Appendix 1

transfer phenomenon based on a "kind of" relation as conceived by the speaker between a genus and a species.

(iv) It is only a step from the PT fallacy to the entity–category fallacy (or the EC fallacy, i.e. to interpret categories in terms of entities) because partonomy is just a kind (not a part) of entity-based contiguous relation. In short, metonymy is an E(ntity)-related transfer and synecdoche is a C(ategory)-related transfer. E-relation and C-relation are the bases of two different routes of thought.

2.3. Langacker and the network model

Langacker's concern with metonymy started with "active zone" (Langacker, 1984), a usage-level metonymic fluctuation phenomenon, rather than lexical metonymy based on regular semantic shifts. This is why when Langacker (1990) presented the network model, a model supposed to capture meaning extension from a prototypical sense, there was no place for metonymy. Figure 6 is a slightly modified version.[6]

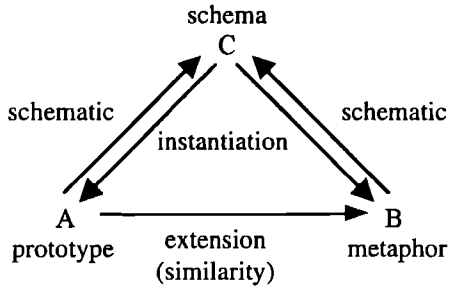

Figure 6.

Figure 6 shows that the extension from the prototype is exclusively metaphoric and that the schema C is the extraction of the commonality of A and B. Since a schema corresponds to a genus, a prototype to a species, and a metaphor to another species (in a domain different from the domain to which the prototype belongs), the schematic relation (i.e. the species-to-genus relation) and the instantiating relation (i.e. the genus-to-species relation) mean what we call the C-relation. If we interpret the schema as another extension, it corresponds to synecdoche (the species-to-genus type) in our sense. Now

it is clear that whereas metaphor and synecdoche hold their places in the network model, there is no place for metonymy.

Langacker started to change his position later, gradually and tantalizingly, until he finally decided to give metonymy a place in the network model when he referred to "*extension* (generally metaphorical and metonymic)" (Langacker 1995b: 111).[7] A new version of the network model may be shown in Figure 7.

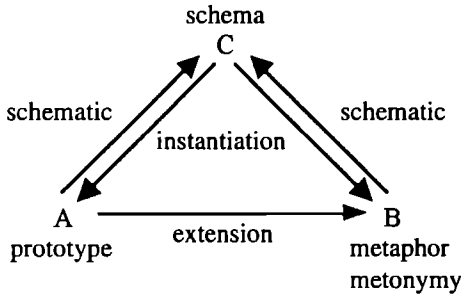

Figure 7.

However, the inclusion of metonymy in the network model poses a serious theoretical problem: B, the extension from the prototype A, is not a uniform node because the extension processes of metaphor and metonymy are different, so the status of schema has to change accordingly. While node C continues to be able to maintain a schematic relation with the prototype and a metaphor, such a relation is no longer possible with the prototype and a metonymy, because the prototype is related to its metonymic extension on the basis of contiguity (the E-relation) in the world. There is no similarity to be extracted from the two. Therefore, so far as metonymy is concerned, the network model stops working.

For example, see the notorious example of metonymy in (5) (Nunberg, 1978: 22):

(5) *The ham sandwich is getting restless at table 20.*

"The ham sandwich" refers to "the customer who ordered it" in a restaurant situation. It is obvious that there is no sense relation (lexical or nonlexical) between "The ham sandwich" and "the customer"; they are only referentially connected by sharing the same space–time. It is therefore not

possible to extract a schema (i.e. abstract semantic commonality) from "The ham sandwich" and "the customer". The same applies to the next example, a case of "active zone" or metonymic contextual fluctuation.

(6) *She slipped her hand through his arm.*

In a normal, non-bloody situation, "his arm" metonymically refers to "the space between his arm and the side of the body". Again, there are no (meaningful) common semantic features to be extracted from the two referents in question. And although the metonymies in (5) and (6) are contextual in nature, things do not change with lexicalized metonymies:

(7) *He is always chasing skirts.*

"Skirts" are not similar to "the girls who wear them", but only contiguous with them. Of course, ultimately any two things can be said to be similar in one respect or another, but that is not the point here.

One merit of the network model in Figure 7 is that three major extension patterns, metaphor, metonymy, and synecdoche, are all present, provided that synecdoche is substituted for schema. Metaphor is based on the similarity relation (the S-relation), metonymy on the E-relation, and synecdoche on the C-relation. They make up the three vertices of what is called the cognitive triangle.

3. The cognitive triangle and its implications

A theory of polysemy should attach equal weight to metaphor, metonymy, and synecdoche. These are the major routes of meaning extension both synchronically and diachronically.[8] They also influence and partly stipulate the ways we think and act.

3.1. The cognitive triangle

Figure 8 shows a simplified model of how a prototype extends its meaning.

P, the prototype, extends its meaning in three major directions: metaphor (the S-relation), metonymy (the E-relation), and synecdoche (the C-relation),

Appendix 2

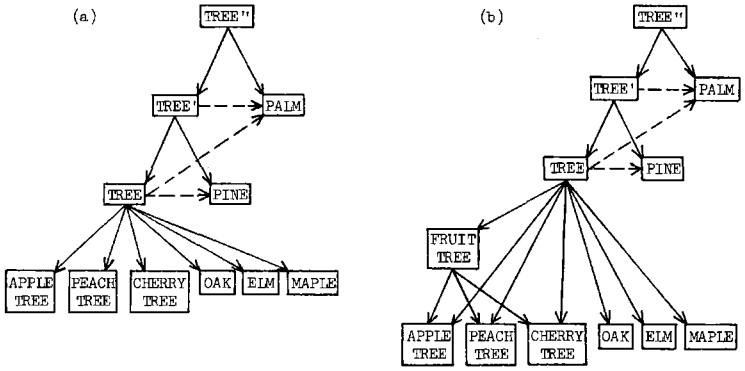

Fig. 10.3

taken into account, [TREE] and [PINE] count as instances of the schema [TREE'], [TREE] being prototypical. At a finer level of specificity, [OAK], [ELM], [APPLE TREE], etc. count as instantiations of the schema [TREE]; if one of them is cognitively salient relative to the others, it constitutes a local prototype.

I assume that speakers continually engage in structuring activity, perceiving and establishing additional relationships whenever existing structures happen to be construed together. Given the instantiations of [TREE] in Fig. 10.3(a), for example, the child will not long fail to notice the special similarity that sets apple, peach, and cherry trees apart from other kinds. This perception involves the extraction of a subschema, [FRUIT TREE], which takes its place in the network as an elaboration of [TREE], as shown in Fig. 10.3(b).[10] Any number of further developments are possible, starting from network (b). When he learns that dates come from palm trees, the child may establish the extensional relationship [[FRUIT TREE]$\longrightarrow$[PALM]]. He may differentiate and elaborate the [PINE] and [PALM] categories, just as he did for [TREE]. He may arrive at bidirectional relationships such as [[OAK]$\longleftrightarrow$[MAPLE]] or [[APPLE TREE]$\longleftrightarrow$[PEACH TREE]] by observing the similarity between sister nodes. The eventual network is bound to be highly intricate and subject to individual variation.

Yet to be considered are semantic extensions that appear not to be based on any judgment of similarity. A classic example, cited by Stern (1931) and many others, is the extension of Middle English *bedes* from 'prayers' to 'beads'; clearly this shift reflects the cultural association of prayers and beads

[10] Direct classificatory relationships such as [[TREE]$\rightarrow$[APPLE TREE]] are not necessarily lost when an intermediate structure like [FRUIT TREE] is incorporated in the network. Thus a rectangle may be directly categorized as a polygon despite the intervening subschema [QUADRANGLE], and [i] as a vowel despite the subschemas [HIGH VOWEL] and [FRONT VOWEL]. Each categorizing relationship is a cognitive routine capable of coexisting with many others.

in the practice of using rosaries. Despite their qualitative distinctness, extensions of this sort are readily accommodated in the present model. They are analyzable as a special case of extensions motivated by perceived resemblance.

Several factors account for the special character of extension based on association. First, the connection between the original and extended values is limited to a single domain—most of the domains in their complex matrices are irrelevant in this regard.[11] Second, and quite crucially, the operative domain is shared by the two meanings. In the case of *bedes*, the notion of a person keeping track of a cycle of prayers by counting the balls on a rosary figured prominently in the encyclopedic description of both [PRAYERS] and [BEADS] during Middle English times. This common domain is what provided the association that motivated the extension.

A third factor emerges when the extension is examined more closely with reference to the pivotal domain. The global categorization ([[PRAYERS]/[bedes]]—→([BEADS]/[bedes])) resolves itself into an identity relation at the phonological pole, and a relationship of partial schematicity, namely ([PRAYERS]—→[BEADS]), at the semantic pole. In the operative domain, both [PRAYERS] and [BEADS] evoke the conception of a one-to-one correspondence between prayers in a cycle and balls on a rosary; they contrast only by their choice of profile. If we abstract away from this point of difference, and consider the one-to-one correspondence without imposing a profile, the resulting conception is schematic for both [PRAYERS] and [BEADS]: it is compatible with their specifications and reflects their extensive commonality. Since it is mediated by a schema, the extension is quite comparable to those based on similarity; the qualitative difference that leads us to speak of association rather than resemblance derives from the fundamental contribution of profiling to the semantic value of an expression. Association is therefore analyzable as the attenuated similarity that remains when this critical specification is suspended.

A final point to consider is how a network, once established, is invoked in actual language use. We have already noted that each node in a lexical network represents a different established usage; in combination with the phonological pole, it defines a distinct **semantic variant** of the lexical item. In a specific usage event, a speaker presumably activates a particular node that approximates the notion he wishes to convey; we can refer to this as the **active node** of the network with respect to the event (by analogy to **active zone**—cf. 7.3.4). For a speaker who utters (2)(a), the active node could be any of the lower-level structures in Fig. 10.3(b) (e.g. [OAK], [ELM], [APPLE TREE],

[11] Extension by similarity may also pivot on single domains within the complex matrices. Consider *star*, where the 'celestial body' and 'celebrity' senses are similar only if most of their respective specifications are ignored.

Appendix 3

The following science-fiction plot is feasible, given a technology that differs from today's only in being a little speeded up. Professor Jim Crickson has been kidnapped by an evil foreign power and forced to work in its biological-warfare labs. To save civilization it is vitally important that he should communicate some top-secret information to the outside world, but all normal channels of communication are denied him. Except one. The DNA code consists of sixty-four triplet "codons," enough for a complete upper- and lower-case English alphabet plus ten numerals, a space character and a full stop. Professor Crickson takes a virulent influenza off the laboratory shelf and engineers into its genome the complete text of his message to the outside world, in perfectly formed English sentences. He repeats his message over and over again in the engineered genome, adding an easily recognizable "flag" sequence—say, the first ten prime numbers. He then infects himself with the virus and sneezes in a room full of people. A wave of flu sweeps the world, and medical labs in distant lands set to work to sequence its genome in an attempt to design a vaccine. It soon becomes apparent that there is a strange repeated pattern in the genome. Alerted by the prime numbers—which cannot have arisen spontaneously—somebody tumbles to the idea of deploying code-breaking techniques. From there it would be short work to read the full English text of Professor Crickson's message, sneezed around the world. Richard Dawkins (1995) *River Out of Eden: A Darwinian View of Life*, pp. 17-18.