Rongga (ISO 639-3: ROR). Master's Thesis. University of Kansas.

Black, M. (1962). *Models and metaphors: Studies in language and philosophy*. Ithaca, NY: Cornell University Press.

Black, M. (1979). More about metaphor. In O. Andrew (ed.), *Metaphor and thought* (pp. 19-41). Cambridge: Cambridge University Press.

Bowerman, M. (1978). The acquisition of word meaning: An investigation into some current conflicts. In N. Waterson and C. Snow (eds.), *The development of communication* (pp. 263-287). New York: John Wiley.

Bowerman, M. & Choi, S. (2001). Shaping meanings for language: Universal and language-specific in the acquisition of semantic categories. In M. Bowerman and S. C. Levinson (eds.), *Language acquisition and conceptual development* (pp. 475-511). Cambridge: Cambridge University Press.

Carlson, N. R. & Heth, D. C. (2010). *Psychology: The science of behavior* (4th ed.). Toronto: Pearson.

Cazeaux, C. (2007). *Metaphor and continental philosophy: From Kant to Derrida*. New York: Routledge.

Davidson, D. (1984). What metaphors mean. In D. Davidson (ed.), *Inquiries into truth and interpretation*. Oxford: Oxford University Press.

Lakoff, G. (1993). The contemporary theory of metaphor. In A. Ortony (ed.), *Metaphor and thought* (pp. 202-251). Cambridge: Cambridge University Press.

Lakoff, G. & Johnson, M. (1980). *Metaphors we live by*. Chicago: Chicago University Press.

Levinson, S., Meira, S., & The Language and Cognition Group. (2003). 'Natural concepts' in the spatial topological domain—adpositional meanings in crosslinguistic perspective: An exercise in semantic topology. *Language 49*, 485-516.

Kuhn, T. S. (1993). Metaphor in science. In A. Ortony (ed.), *Metaphor and thought* (pp. 533-542). Cambridge: Cambridge University Press.

Nietzsche, F. (2000). On Truth and lie in an extra-moral sense. In C. Cazeaux (ed.), *The continental aesthetics reader*. London: Routledge.

Putnam, H. (1989). *Representation and reality*. Cambridge, MA: MIT Press.

Pye, C. (1996). K'iche' Maya verbs of breaking and cutting. Kansas working papers in *linguistics 21*, 87-98.

Radden, G. (2000). How metonymic are metaphors? In A. Barcelona (ed.), *Metaphor and metonymy at the crossroads: A cognitive perspective* (pp. 93-108). Berlin: Mouton de Gruyter.

Richards, I. A. (1936). *The philosophy of rethoric*. New York: Oxford University Press.

Ricoeur, P. (1975). *La métaphore vive*. Paris: Éditions du Seuil.

Ricoeur, P. (1977). *The rule of metaphor: Multi-disciplinary studies in the creation of meaning in language*. Trans. by R. Czerny with K. McLaughlin and J. Costello. Toronto: University of Toronto Press.

Riemer, N. (2010). *Introducing semantics*. Cambridge: Cambridge University Press.

Rumelhart, D. E. (1993). Some problems with the notion of literal meanings. In O. Andrew (ed.), *Metaphor and thought* (pp. 71–82). Cambridge: Cambridge University Press.

Stellardi, G. (2000), *Heidegger and Derrida on philosophy and metaphor*. Amherst, New York: Humanity Books.

Winograd, T. (1972). *Understanding natural language*. New York: Academic Press.