

Piotr CYMBALISTA, Grzegorz A. KLEPARSKI

TOWARDS A COGNITIVE APPROACH TO EXTRALINGUISTIC MOTIVATION OF DIACHRONIC SEMANTIC CHANGE

The idea that language shapes thought is inevitably associated with the work of Benjamin Lee Whorf. That great American scholar proposed that the categories and distinctions characteristic of a given language determine the way its speakers both think and act. Accordingly, since languages differ from one another in every possible respect, Whorf (1956) believed that their respective speakers tend to differ in how they perceive objectively analogous situations. This general question of whether it is language that determines human concepts and perception of the world, or whether it is the world that determines the shape of human language has been answered differently throughout history of linguistic and philosophical thought. In what follows – given the limited space of this paper – only the most recent approaches to such questions will be outlined.

Some practitioners of linguistic science have assumed the former position (e.g., Slobin 1996; Gentner and Imai 1997; Davidoff, Davies and Roberson 1999; Boroditsky 2001), whereas others have produced substantial evidence to the latter standpoint (e.g. Rosch 1972 or Li and Gleitman 2002, to name but a few researchers in human cognition). In most general terms, the authors of this paper subscribe to the latter point of view, an insightful summary of which can be found in the following words by Blank (2001):

It seems [...] clear that any kind of Platonian realism in linguistics is doomed to failure and that speech communities create their own conceptual systems, or in other words: a “world” of their own, which is then subsequently verbalized. This is to say that concepts are neither universal nor are they really language-specific: they rather are culture-specific and thus extralinguistic phenomena (Blank 2001:8).

Note that this foregoing observation is in line with the proposition upheld by the adherents to cognitive linguistics, which considers language as one of the many existing forms of human cognitive phenomena, by no means different to

others. Since humans conceptualize the world, physical entities and the totality of their experiences in terms of categories, the same conceptualization and categorization processes must be relevant to language (Langacker 1977).¹ Language may be considered to be conceptually-based, whereas its structure depends on the sets of interrelated categories encompassing the so-called prototypes, that is typical members of a given category (Rosch 1973),² rooted in human experience and perception of the world.³

According to Langacker (1995:106), the elementary mode of operation of language is concerned with *allowing conceptualizations to be symbolized by phonological sequences for purposes of thought and speech*. Fundamental cognitive abilities allow speakers to abstract and store language data in schemas (schematization), and to establish relationships between these schemas and the structures from which they are abstracted (categorization) or the structures which will be constructed or evaluated using these schemas.⁴ Thus, cognitive linguists [...] refer to a set of fundamental concepts relative to the world of perception, imagination and action, concepts which they consider to be the “universals” of interconnected cognitive systems (Albertazzi 2000:11).⁵ The verity of the aforesaid cognitive claim, allowing for the fact that:

[...] the so-called “language faculty” is just a reflection, in some cases a specialization, of general-purpose cognitive abilities, and is governed by general neural processes. [...] there is a continuum between all sorts of cognition (especially body-based cognition, but also cognition acquired on the basis of social and cultural experience) and language, there being little ground for claiming that language, let alone syntax, is a separate “module” in the mind or in the brain (Barcelona 2000:2).

is not only observable in grammar (Langacker),⁶ syntax (e.g. Jackendoff 1991), or morphology (e.g. Taylor 2003), but especially semantics, including diachronic semantics.

The application of the cognitive apparatus to semantics is a real milestone, as from the perspective of cognitive linguistics words do not possess meanings in themselves, but their understanding depends on the fact that they represent conceptual categories. As these categories – in the light of what has already been mentioned – involve the element of encyclopaedic information, the meaning always depends on the context, in particular the extralinguistic context, so the

¹ See also Langacker (1987, 1990, 1991, 1995, 1999).

² See also Labov (1973), Rosch (1975, 1976, 1977, 1978) and Geeraerts (1997).

³ This is true to such an extent, that even the technical term referring to how such categories are structured is *family resemblance*, the concept of which is based on everyday experience.

⁴ For a detailed discussion, see e.g. Lakoff and Johnson (1980); Lakoff (1987, 1993); Langacker (as in footnote ¹ above); Croft and Cruse (2004).

⁵ Cf. Jackendoff (1992).

⁶ See Langacker’s publications listed in footnote ¹ above.

traditional differentiation between semantics and pragmatics is no longer relevant. In Langacker's own words:

The distinction between semantics and pragmatics (or between linguistic knowledge and extralinguistic knowledge) is largely artefactual, and the only viable conception of linguistic semantics is one that avoids such false dichotomies and is consequently encyclopaedic in nature (Langacker 1987:154).

Thus, contrary to the traditional concept of word meaning, where a clear-cut line of distinction was drawn between denotative and pragmatic meanings, word meaning is rather generated by drawing from the repository of our encyclopaedic – mostly extralinguistic – knowledge, which may be referred to as the **meaning potential** (Allwood 2003) or **purport** of a given lexical item (Cruse 2000; Croft and Cruse 2004).

Apart from Langacker's postulate of the encyclopaedic nature of meaning, there have been numerous ground-breaking theories concerned with semantics, such as the **prototype theory** (Rosch 1973), the **frame semantics** theory (Fillmore 1975, 1977, 1985), Lakoff's theory of **idealized cognitive models** or ICM's (1987), the **image schema** theory (Johnson 1987), the **mental spaces** theory (Fauconnier 1985, 1997) or the **conceptual blending** theory (Grady, Oakley and Coulson 1999; Fauconnier and Turner 2002), which will not be discussed here.⁷ Nevertheless, what they have in common is that all of them stress the importance of the observation that *language is not an autonomous cognitive faculty* (Croft and Cruse 2004) and that – consequently – there is no clear-cut distinction between linguistic and extralinguistic knowledge.

The relevance of human cognitive faculties and perception of the world to the study of semantics was observed not only from the synchronic, but also diachronic point of view, which has exerted a dramatic influence on the studies of diachronic semantic change (cf. Sweetser 1990; Geeraerts 1983, 1997, 2000, 2002; Traugott and Dasher 2002; Klepanski 1997, 2000, 2004; Koch 2004; Grygiel 2005 and Kiełtyka 2006).

A very insightful comment on the importance of the application of the cognitive linguistic apparatus to the study of the diachronic semantic innovations was made by Geeraerts and Grondelaers (1995) to the effect that:

[...] one of the major steps forward taken by Cognitive Semantics has been to put the study of meaning back into its cultural and experiential context, [although] it would seem that the natural consequence of including the diachronic dimension into the investigation has perhaps not yet been fully appreciated.

⁷ For further details of how the cognitive linguistic approach influences semantic studies see also e.g. Reddy (1979); Cruse (2000); Geeraerts (2001); Jackendoff (2002); Taylor (2003); Tyler and Evans (2003) or Evans and Tyler (2004).

Besides facilitating the discussion of the mechanisms, regularities or directionality of historical semantic change, the application of the cognitive linguistic approach offers an interesting insight into the **motivation** for semantic developments and extralinguistic of this problem in particular. Notice that although the subdivision into **linguistic** (or language-internal) and **extralinguistic** (or language-external) causes of semantic change was formulated as early as the turn of the 20th century (Meillet 1905:74–75),⁸ it is only nearly a century later, with the advent of the cognitive approach, that important new developments in this respect can be made: now that cognitive linguists – especially adherents to conceptual semantics – profess that the domain of linguistic semantics should be perceived as *continuous with human conceptualization as a whole* (Jackendoff 2002:282). Consequently, the contribution of cognitive linguistics to the studies of semantic change can hardly be overestimated. Numerous phenomena, such as **metaphor**, **metonymy**, **hyperbole** or **synecdoche**, which had previously been associated only with the literary and stylistic analyses of poetic and figurative language, have been proved to be cognitively-grounded mechanisms of meaning construction and change (e.g. Sweetser 1990).

It is symptomatic that even such seminal classics, as Ullmann (1959) – lacking a cognitive insight – considered metaphor and metonymy only as one of the phenomena included in his functional classification of semantic change processes, founded on the binary oppositions he discerned between: broadening (i.e. generalization) vs. narrowing (i.e. specialization) of meaning; amelioration (i.e. elevation) vs. pejoration (i.e. deterioration); metaphorical change vs. metonymic change.⁹

Consequently, we believe that apart from the extralinguistic motivations for semantic change which have been traditionally perceived as such, it is worth pointing to another group of language-external motivations, which result not as much from the surrounding extralinguistic reality, as from **language-external mechanisms** of human perception and cognition.

As regards **traditional extralinguistic motivation**, the following aspects may be listed: politics and war; social-economic reality (including legal systems, social taboos etc.); technological and civilizational progress; culture (material

⁸ More precisely, Meillet (1905) enumerated three causes of change of meaning: linguistic reasons, historical reasons and the reasons related to social stratification. Furthermore, it is worth emphasizing that half a century before the aforesaid subdivision made by Meillet (1905), changes of meaning due to political, commercial and religious factors (i.e. extralinguistic ones) were documented and studied by Trench (1994[1851]).

⁹ Thus, different angles of recent criticism directed at Ullmann (1959) have shared the common accusation of providing no explanation for the motivation of change and focusing merely on the results of a process of change (e.g. Kleparski 1988; Blank 1997; Geeraerts 1997; Traugott and Dasher 2002).

and non-material) and religion; lastly, there are psychological factors (including taboo, euphemism, hyperbola, litotes, synaesthesia), also largely dependent on the culture-specific and/or idiosyncratic context. These areas, regardless of how specific their classification might be,¹⁰ are the most obvious candidates to be analysed for an extralinguistic potential to motivate semantic developments of words, as they seem prone to continual change over time, whereas – obviously enough – *extralinguistic changes do not necessarily lead to new words* (Lipka 1999). Let us consider the following examples:

Politics and war

Politics and war have always been one of the most unavoidable and potent aspects of the surrounding reality to motivate semantic developments. In this respect, the former Soviet domination over many European countries was a notorious source of numerous examples of semantic shifts, partly as a result of deliberate efforts of official propaganda, and partly as a result of these efforts backfiring due to the bitter contrast with the reality they referred to. Typical examples of such a motivation are represented by the semantic alterations that have taken place in Polish *sprawiedliwość społeczna* (*social justice*) and *demokracja ludowa* (*people's democracy*). Although the Polish adjective *społeczna* embodies the sense of “social, public, co-operative”, the compound became unmistakably used to differentiate between the original archetypal sense of “justice, exercising of what is fair and what is not” and “injustice resulting from the Soviet-imposed political and judicial system, based on promoting servility towards the new rulers of Poland (or other Comecon countries)”. Thus, the extralinguistic awareness of what is the reality hidden behind the elegant label of a new political system resulted in a pejorative development of the adjective *społeczna* (in the above-explained sense) into “illusory, spurious, Soviet-imposed”.

Another example that may readily be quoted here is the evolution of the Polish adjective *ludowa*, as in *demokracja ludowa* (*people's democracy*). To the citizens of Soviet-ruled Poland, *demokracja* was known to refer to “a typical, Western-style democracy, where people can enjoy both their human and civic

¹⁰ For example, Kleparski (1990:45) finds the very notion of semantic evaluative development on: [...] *the application of moral (e.g. the Decalogue), social (e.g. social conventions and hierarchy), legal (e.g. civil and criminal law), aesthetic and other norms which enable the members of a community to classify certain states, qualities, phenomena or actions as either positive or negative. The existence of this system of norms has a definite bearing on language itself.* Thus, while discussing e.g. various stages of pejorative developments of the words in the conceptual domain of **HUMAN BEING**, the author distinguishes between: (1) *social pejoration*; (2) *aesthetic pejoration*; (3) *behavioural pejoration*; and (4) *moral pejoration* (Kleparski 1990).

rights”, whereas *demokracja ludowa* referred to the newly-imposed political system of oppression and censorship, in the sense of “a totalitarian system with an illusory facade of a democracy”. Consequently, depending on language-external factors, the meaning of *ludowa*, i.e. “people’s, peasants”, or folk people’s” went down the evaluative scale to denote “totalitarian, illusory, spurious” or even “sham”, in which case an additional deteriorative change in terms of language register took place.

Notice that there are a number of examples of much older changes of the type discussed here, e.g. of an ameliorative character, when for the purpose of group identification and pride a community reclaim a term previously used against them in a derisive sense, as in the case of *Yankee* (possibly derived from Dutch *Jane*, a nickname for *John*) which had been used as a British term of abuse against New England settlers. Subsequently, after the Battle of Lexington (1775), New Englanders claimed the name for themselves, and thus the word underwent a dramatic semantic elevation (see Traugott and Dasher 2002:4).

Social-economic reality

It goes without saying that social-economic reality is a very ample source of extralinguistic motivations for diachronic semantic change, as social, economic and political contexts sometimes vary dramatically in the course of time. Thus, new meanings may be “officially” attached to the already existing lexical items, the full comprehension of which is totally dependent on an adequate amount of knowledge on a particular language-external context. To quote a representative example, let us discuss the semantics of A.E. expression *new deal* (or *New Deal*), where – as the *OED* informs us – at one point of time *deal* ceased to encode the sense of “an act of dealing or buying and selling; a business transaction, bargain” or the sense “a transaction of an underhand or questionable nature”, which might prove detrimental to the intended sense of “a private or secret arrangement in commerce or politics entered into by parties for their mutual benefit”.¹¹ However, the *New Deal* acquired a very specific meaning in the context of the political agenda of one particular president of one particular country, i.e. Franklin D. Roosevelt, to the effect of “a new arrangement with a view to reform and betterment, especially the programme of social and economic reform in the USA planned by the Roosevelt administration of 1932 onwards”¹² (see the *OED*).

¹¹ See the following *OED* material:

1863 Τη ωαρ ισ προλονγεδ, ανδ βυτ λιττλε χηανχε οφ ιτσ ενδιγγ υντιλ ωε ηαπε α νεω δεαλ // 1881 [Τηε παρτυ βοσσ] ηις ποωερ οφ μακινγ δεαλσ .

¹² Hence, *new dealer* (*New Dealer*), “one who advocates or supports a *new deal*” (the *OED*).

Another example of this type is a very telling one, as it demonstrates a change in the lexical meaning resulting exclusively from the consecutive changes in the characteristics of the coins in circulation in a given monetary system. The *OED* provides the following mid-19th century definition of *nickel* in A.E. “a **one-cent** coin partly made of nickel (in the USA)”.¹³ After nearly three decades the original sense gave way to the 1883 sense of “a **five-cent** coin”, also in A.E. In fact, the *OED* testifies to yet another, utterly surprising, semantic development of that word, which clearly resulted from the social-economic context too, as it was a product of the hippie subculture in the USA and its slang.¹⁴ Although the characteristics of the five-cent coin remained unchanged, the amount in question changed metonymically to as much as **five dollars**, but this time used in the slang sense of “five dollars’ worth of marijuana”¹⁵ (see the *OED*).

Also, under the headline of social-economic reality, **social taboos** must be categorized, which resulted in – among others – specialization of the original sense of the English lexical item *redundant*, i.e. “superabundant, superfluous, excessive”, which goes back to the beginning of the 17th century (see the *OED*). To eliminate the socially disturbing ring of the word *unemployed*, the adjective *redundant* (as in *to make somebody redundant*) started to be used euphemistically in the sense of “no longer needed at work; unemployed because of reorganization, mechanization, change in demand, etc.” (see the *OED*).¹⁶

From the cognitive linguistic perspective, while considering this example, it is worth noting the ingenious use of the “profile” (cf. Langacker, as in note ¹ above) or “salience” (Geeraerts 2000) of the concept expressed by the English adjective *redundant*, whereby the logical and fully acceptable schema of “getting rid of what is redundant” in reference to inanimate or non-human entities (where no moral or ethical considerations are profiled, apart from the purely utilitarian ones) becomes expanded to cover humans as the experiences of this activity. Thus, the devastating influence on someone’s welfare and financial stability, so much highlighted in the expression *make somebody unemployed*, becomes relatively harmless, or even irrelevant, as these

¹³ This, in itself, is a metonymic specialization of the original reference to one particular type of metal (cf. the section on metonymy below).

¹⁴ As already mentioned, *social stratification* was pointed as one of the reasons for the change of meaning very early in the history of diachronic semantics (see Meillet 1905:74-75).

¹⁵ Cf. the following *OED* quotations:

1967 *Νιχκελ* βαγς οφ μαριφουανα (ιν ηιπιπτε λινγο α νιχκελ ις Ξ5 ωορτη) // 1968 70 *Νιχκελ*..., ονε-ειγητη το ονε-φορτη οφ αν ουνχε οφ μαριφουανα χοστινγ αβουτ Φιωε δολλαρς. Φιωε δολλαρς. (drug users’ jargon).

¹⁶ Although this euphemism is nowadays very much associated with so-called political correctness, the original shift of the meaning – as the *OED* material shows – occurred as early as the late 1920s.

disadvantageous elements are not salient in the original frame of *redundant*. This phenomenon may be also referred to as the application of the so called *perspectival salience* (Geeraerts 2000:95).¹⁷

Technological and civilizational progress

In this sector of human life, the accelerated rate of change of the extralinguistic reality is unquestionable and needs no elaboration. Likewise, it is indisputable that, because of the accelerated development of human civilization, there appear a growing number of referents, especially as regards newly developed/discovered human artefacts, which are frequently associated (metonymically) with already existing lexical items, especially if their previous referents are no longer present, and the former meanings of such words become obsolete. As Traugott and Dasher (2002:3) put it, the nature of the lexicon is *far from immune to reference* and – therefore – it is subject to the changes in the life-styles and the artefacts we are surrounded by:

[...] the nominal domain [...] is particularly susceptible to extralinguistic factors such as change in the nature or the social construction of the referent. For example, the referents of towns, armor, rockets, vehicles, pens, communication devices, etc., have changed considerably over time, as have concepts of disease, hence the meanings attached to the words referring to them have changed [...] (Traugott and Dasher 2002:4).

A representative example of such motivation is the example of the meaning of the English word *car*, which is understandably so much taken for granted nowadays. However, the word was borrowed from Latin, via Anglo-French *carra/carrus*,¹⁸ with its original meaning “chariot”. As early as at the end of the 14th century the word was used in the sense of “a wheeled vehicle or conveyance; generally: a carriage, chariot, cart, wagon, truck” (see the *OED*). Thus, although *car* is a very common word in English today and the general conceptual element of wheeled vehicle is diagnostically present in the semantic structure of the word, no one – obviously enough – uses it in the original sense of “a chariot”, which has been overwhelmingly superseded by its present-day senses “automobile” or “a vehicle designed to move on rails, as of a railroad” (see the *MWOD*).

Another historical example is the development of the meaning of the English word *chamber*, as in *chamber orchestra*, where *chamber* originally (in

¹⁷ In his typology of lexicological salience, Geeraerts (2000:94-95) mentions *perspectival salience* (highlighting), understood as *the differences of perspectival attention attached to different parts of the overall chunk of extralinguistic reality evoked by a particular concept*.

¹⁸ Etymology: Mid.E. *carre*, from Anglo-French, from Latin *carra*, plural of *carrum*, alteration of *carrus*, of Celtic origin; akin to Latin *currere*, “to run” (cf. the *MWOD*).

the 13th century) referred to “a room or apartment in a house; usually one appropriated to the use of one person; a private room” or “the reception-room in a palace” (the *OED*), whereas today a palace chamber is hardly expected as a *sine qua non* condition for enjoying a *chamber orchestra* or *chamber music*, i.e. “music and especially instrumental ensemble music intended for performance in a private room or small auditorium and usually having one performer for each part” (the *MWOD*). Similarly, in the case of *Chamber of Commerce* or *Chamber of Industry and Commerce*, etc., employed in the sense of “a board organized to protect the interests of commerce in a town or district etc.” (see the *OED*), the element that is profiled today is the dignified authority of a given institution, rather than the venue of its proceedings.

Culture and religion

The importance of culture (both material and non-material) and culture-specific concepts to the motivation of semantic change was analysed by, among others, Kövecses (1995), Geeraerts and Grondelaers (1995). A number of convincing examples of how a knowledge of the cultural context facilitates the understanding of the semantic development of a given expression are discussed in Geeraerts (2002). While discussing figurative shifts, the author observes that:

[...] *motivation often results from cultural changes. More often than not, the background image that motivates the figurative shift is an aspect of the material or the immaterial culture of a language community – and when the culture changes, the imagistic motivation may lose its force* (Geeraerts 2002:442).

And so, for example, the meaning of the Dutch expression *met spek schieten* (*to shoot with bacon*) is “to tell a tall story, to boast”. His explanation of this apparently totally incomprehensible motivation is grounded in the knowledge of the language-external culture of old-time sea warriors:

Apparently, enemy ships were shot at with bacon (and similar fat substances) to facilitate setting them afire; the interpretation “to boast” can then be reached through the intermediary of an interpretation “to subject someone to verbal aggression, to overpower someone verbally”. In this case, the relevant knowledge belongs to the material culture of old-time warfare at sea (Geeraerts 2002:442).

Along similar lines, note that the English expression *come through with flying colours* also has its roots in the military art of the olden days. However, the culture-specific motivation underlying this semantic development is perhaps more readily comprehensible, as our understanding of the meaning of the phrase does not require any knowledge of the maritime lifestyle of one particular militant nation, but is conditioned by the knowledge of the Pan-European chivalric traditions of knighthood. The present-day meaning “to complete an

impressively difficult task or trial very successfully”, is easy to decode if one is aware of the custom started in Mediaeval Europe that a victorious army or a knight left the battlefield proudly flying their banners (i.e. colours¹⁹), whereas the defeated party and the prisoners of war were never awarded that honour.²⁰ According to the *CIDI*, this phrase is used in the above-explained sense not only in B.E., but also A.E. and Au.E., despite that – due to obvious historical constraints – it is hardly possible to refer to any chivalric lifestyle in the New World or the Antipodes. Thus, it is clearly noticeable that the phrase has continued to be used in its new sense long after its original meaning had become irrelevant and forgotten.

It is beyond doubt that religion is a very important element of culture-specific considerations, closely related to the lifestyle and the values cherished by a given community. Unsurprisingly, apart from being an abundant source of lexical borrowings, religious concepts have a great bearing on the changes in the meanings of the lexical items already existing in the target language. An illustrative example of such a motivation is offered by the semantic evolution of the English noun *heaven*. The original O.E. sense of this word was “the sky, the firmament, the expanse in which the sun, moon, clouds and stars are seen”. With the advent of Christianity, as early as at the turn of the 10th century, the word underwent a process of semantic extension to comprise not only certain elements of our natural environment, but also the Christian concept of “the celestial abode of immortal beings; the habitation of God, angels, beatified spirits, etc., usually placed in the realms beyond the sky; the state of the blessed afterlife” (see the *OED*). During the course of its history, apart from the widening of the meaning, also an evaluative semantic development may also be said to have occurred in this case, i.e. amelioration (elevation) of the meaning.²¹

However, the addition of a religious sense, on top of the previously profane ones, was not the only influence exerted by religious dogmas and concepts on

¹⁹ Interestingly enough, that the meaning of *colour* in the sense of “a flag, ensign, or standard of a knight, land, regiment or a ship” is in itself a metonymic development of the previous sense “hue, tint” (e.g. as in the *Trooping of the Colour* ceremony). According to the *OED*, the original sense dates back to the late 14th century, whereas the aforesaid semantic development started as early as at the turn of the 15th century:

χ.1400 Αλλ ηορ χολουρισ το κεν ωερε οφ χλενε ψαλωω. // χ.1420 Τηε κνψ τε ιν ηις χολουρωασ αρμιτ φυλ χλενε.

²⁰ Compare the culture-specific fabric of this expression with that of *to return with the shield*, whose sense is also built on an underlying schema resulting from the widely known precept that a Spartan warrior must return from a battle with a shield or on a shield, but never without a shield (meaning “victorious or dead, but never a survivor of a lost battle”).

²¹ For an extensive treatment of evaluative (pejorative and ameliorative) semantic developments, see e.g. Kleparski (1986, 1990, 1997).

the meaning of this word. Over the course of time, the Christian concept of *heaven* as “the state of ultimate bliss in the afterlife, as God’s reward for the righteous” figuratively infiltrated into the domain of this life’s lay pleasures and the meaning of the noun²² expanded even further to accommodate the senses of “a place like or compared to heaven; a place of supreme bliss” and “a state of supreme felicity and ecstatic happiness” in the second half of the 14th century (see the *OED*). Also at the very same time, another semantic expansion of the word occurred, based on the association of the Christian concept of the place of heavenly bliss with the “seat of the celestial deities of heathen mythology”.²³ Note that a number of the semantic shifts motivated by religious considerations frequently involve religious taboos as a very potent underlying factor in the change in word meaning.

Another point worth emphasizing is that a knowledge of culture seems to be necessary for discovering the motivation behind the cases of **eponymy**, i.e. the phenomenon whereby a proper name develops a general sense built onto its original meaning or associations,²⁴ as in *Kleenex*, the noun that originated as the proprietary name of an absorbent disposable cleansing paper tissue manufactured by one particular company, in the early 20th century (see the *OED*), but – over the course of time – the word assumed the generic sense of “a cleansing tissue” (see the *MWOD*). Another typical example of an eponym is *Pyrrhic victory* used in the sense “a victory gained at too great a cost”.²⁵ As eponymy – apart from being rooted in the encyclopaedic knowledge of culture – involves the mechanisms of a metonymic transfer of meaning, for further discussion see the section on metonymy below.

Now, let us turn our attention to a spectacular category of culturally-motivated semantic developments constituted by the cases of what has come to be known as **zoosemy** (animal metaphor), pertaining to the conceptual macrocategory **HUMAN BEING**, which has been recently given a detailed discussion by, among others, Kiełtyka and Kleparski (2005), Kiełtyka (2006) and Kiełtyka (this volume). The authors analyse cases of zoosemy against the

²² Compare the semantics of its derivative adjective *heavenly*.

²³ It is worth mentioning that within the religious senses of *heaven*, a typical metonymic development also occurs (as early as at the turn of the 10th century), whereby “the celestial abode” becomes used in the sense of the authority it represents: “the power or majesty of heaven; He who dwells above; Providence, God”, as in the *OED* example:

1667 Τηε ωιλλ ανδ ηιγη περιμισσιον οφ αλλ–ρυλινη Ηεαωεν.

²⁴ Eponym may be defined as the name of a person, whether real or fictitious, who has (or is thought to have) given rise to the name of a particular place, tribe, discovery or other item (cf. the *WOLE*).

²⁵ This eponym is an allusion to the exclamation attributed to Pyrrhus after the battle of Asculum in Apulia (in which he routed the Romans, but with the loss of the flower of his army), “One more such victory and we are lost” (see the *OED*).

background of the so-called Great Chain of Being metaphor.²⁶ Various metaphorical mappings, either in the upward or downward direction, are enabled by the invariably hierarchical structure of the metaphor, as presented by Krzeszowski (1997:68):

GOD
HUMANS
ANIMALS
PLANTS
INORGANIC THINGS

Thus, the conceptual category of e.g. **HUMAN BEING** becomes a target for numerous lexical items within the attributive paths of e.g. the following domains: **DOMAIN OF FUNCTIONS [...]**; **DOMAIN OF CHARACTER, BEHAVIOUR AND MORALITY [...]**; **DOMAIN OF ABUSE [...]**; **DOMAIN OF ORIGIN AND RANK [...]** and **DOMAIN OF STATE/CONDITION [...]** (cf. Kiełtyka and Kleparski 2005:27).

The semantic evolution of the English noun *dog* may serve as an example. Apart from its original sense, the word developed a new sense as early as the 14th century, when the following figurative use of the word appeared: “a person; in reproach, abuse, or contempt: a worthless, despicable, surly, or cowardly fellow” (see the *OED*).²⁷ In the 17th century the term underwent an ameliorative change into the sense of “a gay or jovial man, a gallant; a fellow, a chap”.²⁸ Surprisingly, depending on which aspects of the meaning of *dog* gained prominence, there have been pejorative changes, e.g. into “an informer, a traitor; especially one who betrays fellow criminals” (in the 19th and 20th century American and Australian slang – cf. the *OED*²⁹), as well as those of an ameliorative nature. An example of such seems to be the semantics of the English expression, *dogged does it*, where the competitive brutality of the life in a pack is no longer profiled. Instead, the element of hardworking and persevering diligence, also present in the conceptual field of *dog*, come to be associated with a very positive message. Thus, in this case the attributes of a

²⁶ The concept of the Great Chain of Being – developed by the ancient philosophers, such as Plato and Aristotle – was previously brought up by Lakoff and Turner (1989).

²⁷ Cf. the *OED* quotation:

χ.1325 ὄθιον Δοψλψ+σλοωγη ηψμ+Ανδ σαψδε: Δογγε, τη ερ τηου λψ!

²⁸ Cf. the *OED*:

1711 Αν ιμπυδεντ ψουνη Δογ βιδ της Φιδδλερσ πλαψ α Δανχε χαλλεδ Μολ. Πατλεψ.

²⁹ Cf. the *OED*:

1846 Διχκ Ωηιτε ηασ βεεν πλαψινη της δογ , ανδ η ε ανδ της χοπερσ αρε νοω ω ιτην τεν μινυτεσ οφ της ηουσε.

canine may be said to be transferred to a higher level of the Great Change of Being.³⁰

Psychological factors

Semantic changes motivated by psychological factors, which account for another group of language-external causes of sense development, are all-pervasive and – paradoxically – frequently remain unnoticed, as they are generated almost unconsciously by language users, who have been mostly brought up and taught to maintain a good rapport with other members of their speech community. Thus, speakers' own individualities and sensitivities influence the language they use to facilitate interpersonal and social exchange by taking account of their interlocutors' idiosyncrasies of the same type. An extreme example of such a deliberate approach, verging almost on self-censorship, is the notorious principle of political correctness.³¹ As insightfully observed by Grzegą (2002):

*The notion of "political correctness" is on the edge of societal and institutional reasons and could theoretically be subsumed under these two. However, political correctness is, first of all, a term that is so well embedded in modern thinking and, second, a notion that stands out because it refers entirely to human beings (and derivable terms) that it should be listed as a separate motive [of lexical choices]. When speaking of "nigger", for instance, political correctness can be regarded as the modern form of **taboo** (Grzegą 2002:1036).*³²

Grzegą (2004:21) expounds that *taboo refers to the desire of avoiding [sic] a specific (growingly stigmatized) designation for a concept with "undesirable" aspects*. Having no intention to embark on yet another discussion of the widely known examples of major types of taboos³³ below we shall focus our attention on two major taboo oriented motivations of semantic change, that is political correctness and religion.

To discuss a most illustrative example of the motivation by the political correctness **taboo**, let us consider the history of English adjective/noun *gay*. Although it is politically correct to approve of homosexuality as another equally

³⁰ For another angle on the issues of zoosemy see Kiełtyka and Kleparski (this volume) on the non-Indo-European animal metaphor.

³¹ For the issue of political correctness, lexicon and semantics, see e.g. Allan and Burridge (1991), Burridge (1996), Kleparski and Martynuska (2002) and Grzegą (2002).

³² The word in bold has been stressed on our volition.

³³ For example, Grzegą (2004:21) distinguishes between the following: 1) mystic or religious taboos, the so-called taboos of fear (e.g. *evil spirit*, *ghost*, etc.); 2) taboos of intimate things, the so-called taboos of propriety (e.g. *ugly*, *urinate*, etc.); 3) taboos of moral misdeeds, the so-called taboos of delicacy (e.g. *evil*). Lexical replacements for taboo terms are called taboo-driven euphemisms (Grzegą 2004).

valid and justifiable form of human sexual behaviour, on a par with heterosexuality, the very term *homosexual* has become deemed offensive and ostracized, i.e. underwent a pejorative semantic change (which is surprisingly inconsistent from the gay-oriented point of view). Consequently – as stipulated by the proponents of the semantic field theory,³⁴ – another lexical item had to fill in the gap in the conceptual field, and the word *gay* became the socially acceptable term of reference with the same intended meaning.

Thus, sexual and social taboo motivated the most recent semantic expansions of *gay*, which were, *inter alia* “light-hearted, exuberantly cheerful, sportive, merry”,³⁵ “bright or lively-looking, esp. in colour; brilliant, showy”,³⁶ “finely or showily dressed”³⁷ (in the early 14th century as the *OED* material shows), or “brilliant, attractive, charming” (used for abstract referents, from the early 16th to the late 18th century³⁸). There was a pattern of manifest pejorative developments of the meaning, probably due to the lack of discretion and responsibility, becoming a more and more salient sense of the word, as in “addicted to social pleasures and dissipations; of loose or immoral life (especially in *gay dog*, i.e. a man given to revelling or self-indulgence)” (from the early 17th to mid-19th century), “impertinent, too free in conduct, over-familiar”³⁹ (U.S. slang at the turn of the 19th century), “of a woman: leading an immoral life, living by prostitution”⁴⁰ (19th century slang). Then, in the early 20th century (see the *OED*), the pejorative slang sense “of a person: homosexual; of a place: frequented by homosexuals” appeared, which – in turn – has recently become officially anointed by the power of political correctness as the preferable polite term of reference to a male or female homosexual person. It is important to note that whether that final development should be perceived as a case of amelioration or as a continuation of the pejorative tendency seems controversial and, as Crystal (1995:138) puts it, *depends on factors that are more to do with personal taste and morality than with language*.

Apart from personal or social taboos, **religious taboo** seems to have been a very potent driving force behind the operation of many semantic alterations. For example, within the Christian doctrine, the Third Commandment requires that *thou shalt not take the name of the Lord thy God in vain*.⁴¹ Thus, the observance

³⁴ See, for example, the work of Trier (1931) and Lehrer (1974).

³⁵ The *OED*: χ.1310 Γραχιουσε, στουτ, αντ Γαψ, Γεντιλ, φολυψ σο τηε φαψ.

³⁶ The *OED*: χ.1386 ζπον ηις αρμ ηε βααρ α γαψ βραχερ.

³⁷ The *OED*: 1387 Χλεοπατρα μαδε ηερε γαψ.

³⁸ The *OED*: 1529 Τηοσε ρεασονσ σεμεδ .. γαψ ανδ γλοριουσ ατ τηε φιρστ σιγητ.

³⁹ The *OED*: 1911 Ανδ Ι ωουλδνετ γετ γαψ ρουνδ ηερ.

⁴⁰ The *OED*: 1857 Τηε γαψ ωομεν, ασ τηεψ αρε τερμεδ, αρε ωορσε οφφ τηαν Αμεριχαν σλαπσεσ.

⁴¹ Quoted from the King James Version of the Bible (also: the Authorized Version or the Common Version).

of religious precepts results in semantic expansions of the otherwise neutral and profane lexical items, in which the element of the supernatural may become salient besides the previously applicable profile of “power, authority”, as in *Lord (Our Lord), Our Lady, or the Queen of Heaven*. Due to their unmistakable sense of referring to a person being in authority, powerful enough to make his/her servants both fear and admire him/her, the meanings of these lexical items expanded to accommodate the supernatural sense practically as soon as Christianity was introduced to the English soil.

To demonstrate that, let us compare some of the senses of the noun *lord* (cf. the *OED*), that is the late-9th century sense of “one who has dominion over others as his subjects, or to whom service and obedience are due; a master, chief, prince, sovereign”,⁴² the early-mid-10th century sense of “a master of servants; the male head of a household”,⁴³ or the early-10th century sense of “a feudal superior”⁴⁴ and the sense of “God”,⁴⁵ which appeared as early as at the beginning of the 10th century. Note that a similar development took place in the case of *queen*, whose late-9th century sense of “a king’s wife or consort”⁴⁶ and the even earlier sense of “a woman who is the chief ruler of a state, having the same rank and position as a king”⁴⁷ and the sense of “Virgin Mary, esp. in such phrases as: *Queen of glory, grace, heaven, paradise, etc.*”,⁴⁸ which dates from as early as the beginning of the 9th century (cf. the *OED*).⁴⁹

Another important area of semantic change where individual sensitivities and compassion are responsible for its psychological motivation is the application of **euphemism**. Some authors distinguish as many as seven categories of euphemisms involving the development of a *novel sense for some established word or word combination* (Warren 1992:133), without the use of word formation mechanisms. Let us present Warren’s (1992) classification *in extenso*:

1. Particularisation: when a general term becomes “particularised” in a certain context to create a new sense, e.g. *innocent* (in the sense: “of a virgin, virginal”);
2. Implication: e.g. *loose*, which implies the sense “unattached”, and then, consequently “sexually available”;

⁴² See the *OED*: χ893 Οητηρε σιδε ηις ηλαφορδε, Øλφρεδε χψνινγε,](τ [ετχ.].

⁴³ See the *OED*:

950 Εαδι... □ε □ε...ν □ονε μι□□ψ χψμεσ ηλαφερδ ηις ον-φανδ συα δοενδε.

⁴⁴ See the *OED*: 1000 Ηινε ...εχεσ .. το ηλαφορδε Σχοττα χψνινγε.

⁴⁵ See the *OED*: χ1000 Σψ λοφ]αμ Ηλαφορδε □ε λεοφα□ ον εχνψσσε.

⁴⁶ See the *OED*:

893 Øφτερ ηις δεα□ε Σαμεραμιοσ ηις χωεν [Λ. υξορ] φενγγ..το](μ ριχε.

⁴⁷ See the *OED*: χ.825 Øτσοδ χωοεν [Λ. ρεγινα] το σωι□ραν □ιρ.

⁴⁸ See the *OED*: χ.900 Χυνεωλφ Χηριστ 276 Σεο χλ(νεστε χωεν οφερ εορ]αν.

⁴⁹ Compare the examples to that of *heaven* discussed in the **Culture and religion** section.

3. Metaphor: e.g. *thick* (in the sense of “stupid”), where the image of a dense environment obstructing the progress of a traveller seems to be a mapping of a reasonable thought going through the medium which is someone’s head;
4. Metonymy (general-for-specific): e.g. *problem* (in the sense of “a disease, medical condition”), as in *alcohol problem*;
5. Reversal (irony): e.g. *blessed* in the sense of “damned” (cf. Stern, 1931);
6. Understatement (litotes): as in *sleep* in the sense of “die”;
7. Overstatement (hyperbole): e.g. *glory*, as in *fight to glory*, in the sense of “death”.

Importantly, it is easy to observe the fact that – in fact – despite such a detailed classification of euphemisms, the mechanism of the origin of the particular categories of the process may be accounted for by the universal cognitive mechanisms of categorization, conceptualization, embodiment, etc., which find reflection in the way how metaphors, hyperboles, etc., are formed.

Another area of great interest of psychologically motivated semantic developments is the category of **synaesthesia** (from Greek *syn* “with or joined together” and *aesthesia* “sensation”, which means “the union of the senses”). In a strictly physiological sense, synaesthesia is a cognitive mechanism when a stimulus to one sense, such as eyesight or smell, is simultaneously perceived by one or more additional sense, e.g. hearing. This phenomenon has given rise to synaesthesia understood as stylistic figure, endowing a given object (entity) with a characteristic which it cannot display, as the object and the characteristic are perceived using different senses, as in the case of e.g. *a sour face*, where the sense of taste is juxtaposed with eyesight. Thus, by a semantic shift or a transfer of a semantic feature, a relation is established between semantically incompatible elements, which denote sensations from different spheres of sensory cognition (cf. Ward and Simner 2003).⁵⁰

As regards the case of *sour*, there have been a whole array of synaesthetic developments of the senses of the adjective, which seem to have moved a long way from its original sense of “having a tart or acid taste, such as that which is characteristic of unripe fruits and vinegar; opposed to sweet, and distinguished from bitter” at the turn of the 10th century (see the *OED*). Throughout the semantic history of the word, the synaesthetic developments have given rise to the following new senses: “having a harsh, morose, or peevish disposition;

⁵⁰ Note that again, as in so many examples discussed in this section, the cases of synaesthesia may be considered as instances of **metaphor**, on grounds of the inseparability of categories, concepts and the ubiquity of the mechanism of human experience embodiment (Lakoff and Johnson, 1999:19). On the other hand, however, due to the contiguity of the sensations, despite the fact that they are perceived by different senses, synaesthesia may be explained in terms of **metonymic** transfer.

sullen, gloomy, discontented”⁵¹ (early 13th century); the sense “of smell”⁵² (early 14th century); “displaying, expressing, or implying displeasure or discontent; peevish, cross (of looks, etc)”⁵³ (early 15th century); “cold and wet; uncongenial through retaining stagnant moisture (of land, etc.)” (early 16th century)⁵⁴; “out of tune (of music)”⁵⁵ (late–16th century); “wry, distorted”⁵⁶ (early 17th century). The last in the series of innovations was the apparently unmotivated sense “heavy, coarse, gross (of animals)”⁵⁷ (early 18th century).

As regards the astounding pattern of the aforementioned developments, it may be observed that although particular instances of derivation of novel meanings may seem surprisingly unmotivated, certain regularities in synaesthetic developments are there to be found. For example, Ullmann (1964) claims that:

[...] *the movement of synaesthetic metaphors is not haphazard but conforms to a basic pattern. I [...] have found three tendencies which stood out very clearly: (1) transfers from the lower to the more differentiated senses [i.e. hearing and vision]*⁵⁸ *were more frequent than those in the opposite direction: over 80 per cent of a total of 2000 examples showed this 'upward' trend; (2) touch was in each case the largest single source, and (3) sound the largest recipient [...]* (Ullmann 1964:86).

Obviously enough, there are also cases of synaesthetic developments which are much more straightforward, compared with the complexity of the previous example, such as *white*, as in *white lie* or *white magic*, where the change is easily explainable, e.g. in terms of the transfer or mapping of the “spotless, unblemished, unstained” component of the original conceptual domain onto the target domain. The original senses of *white*, i.e. “of the colour of snow or milk; fully luminous and devoid of any distinctive hue”⁵⁹ (mid–10th century), “colourless, uncoloured, as glass or other transparent substance”⁶⁰ (late 9th century) or “blank, not written or printed upon”⁶¹ (mid–15th century) expanded,

⁵¹ As in the following example extracted from the *OED*: c.1225 Grucchunge of bitter & of sur heorte.

⁵² See the *OED*: 1340 Οφ ηερβεσ ανδ τρεσ χομεσ σωετε σαωουρ, Ανδ οφ]ε χομεσ ωλατσομε στυνικ, ανδ σουρ.

⁵³ See the *OED*: c.1440 With a *sowr* cowntenance and a froward luke.

⁵⁴ See the *OED*: 1532 Ωηατ ρεμεδψ ισ τηρε, ιφ τηε γρουνδε βε το ωεετε το σοωε ιν ιτ, ορ το σουρε το σετ τρεεσ ιν ιτ?

⁵⁵ See the *OED*: 1593 Ηωω σουρε σωεετ Μυσιχηκε ισ, Ωηεν Τιμε ισ βροκε ανδ νο Προπορτιον κεπτ?

⁵⁶ See the *OED*: 1611 Μοργγευρ, α μακερ οφ στρανγε μουτηεσ, ορ σουρε φαχεσ.

⁵⁷ See the *OED*: 1713 Α στρονγ, σουερ Ηορσε οφ 6 λ. Πριχηε.

⁵⁸ See Ullmann (1964).

⁵⁹ See the *OED* example: χ.950 Τυοε...ε ενγλεσ ιν ηνιτυμ ...ε...ερελυμ.

⁶⁰ See the *OED*: χ.888 Ø...□ερ ...ε ηωιτε ...ιμμασ ...ε ρεαδε.

⁶¹ See the *OED*:

1466 Ψε σεψε]ατ ψε ηαωε παιδ]ε μονεψ:]ερ φορ ψ σενδε ψοωε τηε ωριττε ωηιτε.

inter alia into “morally or spiritually pure or stainless; spotless, unstained, innocent”⁶² (late 10th century); “free from malignity or evil intent; beneficent, innocent, harmless”⁶³ (a much later, although quite a similar change dating back to the mid-17th century); and the relatively recent sense of “lacking any emotional coloration (of a singing voice or its sound) – cf. It. *voce bianca*”⁶⁴ (since the late 19th century).

Williams (1976) – clearly in search of regularities of meaning evolution – analyzes a number of adjectives whose meanings have undergone metaphorical transfer via synaesthesia, and the major generalisation offered by the author is this: a “touch” word may transfer to “taste” or directly to “colour” or “sound”, e.g. *soft sound, hard sound*. A “taste” word may transfer to “smell” or to “sound”, e.g. *sour sound, sweet voice*. Furthermore, “dimension” adjectives transfer to “colour” or to “sound”, e.g. *flat colour, deep sound* and “colour” words may transfer to “sound” or *vice versa*, e.g. *loud colour, clear sound*.⁶⁵

In the prior sections numerous types of the traditional extralinguistic motivations for diachronic semantic change have been discussed. However, the division lines between the factors outlined above, delineated with the aid of traditionally acknowledged formal concepts of rhetorical figures of speech, prove to be volatile and overlap with one another. As the reader must have noticed, a number of the semantic innovations included under the separate headings share – symptomatically – the same or similar mechanisms accounting for **why** and **how** the given innovation was possible, regardless of what figurative shift was the result of these same mechanisms (e.g. whether a taboo-avoiding euphemism or a hyperbole).⁶⁶ Let us stress that this is hardly surprising when one realises the ubiquity of the **cognitive mechanisms of human perception** and their universal applicability to human language – as is argued in the theoretical part of this paper, wherein we emphasized the importance of cognitive linguistics to the analysis of semantic change.

In an attempt to prove our point, let us consider, for example, the mechanism of **metonymy**, which in the foregoing sections was mentioned in the context of the influence of: social-economic reality; technological and

⁶² See the *OED*:

971 [...] Δριτην](τ η(ββε σωα ηωιτε σαυλε σωα]εοσ ηαλι...ε Μαριε?

⁶³ See the *OED*:

1651 Ηε διδ νοτ κνωω ωηετηερ ηισ αδμονισηερ ωερε βλαχκ ορ ωηιτε .. αν επιλλ ορ α γοοδ σπιριτ.

⁶⁴ See the *OED*: 1884 Ωηιτε ποιχε . Τηε φεμαλε ανδ χηιλδρενεσ ποιχεσ, ανδ αλ σο σομε βριγητ-σουνδινγ ινστρυμεντσ, αρε τηυσ χαλλεδ.

⁶⁵ As observed in Klepanski (1988:42), there seem to exist some exceptions to this general scheme. Note, for example, that *smoky taste* seems to be a reverse from “smell” to “taste”.

⁶⁶ Note that in the case of synaesthetic developments, both metaphors and metonymies are pointed to as the mechanisms responsible for the change (cf. footnote ⁴⁵ above).

civilizational progress. Traditionally, metonymy has been defined in the context of broadly understood **contiguity**, i.e. proximity in terms of space, time, part-whole relations or cause-and-effect relations (see, e.g. Ullmann 1959:231–234).

The relationship of contiguity is also emphasized within cognitive linguistics, where metonymy may be defined using the concepts of idealized cognitive models (ICMs), as in Lakoff (1987); conceptual mappings, as in Radden and Kövecses (1999); a reference point (activation) phenomenon, as in Langacker (1999);⁶⁷ scenarios, as in Panther and Thornburg (1999); mapping and highlighting combinations, as in Ruiz de Mendoza Ibáñez (2000); or domain highlighting, as in Croft (2002). For example, Taylor (2003) defines metonymy as:

[...] a figure of speech whereby the name of one entity *e1* is used to refer to another entity *e2* which is contiguous to *e1*. [...] The essence of metonymy resides in the possibility of establishing connections between entities which co-occur within a given conceptual structure (Taylor 2003:122–24).

Thus, it should be stressed that regardless of which of the aforementioned specific concepts (whose nuances are mostly compatible within the cognitive linguistic theory) is applied, metonymic transfers occur within the same conceptual domain (cognitive model, frame, etc.), whereas the contiguity relations connect the elements of a domain (frame etc.) with one another, as well as its particular elements with the domain (frame etc.) as a whole – which obviously – necessitates encyclopaedic knowledge (cf. Koch 2004).

Some typical examples of a metonymic change of meaning in the history of English involve *face*, employed in the sense of “a person” (as in the *OED* quotation *Now this face was the ideal man for me to have a deal with*⁶⁸); *gun* or *rifle* (in the sense of “a soldier fighting with a gun or a rifle”). In the first example, a *face* in the late-13th century sense of “the front part of the head, from the forehead to the chin; the visage, countenance”⁶⁹ belongs to the same conceptual field as “a person”, whereas the conceptual structure of that field allows for the contiguous relation between seeing a *face* and seeing a *person*. Similarly, in the latter example, a *rifle* and a *rifleman* are contiguously related by the same frame, in which a soldier is perceived as inseparable from his weapon.

Note that the aforementioned examples could not be classified as cases of extralinguistically motivated semantic change in the light of the traditional, pre-cognitive linguistic, understanding of the term *extralinguistic*. However, it is important to stress that their semantic development does follow the paths delineated not by the language itself, but rather by the **language-external**

⁶⁷ In the sense that *the entity that is normally designated by a metonymic expression serves as a reference point affording mental access to the desired target, i.e. the entity actually being referred to* (Langacker 1999:199).

⁶⁸ The sense dates back to the mid-20th century (see the *OED*).

⁶⁹ See the *OED* example: χ1290 Μορε βλοδ]αρ νασ ιν αλ ισ φαχε.

mechanisms of human cognition, such as conceptualization, categorization, embodiment, etc. Thus, one may claim that such semantic developments are **extralinguistically motivated**, as their origin is not motivated by some language-dependent patterns, e.g. of figurative speech, but by the language-external mechanisms grounded in human cognition.

Another interesting case in point here is the semantic evolution of the English noun *pentagon*. Its original late-16th century sense was “a figure, usually a plane rectilinear figure, having five angles and five sides” (see the *OED*), while in the mid-20th century the word came to denote (by the contiguous relationship of the shape) the pentagonal building in Washington, D.C., housing the headquarters of the U.S. Department of Defence. Soon afterwards, the sense of *the Pentagon* (spelled with a capital, as a newly acquired proper name) expanded to cover the sense of “the U.S. military leadership” (cf. the *OED* and the *MWOD*), or even “the U.S. military forces, the U.S. military might or presence”. It seems that the latter case of expansion of the meaning occurred via another metonymic transfer, based on the co-occurrence, within the same conceptual structure of the U.S. military, of one specific building and one specific type of human activity it was related to.

Simultaneously, one feels justified in saying that the sense development discussed here may be considered a case of **eponymy**. Interestingly, the very term *eponym* itself constitutes a most illustrative example of how the phenomenon of eponymy is based on the mechanism of metonymic semantic transfer. The word itself is of Greek etymology (*eponymos* – “named after a thing or person”, “giving one’s name to a thing or person”⁷⁰). The set of historical meanings includes “an ancient state official (an Assyrian one (893–666 BC), an archon⁷¹ in Athens or a Roman consul), whose name was used in chronology to refer to the period of time covered by his term of office”.⁷² By a metonymic transfer, another sense of the word appeared: “a person, real, mythological or a literary character, who gave his/her name to something”.⁷³ Finally, *eponym* developed the sense of “the word or expression derived from the name or surname of a real or fictitious person”⁷⁴ – which happened through yet another metonymic change, as the frame (conceptual structure, etc.) involving 1) a person giving his/her name to 2) another person thing or entity necessitates – understandably – the relation of contiguity between its elements 1) and 2).

⁷⁰ Cf. the *SEWO* (translation ours).

⁷¹ Cf. the *EBO* entry: *in ancient Greece, the chief magistrate or magistrates in many city-states [...] In Athens, nine archons divided state duties: the archon eponymous headed the boule and Ecclesia [...]*.

⁷² Cf. the *SEWO* (translation ours).

⁷³ Cf. the *SEWO* (translation ours).

⁷⁴ Cf. the *SEWO* (translation ours).

It is beyond doubt that not all cases of eponymy require such an extensive encyclopaedic knowledge as in the previous example and many of them function unobtrusively in everyday language. Let us consider the history of the English word *china*, in its 17th century sense of “a species of earthenware of a fine semi-transparent texture, originally manufactured in China, and first brought to Europe in the 16th c. by a Portuguese, who named it porcelain. Early in the 18th century the product began to be manufactured in Europe” (see the *OED*).⁷⁵ One may conclude that the very name of the country whose material culture invented *porcelain* is perpetuated in the word referring to it. However, its original sense of that specific “ware from China” is no longer present, as the word has gradually become the common name of the material, regarded as “the ware made of china or porcelain”.⁷⁶ Nevertheless, one finds grounds to claim that it is the metonymic relationship between the elements of the original conceptual structure, i.e. the place of origin and the type of product manufactured there, that made the aforesaid sense development possible.

Also, it is worth emphasizing that metonymic change may be viewed as an effective means of taboo avoidance⁷⁷ due to the possibility it gives of the subtle mutual adjustments of the salient and non-salient elements of a given conceptual frame, as argued in the following text taken from Langacker (1993):

[...] *metonymy allows an efficient reconciliation of two conflicting factors: the need to be accurate, i.e. of being sure that the addressee's attention is directed to the target; and our natural inclination to think and talk explicitly about those entities that have the greatest cognitive salience for us* (Langacker 1993:30).

Concluding remarks

In the above work, a number of extralinguistic factors traditionally acknowledged to motivate semantic innovations have been outlined. As argued in the respective sections, they have been traditionally associated with different areas of the language-external activities of the human being and various products of human culture – in the widest sense, whether material or immaterial – which find their reflections in the semantics of the vocabulary of the language of a given speech community.⁷⁸

⁷⁵ Cf. the *OED*: *china-ware* (“ware from China”), soon clipped to *china*.

⁷⁶ That is the so-called *species-used-for-genus* type of metonymic development.

⁷⁷ Cf. the sections on taboos and euphemisms.

⁷⁸ For the issues of culture-specific vocabulary and the areas of extralinguistic human activity especially prone to influence the language inherent in a given culture, see, among others, Cymbalista (2003).

However, the application of the analytical tools of cognitive linguistics for the discussion of a variety of the sense developments quoted gives tangible evidence and support to the original assumption that – in fact – any case of diachronic semantic change may – to varying degree – be treated as a reflection of the language-external mechanisms of human cognition. These mechanisms are not rooted in the extralinguistic reality surrounding the users of any language, but rather they are anchored in the basic facts of life related to how the human brain works and what the modes of operation of this exquisite interface between the human thought and the world around the human body are. The cognitive mechanisms of the human brain – determined by the biological constitution of the human body – obviously enough constitute another aspect of the language-external context of human language use.

Notwithstanding the conventional classifications of the language-external motivations for semantic change, the expanded, cognitively grounded approach to meaning development advocated and – hopefully – justified by the authors of this paper seems to be methodologically adequate, regardless of the heading under which a given case could be traditionally classified, whether as a result of a specific type of extralinguistic motivation, or not.

In the light of the cognitive apparatus, we believe its justifiable to claim that any case of extralinguistically (in the traditional sense of the word⁷⁹) motivated semantic developments may be expounded in terms of a certain cognitive model accounting for a given aspect of the surrounding reality, operative either at the present moment or – more frequently – at the time when the change was initiated. As Geeraerts and Grondelaers (1995) put it:

[...] if cognitive models are cultural models, they are also cultural institutions, and as such, they carry their history along with them: their institutional nature implies their historical continuity. It is only by investigating their historical origins and their gradual transformation that their contemporary form can be properly understood.

Nevertheless, our analyses of meaning change point to the fact that even though a given case of semantic development was conventionally considered as motivated linguistically, rather than extralinguistically, from the perspective of cognitive linguistic it may still be claimed that such semantic developments are **extralinguistically motivated**, as they are generated not by some language-internal patterns of figurative speech, but by the language-external mechanisms of human condition grounded in human experience of the world.⁸⁰ A secondary conclusion which may be inferred from our analyses is

⁷⁹ This, as we argued earlier, was in fact generally abandoned by cognitive linguists who stigmatized the *false dichotomies* between linguistic and extralinguistic knowledge (cf. Langacker 1987:154).

⁸⁰ For further details see the forthcoming PhD dissertation by Cymbalista (University of Rzeszów).

convergent with the observation formulated by Radden and Panther (2004:31) to the effect that:

A full-fledged theory of motivation would, of course, have to distinguish many more language-independent factors of [...] These would, amongst others, include cultural, social, psychological and anthropological factors as well as biological and neurological determinants, which, however, are not yet sufficiently known.

However, it must be remembered that despite the universal application of the cognitive approach to modern academic and scientific research, biological and neurological studies definitely go beyond the scope of linguistics proper and, even more so, of this publication.

References

Dictionaries and encyclopaedias

Cambridge International Dictionary of Idioms. 1998. Cambridge: CUP. (CIDI)

Encyclopaedia Britannica Online. at: <http://www.britannica.com> (EBO)

Kopaliński, W. 1996. *Słownik eponimów, czyli wyrazów odimiennych*. Warszawa: Wydawnictwo Naukowe PWN. (SEWO)

Merriam-Webster Online Dictionary. 2006. at: www.m-w.com/dictionary.htm (MWOD)

Simpson, J. (ed.). 2002. *Oxford English Dictionary*. Oxford: OUP. (OED)

Wikipedia, On-Line Encyclopedia. at: http://en.wikipedia.org/wiki/Main_Page (WOLE)

Other works

Albertazzi, L. 2000. "Which semantics?" [in:] L. Albertazzi (ed.), *Meaning and Cognition. A Multidisciplinary Approach*. Amsterdam and Philadelphia: John Benjamins Publishing Company. pp.1–24.

Allan, K., and K. Burridge. 1991. *Euphemism and Dysphemism: Language Use as a Shield and Weapon*. New York: OUP.

Allwood, J. 2003. "Meaning potentials and context: Some consequences for the analysis of variation in meaning" [in:] H. Cuyckens, R. Dirven and J. Taylor (eds.), *Cognitive Approaches to Lexical Semantics*. Berlin: Mouton de Gruyter. pp.29–66.

Barcelona, A. 2000. "On the plausibility of claiming a metonymic motivation for conceptual metaphor" [in:] Barcelona, A. (ed.), *Metaphor and Metonymy at the Crossroads: A Cognitive Perspective*. Berlin: Mouton de Gruyter. pp. 31–58.

Blank, A. 1997. *Prinzipien des lexikalischen Bedeutungswandels am Beispiel der romanischen Sprachen*. Tübingen: Max Niemeyer.

Blank, A. 2001. "Words and concepts in time: Towards diachronic cognitive onomasiology" [in:] *metaphorik.de – Das online-Journal zur Metaphorik in Sprache, Literatur und Medien*. vol. 01/2001. pp.6–25. (Also: R.K. von Heusinger and C. Schwarze (eds.), *Words in Time*. CSLI Publications).

Boroditsky, L. 2001. "Does language shape thought? Mandarin and English speakers' conceptions of time" [in:] *Cognitive Psychology* 43. pp.1–22.

Burridge, K. 1996. "Lexicon. Political correctness: Euphemism with attitude" [in:] *English Today* 47. 12/3. pp.42–49.

- Croft, W.** 2002. "The role of domains in the interpretation of metaphors and metonymies" [in:] R. Dirven and R. Pörings (eds.), *Metaphor and Metonymy in Comparison and Contrast*. Berlin: Mouton de Gruyter. pp. 161–205.
- Croft, W. and A.D. Cruse.** 2004. *Cognitive linguistics*. Cambridge: CUP.
- Cruse, A.D.** 2000. *Meaning in Language*. Oxford: OUP.
- Crystal, D.** 1995. *The Cambridge Encyclopedia of the English Language*. Cambridge: CUP.
- Cymbalista, P.** 2003. "Untranslatability as culture-specific phenomenon" [in:] G.A. Kleparski (ed.), *Studia Anglica Resoviensia 2*. Rzeszów: Wydawnictwo UR. pp.21–31.
- Cymbalista, P.** (forthcoming). "Semantic Development of Selected Items in the Macro-Category of "HOMO FABER" in the English Language". (a Ph.D. dissertation at the University of Rzeszów).
- Davidoff, J., Davies, I., and D. Roberson.** 1999. "Colour categories in a Stone-Age tribe" [in:] *Nature*, 398. pp. 203–204.
- Dirven, R.** 2002. "Metonymy and metaphor. Different mental strategies of conceptualization" [in:] R. Dirven and R. Pörings (eds.), *Metaphor and Metonymy in Comparison and Contrast*. Berlin: Mouton de Gruyter. pp. 75–112.
- Evans, V. and A. Tyler.** 2004. "Spatial experience, lexical structure and motivation: The case of *in*" [in:] G. Radden and K. Panther (eds), *Studies in Linguistic Motivation*. Berlin and New York: Mouton de Gruyter. pp. 157–192.
- Fauconnier, G.** 1985. *Mental Spaces*. Cambridge, MA: MIT Press.
- Fauconnier, G.** 1997. *Mappings in Thought and Language*. Cambridge: CUP.
- Fauconnier, G. and M. Turner.** 2002. *The Way We Think: Conceptual Blending and the Mind's Hidden Complexities*. New York, NY.: Basic Books.
- Fillmore, C.** 1975. "An alternative to checklist theories of meaning". *Proceedings of the First Annual Meeting of the Berkeley Linguistics Society*. pp.123–131.
- Fillmore, C.** 1977. "Scenes-and-frames semantics" [in:] A. Zampolli (ed.), *Linguistic Structures Processing*. Amsterdam: North Holland. pp. 55–82.
- Fillmore, C.** 1985. "Frames and the semantics of understanding". *Quaderni di Semantica*, 6. pp. 222–254.
- Geeraerts, D. and S. Grondelaers.** 1995. "Looking back at anger. Cultural traditions and metaphorical patterns" [in:] J. Taylor and R.E. MacLaury (eds), *Language and the Construal of the World*. Berlin and New York: Mouton de Gruyter. pp. 153–180.
- Geeraerts, D.** 1983. "Prototype theory and diachronic semantics: A case study" [in:] *Indogermanische Forschungen*, vol. 88. pp. 1–32.
- Geeraerts, D.** 1997. *Diachronic Prototype Semantics*. Oxford: OUP.
- Geeraerts, D.** 2000. "Salience phenomena in the lexicon: A typology" [in:] L. Albertazzi (ed.), *Meaning and Cognition. A Multidisciplinary Approach*. Amsterdam and Philadelphia: John Benjamins Publishing Company. pp. 79–102.
- Geeraerts, D.** 2001. "The definitional practice of dictionaries and the Cognitive Semantic conception of polysemy" [in:] *Lexicographica 17*. pp. 6–21.
- Geeraerts, D.** 2002. "The interaction of metaphor and metonymy in composite expressions" [in:] R. Dirven and R. Pörings (eds.), *Metaphor and Metonymy in Comparison and Contrast*. Berlin/New York: Mouton de Gruyter. pp. 435–465.
- Gentner, D. and M. Imai.** 1997. "A cross-linguistic study of early word meaning: Universal ontology and linguistic influence" [in:] *Cognition 62(2)*. pp. 169–200.
- Grady, J., T. Oakley, and S. Coulson.** 1999. "Blending and metaphor" [in:] R.W. Gibbs and G. Steen (eds.), *Metaphor in Cognitive Linguistics*. Amsterdam: John Benjamins.
- Grygiel, M.** 2005. "Towards a Cognitive Theory of Semantic Change. Semantic Development of English Historical Near-Synonyms of *MAN/MALE HUMAN BEING* in Panchronic Perspective". (Unpublished Ph.D. Dissertation, The University of Rzeszów.)

- Grzega, J.** 2002. "Some aspects of modern diachronic onomasiology" [in:] *Linguistics* 40–5(2002). pp. 1021–1045.
- Grzega, J.** 2004. "A qualitative and quantitative presentation of the forces for lexemic change in the history of English" [in:] *Onomasiology Online* 5 (2004). pp. 15–55.
- Ruiz de Mendoza Ibáñez, F.J.** 2000. "The role of mappings and domains in understanding metonymy" [in:] A. Barcelona (ed.), *Metaphor and Metonymy at the Crossroads. A Cognitive Perspective*. Berlin, New York: Mouton de Gruyter. pp. 109–132.
- Jackendoff, R.** 2002. *Foundations of Language. Brain, Meaning, Grammar, Evolution*. Oxford, New York: Oxford University Press.
- Jackendoff, R.** 1991. "Parts and boundaries" [in:] *Cognition* 41. pp. 9–45.
- Jackendoff, R.** 1992. *Languages of the Mind: Essays on Mental Representation*. Cambridge, MA: MIT Press.
- Janda, L.A.** 2004. "Because it's there: How linguistic phenomena serve as cognitive opportunities" [in:] L.A. Janda and T. Nessel (eds), *Times and Cases: A View of Slavic Conceptualizations*. (*Glossos*, vol. 5. 2005). pp.1–27.
- Johnson, M.** 1987. *The Body in the Mind. The Bodily Basis of Meaning, Imagination, and Reason*. Chicago: University of Chicago Press.
- Kieltyka, R.** 2006. "Towards a Historical Account of English Zooosemy: The Case of Middle English and Early Modern English Domesticated Animals". (Unpublished Ph.D. Dissertation, The University of Rzeszów.)
- Kieltyka R. and G.A. Kleparski.** 2005. "The scope of English zooosemy: The case of DOMESTICATED ANIMALS." [in:] G.A. Kleparski (ed.), *Studia Anglica Resoviensia* 3. pp. 76–87.
- Kieltyka R. and G.A. Kleparski** (forthcoming in 2007). "On the Indo-European nature of non-Indo-European animal metaphor: The case of Chinese zooosemy" [in:] G.A. Kleparski (ed.), *Studia Anglica Resoviensia* 4.
- Kleparski, G.A.** 1986. *Semantic Change and Semantic Components: An Inquiry into Pejorative Developments in English*. Regensburg: Friedrich Pustet Verlag.
- Kleparski, G.A.** 1988. "Semantic Change and Semantic Components: A Study of Evaluative Developments in the Domain of HUMANS". Unpublished Ph.D. Dissertation, The Catholic University of Lublin.
- Kleparski, G.A.** 1990. *Semantic Change in English: A Study of Evaluative Developments in the Domain of HUMANS*. Lublin: Wydawnictwo KUL.
- Kleparski, G.A.** 1997. *Theory and Practice of Historical Semantics: The Case of Middle English and Early Modern English Synonyms of GIRL/YOUNG WOMAN*. Lublin: Wydawnictwo KUL.
- Kleparski, G.A.** 2000. "Metonymy and the growth of lexical categories related to the conceptual category FEMALE HUMAN BEING" [in:] Grzegorz A. Kleparski (ed.), *Studia Anglica Resoviensia* 1. Rzeszów: Wydawnictwo UR. pp. 17–26.
- Kleparski, G.A.** 2004. "CDs, petticoats, skirts, ankas, tamaras and sheilas: The metonymical rise of lexical categories related to the conceptual category Female Human Being" [in:] Ch.J. Kay, J.J. Smith (eds), *Papers from the Glasgow Symposium on Linguistic Categories*. Amsterdam: John Benjamins. pp. 71–84.
- Kleparski, G.A. and M. Martynuska.** 2002. "Political correctness and *Bequemlichkeitstrieb*" [in:] G.A. Kleparski (ed.), *Studia Anglica Resoviensia* 1. Rzeszów: The University of Rzeszów Publishing House. pp. 47–51.
- Koch, P.** 2004. "Metonymy between pragmatics, reference, and diachrony" [in:] *Metaphorik.de – Das online-Journal zur Metaphorik in Sprache, Literatur und Medien*, vol. 07/2004. pp. 6–54.

- Kövecses, Z.** 1995. "Anger: Its language, conceptualization, and physiology in the light of cross-cultural evidence" [in:] J. Taylor and R.E. MacLaury (eds), *Language and the Cognitive Construal of the World*. Berlin and New York: Mouton de Gruyter. pp. 181–196.
- Krzyszowski, T.P.** 1997. *Angels and Devils in Hell: Elements of Axiology in Semantics*. Warszawa: Wydawnictwo Energeia.
- Labov, W.** 1973. "The boundaries of words and their meanings" [in:] Charles J. Bailey and Roger Shuy (eds.), *New Ways of Analysing Variation in English*. Washington: Georgetown University Press. pp. 340–373.
- Lakoff, G. and M. Johnson.** 1980. *Metaphors We Live By*. Chicago-London: The University of Chicago Press.
- Lakoff, G. and M. Johnson.** 1999. *Philosophy in the Flesh*. New York: Basic Books.
- Lakoff, G. and M. Turner.** 1989. *More than Cool Reason. A Field Guide to Poetic Metaphor*. Chicago: The University of Chicago Press.
- Lakoff, G.** 1987. *Women, Fire and Dangerous Things: What Categories Reveal about the Mind*. Chicago: The University of Chicago Press.
- Lakoff, G.** 1993. "The contemporary theory of metaphor" [in:] A. Ortony (ed.), *Metaphor and Thought*. Cambridge: CUP. (2nd edition). pp. 202–251.
- Langacker, R.W.** 1987. *Foundations of Cognitive Grammar (Vol. 1): Theoretical Prerequisites*. Stanford, California: Stanford University Press.
- Langacker, R.W.** 1990. *Concept, Image and Symbol: The Cognitive Basis of Grammar*. Berlin: Mouton de Gruyter.
- Langacker, R.W.** 1991. *Foundations of Cognitive Grammar (Vol. 2): Descriptive Application*. Stanford, California: Stanford University Press.
- Langacker, R.W.** 1993. "Reference-point constructions" [in:] *Cognitive Linguistics 4*. pp. 1–38.
- Langacker, R.W.** 1995. "Cognitive grammar" [in:] J. Verschueren, J-O, Ostman, and J. Blommaert (eds.), *Handbook of Pragmatics*. Amsterdam: John Benjamins. pp. 105–111.
- Langacker, R.W.** 1999. *Grammar and Conceptualization*. Berlin and New York: Mouton de Gruyter.
- Lehrer, A.** 1974. *Semantic Fields and Lexical Structure*. Amsterdam and London: North Holland.
- Li, P. and L. Gleitman.** 2002. "Turning the tables: Language and spatial reasoning" [in:] *Cognition 83*. pp. 265–294.
- Lipka, L.** 1999. "Blairites, Teletubbies, Spice Girls and wheelie bins – neologisms, the word of the year, and the nomination-function of 'words' " [in:] U. Carls (ed.), *Form, Function and Variation in English. Studies in Honour of Klaus Hansens*. New York and Frankfurt: Peter Lang. pp. 41–48.
- Meillet, A.** 1905. "Comment les mots changent de sens" [in:] id., *Linguistique historique et linguistique générale*. (Collection Linguistique, 8). Paris: Champion. pp. 230–271.
- Panther, K.-U. and L. Thornburg.** 1999. "The potentiality for actuality metonymy in English and Hungarian" [in:] K.-U. Panther and G. Radden (eds.), *Metonymy in Language and Thought*. Amsterdam and Philadelphia: Johns Benjamins Publishing Company. pp. 333–360.
- Radden, G. and Z. Kövecses.** 1999. "Towards a theory of metonymy" [in:] K.-U. Panther and Günter Radden (eds.), *Metonymy in Language and Thought*. Amsterdam and Philadelphia: John Benjamins Publishing Company. pp. 17–59.
- Radden, G. and Panther, K.-U.** 2004. "Introduction: Reflections on motivation" [in:] G. Radden and K.-U. Panther (eds.), *Studies in Linguistic Motivation (Cognitive Linguistics Research 28)*. Berlin and New York. pp. 3–46.
- Reddy, M.** 1979. "The conduit metaphor" [in:] A. Ortony (ed.), *Metaphor and Thought*. Cambridge: CUP. pp. 284–324.

- Rosch, E. et al.** 1976. "Basic objects in natural categories" [in:] *Cognitive Psychology* 8. pp. 382–439.
- Rosch, E.** 1972. "Universals in color naming and memory" [in:] *Journal of Experimental Psychology* 93. pp. 10–20.
- Rosch, E.** 1973. "Natural categories" [in:] *Cognitive Psychology* 4. pp.328–350.
- Rosch, E.** 1977. "Human categorization" [in:] N. Warren (ed.), *Studies in Cross-linguistic Psychology*. London: Academic Press. pp. 1–49.
- Rosch, E.** 1978. "Principles of categorization" [in:] E. Rosch and B. Lloyd (eds), *Cognition and Categorization*. Hillsdale, NJ: Erlbaum. pp. 27–48.
- Rosch, E.** 1975. "Cognitive representations of semantic categories" [in:] *Journal of Experimental Psychology: General* 104.5. pp. 192–233.
- Slobin, D.I.** 1996. "From 'thought and language' to 'thinking for speaking' " [in:] J.J. Gumpers and S.C. Levinson (eds.), *Rethinking Linguistic Relativity*. Cambridge: CUP. pp. 70–96.
- Stern, G.** 1931. *Meaning and Change of Meaning*. Bloomington: Indiana University Press.
- Sweetser, E.E.** 1990. *From Etymology to Pragmatics. Metaphorical and Cultural Aspects of Semantic Structure*. Cambridge: CUP.
- Taylor, J.** 2003. *Linguistic Categorization*. (3rd edition). Oxford: OUP.
- Traugott, E.C. and R.B. Dasher.** 2002. *Regularity in Semantic Change*. Cambridge: CUP.
- Trench, R.C.** 1994[1851]. *On the Study of Words*. London: Routledge/Thoemmer Press.
- Trier, J.** 1931. *Der Deutsche Wortschatz im Sinnbezirk des Verstandes: Die Geschichte eines sprachlichen Feldes*. Heidelberg: Carl Winter.
- Tyler, A. and V. Evans.** 2003. *The Semantics of English Prepositions*. Cambridge: CUP.
- Ullmann, S.** 1964. *Language and Style*. Oxford: Basil Blackwell.
- Ullmann, S.** 1959[1957]. *The Principles of Semantics*. (2nd rev. ed.) Oxford: Basil Blackwell.
- Ward, J. and J. Simner.** 2003. "Lexical-gustatory synaesthesia: Linguistic and conceptual factors" [in:] *Cognition* 89. pp. 237–261.
- Warren, B.** 1992. "What euphemisms tell us about the interpretation of words" [in:] *Studia Linguistica* 46/2. pp. 128–172.
- Whorf, B.** 1956. *Language, Thought, and Reality: Selected Writings of Benjamin Lee Whorf*. (J.B. Carroll, Ed.). Cambridge, MA: MIT Press.