

語彙意味論の史的考察：単語連想の視点から

伊藤光彦

概要

単語連想の言語学観点を基本的な立場とし、まず語彙意味論を言語学の通時的観点から概観した。構造主義前の語彙意味論として、referential theory (参照理論), denotation/connotation (内包的/外延的意味)がある。構造主義の語彙意味論として、semantic differentials (意味微分法), semantic fields (意味の場), associative meaning (連想の意味)がある。生成文法の語彙意味論として、semantic feature theory (意味素性理論), feature theory (素性理論)がある。生成文法後の語彙意味論として、prototype theory (プロトタイプ理論)とこの理論に密接に関係する認知意味論がある。これらそれぞれの理論と単語連想との関わりを考慮しながら概観した。

次いで、語のパラディグマティック/シンタグマティック関係からの語と語の関係をカテゴリー分けして検討した。検討にあたり、Cruse (1986, 2000), Leech (1974), Lehrer (1974), Lyons (1963, 1977, 1995), Palmer (1976), Saeed (1997) を主な参考とした。検討項目としてパラディグマティック関係では、synonymy (同義語), hyponymy (上位下位関係語), meronymy (部分全体関係語), opposites (反意語)そしてCruse (1986) が提示する compatibility (上位概念共有関係語)がある。特に、opposites の中でも incompatibility, complementary, antonymy, reversiveness, conversiveness, そしてSaeed (1997) が提示する taxonomic sisters と下位区分できる。シンタグマティック関係では、collocations, fixed expressions, その他の表現、について検討した。議論の過程で単語連想のパラディグマティック関係で重要な opposites の検討にあたっては素性理論を用いて検討した。

A Historical Study of Lexical Semantics: from a Point of View for Word Association Studies

Mitsuhiko Ito

1. Introduction

Semantics is the study of meaning, and that part of semantics which deals with word meaning is labeled *lexical semantics*. Lexical meaning is clearly an important topic in the context of word association studies, where the focus is on lexical acquisition. The acquisition of language is obviously a psychological process, a cognitive aspect of mental activity. Psychology is thus also concerned with lexical meaning. In short, linguistic study and psychological study are closely interrelated and both have direct relevance for lexical semantics.

In what follows, semantics is discussed from a number of points of view. We begin with a discussion of semantics in its linguistic aspects and relate it to pre-structural linguistics, structural linguistics, transformational-generative grammar, and post-generative transformational grammar. Various theoretical approaches to semantics are also explored: referential theory, connotation and denotation, word association and associative meaning, semantic differentials, semantic field theory, feature theory, word association and feature theory, and prototype theory. After discussing the theoretical approaches, this study focuses on paradigmatic and syntagmatic word relations since these are also semantic categories relevant to the study of word association studies. In the course of discussing different theoretical approaches and word relations, the notion of markedness will inevitably be mentioned from time to time on account of its close connection with some of

the theories in question.

2. Semantics in its Linguistic Aspects

The study of semantics was originally largely diachronic in nature, its main concern being changes in the meaning of each word. This perspective was basically that of the comparative linguistics of Indo-European languages especially before Saussure (1916). American structuralist linguists neglected the study of the lexicon and treated vocabulary as more or less unstructured, or at least very loosely structured (Gleason, 1962). Structuralist linguistics in its American, post-Bloomfieldian incarnation was mechanistic and anti-mentalistic, and tried to avoid dealing with the psychological factors relevant to words. The behaviourist school of psychology had very similar attributes. Even the early transformational generative grammarians considered the lexicon to be separate from the grammar and paid little attention to the meaning of words and sentences (Lehrer, 1974). However, structural semantics did continue to be a feature of European linguistics during the period when it was under a cloud in America.

The origins of structural semantics are customarily traced back to Trier (1931), whose monograph may indeed be the first major descriptive work in structural semantics (Lehrer, 1992). Even though structural linguists tended to shy away from the mental aspect of semantics, they played an important role in developing the discipline. Geeraerts (1992) summarizes the structuralist contribution to the study of meaning as follows.

There are three main approaches to defining semantic structure that have been employed by structuralist semanticists. First, there is the relationship of semantic similarity that lies at the basis of semantic field analysis, inaugurated by Trier (1931) and eventually leading to componential analysis in the work of anthropological linguists. Second, there are lexical relations such as synonymy, antonymy, and hyponymy. These were for the first time systematically studied in the context of structural semantics by Lyons (1963). Third, syntagmatic lexical relations were identified by Porzig (1934) under the name of *wesenhafte Bedeutungs-Beziehungen*. They later reappeared as selectional restrictions in the neo-structuralist version of semantics that was affiliated to generative grammar by Katz and Fodor,

whose 1963 article moved lexical semantics into a further stage of development.

3. Theories in Pre-Structural Linguistics

3.1. Referential Theory

According to referential theory, the 'meaning of a word is some object, event, or state of affairs in the real world specified or referred to by that word' (Kess, 1992: 197). The referential meaning of a word is the particular object, event, or relationship specified by that word. Referential meaning is highly specific and is heavily dependent on context (Glucksberg and Danks, 1975). American structuralist linguistics and behaviourism in psychology were at one in suggesting that the meaning of a word, a linguistic form, is essentially the situation in which speakers utter a particular word and the response which it yields in the hearer (Kess, 1992).

There are two problems with this theory. One is that two linguistic expressions which refer to the same entity may have different meanings. Thus in *Tom is my cousin, my cousin* provides information about a kinship relation and not a name. The other problem is that a particular word can be perfectly meaningful in an ordinary expression and yet have no real referent at all. According to a strict application of the referential theory of meaning, a sentence like *Mary wants to find a unicorn* is as meaningless as *Mary wants to find a grough*. However, it is clear that the former is meaningful in a sense and that the latter is not (Prideaux, 1985).

Ogden and Richards (1923) characterized the meaning of a word as a relationship between the word form as a symbol or name, a conceptual intermediary, and the referent or thing to which the word refers. Accordingly, by their view there are three basic elements in meaning:

1. symbol or name = the phonetic shape of the word
2. thought or reference or sense = the information which the name conveys to the speaker
3. referent or thing = the non-linguistic feature or event we are talking about

(Kess, 1992)

This particular version of referential theory is thus closer to denotation than “purer” versions because of the inclusion of a mental dimension of word meaning.

3.2. Denotation and Connotation

This theory claims that meaning consists in abstract classes of objects of events and the mental concepts represented by the word rather than the real objects represented by the word. For example, according to this view, *dog* refers not to a particular object but to the mental concept of dogs. Dictionary definitions of words are usually denotative meanings (Taylor, 1976). This theory shifted the focus from language proper to concept (Prideaux, 1985). Denotative meaning can, then, be described in two ways: specifying the relations of a word with other words, and specifying its relevant semantic features (Glucksberg and Danks, 1975). One approach within this paradigm is semantic field theory, which is dealt with in a later section; words can be denotatively related to one another by a classification system which illustrates the relations among the concepts represented by the words. The other approach is semantic feature theory, also discussed below, denotative meaning in this case being specified by listing a set of distinctive features for the word.

In a context where denotation is being discussed, connotation should also be mentioned. In contradistinction to denotation, connotation has to do with the language user’s attitudes and feelings towards particular words and the entities to which they refer. Connotative meaning does, however, lead to semantic differentiation in terms of semantic differentials, to which we now turn.

4. Theories in Structural Linguistics

4.1. Semantic Differentials

Osgood and his colleagues invented a way to measure the connotative aspects of meaning. This involves three parameters: an evaluation scale (running from ‘good’ to ‘bad’), a potency scale (running from ‘strong’ to ‘weak’), and an activity scale (running from ‘active’ to ‘passive’). Subjects are asked to locate a given stimulus word on a seven-point scale with a pair of bipolar terms of the three variables. Thus, for example, *lazy* has been

evaluated by American English speakers as 'weak, passive, and bad' (Jenkins, Russell and Suci 1958).

We have seen that behaviourist accounts of meaning were in terms of a response derived from observable behaviour; the semantic differential attempted to supplement or expand this view at least with respect to the connotative aspect of meaning. Meaning is in this approach related to the internal response to some expression, the response being considered to have been originally made to the referent of the word, and to have been conditioned to the word as an internal response. Thus, semantic differentials had considerable influence on explanations of word associations, stimulus and response relations, and the problem of meaning generally (Kess, 1992).

4.2. Semantic Fields

In the theory of semantic fields, 'the meaning of a lexical item is a function of the meaning relations obtained between that item and other items in the same domain' (Fillenbaum & Rapoport, 1971, vii). It is unclear how the theory of semantic fields is related to denotation and reference (Lyons, 1977) because of the nature of semantic fields, which contain only concepts. Lexical fields, which contain real words, are seen as the realization of semantic fields. Semantic fields are described as divisions within the general 'semantic space' that is available to languages to express reality (McCarthy, 1990). Trier's theory of semantic fields assume that, 'underlying vocabularies of all languages, there is an a priori unstructured substance of meaning' (Lyons, 1977). However, theories of semantic fields assume that the vocabulary of a language is structured, just as the grammar and phonology of a language are structured (Lehrer, 1974), and assume that the sense of words is analyzable (Lyons, 1977). The words of a language can, in this view, be classified into sets which are related to conceptual fields and can be divided up into semantic domains in certain ways (Lehrer, 1974). Thus, in a semantic field, properties and dimensions are represented as being defined by the members of the set themselves (Prideaux, 1985). As we have discussed so far, the chief concern of mainstream semantic field theory is paradigmatic relations of items in a domain (Lyons, 1977). It should be noted that paradigmatic relations of items are discussed at full length later in this study.

Semantic field analysis uses features to identify the relationship of lexical

items within a field (Hatch and Brown, 1995), and the methodology for experiment is similar to that deployed in semantic differential and word association studies (Kess, 1992). The primary goal of the theory is to discover how terms within the field are different from each other or similar to each other. Semantic field theory does not require binary features. It discovers the basic dimensions in which the members of a set are organized, and it recognizes the possibility that the dimensions are likely to have differential importance of salience. The determination of the relevant dimensions permits the construction of an n-dimensional semantic space in which each term should be located. The relative proximity of words in the space gives an indication of their perceived similarities (Prideaux, 1985). With respect to the methodology for experiment, researchers study how semantic information is organized, stored, and retrieved, by asking subjects how they perceive the relationships between various lexical items and categories (Kess, 1992). Thus, as a method of analysis, the theory of semantic fields is related to feature theory, which is discussed later in this study. Furthermore, in terms of experimental methodology, the theory of semantic fields is related to the notion of semantic differentials, which has been discussed above, and word association, which is treated in the next section.

Prideaux (1985) mentions two main problems in respect to semantic field theory. One is that the ‘particular set of items is selected a priori by the experimenter’ (174). In short, the results may not reflect the complete mental organization because of the a priori selection of items. The other is that the structural relations arrived at with respect to a given set of lexical items may be as much a function of the particular experimental task as of the subjects’ perception of the items being related. Moreover, it is not at all clear that the semantic space derived in a particular experiment necessarily represents the subjects’ mental organization, since it could also be possible that the subjects are creating a structure by virtue of being asked to relate and assess several terms.

4.3. Word Associations and Associative Meaning

Word association theory is philosophical in origin, and can be traced back to Aristotle. An association theory looks for latent relationships that words have with other words, images, and thoughts. Experiments with word

associations try to turn latent relationships into sequential and tangible relationships. The underlying system is seen as a spider's web, with words in the mental network related to other words by associative links (Kess, 1992). The pattern of responses to a word is somewhat similar to denotative meaning, but is far less systematic (Glucksberg and Danks, 1975). For example, there is more to the meaning of *needle* as a stimulus than a list of related words. Part of its meaning may be related to its function, to its shape and size, to how it is used in a given context, and to other factors (Prideaux, 1985).

In a free word association test, the subject is given a word and asked to respond with the first word that comes to mind. There is a surprising consistency among subjects for many familiar words like *boy*, *black*, but not for some other unfamiliar words like *aardvark*, *sepia* (Kess, 1992). Word association responses are sensitive to the situations of word association tasks. If subjects are required to respond quickly, clang responses like *blister* to *sister* or *fellow* to *yellow* are common. If subjects have more time, responses which are similar in semantic features are yielded, as in *man* to *woman* or *sister* to *brother*. If there is no time constraint at all on responding, subjects produce more idiosyncratic responses like *door* to *man* or *summer* to *sister* (Kess, 1992).

Word association responses can be roughly classified into three types.

1. Members of the same part of speech (paradigmatic) class or not (syntagmatic)
 - (A) paradigmatic responses: often synonyms or antonyms
 - (B) syntagmatic responses: sequential in word order like *dig a hole*
2. Members of the same taxonomy
 - (A) subordinate
 - (B) superordinate
 - (C) coordinate
3. Rhyming or clang responses

It should be noted that clang responses are not related to meaning at all whereas the other two types clearly involve word meaning.

Some researchers have taken the associated meaning of a word to be the sum of all the associations offered by subjects (see, e.g., Deese, 1962a). For example, one can ask subjects to cite as many words as they can think of as associations for the stimulus word, or to take the most common associations

and have subjects then associate with those words. Thus, for a word like *butterfly*, Deese (1965) found not only a frequency matrix for associations, but also how they clustered into feature groupings like 'animate' (e.g. *bees, fly, bug*) and 'inanimate' (*sky, yellow, spring*).

As far as the acquisition of associations is concerned, it is still not clear whether the patterns of associations people exhibit reflect their language competence or their knowledge of the world. Word association patterns among adults are quite homogeneous and predictable. However, young children's associations differ systematically from those of adults in at least two ways. On the one hand, children's word associations are far less homogeneous than adults'. On the other hand, children tend to produce relatively more syntagmatic responses than adults, which raises the issue of the syntagmatic paradigmatic shift (Glucksberg and Danks, 1975).

In word association tests the stimulus word is given in isolation. Since any word out of context is ambiguous, the word may be interpreted in any one of several different ways. Glucksberg and Dunks (1975) exemplify as follows:

If the stimulus word is *table*, it could be understood as *table 1*, (a four-legged piece of furniture), *table 2*, (a graphic display of numbers), or *table 3*, (the action of postponing a decision on a motion in a debate). This very first stage of producing word associations involve variability. (58)

When a word has been interpreted in one particular way, any one of a range of associative operations may be performed. Clark (1970) presents several possible rules by which an associative response may be selected. Each of the rules uses semantic features to select a particular type of association (Glucksberg and Danks, 1975).

Clark's way of dealing with the mechanisms of associations is a valuable departure from the traditional view. 'It had long been supposed that associations were fundamental units of mental organization, and out of our associative knowledge grew our knowledge of language' (Glucksberg and Danks, 1975: 59). Clark (1970) took the opposite point of view: 'we could not display the associative repertoires we do unless we already have a well-developed semantic and syntactic system' (Glucksberg and Danks, 1975: 59). In

other words, the mechanisms for language production and comprehension are the same for production of word associations, and those mechanisms do not derive from associative learning. Clark's point of view leads us to the topic of feature theory.

5. Theories in Generative Transformational Grammar

5.1. Semantic Feature Theory

The notion of features is long familiar from its role in phonology and in the componential analysis of kinship systems in anthropology. Within linguistic semantics, feature theory largely grew out of generative grammatical concerns to have a semantic theory that would somehow build upon, or at least complement, the syntactic theory (Kess, 1992).

The meanings of words are assumed by feature theory to be decomposable into separate components or features, so that the basic meaning of any lexical item can be specified by an independent set of semantic features (Kess, 1992). According to this view, the more features that are shared by a set of words, the more closely related they are semantically (Kess, 1992). It should be noted that Katz and Fodor (1963) talked in terms not of 'features' but of semantic 'markers' and semantic 'distinguishers,' which are, however, closely related to the semantic components of traditional componential analysis (Fodor, 1977). Proponents of 'semantic features' include Smith, Shoben, and Rips (1974) (Miller, 1978).

The transformationalist model of lexical-semantic description introduced by Katz and Fodor (1963) became a reference point for studies in lexical semantics. The appeal of Katzian semantics was at least partly due to its affiliation with generative grammar. It profited from the generative paradigm, which was dominant in linguistic theory at the time (Geeraerts, 1992). As a theory of lexical semantics, Katzian semantics combined a structuralist approach with two characteristics of generative grammar. First, Katz took over the Chomskyan requirement that linguistic analyses should be rigidly formalized. In particular, componential analysis in the Katz model was a method of descriptive analysis and a formal apparatus that seemed necessary to meet the Chomskyan requirement of algorithmic formalization (Geeraerts, 1992).

Second, Katzian semantics took over the mentalistic self-conception of Chomskyanism.

By defining the subject matter of semantics as the competential 'ability to interpret sentences' of the language user, semantics came to share the promises of explanatory adequacy that constituted so much of the appeal of generative grammar.

(Geeraerts, 1992, 260).

Third, Katzian semantics brought together the three types of semantic relations that could form the basis of structuralist semantic theories. In the first place, paradigmatic similarity relations along with lexical field theory appeared in Katz and Fodor's model as semantic markers and semantic distinguishers. In the second place, syntagmatic restrictions on the combination of words were translated as selectional restrictions (such as the restriction specifying that the direct object of 'eat' must refer to something edible). In the third place, even though in their 1963 article Katz and Fodor did not discuss the paradigmatic lexical relations referred to by Lyons (1963), in 1972 Katz claimed that semantic theory should focus on lexical relations such as synonymy, antonymy, and hyponymy, which were very much featured in Lyons's 1963 account (Geeraerts, 1992).

One theoretically important aspect of feature theory is what has been called the marked and unmarked distinction. For example, among tense and aspect features, [Progressive] and [Past] are unmarked. In polar adjective pairs such as *high* : *low* and *long* : *short*, *high* and *long* are unmarked. It is clear that the binary conception of markedness is linked in feature theory to a more general conception of binary opposition.

The application of binary opposition and the notion of features might be illustrated with the following examples. In early work by Chomsky, nouns were characterized by a primary set of features such as [Common], [Count], [Animate], [Human], and [Abstract] (Chomsky, 1965). [Count] refers to the grammatical property of pluralization. For example, nouns which are [+Count] (e.g. *dog* vs. *dogs*) can take plural inflections, but those which are [-Count] (e.g. *dirt* vs. **dirts*) cannot. [Common] refers to the individuality of the nouns, and to the difference between proper and common nouns, except

that it also implies close relations with determiners. For example, because there is only one Egypt, one hardly says **the Egypt*, or **an Egypt*. According to this system, any noun can be defined using the above semantic features as follows (Kess, 1992):

1. *boy* [+Common, +Count, +Animate, +Human]
2. *dog* [+Common, +Count, +Animate, -Human]
3. *book* [+Common, +Count, -Animate]
4. *sincerity* [+Common, -Count, -Animate, +Abstract]
5. *dirt* [+Common, -Count, -Animate, -Abstract]
6. *John* [-Common, -Count, +Animate, +Human]
7. *Fido* [-Common, -Count, +Animate, -Human]
8. *Egypt* [-Common, -Count, -Animate] (Chomsky, 1965)

Thus, one can obtain a set of grouping features which can be applied to other nouns. For example, 'woman' has the same general features as 'boy,' 'table' the same as 'book,' and 'confetti' the same as 'dirt.' One also has cross-classificational possibilities immediately available so that one can call up all the nouns with the feature of [+Animate], or those with the feature of [-Count] without naming individual nouns. The basic idea in such feature classification of words is that grammatical features like [Noun] and semantic features like [Animate] mark that which is regular and systematic in the language. However, the idiosyncratic features of word meanings must be marked in an individual way differently from the regular and systematic features because they are different from word to word (Kess, 1992).

There are several problems in semantic feature analysis. First, the particular classifications and the lists of relevant features are chosen more or less arbitrarily. There is no specific reason to use the distinction 'living' vs. 'non-living' instead of 'organic' vs. 'inorganic.' It is not known whether any finite set of features can be chosen to reflect universal properties of semantic systems. Second, relative importance among features needs to be considered. It is assumed that all the included features are equally important. However, there are no rules or guidelines for selecting or weighing features, and certainly no criteria for deciding any universal, context-free set of distinctive features. Third, feature theory cannot solve the problem of organization and dimensionality. A distinctive feature system is inherently made up of two dimensions. For some sets of words, three or more dimensions may be

required to describe their denotative meanings. For example, English kinship terms are better represented by a three-dimensional system than a two-dimensional one (Glucksberg and Danks, 1975). Fourth, different kinds of features are necessary for different parts of speech. For example, while the feature 'human' is important for nouns, it bears little relevance for adjectives or verbs. Similarly, the distinction between action and state verbs can be specified in terms of a feature of 'stativity' which has little relevance to nouns. Finally, semantic feature theory involves the abstraction of features from a whole concept. According to feature theory, one must extract the relevant features to know a concept. However, one must already know the concept to recognize what features are relevant to. In short, it should be noted that there are some problems with the feature theory of lexical semantics (Prideaux, 1985).

In line with features, Lehrer (1974) raises three main problems with notation. One is that the use of – notation is inconsistent even though the advantage of the + and – approach is that it makes explicit the fact that both features like [+Animate] and [–Animate] belong to the same system. First, sometimes the use of – means that a feature is non-applicable, and sometimes it means a positive feature that contrasts with +, such as [+Child] as [–Parent]. Second, there are times when it is desirable to use the – sign to mean the absence of a feature, but if the – notation is preempted for a positive specification, this is not possible. For example, [+Feminine] is sometimes represented as [–Masculine] even though the concepts of [Feminine] and [Masculine] can be specified positively. Finally, when a – sign is used with sets of features containing more than two it usually means 'absence of' rather than having some positive value. For example, [–Noun] implies that the marked word is a verb, an adverb, an adjective, etc. Thus, there are a few problems with the – notation, even though the discussion by Lehrer is not especially clear in this regard. Lehrer (1974) claims that 'for the sake of clarity and consistency it is preferable not to use – for positive specifications' (61). However, the present researcher does not agree with him on this point because unmarked implies positive and marked implies negative between opposites like *long* : *short* or *good* : *bad*.

Nevertheless, in the context of the present study, it is worth discussing semantic feature theory further in relation to word association for two

reasons. First, the description of the application of feature theory by Clark (1970) to word association studies does not seem sufficient and merits further expansion. Second, the feature theory of lexical meaning predicts that children should learn unmarked lexis before marked lexis, and that the more general features associated with a word should be acquired before the more specific ones (E. Clark, 1971). For these reasons, word association and the feature theory of lexical semantics are discussed in the following section.

5.2. Word Association and Feature Theory

Clark (1970) discussed the application of feature theory and markedness to word association. In this sense, he combined three different but related notions and theories: markedness, feature theory, and word association. Clark (1970) claimed that word association is ‘presumably derived from our ability to understand and produce language’ (272). He further claimed that language should not be thought of as a consequence of accumulated associations, but argued rather that word associations should be thought of as a consequence of linguistic competence. This view is diametrically opposite to that of associationism, which states that ‘two words become “associated” with each other when the two are experienced in temporal contiguity’ (Clark, 1970; 272). Such a view of associationism cannot, in Clark’s view, account for language comprehension and production.

Clark (1970) attempted to explain word associations in terms of feature theory, which was mainly developed in the generative grammar framework, as was mentioned above. The stimulus *man* can be divided into features such as [+Noun, +Det__, +Count, +Animate, +Human, +Adult, +Male]. Then, when some association like ‘change the sign of the last feature’ rule is applied, the association mechanism changes [+Male] to [-Male]. The associate generated by this change is then *woman*—with the features [+Noun, +Det__, +Count, +Animate, +Human, +Adult, -Male].

Clark presented an example of ambiguity based on surface structure and deep structure. At the first stage of the word association the surface structure realization of *man* could be assigned at least three abstract characterizations: (1) ‘male adult human’, (2) ‘human’, and (3) ‘to attend to’. The association rule produces different results with these different meanings: (1) produces *woman*, (2) produces *animal* or *beast*. Therefore, for Clark, ‘ambiguity of the

surface form is one of the most important problems in word association' (Clark, 1970: 274).

Clark presented two major association rules: paradigmatic rules and syntagmatic rules, each of which preserves sub-categories. The paradigmatic rules preserve the minimal-contrast rule, the marking rule, the feature-deletion and -addition rules, and the category-preservation rule. The syntagmatic rules preserve the selectional feature realization rule, and the idiom completion rule. Thus, he set up four paradigmatic rules and two syntagmatic rules to study response type of word associations.

The first rule, the minimal-contrast rule, is to 'change the sign of one feature, beginning with the bottommost feature' (Clark, 1970: 276). Features involved in this rule include [Polar], as in *long* : *short*, *up* : *down*, [Male], as in *man* : *woman*, [Plural], as in *is* : *are*, [Past], as in *is* : *was*, [Nominative], as in *he* : *him*, and [Proximal], as in *here* : *there* and *this* : *that*. The features are oppositional, and the oppositions in question relate to the basic notion of markedness. Therefore, the stimulus response relation in this rule is equal to the marked and unmarked relation from the point of view of markedness. Clark claimed that the changed feature is not a random one, but the last feature in the list of features of paired words. In the case of *man* : *woman* as illustrated above, the last feature [+Male] of the features which compose *man* is altered to [Male].

The second rule, the marking rule, is a particularization of the minimal-contrast rule. Clark established the rule with respect to the notion of markedness as defined by Greenberg (1966). Greenberg pointed out that there was a greater tendency to change a feature from its marked value to unmarked value rather than from unmarked value to marked value in word-association data. Clark exemplified [Plural] for nouns. A +, a marked signal, signals the addition of the morpheme *-e(s)*, whereas *a*, an unmarked signal, signals the morpheme. Therefore, [+Plural] is marked and [Plural] unmarked. He illustrated the cases in this category as follows: plurals of nouns are marked and singulars unmarked (e.g., *dogs* : *dog*), comparatives of adjectives are marked and positives unmarked (e.g., *better* : *good*), past participles of verbs are marked and infinitives unmarked (e.g., *bought* : *buy*), nominatives of pronouns are marked and accusatives unmarked (e.g., *he* : *him*), and negative suffixes like *-less* are marked and positive suffixes like *-ful*,

unmarked (e.g., *careless* : *careful*).

According to feature theory, *man*, *he*, and *him* are unmarked, and *woman*, *she* and *her* are marked between each opposite pair of *man*: *woman*, *he* : *she*, and *him* : *her*. Moreover, a marked word is supposed to elicit an unmarked word. However, within each pair, a marked word does not elicit an unmarked word as often as an unmarked word yields a marked word, whereas, in general, a marked word yields an unmarked word in word association tests (Greenberg, 1966). It should be noted, therefore, that the marking rule cannot be retained as a general rule in word associations (Clark, 1970).

The third rule is the feature-deletion and feature-addition rule. This deletes features from or adds features to the end of the feature list. The deletion rule must have precedence over the addition rule, since there are many possible features to be added. However, the features that might be deleted are exactly specified. Deletion of features generally produces superordinates like *fruit* from *orange* whereas addition of features produces subordinates like *orange* from *fruit*. One eminent example of feature addition is the addition of [+Volitive] to *hear*, which results in *listen* and the addition of [+Volitive] to *see*, which results in *look*. 'The feature-deletion and feature-addition, like the minimal contrast rule, actually consists of a hierarchy of rules, with single deletions and additions preferred to multiple operations' (Clark, 1970: 279).

The last of the paradigmatic rules which Clark referred to is the category-preservation rule. In word association, stimuli tend to yield paradigmatic responses (Thumb & Marbe, 1901; Deese, 1962b; Fillenbaum & Jones, 1965). The rule is: 'do not change features high on the list' such as the feature [+Noun] or [+Adjective]' (Clark, 1970: 280). The rule is only another aspect of the rules which stress that features at the bottom of the list are changed first. Therefore, this rule can be included among the other rules in the above.

Even though it is more difficult to characterize syntagmatic responses in terms of rules than is the case for paradigmatic responses, Clark (1970) proposed two types of syntagmatic rules: the selectional feature realization rule, and the idiom completion rule. The selectional feature realization rule is based on the notion that 'the list of features for a word often contains

selectional features that partially characterize the meaning of the potential context of that word' (Clark, 1970: 281). For example, *young* has selectional features such as [+Det [+Animate] be __], and it turns out that many responses to *young* are specific realizations of these features—e.g., *boy, child, people*. The selectional feature realization rule accounts for the differences in the number of syntagmatic responses given to nouns, verbs, adjectives, and so on. According to Chomsky (1965), nouns have no selectional features although verbs, adjectives, and other categories do. Therefore, nouns should elicit relatively few syntagmatic responses compared with the other categories. Furthermore, in Deese's (1962a) word association study, nouns produced a 21 percent rate of syntagmatic responses of the time, whereas verbs produced a 48 percent rate, adjectives a 50 percent rate, and adverbs a 73 percent rate. Clark (1970) claimed that the selectional feature realization rule is usually applied only after other rules have failed. The claim seems to go too far, since children acquiring a first language exhibit a strong tendency to respond to stimuli syntagmatically in comparison with adults. For children, the first rule to choose might be the selectional feature realization rule.

The other syntagmatic rule is the idiom-completion rule, which is defined by Clark as prompting the subject to 'find an idiom of which the stimulus is a part and produce the next main word' (Clark, 1970: 282). An example is the case where *cottage* is the stimulus and *cheese* is the response—the stimulus and the response together forming the idiomatic phrase *cottage cheese*. According to Clark, *eggs* elicited by *ham*, or *butter* elicited by *bread*, are also governed by this rule. However, Clark did not include such instances as *there* elicited by *here*, *low* elicited by *high* and *then* elicited by *now* in this group because in these cases pairs of antonyms are involved. The distinction seems to be very reasonable.

All of the rules presented by Clark are for adults. With respect to the fact that adults tend to respond paradigmatically while children tend to respond syntagmatically, Clark cited McNeill (1966), who assumed that the young child has only limited feature lists. Even when children try to find a minimal contrast, they give up the attempt and contrast on syntactic category features rather than semantic features as adults do. Young children seem not to have a minimal-contrast rule until they have the lower binary

features they can apply it to. Instead, with their incomplete feature lists, they merely use one of the syntagmatic response rules on the selectional features they already have for use in producing utterances. Thus, Clark claimed that we can only speculate in this area until more is known about the child's linguistic competence and about the relation of adult competence to word associations.

6. Post-Generative Transformational Grammar

6.1. Prototype Theory

Linguists who were heavily dependent on feature theory assumed that meaning was determined by clear boundaries, which implies the notion of features. However, working lexical semanticists describing the lexical fields of natural languages had to deal with fuzzy boundaries, which points to the notion of attributes rather than features (Lehrer, 1992). Prototype theory seems to answer the problem of fuzziness within the members of a category, since the theory does not deal with clear boundaries and since some members of a category are posited to be better carriers of family resemblance than others (Kess, 1992).

Prototype theory suggests that the members of a prototypical category like *bird* or *furniture* are structured on a continuum ranging from central or typical cases to less typical or peripheral ones. Thus, *chair* is a more central member of the category *furniture* than *lamp*, and *sparrow* is a more typical member of the category *bird* than *penguin*. The claim is supported by evidence from an experiment conducted by Rosch. One piece of evidence is that speakers tend to agree more readily on typical members than on less typical members, presumably because typical examples come to mind more quickly than less typical ones. Another is that the boundaries between concepts seem uncertain or 'fuzzy' for experimental subjects rather than clearly defined. Boundary fuzziness was also studied by Labov (1973) (Saeed, 1997).

The theory is applicable to the explanation of borderline uncertainty when an item in the world seems to belong to two different categories. For example, English speakers use the word *whale* while not being sure whether a whale is a mammal or a fish. Prototype theory can account for this in

terms of the fact that whales are not typical of the category *mammal*, because they are far from the central prototype. At the same time, whales look like prototypical fish in some characteristic attributes because they live in the oceans, have fins and so on, as fish do (Saeed, 1997).

The psychologists Rosch and Mervis (1975) made the criticism that the use of distinctive features does not provide an accurate picture of how categories are organized in the mind. They claimed that a notion of “family resemblance”, which was originated by Wittgenstein and criticized by Wierzbicka (1996), is a more accurate and realistic way to picture the mental organization of categories. According to their family resemblance notion, *robin* refers to a more prototypical bird than *penguin* because *robin* shares more attributes, defining characteristics with other members of the *bird* category than *penguin* (Prideaux, 1985).

In spite of the arguments put forward by Rosch and colleagues against the feature-oriented study of lexical meaning, the lexical semanticist Cruse (1990) claimed that there are two types of approaches to prototype theory. One is a feature-centred approach which focuses primarily on the features which characterize a category or concept of the members. The other is a member-centred approach which focuses on the relations between the category and its members which manifest features. Even though the member-centred approach and the feature-centred approach are not independent of one another, there are potential differences. Under a strict member-centred approach the prototype of a category can only be an existing member of the category. However, under the feature-centered approach there may be no actual member of the category which manifests all the prototypical features of the category. The feature-centered approach is generally the more appropriate to linguists, as the attributes of a category can be considered as semantic features of a word. Thus, the feature-centred approach can be seen as a development from the classical componential method of analysing meaning in linguistics.

Lehrer (1990) mentions two problems presented by prototype theory in the study of lexical meaning. One is whether prototype theory can be applied to any and all words in the vocabularies of languages; Lehrer refers in this connection to Osherson and Smith's (1981) comment that prototype theory is best suited to ‘kinds’ notions. The implication is that prototype theory may

be less applicable to abstract notions, prepositions, sentence connectives, etc. The other is that typicality does not provide much information about semantics or semantic structure, whereas 'one traditional goal of semantic analysis is to provide information on how words are related to each other, and a part of this task is to distinguish among related but non-synonymous words' (Lehrer, 1990: 374).

6.2. Cognitive Semantics

Cognitive semantics must be touched on with regard to prototype theory. Its basic view is that 'there is no separation of linguistic knowledge from general thinking or cognition' (Saeed, 1997: 299). The view is, in other words, that 'we have no access to a reality independent of human categorization and that therefore the structure of reality as reflected in language is a product of the human mind' (Saeed, 1997: 301). Furthermore, Saeed (1997) explains that 'meaning is based on conventionalized conceptual structures' (301); therefore, 'semantic structure reflects the mental categories which people have formed from their experience of growing up and acting in the world' (301).

Among other notions in the study of cognitive semantics, metaphor and metonymy are notions rather close to word association studies. However, the two notions focus on extensions of meaning or meaning change (Cruse, 2000), not on word relations. Metaphor is the primary concept for cognitive semantics agreed on among cognitive linguists. Lakoff and Johnson (1980) proposed that 'metaphor is an essential element in our categorization of the world and our thinking process' (Saeed, 1997: 301), while 'metaphor has been viewed as the most important form of figurative language use' (Saeed, 1997: 302).

Metaphor, which is characterized as resemblance of the source and the target, exhibits four features (Saeed, 1997). The first is 'conventionality,' which means that even familiar metaphors can be given new life whereas literal language theorists claim that some metaphors have ceased to be metaphors and have passed into literal language. Cognitive semanticists claim that even dead metaphors are still metaphor. The second is 'systematicity,' which means that semantic features of the source and target domain are shared so that metaphor may be extended or have its own internal logic. For example, under the metaphor, 'Life is a journey,' comes

the sentence, 'The person leading a life is a traveler.' The third is 'asymmetry,' which means that there is no symmetrical composition between the source and the target but features of the source transfer to the target. The final is 'abstraction,' which means that a typical metaphor uses a more concrete source to describe a more abstract target. For example, the metaphor, 'Life is a journey' as the common everyday experience is transferred as abstraction, like a departure, as in 'She passed away this morning.' Thus, 'metaphor' carries four features. It might be noted that one of the features is a semantic feature which is shared by the source and the target.

Another concept to discuss in line with metaphor is metonymy, which is characterized as association. It is 'a referential strategy where a speaker refers to an entity by naming something associated with it' (Saeed, 1997: 78). For example, in a mystery novel one detective at a crime scene may say to another, 'Two uniforms got here first,' where the speaker is using the expression 'two uniforms' to refer to 'two uniformed police officers' (Saeed, 1997: 78). Another example is 'There are too many mouths to feed' (Cruse, 2000: 112). It follows that metonymy seems to be an associative relation between the source and the target even though no scholar has made this claim (Cruse, 2000; Saeed, 1997; Taylor, 1995; Ungerer and Schmid, 1996).

One point should be noted with regard to metonymy. As we have seen above, the relation of the examples are a part-whole relation. Therefore, metonymy resembles meronymy, which is discussed in 7.1.3. Saeed (1997) claims that metonymy is a process used by speakers as part of their practice of referring; meronymy describes a classification scheme evidenced in the vocabulary' (78). Thus, metaphor and metonymy might be grouped as a paradigmatic relation of words.

7. Paradigmatic and Syntagmatic Relations of Words

7.1. Paradigmatic Relations of Words

As mentioned in the section on semantic fields, paradigmatic relations of words are closely related to semantic fields. However, the theory of semantic fields does not seem to be concerned with the classifications or distinctions of paradigmatic relations because it does not discuss several such categories as synonymy, hyponymy, meronymy, compatibility, or opposites (incompatibility,

antonymy, converseness, reverseness). These categories are the main concern in this section which examines the paradigmatic relations of words.

7.1.1. Synonymy

Synonymy is defined as ‘the lexical relation which parallels identity in the membership of two classes’ (Cruse, 1986: 88), and is also defined as ‘more than one form having the same meaning’ (Leech, 1974: 94). Synonyms are ‘lexical items whose senses are identical in respect to “central” semantic traits, but differ, if at all, only in respect to what we may provisionally describe as “minor” or “peripheral” traits’ (Cruse, 1986: 267). Therefore, synonyms are different phonological words which have the same or very similar meanings (Saeed, 1997). There is a stricter and a looser interpretation of synonymy. Lyons (1968) exemplifies the looser interpretation with *Roget’s Thesaurus*. It is, however, the stricter interpretation which is applied in mainstream contemporary semantic theory.

Cruse (1986) claims that he uses ‘the term synonymy in something like its traditional sense; most linguistic semanticists would restrict its use to what is here called cognitive synonymy’ (292). In short, his cognitive synonymy is to be considered as synonymy in its stricter interpretation, while the looser interpretation is excluded from the present discussion even though he establishes two types of synonyms: cognitive synonyms and plesinonyms. Cruse (1986) claims that ‘plesinonyms are distinguished from cognitive synonyms by the fact that they yield sentences with different truth-conditions’ (285).

The definition of synonymy which Cruse (1986) calls cognitive synonymy is as follows:

X is a cognitive synonym of Y if (i) X and Y are syntactically identical, and (ii) any grammatical declarative sentence S containing X has equivalent truth-conditions to another sentence S1, which is identical to S except that X is replaced by Y. (p. 88)

He illustrates this with the pair of synonyms: *fiddle* : *violin* in the sentences *He plays the violin very well* and *He plays the fiddle very well*, claiming that ‘these are incapable of yielding sentences with different truth-conditions’ (88).

There are two types of semantic modes between some pairs of cognitive synonyms: propositional mode and expressive mode (Cruse: 1986). One example is *mother* as propositional mode and *mummy* as expressive mode.

There are two ways of testing synonymy; however, they are not perfect. One is substitution—i.e., substituting one word for another. However, some words are interchangeable in certain environments only. For example, *deep* and *profound* are used with *sympathy*, but only *deep* with *water*. The other way is to investigate opposites. For example, *superficial* is contrasted with both *deep* and *profound*, but *shallow* is contrasted only with *deep*. In the example, *deep* and *profound* are synonyms because they have the same opposite, *superficial*.

Among other sense-relations, synonymy is context-dependent in a theoretically interesting way (Lyons, 1968). For example, *get* in *I'm going to get some bread from the shop* is synonymous with *buy* in *I'm going to buy some bread from the shop*. For word association tests without context, it is difficult to figure out the relationship between *get* and *buy* as stimulus and response.

Lyons (1995) establishes three conditions for absolute synonymous expressions. They are as follows:

- (i) all their meanings are identical;
- (ii) they are synonymous in all contexts;
- (iii) they are semantically equivalent (i.e., their meaning or meanings are identical) on all dimensions of meaning, descriptive and non-descriptive. (p. 61)

Since the three conditions are logically independent of each other (Lyons, 1981, 1995), absolute synonyms do not exist.

It seems unlikely that two words with exactly the same meaning would both survive in a language (Palmer, 1976). There are four ways in which synonyms can be seen to differ. First, some sets of synonyms belong to different dialects of the language. An example is, *fall*, which is used in the States and *autumn*, which is used in Britain. Cruse (1986) claims that geographically dialectal synonyms are perhaps of minor significance. A few other examples are *lift* : *elevator*, *glen* : *valley*, and *wee* : *small*. Second, some sets of synonyms belong to registers; i.e., varieties of languages used

by a single speaker. For example, people might say *gentleman*, *man*, and *chap*, or *pass away*, *die* and *pop off* according to situations for the sets of words. Third, some words are said to differ only in their emotive or evaluative meanings. An example of this type is *statesman* (evaluative) : *politician* (emotive). Finally, many words are close in meaning, or their meanings overlap. Among such words, there is a loose sense of synonymy, which is illustrated by examples such as those found in a thesaurus. This is the kind of synonymy that is exploited by the dictionary-maker (Palmer, 1976). Thus, although there are no real synonyms which have exactly the same meaning in the same context, synonymy is a valuable category for the study of paradigmatic relations of words.

7.1.2. Hyponymy

Hyponymy is a relation of inclusion or subordination. Hyponymy is the lexical relation corresponding to the inclusion of one class in another (Cruse, 1986). A hyponym includes the meaning of a more general word (Saeed, 1997). Cruse (1986) claims that 'X will be said to be a hyponym of Y (and, by the same token, Y a superordinate of X) if *A is f(X)* entails and is entailed by *A is f(Y)*' (88–89). Cruse (1986) also claims that 'it is also possible to define hyponymy in terms of the normality of sentences of the form *f(X) is necessarily f(X)*, with the same conditions as before on the nature of *f(X)* and *f(Y)*' (109). Therefore, *A dog is necessarily an animal* is normal, but *An animal is necessarily a dog* is not. Such words as *dog* and *cat* which are not related hyponymously do not satisfy the definition: *A dog is necessarily a cat* and *A cat is necessarily a dog* (Cruse, 1986). Lyons (1977) argues the same thing in a similar way: 'generally speaking, in English, when the relation of hyponymy holds between nouns, it is possible to insert syntactically appropriate expressions containing them in place of *x* and *y* in the formula "x is a kind of y"' (292).

Hyponymy is a vertical relationship in a taxonomy (Saeed, 1997; Cruse, 1986). Because of its nature, hyponymy is a transitive relation. If *a* is a hyponym of *b* and *b* is a hyponym of *c*, *a* is a hyponym of *c*. For example, since *horse* is a hyponym of *mammal* and *mammal* is a hyponym of *animal*, *horse* is a hyponym of *animal* (Lyons, 1977). It should be noted that hyponymy relations vary from language to language. For example, *potatoes* are not included in *vegetables* in German even though they are included in

vegetables in English (Palmer, 1976) and in Japanese.

7.1.3. Meronymy

Meronymy is ‘a term used to describe a part-whole relationship between lexical items’ (Saeed, 1997: 70), and is ‘the semantic relation between a lexical item denoting a part and that denoting the corresponding whole’ (Cruse, 1986: 159). Lyons (1977) claims that ‘part-whole relations between lexemes are bound up with a particular sub-class of possessive constructions’ (312) such as *John’s right arm* or *John has a right arm*. Cruse (1986) defines meronymy as follows:

X is a meronym of Y if and only if sentences of the form *A Y has Xs/an X* and *An X is a part of a Y* are normal when the noun phrases *an X, a Y* are interpreted generically. (p. 160)

For example, *finger* is a meronym of *hand*, because *A hand has fingers* and *A finger is a part of a hand* are normal as a sentence. However, *husband* is not a meronym of *wife* because *A husband is a part of a wife* is not normal as a sentence even though *A wife has a husband* is normal as a sentence.

Furthermore, Cruse (1986) provides another definition as a test-frame for meronymous relations of words: *The parts of a Y includes the X/Xs, the Z, Zs, etc.* (161). One example is *The parts of a flower include the sepals, the petals,* Cruse (1986) provides two types of parts against a whole. One is segmental parts, examples of which are *trunk, head, limbs*, etc. against *body*. The parts have a greater degree of spatial cohesiveness and perceptual salience. The other is systemic parts, an example of which is *skeleton, muscles, nerves, blood vessels*, etc. against *body*. The parts have a greater functional unity, a greater consistency of internal constitution, but they are not spatially cohesive nor perceptually salient. Ordinary language has a preference for segmental parts rather than systemic parts because many wholes can be partitioned in ways parallel to the human body. For example, *house* is divided into *dining-room, living-room, bedrooms, hall, cellar*, etc. (segmental parts) rather than into *brickwork, joinery, plasterwork, plumbing*, etc. (systemic parts) (169). As we have discussed so far, meronymy reflects hierarchical classifications in the lexicon somewhat like taxonomies as hyponymy does. However, meronymic hierarchies are less clear-cut and regular than taxonomies.

Saeed (1997) provides two other lexical relations similar to meronymy. One is member-collection relation, which is a relationship between the word for a unit and the usual word for a collection of the units. Examples are: *ship : fleet*, *tree : forest*, *book : library*, and *bird : flock*. The other is portion-mass relation, which is a relationship between a mass noun and the usual unit of measurement or division. Examples are: *drop : liquid*, *sheet : paper*, *lump : coal*, and *strand : hair*.

7.1.4. Compatibility

Compatibility is 'the lexical relation which corresponds to overlap between classes' (Cruise, 1986: 92). The defining characteristic of compatibility is that 'a pair of compatibles must have a common superordinate' (92); therefore, compatibles 'have some semantic traits in common, but differ in respect of traits that do not clash' (92). One example is *dog : pet*, which belong to the superordinate animal, and the other example is *husband : policeman*, which belong to the category of human males (Cruise, 1986).

7.1.5. Opposites

7.1.5.1. Incompatibility

Lyons claims that incompatibility 'can be defined on the basis of the relationship of contradictoriness between sentences' (1968: 458) and that incompatibility is 'definable in terms of entailment and negation' (1995: 28) such as with the example *red : blue*. Incompatibility is the exclusion of one meaning from another between two meanings (Leech, 1974). Incompatibility is 'the sense relation which is analogous to the relation between classes with no members in common' (Cruise, 1986: 93). Two lexical items X and Y are incompatibles if a sentence of the form *A is f(X)* can be found which means a parallel sentence of the form *A is not f(Y)*: *It's a cat* means *It's not a dog* (Cruise, 1986). Saeed (1997) states that 'lexical items P, Q, R ... are incompatible if they share a set of features but differ from each other by one or more contrasting features' (233). He illustrates this with the example of *spinster* which is incompatible with *bachelor* by contrast of gender specification, on the basis of componential analysis. Another example would be colour terms, which form a set of incompatible lexical items (Lyons, 1968).

7.1.5.2. Complementarity

Complementarity is 'a special case of incompatibility holding over two-

term sets' (Lyons, 1968: 461) 'instead of the multiple-term sets' (Palmer, 1976: 96) even though Saeed (1997) claims that complementarity is 'a relation between words such that the positive one implies the negative of the other' (66). The denial of one member of a pair of complementary words implies the assertion of the other member and vice versa. There is no neutral ground, no possibility of a third term between them. Between the members of a pair of complementary words, they exhaustively divide some conceptual domain into two mutually exclusive compartments, so that what does not fall into one of the two compartments must fall into the other (Cruse, 1986). Examples by Saeed (1997) are: *true : false*, *dead : alive*, and *open : shut* (199), and one example by Lyons (1981) is *married : unmarried*. Furthermore, Cruse (1986) claims that complementarity can be examined by the contradictory nature of a sentence denying both terms. While opposites which are complementaries can produce such a sentence as *?The door is neither open nor shut*, opposites which are not complementaries produce sentences like *Her exam results were neither good nor bad*. It should be noted that complementaries are, generally speaking, either verbs or adjectives (Cruse, 1986).

7.1.5.3. Antonymy

Lyons (1995) claims that polar antonymy, 'differs from complementarity by virtue of gradability (in terms of more or less),' (128) which means that 'the conjunction of two negated antonyms is not contradictory' (128). Antonymy is 'a relationship between opposites where the positive of one term does not necessarily imply the negative of the other' (Saeed, 1997: 67). Antonyms share four characteristics. First, they are fully gradable (most are adjectives; a few are verbs). Second, members of a pair denote degrees of some variable property such as length, speed, weight, accuracy, etc. Third, when more strongly intensified, the members of a pair move in opposite directions along the scale representing degrees of the relevant variable property. Finally, the terms of a pair do not strictly bisect a domain: there is a range of values of the variable property, lying between those covered by the opposed terms, which cannot be properly referred to by either term. As a result, a statement containing one member of an antonym pair stands in a relation of contrariety with the parallel statement containing the other term (Cruse, 1986). Furthermore, *It's neither A nor B* is not paradoxical, since there is a region

on the scale of length which exactly fits this description. Examples of antonyms are: *long : short, fast : slow, good : bad, and easy : difficult*.

Lyons (1968) claims that the opposition between antonyms is neutralized not only in unmarked questions like *How long is it?*, but also in various nominalizations such as *What is the length of the line?* Many of the nominalizations of unmarked forms are irregular in English: *long : length, big : size, high : height, wide : width, etc.*

7.1.5.4. Reverseness

Reverseness is a relationship between terms describing movement, where one term describes movement in one direction, and the other the same movement in the opposite direction (Saeed, 1997). The examples by Saeed are: *push : pull, come : go, go : return, up : down, in : out and right : left*. Lyons (1977) claims that under the term directional opposition, the relationship between *up : down, arrive : depart, and come : go* implies motion in one of two opposed directions with respect to a given place, *P*. However, there are differences among the three examples. *Come : go* is based on an opposition between motion towards *P* and motion away from *P*, but *up : down* is based on an opposition drawn within motion away from *P*. When *right : left* is employed in a directional expression, it is like *up : down*; however, the directionality of *up : down* is absolute whereas that of *right : left* is not (Lyons, 1977).

Focusing on verbs, Cruse (1986) claims that reversives are pairs of verbs which denote motion or change in opposite directions. Purely spatial instances are not very numerous. Examples are: *rise : fall, ascend : descend, and enter : leave*. The reversivity of the verb pair resides in the fact that one member denotes a change from A to B, while its reversive partner denotes a change from B to A. For *appear : disappear*, the relevant states are A as being visible and B as being invisible.

Syntactically, the most elementary type of reversive opposites are intransitive verbs whose grammatical subjects denote entities which undergo changes of state. *Appear : disappear, enter : leave, rise : fall* are of this sort. A sizeable proportion of what must be considered reversive opposites have a causative meaning: their grammatical subject is an agent, and it is the direct object which undergoes the reversible change of state: *raise : lower, lock :*

unlock, pack : *unpack* belong to this category (Cruse, 1986).

7.1.5.5. Converseness

Converseness is a relationship between two entities from alternate viewpoints (Saeed, 1997). Converseness is defined such that for two objects A and B, which are at different locations, the direction of A relative to B is the exact opposite of the direction of B relative to A (Cruse, 1986). Although converseness is presented as fundamentally a spatial notion, the relation, like reversiveness, is not confined to the spatial domain. Even though non-spatial converses can usually be interpreted as analogical or metaphorical extensions of spatial notions (Cruse, 1986), the vocabulary of reciprocal social roles and kinship is also included in this category by Lyons (1968; 1977). Examples are *own* : *belong to*, *above* : *below*, *employer* : *employee* (Saeed, 1997), *doctor* : *patient*, *mistress* : *servant*, *father* : *mother*, and *before* : *after* (Lyons, 1977).

7.1.5.6. Taxonomic sisters

Saeed (1997) provides another category of opposites: taxonomic sisters. This category expresses relations between words which are at the same level in a taxonomy. For example, *red, orange, yellow, green, blue, purple*, and *brown* are taxonomic sisters of color. Other examples might be days of the week, or months of the year. The category is related to incompatibility, which deals with pairs of words from the same level in a taxonomy.

Among the above opposites, antonyms and complementaries are closely related to markedness. The distinction between antonyms and complementaries is the distinction between privative opposites and equipollent opposites. A privative opposition, antonymy, is a contrastive relation between two words, one of which denotes some positive property and the other of which denotes the absence of that property: e.g., *animate* : *inanimate*. An equipollent opposition, complementarity, is a relation in which each of the contrasting words denotes a positive property: e.g., *male* : *female* (Lyons, 1977).

7.2. Syntagmatic Relations of Words

About the time when the theory of semantic fields was proposed by Trier (1934), Portiz (1934) discussed syntagmatic relations of words like a noun and a verb (e.g., *bite* and *teeth*; *bark* and *dog*), and a noun and an adjective (e.g.,

blond and *hair*). Firth (1951) also discussed syntagmatic relations of words, claiming that 'you shall know a word by the company it keeps' (124). The example was *ass* in the form of *You silly* ____, *Don't be such an* ____, in which *silly* implies *ass*. In such cases, the word relations between words which come together are not random, but express some syntagmatic relation. Firth used the term collocation to refer to the company a word keeps and regarded it as part of the meaning of a word (Palmer, 1976). The categories discussed here are: collocation, fixed expressions (cliché, idiom, simile), and other types of phrase.

7.2.1. Collocations

Collocation is words which occur together repeatedly (Saeed, 1997). Collocation is 'not simply a matter of association of ideas' (Palmer, 1976: 76) but 'the combination of words that have a certain mutual expectancy' (Jackson, 1988: 96). For example, *butter* or *bacon* fits in the blank of *The* ____ *is rancid*, but *meat* does not because of the collocational restriction of *rancid* (Jackson, 1988). We say *strong tea* but not *powerful tea* whereas we can say *strong argument* and *powerful argument*. (Saeed, 1997).

Cruse (1986) defines collocation as follows:

The term collocation will be used to refer to sequences of lexical items which habitually co-occur, but which are nonetheless fully transparent in the sense that each lexical constituent is also a semantic constituent. (40)

Cruse (1986) gives the examples *fine weather*, *torrential rain*, *light drizzle*, *high winds*.

Collocation is related to synonymy in that synonymous words are not always interchangeable in collocational expressions. For example, between synonymous words *big* and *large*, *large* cannot take the place of *big* in *a big mistake* whereas *large* can take the place of *big* in *a big house* in spite of some difference in meaning between *a big house* and *a large house*.

It is interesting to note that, from the point of view of word associations, 'although collocation is largely determined by meaning, it is sometimes fairly idiosyncratic and cannot easily be predicted in terms of the meaning of the associated words' (Palmer, 1976: 76).

7.2.2. Fixed Expressions

There are a few sub-categories for this group: cliché, idiom, proverb, and simile (Jackson 1988). Clichés might be regarded as a kind of fixed collocation. In certain contexts words have become fixed without an element of choice or contrast and lose their meaning. For example, houses for sale are *desirable residences* in estate agents' advertisements. In the phrase, *desirable* does not necessarily retain its own original meaning but may mean *undesirable* for customers. We do not usually feel that clichés are prominent because we tend to exclude semantically meaningless expressions in our reading and listening. If we are aware of clichés, we may feel that they are annoying, because we may regard them as a waste of words and a semantic devaluation. According to Jackson (1988), proverbs are a kind of cliché because there is disaccordance between the literal meaning of a proverb and the context to which it refers.

Idioms are expressions where the individual words have ceased to have independent meanings. Idioms constitute one single semantic unit like phrasal verbs (Saeed, 1997). An idiom is 'an expression whose meaning cannot be inferred from the meanings of its parts' (Cruse, 1986: 37). Foreign learners have to learn the meaning of an idiom on top of the meanings of the words that make it up because the essential feature of an idiom is its non-literal, metaphorical meaning and because idioms are usually not directly translatable into other languages.

Idioms are semantically like a single word but they do not function as one word. Although the verb in a idiom may be placed in the past tense, the number of the noun in the idiom can never be changed. For example, we say *kicked the bucket* but not *kick the bucketed* and we say *kick the bucket* but not *kick the buckets*. Some idioms allow changes in word order, but others do not. For example, we say *The law was laid down* but not *the bucket was kicked* (Palmer, 1976; Aichison, 1994).

Even though Palmer (1976) claims that what is and what is not an idiom is often a matter of degree, Cruse (1986) argues the possibility of defining an idiom precisely and in non-circular fashion using the notion of a semantic constituent. He establishes two requirements for idioms. One is that idioms should consist of more than one lexical constituent; i.e., they should be lexically complex. The other is that idioms should be a single minimal

semantic constituent. Cruse (1986) illustrates this as follows:

26 This will cook Arthur's goose.

The test of recurrent semantic contrast reveals that *this*, *will* and *Arthur* are regular semantic constituents; the rest, however, i. e. *cook—'s goose*, constitutes a minimal semantic constituent, which as a whole contrasts recurrently with, say, *help* or *destroy*. *Cook —'s goose* is therefore an idiom. (37)

A simile is composed of a part that is interpreted literally and a part that is interpreted more or less non-literally. For example, *as sly as a fox* is composed of a part *sly*, which is interpreted literally, and a part *fox*, which is interpreted more or less non-literally (Jackson, 1988).

7.2.3. Other Types of Phrases

Some other types of syntagmatic relations are phrasal verbs, prepositional verbs, and compounds. Even though Palmer (1976) claims that phrasal verbs are a very common type of idiom in English, phrasal verbs are separated from the category according to Jackson (1988) because phrasal verbs are studied independently from idioms (Cowie and Mackin, 1975; Cowie et al, 1983). A phrasal verb consists of a verb and an adverb particle. Even though phrasal verbs consists of two words, they constitute one single semantic unit (e.g., *give up*). Grammatically, they have the same function in sentences as single-word verbs, except that the adverb particle may be detached from the verb word. For example, *He gave up the plan* and *He gave it up* are acceptable (Jackson, 1988).

A prepositional verb consists of a verb and a preposition as particle. Like phrasal verbs, prepositional verbs constitute one semantic unit (e.g., *look after*). Prepositions functioning as particles cannot be detached from verbs. For example, *Jane looks after him* and *Jane looks after her mother* are acceptable while *Jane looks him after* and *Jane looks her mother after* are not acceptable (Jackson, 1988).

Compounds consist of two or more words, and are regarded as single words. (e.g., *child minder*, *rear-view mirror*). In orthography, they are written as one word (e.g., *timekeeper*), or hyphenated (e.g., *time-consuming*) or as two distinct words (e.g., *time machine*) (Jackson, 1988). Leech (1974) presents

one rule governing compounds, which is the most general rule “X which-has-something-to-do-with Y, for many compounds X-Y. He gives the example of *hunger strike* as X-Y,” connecting the two words as ‘strike in which hunger, rather than withdrawal of labour, is weapon’ (221). The general rule seems applicable to the claim by Aichison (1994) that children prefer compounds to affixations when creating new words.

8. Conclusion

Prideaux (1985) briefly summarizes lexical semantic theories in four points. First, it is clear that meaning does not exist in words, but in the users of word meaning. Second, human beings conceive of meanings in terms of core versus periphery, in which the core is to some extent defined in terms of shared features, properties, or attributes. However, all defining attributes are not equal in salience, and the ones which are dominantly salient may well come to have that position as a function of the task. Third, the denotation of a word is not the only kind of meaning that needs to be examined. Connotative, emotive, and affective aspects are also important in the study of word meaning because of considerable individual differences among speakers in certain denotative areas. Finally, from a conceptual point of view, a feature theory of meaning is more useful in defining classes of lexical items, whereas semantic field theory and prototype theory seem more appropriate for treating the distinctions among members of a given set.

In line with semantic fields, which is a theory in structural linguistics, this study has discussed syntagmatic and paradigmatic relations of words in lexical semantics. These relations have more direct relevance to word association studies than any of the other linguistic lexical theories. It is clear that opposites (antonyms, complementaries, converseness, reverseness, incompatibilities) are closely linked to markedness theory. In particular, antonyms and complementaries are paralleled to privative opposites and equipollent opposites in phonological studies. Feature theory has not been referred to here in the discussion of hyponyms and opposites; however, it is clearly an important underlying theory, along with the idea of componential analysis. In short, it seems to be the case that feature theory is more useful than other approaches when it comes to looking at the semantic aspects of

word associations.

As mentioned at the beginning of this study, lexical semantics is an area of study for both psychologists and linguists. In relation to word association, the study of the associative meaning of words naturally draws on important psychological issues. However, this study has concentrated mainly on the field of linguistics in its discussion of lexical semantics. Metaphor and metonymy proposed by cognitive semanticists are not so useful for studying lexical semantics with word association tests because of the feature of the notions that mainly deals with extensions of meaning. The psychological dimension of lexical semantics is still left for further study as far as word association studies are concerned.

References

- Aitchison, J. (1994). *Words in the mind: An introduction to the mental lexicon*. Oxford: Blackwell.
- Chomsky, N. (1965). *Aspects of the theory of syntax*. MA: MIT Press.
- Clark, E. V. (1971). On the acquisition of the meaning of *before* and *after*. *Journal of Verbal Learning and Verbal Behavior*, 10, 266–275.
- Clark, H. H. (1970). Word associations and linguistic theory. In John Lyons (Ed.). *New horizons in linguistics* (pp. 271–286). Harmondsworth: Penguin.
- Cowie, A. P., & Mackin, R. (1975). *Oxford dictionary of current idiomatic English vol.1: Phrasal verbs*. Hong Kong: Oxford University Press.
- Cowie, A. P., Mackin, R., & McCaig, I. R. (1983). *Oxford dictionary of current idiomatic English vol. 2: English idioms*. Hong Kong: Oxford University Press.
- Cruse, D. A. (1986). *Lexical semantics*. Cambridge: Cambridge University Press.
- Cruse, D. A. (1990). Prototype theory and lexical semantics. In S. L. Tsohatzidis (Ed.). *Meanings and prototypes: Studies in linguistic categorization* (pp. 382–402). London: Routledge.
- Cruse, D. A. (2000). *Meaning in language: An introduction to semantics and pragmatics*. Oxford: Oxford University Press.
- Deese, J. (1962a). On the structure of associative meaning. *Psychological Review*, 69, 161–175.
- Deese, J. (1962b). Form class and the determinants of association. *Journal of Verbal Learning and Verbal Behavior*, 1, 285–294.
- Deese, J. (1965). *The structure of associations in language and thought*. ML: Baltimore: Johns Hopkins University Press.
- Fillenbaum, S., & Johns, L. V. (1965). Grammatical contingencies in word association.

- Journal of Verbal Learning and Verbal Behavior*, 4, 248–255.
- Fillenbaum, S., & Rapoport, A. (1971). *Structures in the subjective lexicon*. NY: Academic Press.
- Firth, J. R. (1951). Modes of meaning. *Essays and studies* (The English Association), 118–149. Reprinted in Firth 1957, 190–215.
- Firth, J. R. (1957). *Papers in linguistics 1934–1951*. London: Oxford University Press.
- Fodor, J. D. (1977). *Semantics: Theories of meaning in generative grammar*. NY: Thomas Y. Crowell.
- Geeraerts, D. (1992). The return of hermeneutics to lexical semantics. In Martin Pz (Ed.). *Thirty years of linguistic evolution: Studies in honor of René Dirven on the occasion of his sixtieth birthday* (pp. 257–282). John Benjamins.
- Gluckberb, S., & Danks, J. H. (1974). *Experimental psycholinguistics: An introduction*. NJ: Lawrence Erlbaum.
- Greenberg, J. (1966). *Language universals*. The Hague: Mouton.
- Hatch, E., & Brown, C. (1995). *Vocabulary, semantics, and language education*. Cambridge: Cambridge University Press.
- Jackson, H. (1988). *Words and their meaning*. London: Longman.
- Jenkins, J. J., Russel, W. A. & Suci, G. J. (1958). An atlas of semantic profiles for 360 words. *American Journal of Psychology*, 71, 688–699.
- Katz, J. J. (1972). *Semantic theory*. NY: Harper and Row.
- Katz, J. J., & Fordor, J. A. (1963). The structure of semantic theory. *Language*, 39, 170–210.
- Kess, J. F. (1992). *Psycholinguistics: Psychology, linguistics, and the study of natural language*. Amsterdam: John Benjamins.
- Kiefer, F. (1989). Towards a theory of semantic markedness. In Olga M. Tomic (Ed.). *Markedness in synchrony and diachrony* (pp. 121–138). Berlin: Mouton de Gruyter.
- Labov, W. (1973). The boundaries of words and their meanings. In C. J. Bailey and R. Shuy (Eds.). *New ways of analyzing variation in English* (pp. 340–373). Washington DC: Georgetown University Press.
- Leech, G. (1974). *Semantics: The study of meaning*. Middlesex: Penguin Books.
- Lehrer, A. (1974). *Semantic field and lexical structure*. Amsterdam: North-Holland Publishing Co.
- Lehrer, A. (1990). Prototype theory and its implications for lexical analysis. In S. L. Tsohatzidis (Ed.). *Meanings and prototypes: Studies in linguistics categorization* (pp. 368–381). London: Routledge.
- Lehrer, A. (1992). A theory of vocabulary structure: Retrospectives and prospectives. In Martin Pütz (Ed.). *Thirty years of linguistic evolution: Studies In honor of René Dirven on the occasion of his sixtieth birthday* (pp. 243–256). John Benjamins.
- Lyons, J. (1963). *Structural semantics*. Oxford: Backwell.
- Lyons, J. (1968). *Introduction to theoretical linguistics*. Cambridge: Cambridge University Press.
- Lyons, J. (1977). *Semantics*, Vol. 1. Cambridge: Cambridge University Press.
- Lyons, J. (1977). *Semantics*, Vol. 2. Cambridge: Cambridge University Press.

- Lyons, J. (1981). *Language, meaning and context*. Suffolk: Fontana.
- Lyons, J. (1995). *Linguistic semantics: An introduction*. Cambridge: Cambridge University Press.
- McCarthy, M. (1990). *Vocabulary*. Oxford, Oxford University Press.
- McCawley, J. D. (1970). *Semantic components in complex verbs*. Calgary: Univ. of Calgary Symposium on Trends in Linguistics.
- McNeill, (1966). A study of word association. *Journal of Verbal Learning and Verbal Behavior*, 5, 548-557.
- Miller, G. A. (1978). The acquisition of word meaning. *Child Development*, 49, 999-1004.
- Ogden, C. K., & Richards, I. A. (1923). *The meaning of meaning*. London: Routledge & Kegan Paul.
- Osherson, D. N., & Smith, E. E. (1981). On the adequacy of prototype theory as a theory of concepts. *Cognitions*, 9, 35-58.
- Palmer, F. R. (1976). *Semantics* (2nd ed.). Cambridge: Cambridge University Press.
- Porzig, W. (1934). Wesenhafte bedeutungsbeziehungen. *Beiträge zur Geshichte der deutschen Sprache und Literatur*, 58, 70-97.
- Prideaux, G. D. (1985). *Psycholinguistics: The experimental study of language*. NY: The Guilford Press.
- Rosch, E., & Mervis, C. B. (1975). Family resemblances: Studies in the internal structure of categories. *Journal of Verbal Learning and Verbal Behavior*, 22, 509-525.
- Saeed, J. I. (1997). *Semantics*. MA: Blackwell.
- de Saussure, F. (1916). *Course in general linguistics*. Course in general linguistics. (Tran. in English by W. Baskin. New York: Philosophical Library 1959).
- Smith, E. E., Shoben, E. J., Rips, L. J. (1974). Structure and process in semantic memory: A feature model for semantic decision. *Psychological Review*, 81, 214-241.
- Taylor, I. (1976). *Introduction to psycholinguistics*. NY: Holt, Rinhart and Winston.
- Taylor, J. R. (1995). *Linguistic categorization* second edition. Oxford: Oxford University Press.
- Thumb, A., & Marbe, K. (1901). *Experimentelle untersuchungen über die psychologischen grundlagen der sprachlichen analogiebildung*. Leipzig: Englemann.
- Trier, J. (1931). *Der deutsche wortschatz im sinnbezirk des verstandes*. Heidelberg:
- Trier, J. (1934). Das sprachliche Feld. *Neue Fahrbücher für Wissenschaft und Jugendbildung*, 10, 428-449.
- Ungerer, F. & Schmid, H. J. (1996). *An introduction to cognitive linguistics*. Harlow: Longman.
- Wierzbicka, A. (1996). *Semantics: Primes and universals*. Oxford: Oxford University Press.