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SYNONYMY REACTIVATED

"Much research remains to be done in the field of synonymy"

(A. Cruse, *Meaning in Language. An Introduction to Semantics and Pragmatics*)

It is suggested that synonymy should be accounted for in terms of three different kinds of activation patterns associated with the semantic representations of various groups of lexical units regarded as synonyms. Synonymy is shown to be unique among other semantic relations in that in makes use of all three possible co-activation patterns: co-activation resulting from neural and conceptual overlap (Synonymy A), co--activation resulting from neural and conceptual closeness (i.e. contiguity – Synonymy B), and co-activation resulting from strong neural and conceptual links between separate regions (Synonymy C). The proposal shows that the cognitive approach to semantic relations based on the philosophy of embodied realism offers new insights and new solutions of the traditional problems of semantics.

Key terms: *embodied realism, meronymy, metaphor, metonymy, plesionymy, semantic relations, synonymy*

0. Introduction

In a recent paper (Bierwiaczonek, 2005), I suggest that there are three basic kinds of conceptual relations supported by different kinds of co-activated neural structures: first, the relation of intrinsic conceptual inclusion based on the same co-activated neural regions, manifested e.g. in hyponymy; second, the relation of conceptual contiguity supported by neural regions with strong neural links, best manifested in various kinds of meronymy and the metonymies based on these relations; and third, the relations underlying conceptual metaphors, based on co-activation of concepts and neural structures that support them, which are neither intrinsic nor contiguous; hence they can be referred to as separate.

In what follows I assume that the semantic and grammatical structure of indi-
vidual lexemes can be best represented in the form of Parallel Distributed Sub-Sym-
bolic Representations (cf. Bierwiaczonek, 2002), in which the phonological form of
a lexeme, profiled in the phonological domain, as well as other domains relevant to
its semantic and grammatical characterization, is linked with the lexeme's concep-
tual space, construed as a conceptual convergence zone. I believe that conceptual
spaces are supported by neural convergence zones in the sense of Damasio (1999) and
LeDoux (2002), where information coming from different perceptual centers is "bound"
into single cognitive units. What is important about conceptual spaces, and what
makes them different from Langacker's matrix domain (cf. Langacker 1987, 1991) is
the fact that they enable speakers to use them as units without activating their compo-
nent domains, which however are available in case the speaker needs to resort to
them. Furthermore, PDSS Representations make it possible to access the whole concept
by means of any single modality, e.g. the conceptual space of DOG can be accessed
by means of an appropriate profile in any of its component domains: the domain of
SOUND, APPEARANCE, SMELL, or its phonological form. In neural terms, the con-
ceptual space is a local pattern of neural activity integrating circuits from several
functional cortical and subcortical regions of the brain (some of which themselves
may be convergence zones). Examples of PDSSRs of a few lexemes are suggested
below.

Now the general taxonomy of conceptual relations and the semantic relations
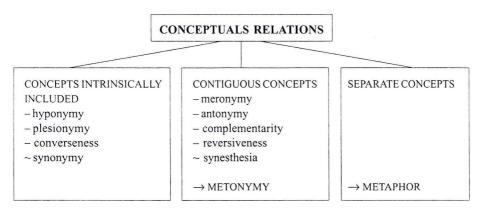based on them is schematically represented in Fig.1:


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                    ┌─────────────────────────────┐
                    │   CONCEPTUALS RELATIONS     │
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CONCEPTS INTRINSICALLY INCLUDED	CONTIGUOUS CONCEPTS	SEPARATE CONCEPTS
– hyponymy	– meronymy	
– plesionymy	– antonymy	
– converseness	– complementarity	
~ synonymy	– reversiveness	
	~ synesthesia	
	→ METONYMY	→ METAPHOR

Fig. 1

The three neat categories of conceptual relations are internally differentiated de-
pending on the prototypicality of their members. They are also likely to have fuzzy
boundaries. As indicated by the wavy line, synonymy and synesthesia are considered
to be borderline cases.

For instance, Barcelona (2000) analyzes such cases of synesthesia as *loud color*
and *sweet music* as metaphors metonymically motivated. Barcelona argues that both

the target domain (respectively, COLOR and MUSIC) and the source domain (respectively, SOUND and TASTE) are construed metonymically in terms of their subdomains: deviant (i.e. high intensity) sounds are mapped on deviant (i.e. attracting involuntary attention) colors (in *loud color*), while pleasurable aspect of sweet FOOD is mapped onto the domain of MUSIC metonymically construed in terms of the positive effect of pleasure and well-being on the hearer (in *sweet music*). However, Barcelona's examples can also be accounted for in terms of metonymy alone. As recent psychological and neurological studies (cf. Cytowic, 1995; Ramachandran & Hubbard, 2003) show, the co-activation of seemingly unrelated sensory domains involved in synesthesia seems to be a neural fact: for synesthetics the link between, say, the sound and the color may be inseparable. If there are real, permanent neural links between sensory domains constituting the semantic domain matrix of certain predications, which, as a result, become co-activated and conceptually accessible to each other, these domains must be regarded as contiguous, and thus accessing one by means of another should be regarded as metonymy.

In the present paper I shall ignore synesthesia and focus on synonymy. In particular, I shall try to show that some cases of synonymy may be based on intrinsically included concepts, others may be based of contiguity, and yet others, the ones that are metaphorical, may be based on the neural and conceptual structures which we have dubbed "separate". This means that the three kinds of neural-conceptual relations we have briefly discussed above may provide the basis for three different kinds of synonymy, depending of the neural and conceptual relations between the synonyms in question. In particular, I shall try to show that, beside the concepts which are intrinsically included in one another, synonymy can also be found among contiguous and metaphoric concepts. Furthermore, I shall argue that synonymy based on contiguity may in fact have the same neural and conceptual basis as certain types of meronymy. The final conclusion is that in some well established cases Synonymy B (see below) is equivalent to the part-whole-based metonymy (cf. Bierwiaczonek 2005).

Finally, I will argue that there is a category of metaphors which may be considered synonymous with their non-metaphoric equivalents, providing of course that such equivalents extist. This is particularly true of primary metaphors, in the sense of Grady (1997) and Lakoff and Johnson (1999).

1. What is synonymy?

Without going into details, it seems rather uncontroversial that most cases of synonymy of predications P1 and P2 involve some overlap of the scope of the conceptual representations of P1 and P2 or the inclusion of the scope of the conceptual representation of one predication in the other. The nice but extremely rare ideal reconciling the two criteria is total identity of scopes, i.e. what Lyons (1995, Ch.2) calls "absolute synonymy", which is tantamount with mutual inclusion, and the resultant bilateral entailment. Most synonyms, however, are believed to be either partial synonyms, i.e. they involve the inclusion of one semantic region in the other, like e.g. *big* and *large* (cf. Lyons, 1995: 61), or near synonyms, which differ in their descriptive

and/or expressive meaning, e.g. *unmarried man* vs. *bachelor*, *politician* vs. *states-man*, *thrifty* vs. *mean*, *skillful* vs. *crafty*, etc. As we shall see below, this analysis is superficial and inadequate, since it does not account for the whole wealth of synonyms. It will be suggested below that any comprehensive study of synonymy should reach down to their neural or at least conceptual sources.

1.1. Apresjan (1974/2000) on synonymy

On the basis of an exhaustive study of the literature dealing with synonymy that had appeared roughly by mid seventies of the 20th c., Apresjan (1974/2000) suggests that for any two (or more) expressions to count as exact synonyms ("to◊nye sininimy"), the expressions should satisfy the following three criteria:
  a) total overlap of the dictionary definitions, i.e. both expressions should be trans-latable into the same expression in the semantic metalanguage
  b) both expressions, viewed as predicates, should exhibit the same number, kind and ordering of arguments (participants)
  c) both expressions should belong to the same lexical category.
Clearly, criterion (a) crucially depends on the nature of semantic representation. Since Apresjan's definition applies to his concept of semantic representation expressed in the form of combination of semantic components characterizing classical catego-ries, i.e. not allowing for categorial gradability and robust polysemies typical of cog-nitive representations, the criterion of "total overlap" was relatively easy to satisfy. With more finely tuned representations such a strong condition should be somewhat weakened and most synonyms would be classified as quasi-synonyms. The question then remains what sort of deviations from total overlap should be allowed for two expressions to still count as synonyms, albeit inexact.

As for the other two criteria, it must be pointed out that, although I tentatively accepted them in Bierwiaczonek 2006, given the encyclopedic scope of semantic defi-nitions, following them would limit the discussion of synonymy to just a handful of rather straightforward examples quoted in most textbooks of semantics at the expense of a host of other cases where the semantic criterion is broadly satisfied, but the two formal requirements are flouted. For instance, by virtue of criterion (b) *to kick the bucket* could not be regarded as synonymous with *to die*, and *to dine* could not be regarded as synonymous with *to have dinner*. Similarly, by virtue of criterion (c) *to be asleep* and *to sleep* would not be synonymous either. This is clearly counterintuitive not only in gross truth-conditional terms but even considering much subtler differ-ences of construal: *Tim is asleep* and *Tim is sleeping* are exchangeable and semanti-cally equivalent in most contexts. Apresjan calls them inexact ("neto◊nye sininimy"), which does not explain much because we still do not know what makes them synony-mous in the first place. In the theory of synonymy developed below most figurative idioms exhibiting argument structure contrasts will be classified as cases of Syn-onymy C, while the categorial contrasts will be regarded as a difference in the domain of GRAMMATICAL CONSTRUCTIONS as well as categorial construal (e.g. atemporal vs. temporal relation) and thus classified as cases of Synonymy A. It must also be re-membered that the differences in argument structure usually reflect differences in

construal, i.e. the entities selected as the trajector and landmark, and not the truth-conditional, "objective" content of expressions, and hence the activated domains, which means that there is in principle no reason for excluding converses from the considerations of synonymy: they are just extreme cases of differences of profiles but not domains. The same logic applies to the cases of what Apresjan calls "morphological synonyms", i.e. the (usually free) morphological variants of the same basic root, e.g. *metaphoric* vs. *metaphorical, lonely* vs. *lonesome, preciseness* vs. *precision*, and the like. These are minimal contrasts in the phonological representations of single morphemes the single morpheme of the phonological representation, although they may be accompanied by differences in the weights of connections between the phonological domain and the conceptual space (due to deeper entrenchment), and collocations, e.g. *precision landing* vs. **preciseness landing.*

1.2. Cruse (1986) on synonymy

The gist of Cruse's account of synonymy is that synonymy is scalar, with absolute synonymy as the end-point of the "inverse scale of synonymity". Thus the scale extends from absolute synonymy, through various kinds of cognitive synonymy, through plesionymy and other near-synonyms to virtual non-synonymy.[1] It will be remembered that cognitive synonyms are defined as "lexical items whose senses are identical in respect of 'central' semantic traits, but differ, if at all, only in respect of (…) 'minor' or 'peripheral' traits" (Cruse, 1986:267). Now, what are these 'minor' or 'peripheral' traits?

Cruse claims that the main dimensions along which various cognitive synonyms may vary are their semantic mode, which can be either propositional and/or expressive, their collocational restrictions, and evoked meaning. Accordingly, cognitive synonyms may differ in their inherent expressiveness, e.g. while *infant* and *neonate* are almost completely devoid of expressivity, *baby*, which is propositionally equivalent, is considerably more expressive. Furthermore, cognitive synonyms should share the same selectional restrictions but may differ in collocational restrictions, e.g. the verb *die* and the idiom *kick the bucket* both select subjects which are [ORGANIC], [ALIVE] and [MORTAL], but *kick the bucket*, in addition, selects only human subjects, which is the reason why *The hamster kicked the bucket* sounds odd but not unacceptable or uninterpretable. Accordingly, Cruse defines collocational restrictions as "co-occurrence restrictions that are irrelevant to truth-conditions" (Cruse, 1986:279).

The third dimension which differentiates cognitive synonyms is referred to as "evoked meaning", i.e. the semantic distinctions resulting from the fact that most languages exhibit considerable dialectal and register-related varieties. Such pairs of words as *autumn : fall, lift : elevator, glen : valley, wee : small* are often quoted as

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[1] It should be pointed out however, that the scale should not necessarily be linear. As Cruse remarks: "the scale should be pictured as a series of concentric circles, with the origin at the centre, rather than as a line"(Cruse, 1986:268).

examples of dialectal equivalents. As for the synonyms related to different registers of language, Cruse proposes three dimensions of variation: field, mode, and style.

The term "field" refers to the lexical distinctions typical of different topics of conversations and/or fields of interest; e.g. the word *matrimony* is synonymous with *marriage*, but is virtually reduced to legal and religious contexts, while its cognitive synonym *wedlock* rarely appears outside the religious context.

The term "mode" refers to the lexical distinctions caused by differences in the manner of transmission of the message, e.g. whether it is written, spoken or e-mailed. The expressions differing in mode are, e.g., *about : concerning : re*, where *re* is typical of business correspondence.

Finally, the term "style" "refers to language characteristics which mark different relations between the participants in a linguistic exchange" (Cruse, 1986:284), i.e. what in pragmatic literature is often discussed under the label of social deixis. Cruse points out that these interpersonal and social distinctions are of particular importance in such culturally sensitive conceptual domains as death, sex, excretory functions, money, religion, power relations, etc., which is why these domains are particularly rich in synonyms.

Although by and large faithful to his original analysis, Cruse (2004) changes the classification slightly and now divides synonyms into absolute, propositional and near-synonyms. Now the propositional synonyms have the basic logical properties of cognitive synonyms, i.e. "if two lexical items are propositional synonyms, they can be substituted in any expression with truth-conditional properties without any effect on those properties" (Cruse, 2004:155). Accordingly, expressions differing in their expressive load, selectional restrictions and evoked meaning would now be called propositional synonyms, while the large and by no means homogenous group of near-synonyms includes all those lexemes and expressions whose differences are "either minor, or backgrounded, or both" (Cruse, 2004:157). As typical examples of near--synonyms, Cruse adduces plesionyms, e.g. *fog – mist, hot – scorching, disaster – catastrophe*; certain adverbial specializations of verbs: *amble – stroll, chuckle – giggle*; aspectual distinctions, e.g. *calm* (state) *– placid* (disposition); and differences in prototype center, e.g. *brave* (prototypically physical) *– courageous* (prototypically moral or intellectual).

1.3. Bierwiaczonek (2002) on sources of synonymy

Cruse's account is in many ways satisfying and quite exhaustive but it completely ignores the question of the cognitive processes involved in synonymy, i.e. how the identity (or equivalence) of meaning is achieved on the conceptual level. In other words, Cruse fails to account for what Apresjan (1974/2000:212) refers to as "the sources of lexical synonymy".

In what follows we shall try to discuss these sources in terms of three categories of synonyms A, B, and C. The discussion should be viewed as an elaboration of some of the observations first presented in Bierwiaczonek (2002, Ch.5), where I pointed out that a number of synonyms of various meanings of *love* are based on metonymy in

the sense that they are parts of a comprehensive representation of *love*, e.g. CARE is shown to be a salient part of the domain of EMOTIONS of the overall representation of MOTHERLY LOVE which may metonymically stand for the whole subcategory of MOTHERLY LOVE. Similarly, a lot of synonyms, e.g. *think the world of*, *worship*, *treasure*, are based on the metonymy CHARACTERISTIC BEHAVIOR/PROPOSITIONAL ATTITUDE OF LOVE FOR LOVE.[2] Yet other synonyms of *love* may be based on metaphor, e.g. *to be attracted to someone*, and *to get a kick/bang/charge of someone* is synonymous with *to love someone* through the metaphor LOVE IS A PHYSICAL FORCE (cf. Bierwiaczonek 2002:139). The idea that a lot of synonyms have metaphoric sources is not new; it was widely discussed in Apresjan (1974/2000) and the relevant literature he refers to.

1. 4. Al-Sharafi's concepts of lexical and textual synonymy

One of the few attempts to systematically link synonymy with metonymy can be found in Al-Sharafi (2004). In particular, Al-Sharafi argues that there is a link between metonymy and synonymy in that "metonymy is a phenomenon in which two different lexical items are brought together to have the same referent" (129). However, Al-Sharafi points out that this referential identity can be achieved in two ways: lexically and textually, which indicates that two kinds of synonymy should be distinguished: lexical synonymy and textual synonymy. Lexical synonyms are called synonyms in respect of their semantic structure, i.e. regardless of context, e.g. *almost – nearly*, *brave – courageous*, *big – large*. In contrast, textual synonyms are context--bound in the sense that they function as synonyms "even if they are not synonyms in their semantic structure" (130). Al-Sharafi argues that in the sentence *The genuine ulema of Islam have never given in to capitalists, money-worshippers and landlords, and they have always preserved this decency for themselves* textual synonyms are *capitalists*, *money-worshippers* and *landlords*, which can be regarded as metonymic examples of the type of metonymy FORM FOR FORM or FORM FOR CONCEPT. However, Al-Sharafi's example does not show them to be textual synonyms at all. First of all, they are effectively used in the quoted passage precisely because they are already near-synonyms on the lexical and conceptual level. Secondly, they cannot be considered metonyms simply because they do not exhibit the stand-for relation, which is characteristic of metonymy. On the contrary, in the cited sentence all the three expressions are used one after another not in order to substitute for one another but, rather, in order to highlight different aspects of the basic concept (which is probably WESTERN ENTREPRENEURS). Moreover, if one goes along with the claim that the three expressions are synonyms, at least the expressions *money-worshippers* and *landlords* fail to have the referential function, which Al-Sharafi also regards as definitional for textual synonymy, because their purported referent has already been identi-

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[2] For the sake of simplicity, I ignore the question of the metaphoric motivation of these metonymies.

fied by the expression *capitalist*. In the light of his definitions, it is rather surprising that Al-Sharafi classifies the familiar example *The ham sandwich is getting impatient* as an instance of lexical synonymy, as though there was substantial overlap in the central domains of the semantic structure of the predications *customer* and *ham sandwich*. If anything, it is *the ham sandwich* that should be considered a textual metonym, since lexically the two expressions are unrelated and it is by virtue of the context that they are "brought together to have the same referent" . Finally, it is not clear what is the relation between the notions of lexical and textual synonymy on the one hand and the notion of cognitive synonymy on the other. Since Al-Sharafi treats both *the ham sandwich*, which he considers as a case of lexical synonymy, and his examples of textual synonymy as cognitive synonyms, it might be concluded that each kind of synonymy is in fact cognitive, which would render the term practically vacuous.

Equally surprisingly, Al-Sharafi dissociates the term synonymy from what he calls "patterns of reiteration". The patterns involve such items as e.g. Arabic *mara<u>dh</u>* (disease), *'ill·tihim* (illness and ill-effects), *d·'ihim* (sickness), which are clearly synonymous, but which again cannot be felicitously regarded as metonymic as they are not used as substitutes for one another. This is all the more surprising if we bear in mind the fact that Al-Sharafi uses Halliday's terminology and Halliday would no doubt classify such cases as synonymous on par with *capitalists, money-worshippers* and *landlords* in the example discussed above (cf. Halliday, 1994:330ff).

Summing up our arguments, it must be concluded that Al-Sharafi's distinction between lexical and textual synonymy can be useful, provided that the term "textual synonymy" is properly defined and shown to be qualitatively different from broadly understood cognitive synonymy in Cruse's sense. Furthermore, the classification of synonymy based on the fact that various expressions may have the same reference, does not yet explain how the intuition of synonymy arises on the conceptual, let alone neural, level, i.e. we are still not told how certain semantically diverse expressions, such as *capitalists, money-worshippers* and *landlords*, or *mara<u>dh</u>* (disease), *'ill·tihim* (illness and ill-effects), *d·'ihim* (sickness) may function as synonyms at all.

Finally, the value of Al-Sharafi's interesting proposal is diminished by his failure to explain the cognitive and/or conceptual mechanism that makes textual synonymy possible.

2. A Cognitive Account of Synonymy

2.1. A matter of representation

Without going into details, the cognitive representation of the semantic pole of a lexical unit has either the form of a complex matrix of domains with profiles highlighting the represented concept (as in Langacker 1986, 1987, 1990 and numerous other publications) or a Parallel Distributed Sub-Symbolic Representation (PDSSR, cf. Bierwiaczonek, 2002), with variously weighted links between the profiled subregions in the domains evoked by the predication and its conceptual space. The advan-

tage of the postulated conceptual space is that it accounts for the fact that although every lexical unit gives access to its various distributed modular components, it can nevertheless function as a conceptual unit, which may be activated by each of its component domains and their characteristic profile. Barring the cases when concepts are not lexicalized, the conceptual space is also strongly linked with the phonological representation of the lexical unit.

Given the cognitive representations of concepts constituting the semantic pole of lexical units, and the assumption that they are at least weakly activated each time the predicate is used, we may distinguish three kinds of synonymy.

2.2. Synonymy A

Synonymy A is based on necessary co-activation since both (or more) phonological forms activate more or less the same conceptual region in the conceptual space. As the above definition indicates, Synonymy A has fuzzy boundaries: there are cases of almost perfect overlap of the conceptual regions, as in the case of *honest* vs. *frank* (represented below), *fiddle* vs. *violin, nearly* vs. *almost*,[3] etc., and cases of only partial overlap, e.g. as in the relation between plesionyms (cf. Fig. 3), co-hyponyms, e.g. *amble, stride, stroll, march*, and other hyponyms of *walk*)

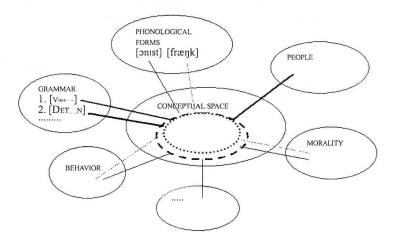Fig. 2

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[3] The relatively small number of absolute synonyms is usually explained in terms of two principles governing the number of lexical items in language: the principle of economy and the principle of iconicity (sometimes called isomorphism, cf. Haiman 1985). The former requires a minimal vocabulary, the latter demands a separate word-form for every distinct concept. Absolute synonymy violates the principle of economy and is not motivated by the principle of iconicity.

Other examples of Synonymy A abound:
falsehood – untruth – prevarication;[4] *legal – legitimate, proper – correct, example –
instance, liberty – freedom – independence – sovereignty, danger – peril.*

It will be noticed that although the emphasis in Synonymy A is placed on the
sizes of regions in the conceptual space, there are also qualitative differences between
synonyms A in the kinds of their component domains and their profiles. Thus the
domains activated by *honest* and *frank* seem to be the same but their moral and be-
havioral profiles are slightly different. If, however, *liberty* and *sovereignty* are com-
pared, one important difference is that *liberty* activates the domain of HUMAN RIGHTS,
which is not salient in the representation of *sovereignty*, which in turn activates the
domain of INTERNATIONAL RELATIONSHIPS, the domain absent in the representation
of *liberty*. Other examples, such as e.g. *roe-caviar* and *coast-land*, are well-known
from the cognitive literature, where they were first analyzed in terms of frames. The
first pair was discussed by Langacker (1987: 164–5), who observed that *roe* is used in
the anatomical frame, while *caviar* is used in the gastronomic frame. The other
example has to do with the difference between *coast* and *shore*. Fillmore (1982) pointed
out that *coast* is used in the context of the frame of JOURNEY OVER LAND, whereas the
word *shore* evokes the frame of JOURNEY OVER WATER.

Such differences seem to be more generally true of both propositional and near-
-synonyms in Cruse's classification discussed above. Consequently, it may be sug-
gested that propositional (cognitive) synonyms differ, both qualitatively and quantita-
tively, in their peripheral domains, while near-synonyms differ in their more central
domains.

As a special case of Synonymy A, we may compare the representation in Fig. 2
with that of a pair of plesionyms *misty* and *foggy*. The approximate representations
below show that the crucial difference between the ordinary synonyms A and
plesionyms lies in that plesionyms activate different regions on a scale of intensity of
some property or properties. In the case of *misty* and *foggy* the differentiating scale
forms part of the domain of VISIBILITY, although in a more complete representation
the scale in the domain of DENSITY of water should also probably be mentioned.

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[4] It seems that the relation between the three and *lie* on the one hand and *fib* and *lie* on the
other, is that of plesionymy, discussed below. In particular, *lie* seems to be stronger (especially
in terms of moral condemnation), while *fib* is weaker. Compare: *It was not just an untruth, it
was a downright lie* and *?It wasn't an untruth, it was just a fib* or *It wasn't just a fib, it was
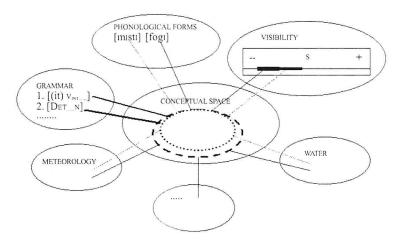a prevarication.*

Fig. 3

The most extreme form of Synonymy A is of course tautology, e.g. *Boys will be boys* or *Motor oil is motor oil* (cf. Gibbs, 1999). Gibbs argues that such tautologies are metonymic because "the speaker refers to the general category (e.g. boys) to refer to specific salient parts or attributes of that category (e.g., unruly behavior)". However, according to our criteria, tautologies should not be regarded as metonymic, and hence considered as cases of Synonymy B discussed below. Since they are based on mutual inclusion and necessary co-activation, they are extreme instances of Synonymy A.

2.3. Synonymy B

Synonymy B is a relation based on the Part-Whole relationship, typical of the lexical relation of meronymy (cf. Bierwiaczonek, 2005). The Part has considerable conceptual autonomy (cf. Górska, 1999) to the effect that, although its conceptual region is activated by the Whole, in itself it activates different or at least fewer domains than the Whole, e.g. the predication *a set of wheels* activates different and probably fewer domains than the word *car*. Similarly, the conceptual region of *care* forms a subregion of *love* but is considerably smaller and involves fewer domains than that of *love* (e.g. its script, if there is any at all, is much less elaborate and less culturally fixed than that of *love*, cf. Bierwiaczonek 2002 for details). It follows that Synonymy B is intransitive: X typically strongly activates Y but Y typically does not strongly activate X, e.g. the phonological form [ka:] typically activates the concept of A SET OF WHEELS (in its PART-WHOLE domain), whereas *a set of wheels* does not strongly activate the concept of a CAR (at least for those speakers who have not yet conventionalized this particular meaning). Similarly, *love* typically activates CARE but is not necessarily activated by it. Moreover, it is important about Synonymy B, and Synonymy C too, that while one term X of the relation may be regarded as basic,

the other, in the sense synonymous with X, is formed by means of metonymy, e.g. *love* is basic while *care* meaning LOVE is conceptually derived. Similarly, *car* is basic while the CAR-sense of *a set of wheels* is derived through metonymy. Therefore, it may be said that Y is a synonym of X, but X is not a synonym of Y, e.g. *a set of wheels* is a synonym of *car*, but *car* is not a synonym of *a set of wheels*, and *care* is a synonym of *love* but *love* is not a synonym of *care*. It will be remembered that *love* has also a metonymically derived sense of THE LOVED PERSON, in which case it may be said that *love* is a synonym of *darling*, but *darling* is not a synonym of *love* (in the sense of a relationship).

The metonymic extension of the meaning of *care* in Fig. 4 is indicated by an arrow in the conceptual space:
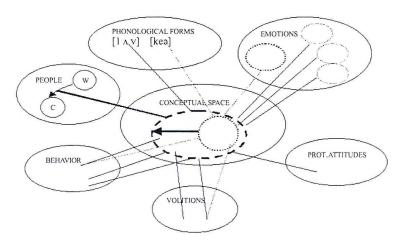

Fig. 4

Similarly, *chair* may be a synonym of *chairperson*, but *chairman* is not a synonym of *chair*. It is, therefore, felicitous to say *You have to talk to the chair before your presentation*, but it is odd to say *If you get tired, you may sit down on the chairman*.

The above discussion suggests that Synonymy B, based on conceptual and, probably, neural contiguity has the same neural and conceptual basis as certain types of meronymy. It may thus be concluded that in some well established cases the notions of Synonymy B and meronymy-based metonymies (cf. Bierwiaczonek 2005) are in fact equivalent.

Below is a short list of other B-Synonyms:
shift – hours, shelter – cover, magazine – paper, few – handful, haggard – hollow-cheeked, help – hand, applause – hand, nearby – at hand, generous – open-handed, garbage – waste, gain – capture, gamble – bet – put money on, etc.

2.4. Synonymy C

Synonymy C is a relation between two predications whose prototypical conceptual regions are separated from each other, thus synonymy is achieved by means of metaphoric mapping of the prototypical sense of one predicate onto the other, e.g. the prototypical meaning of *head* as "the highest part of (human) body responsible for thinking and controlling other parts of the body" is mapped onto the conceptual region of the predicate *director*. Thus, on the neural level the phonological form [hed] comes to activate the same region in the conceptual space as the word *director*. The way the co-activation works is represented schematically in Fig. 5. It will be observed that the DIRECTOR-sense of *head* is established via the conceptual metaphor COMPANY IS A (HUMAN) BODY, indicated by the dotted arrow. Also, it should be borne in mind that, although the link between the phonological form of *head* and the conceptual region of *director* may well be entrenched and have a unit status (as one of the senses of *head*), it is metaphorically derived from the prototypical and central sense of *head* related to the domain of human body.[5]
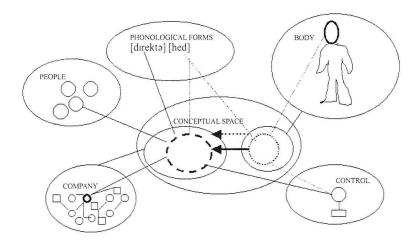

Fig. 5

Other examples of Synonymy C are not difficult to find:
reduce – cut, support – stand by – back up, understand – grasp – catch, period – space – stretch, haggard – worn – withered, hand – paw, area – pocket (as in *pockets of resistance*)

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[5] For a comprehensive analysis of the semantic structure of *head* in cognitive terms, cf. Tuggy, 1978; Krzeszowski, 1993)

The idea that metaphor may underlie some cases of lexical synonymy is not entirely new and may be traced back to Jakobson's (1956/64) account of metaphor in terms of paradigmatic relations. The logic of Jakobson's suggestion was later repeated in Dirven's (1985) analysis of what he calls "word metaphors". Dirven says: "Word metaphors are based on the paradigmatic relationships in language: each new metaphorization of *heart* makes it enter into a new paradigm with some other words. Thus *heart* forms a new paradigm with *courage* and we can substitute one for the other, e.g. in *to take heart* or *to take courage*, or in *He took his hart/his courage into his hands and stepped into the room*" (p.90). It is symptomatic that Dirven avoids calling the relationship "synonymy", although it is clear from his account that it is precisely metaphoric synonymy that results from the metaphoric extension of the meaning of *heart*, which has entered into the paradigmatic relationship with *courage*.

In the case of Grady's (1997) "primary metaphors" the link often is experientially motivated by early experiences, e.g. the fact that *intimate with* and *close* to are metaphorically synonymous is motivated by the primary experience of "being physically close to people you are intimate with" (Lakoff, Johnson, 1999:50).

3. Conclusions

We have suggested a new and, hopefully, revealing analysis of synonymy in terms of three different kinds of activation patterns associated with the semantic representation of various pairs of lexical units regarded as synonyms. In conjunction with the data and the proposed account presented in Bierwiaczonek (2005), the analysis shows that synonymy is unique among other semantic relations in that in makes use of all three possible co-activation patterns: co-activation resulting from neural and conceptual overlap (Synonymy A), co-activation resulting from neural and conceptual closeness (i.e. contiguity – Synonymy B), and co-activation resulting from strong neural and conceptual links between separate regions (Synonymy C). The analysis also shows that the cognitive approach to semantic relations based consistently on the philosophy of embodied realism (cf. Lakoff and Johnson, 1999) and, therefore, seeking to explain linguistic facts in terms of neural activation patterns (or images, cf. Damasio, 1999) offers new insights and new solutions of the traditional problems of semantics.

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