Semantic change

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Summary

Traditional approaches to semantic change typically focus on outcomes of meaning change and list types of change such as metaphoric and metonymic extension, broadening and narrowing, and the development of positive and negative meanings. Examples are usually considered out of context, and are lexical members of nominal and adjectival word classes.

However, language is a communicative activity that is highly dependent on context, whether that of the ongoing discourse or of social and ideological changes. Much recent work on semantic change has focused not on results of change but on pragmatic enabling factors for change in the flow of speech. Attention has been paid to the contributions of cognitive processes such as analogical thinking, production of cues as to how a message is to be interpreted, and perception or interpretation of meaning, especially in grammaticalization. Mechanisms of change such as metaphorization, metonymization and subjectification have been among topics of special interest and debate. The work has been enabled by the fine-grained approach to contextual data that electronic corpora allow.

Keywords: metaphorization, metonymization, invited inferencing, subjectification, electronic corpora, semantic space, grammaticalization, motivations, mechanisms

1.Foci of research in the last one hundred years[i]

The main focus of work on semantic change from the early 20[th]C on has been on changes in "sense", the concepts associated with expressions.[ii] An example of sense change is the shift in the "value" speakers have attributed to *pretty* over time (first 'crafty', then 'well-conceived, clever', later 'attractive', and, in its adverbial use, 'somewhat', as in *that's pretty ugly*). To use a more recent example, *epic*, meaning 'relating to the epic genre' (e.g. *epic novel*) has been used since the 1980s, especially by younger speakers in the US, with the new meaning 'impressive' (e.g. *your haircut is epic*). Linguists distinguish semantic change (sense change) from changes in lexis (vocabulary development, often in cultural contexts), although there is inevitably some overlap between the two, see Nevalainen (1999). For example, the change impacts the meanings of the words as well as the lexical domains in which the words are used when speakers add new words to the inventory, e.g. by borrowing words like *domain* or *jihad,* or cease to use certain words (as when *radio* came to be preferred over *wireless*).

There are two main perspectives on the study of sense change (see Geeraerts 1997, Grondelaers, Speelman & Geeraerts 2007). One is "semasiological", a form to function perspective: attention is paid to how meaning changes, while form remains relatively constant (but subject to phonological and sometimes morphosyntactic change). The question is what meanings are associated with a word, how are the

meanings related, and how did they arise over time? The examples of *pretty* and *epic* were presented from this perspective, and this is the approach of dictionaries that provide etymologies (e.g. the main entries in the OED). It is also the approach of much work on grammaticalization (see section 4). The other dimension is "onomasiological", a function to form perspective: attention is paid to sense relations that hold between the items in an inventory and which forms come to express a certain concept, for example, what terms are used at a particular period for 'crafty', what terms for 'attractive', or for 'somewhat'. Onomasiology intersects with work on changes in lexis. It is the principle behind Buck's *Dictionary of Selected Synonyms in the Principal Indo-European Languages* (1949) and the on-line *Historical Thesaurus of the Oxford English Dictionary* (HTOED) (2009) that has made it possible to "navigate around the dictionary by topic, find related terms, and explore the lexical history of a concept or meaning". Typically the uses of a word will expand over time leading to polysemy, the coexistence of families of related senses; for example the term *linguist* is understood as both 'polyglot' and 'student of language'.

The focus of this contribution is historical work in the last 35 years or so, mostly from a cognitive perspective. Work on semantic change prior to the 1980s is discussed in Blank (1997), Traugott and Dasher (2002: Chapter 2). The main areas of research that have received particular attention are the development of lexical, contentful meaning, and that of grammatical, procedural meaning. Some of the major findings in these two areas are discussed in sections 3 and 4 respectively. First, however, it may be useful to consider what constitutes change.

2. Change and how to recognize it
What is change, and how do we recognize it when it has occurred? Individual speakers innovate when they use language creatively, and hearers innovate when they interpret what a speaker has said in a different way from the speaker or others in their group. Most of these innovations are unintentional (Keller 1994) and ephemeral; some are resisted. The position taken here is that for a change to have occurred there must be evidence of transmission of innovations to others, in other words, of conventionalization (Milroy 1992, Traugott and Trousdale 2013).[iii]

In work on change prior to the availability of recordings, evidence for change is that the new use appears in several texts. One or two examples may appear in the data that look with hindsight as if they might be evidence of change, but then there may be a gap of several decades in the data before several uncontroversial examples appear. When a new use emerges, it always coexists with the older use. This is because older generations tend to be more conservative in their use. A recent example is *queer*. Used from 1500 on in senses like 'strange, odd', it came to be used in the early 20[th]C in a derogatory way for homosexuals, but was coopted in the 1990s in place of *homosexual* or *gay* (< 'flamboyant, cheerful'), as in *Queer Nation, queer theory*. The older and newer uses persist. At first they are linked polysemously. Sometimes old and new uses persist for many centuries, as in the case of *since* 'from the time that, because'. But sometimes speakers in later

generations may cease to perceive a connection and treat them as honomyms (e.g. *be going to* 'motion', *be going to* 'future'). Some methodologies for accounting for semantic change are discussed in section 5.

3. Changes in lexical, contentful meaning
3.1. Classification of types of change
In the first half of the 20[th]C much work was done on classifying types of semantic change, most of them lexical/contentful and considered in isolation (e.g. Ullmann 1962). These are still the mainstay of textbooks on language change (e.g. Campbell 2004, Hock & Joseph 2009) and are assumed in most recent work. Most important are (with up-dates in definitions):

a) Metaphorization: conceptualizing one thing in terms of another, i.e. in terms of similarity, e.g. use of Latin *ad* 'to' + *mit* 'send' for locution (*admit*), or of *tissue* 'woven cloth' for 'aggregation of cells in animals or plants'.
b) Metonymization: association, usually in terms of contiguity, e.g. *board* 'table' > 'people sitting around a table, governing body'. Many traditional examples of metonymic shift involve part for whole (often called "synecdoche"[iv]), e.g. *keel* for *ship*.
c) Pejoration: association of a term with negative meaning, e.g. Old English *stincan* 'smell (sweet or bad)' > *stink*, *cnafa* 'boy' > *knave*, *conceit* 'idea, opinion' > 'overestimation of one's qualities'.
d) Amelioration: association of a term with positive meaning, e.g. Middle English *nice* 'foolish, innocent' > *'pleasant'*, and examples of preemption of meaning as a symbol of pride (e.g. *queer*).
e) Narrowing: restriction of meaning, e.g. Old English *deor* 'animal' > *deer* (a specific kind of animal).
f) Generalization: extension of meaning, e.g. Lat. *armare* 'cover one's shoulders' > *arm*.

Sometimes several of these changes may affect an expression over the centuries *seriatim.* For example, *toilet* was borrowed in the 16[th]C from French and meant 'piece of cloth, often used as a wrapper, especially of clothes'. In the 17[th]C this was narrowed to a particular kind of cloth ('cloth covering for dressing table'). A metonymic use as 'dressing-table' also developed (object 'dressing-table' for the object covering it, a subtype of whole for part). A further metonymic use was for washing (*do one's toilet*), an activity performed in a bowl on the dressing table. In the 19[th]C *toilet* was coopted in the US for use in place of 'lavatory' (taboo avoidance). This euphemistic use of *toilet* was further narrowed in the 1890s to 'bathroom fixture' (see OED *toilet* n.).

Pairs of change-types such as c) pejoration and d) amelioration, or d) narrowing and f) generalization appear to be opposites and have suggested to some researchers that semantic change is unpredictable and arbitrary. This is in part because the original expressions cited are referential and subject to various shifts in socio-cultural attitudes and conceptual structures. Changing societal roles may lead to

denigration of certain groups of people and their jobs, hence the pejoration of terms like 11[th]C *ceorl* 'man without rank or with low rank' > 13[th]C *churl* 'base fellow'. Hence also the preemption of meanings for positive evaluation, e.g. *Yankee*, a nickname for inhabitants of New England, came to be used pejoratively by southern (confederate) soldiers for northern (union) soldiers in the US Civil War (pejoration), but was coopted by the union soldiers (amelioration).

In synchronic work on lexical expressions, there is extensive discussion of relations such as the following (see e.g. Cruse 1986):

   a) synonymy (approximately same meaning, different form, e.g. *astute-smart*),
   b) antonymy (approximately opposite meanings, e.g. *fast-slow*),
   c) enantiosemy (the coexistence of opposite meanings, e.g. *sanction* 'penalty' - 'permission'),
   d) hyperonymy/hyponymy (superordinate/member relation, e.g. *vegetable-lettuce*),
   e) holonymy/meronymy (whole/part, e.g. *foot-toe*).

All of these relations may change over time. Relationship (c), the persistence of opposite meanings, is especially interesting as it demonstrates clearly how context-dependent meaning change and maintenance of polysemies are (Lepschy 1981). Borrowed from French in the 16[th]C, the noun *sanction* meant 'law, decree'. It was early extended metonymically to penalties enacted by enforcing the decree, and also to the approval required for issuance of the decree. As a result, a potentially dangerous homonymy between polysemies arose ('approve, penalize'). In many cases, when a homonymy has arisen from separate sources due to phonological changes, one of the forms is lost (Geeraerts 1997), e.g. Old English *lætan* 'allow' and *lettan* 'prevent' came to be homonyms in Middle English; *lætan* continues to be used as *let*, but *lettan* 'prevent' was replaced by *prevent, forbid*. However, in the case of polysemies arising from the same source, this is unusual. *Dust* can mean 'remove dust' (*dust the furniture)* or 'cover lightly with powder susbtance' (*snow dusted the hills*). In the case of *sanction*, the two meanings survive and must be resolved in context. The verb *sanction* is also ambiguous, but interestingly in this case it was borrowed in the 18[th]C, according to the OED, with the positive sense 'ratify, confirm' and only recently, in the mid-20[th]C, came to be used with a negative meaning of 'impose penalty', presumably on analogy with the negative nominal meaning.

3.2 Change in "semantic space"
In the 20[th]C the onomasiological concept of "semantic/lexical fields" consisting of tightly-knit sets of words with similar meaning were explored, for example terms for intellectual cleverness, colors, or kinship. The concepts of changing "semantic space" or "lexical fields" were the subject of a large number of studies toward the end of the century, e.g. Kay (1975) on the cross-linguistic development of color terms, and Viberg (1983) (based on J. Williams 1976), on extensions of terms for touch, taste, and smell to vision and sound, as in *soft sound, warm color, sweet smell*.

This work laid the foundations for the more systematic study of semantic change, which grew out of research in both cognitive linguistics and grammaticalization.

A fundamental claim in cognitive linguistics is that words do not "have" fixed meanings. They evoke meanings and are cues to potential meaning, instructions to create meanings as words are used in context (e.g. Brugman 1988, Paradis 2011). These meanings are non-discrete and have prototypical properties, with core and peripheral readings. Linguistic structures are interpreted "as reflections of general conceptual organization, categorization principles, processing mechanisms, and experiential and environmental influences" (Geeraerts & Cuyckens 2007: 3). One widely used and fairly stable conceptual structure in European societies has been the concept of language as existing in some kind of conduit or pipe-line along or through which words are expressed, while words themselves are containers into which ideas are deposited from the brain (Reddy 1993). This concept is evidenced by shifts from notions such as *admit* 'allow to enter'*, express* 'push out', *input* 'that which is put in or contributed' to meanings associated with communication. The "output" of such shifts appears to be metaphorical (conceptualizing communication in terms of conduits and containers). But historically, the process by which this occurred is in each case highly dependent on associated context.

Sweetser (1990) proposed a theory of metaphor and metaphorical change drawing on theories of embodiment (e.g. Lakoff 1987). She argued, for example, that a metaphor such as KNOWING IS SEEING[v] developed in Indo-European languages from embodied perceptual capacities such as seeing, hearing, and grasping, and that mapping from the socio-physical world of embodiment to the abstract epistemic one of reasoning accounted for the directionality of such cross-linguistically attested meaning changes as Proto Indo-European *weid* 'see' > *wit*, and *idea* (< Greek *oida* 'saw', perfective of *eidon* 'to see').

Following up on Sweetser's work as well as that of Viberg, an extensive body of literature was devoted to cross-linguistic studies of semantic associations among concepts. For example, Vanhove (2008) shows that crosslinguistically, although vision is the most important of the physical senses, hearing predominates among transfield associations between sensory modalities and mental perception, with vision second, and prehension (touch, grasping) third. The main tendency is for change from concrete to abstract, but there are some exceptions, e.g. *dull* was used in the abstract mental sense 'not quick in intelligence' from about 950 on. The concrete sense 'not sharp' is not attested until the mid-15thC (Allan 2012: 32-35). The latter meaning may reflect influence from *dol* 'foolish'.

4. The development of grammatical meaning

The kinds of semantic change most extensively studied in the last forty years are changes leading to grammatical, procedural meaning,[vi] typically in the context of work on grammaticalization, the study of work on morphosyntactic change (e.g. Heine, Claudi & Hünnemeyer 1991, Hopper & Traugott 2003). Much of the work has been conducted from typological and cognitive linguistic perspectives. It has

revealed that semantic changes correlated with the types of morphosyntactic changes associated with grammaticalization are regular in the sense that they are replicated not only in the same language but crossinguistically. They are almost exclusively unidirectional in that lexical meaning may become grammatical meaning, but not vice versa (see Norde 2009 for an account of a few exceptions to unidirectionality, but mainly from the perspective of form rather than meaning).

The changes are conceptualized as on a continuum from contentful (lexical) to procedural (grammatical) meaning. In most languages, auxiliary verbs derive from lexical sources. Examples in English are *must, shall, can, will, may, be going to*, *have to*, etc. With the exception of *will* and *be going to* the sources have obsolesced in Standard English (Bybee, Perkins & Pagliuca 1994). Another cross-linguistic generalization is that the equivalent of English prepositions for front, back, top, and bottom regions often derive from terms for body parts, e.g. English *back*, *behind* (Svorou 1993). In many languages the verb for FINISH comes to be used as a marker of completion, cf. Chinese *–le* 'completive' < *liao* 'finish'. Heine & Kuteva (2002) is a major source of information on grammatical concepts and their sources. Because some of the languages cited do not have written histories until recently (e.g. most of the languages of Africa) we can only make hypotheses about their history. Therefore in some cases sources are reconstructed based on polysemies in present-day languages.

Sequential semantic changes identified in work on grammaticalization are often described in terms of "paths" of change. Bybee, Perkins & Pagliuca (1994) identified several possible cross-linguistic paths for modal meanings, among them (in abbreviated form):
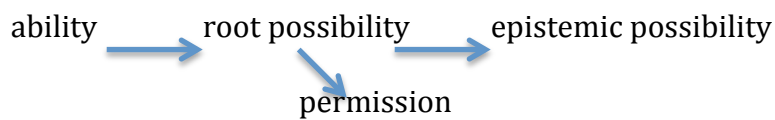

        Figure 1. Partial path of development from obligation (based on Bybee, Perkins & Pagliuca 1994: 240)

An example in English is *may*. Originally meaning 'have the power/ability' (cf. the noun *might* 'strength'), *may* came to be used for general enabling conditions, then for the speaker's assessment of the likelihood of a situation (*Jill may win* 'It's possible that Jill will win) and permission (*Jill may leave now*). Heine prefers the metaphor of "chains" (see Heine, Claudi & Hünnemeyer 1991 and elsewhere) since "chain" evokes links and overlaps between earlier and later meanings rather the linearity and abrupt forks invoked by the concept of "path".

 "Bleaching" or loss of contentful meaning is often associated with grammaticalization. Collocations such as *pretty ugly* or *She has had to have heart surgery* would be incoherent if the *pretty* had retained its contentful meaning 'good-looking' or *have* the meaning of possession or undergoing. But grammaticalization

does not only lead to loss of lexical meaning. There is also enrichment of grammatical meaning, e.g. in these uses *pretty* lost the lexical meaning 'good-looking', but gained intensification meaning, have lost the meaning of possession and gained completive (*has*) and obligation (*had to*) meaning. "Loss-and-gain" models of meaning change in grammaticalization have been discussed since the late 1980s (see Sweetser 1988, Heine, Claudi & Hünnemeyer 1991: 109-113).

It should be noted that bleaching is not found exclusively in grammaticalization. Occasionally lexical items may also lose substantive content, e.g. Old English *þing* 'law court, assembly' by metonymy > 'matter of concern, thing'.

5. Some methodologies for accounts of semantic change

Particularly valuable in work on semantic change is the notion of "collocation", the relationship among words or groups of words that go together. In a contextualized approach to the change in the meaning of *conceit*, we find that although it was borrowed from French around 1400 with the neutral meaning 'concept, idea', it was often associated with negative collocates such as *wrong* (Stubbs 1995 termed this kind of collocation "negative prosody"). Over time, the negative meaning became codified as part of the meaning of *conceit*, presumably due to frequency of use in negative contexts. By contrast, the word *concept*, borrowed in the late 15thC from Latin, was not used so frequently with negative collocates and does not conveynegative evaluation.

The field of semantic change underwent a significant change with the growing availability of historical electronic corpora in the late 20thC, notably for English, but also for several European languages, Chinese and Japanese. A number of new methodologies have been developed for reaching "a greater understanding of changes in meaning as motivated and explicable phenomena" (Allan & Robinson 2012: 3) and for operationalizing the study of meaning change. These methodologies underscore the fact that most change occurs in tiny steps that are discoverable in "clouds" of textual shifts among collocates. Exceptions are legislated, interventive changes in definition, as for example the expansion of the legal definition of *rape* in the US in the 1970s without reference to the sex of the victim or the marital relations of perpetrator and victim.

5.1 Computer-assisted statistical approaches

Particularly prominent methodologies are provided by computer-assisted statistical approaches to corpora that access clusters of usage through investigation of collocates and their strength. Hilpert (2008) developed a methodology called "diachronic collostructional analysis" that assumes that shifting collocational patterns found in balanced corpora reflect changes in meaning.[vii] Fine distinctions reveal ways in which *will* and *be going to* have been used over time, especially with respect to the verbs with which they have been favored. Abstracting over raw frequencies in the data, a sub-methodology called "distinctive collexemic analysis" allows the researcher to determine whether there are asymmetries in the relative frequencies of co-occurring verbs. For example, *say* has come to occur significantly

more often with *be going to* than with *will* (Hilpert 2012: 140-141), confirming Gries & Stefanowitsch's (2004) finding that in the ICE-GB corpus, *be going to* is associated more strongly with agentive verbs than is *will*. This kind of analysis is particularly fruitful for investigating semantic change in progress as attested in large-scale, growing corpora such as COCA (currently 550 million words of American spoken discourse, popular magazines, newspapers, and academic texts from 1990-2015). Studies of short-term effects of changes such as are evidenced by *keep V-ing* in COCA from 1990-2007 (Hilpert 2012) are suggestive of how context may have affected longer-term changes for which less extensive corpus data is available. Similarly, Kerremans, Stegmayr & Schmid (2012) use web-crawling methods to investigate the diffusion and institutionalization of neologisms such a *detweet* in Google. They note the emerging development of two uses, one 'to give up tweeting', and the other 'to be kicked out by Twitter' (p. 85). Such findings can be tracked in the future to determine whether stable polysemies are conventionalized and in which contexts, or whether an apparently incipient change is ignored, a contribution to the study of short-lived changes attested in historical texts. Corpus studies can also show how apparent synonyms diverge over time, e.g. Glynn (2010) investigates the changing "meaning space" of lexical *bother, annoy, hassle* in both their nominal and verbal uses.

5.2 Semantic maps
Another tool for analysis of semantic change is use of "semantic maps". These are generalizations about attested and unattested paths of multifunctional change. They were developed as visual representations of connected regions in conceptual/semantic space (Croft 2001: 96), originally in connection with cross-linguistic relations among grammatical items and how these change over time during the course of grammaticalization (see e.g. Anderson 1982 on the perfect, van der Auwera & Plungian 1998 on modals, Haspelmath 2003 on "the geometry of grammatical meaning"). Abstract maps can show which meanings are connected and in what order and what degree of similarity they have (van der Auwera 2013). In addition they can show links to related domains.

Recently semantic maps have been extended to changes in contentful expressions, e.g. they have been found to be useful in establishing the degree to which polysemies are replicated cross-linguistically in lexical sets such as *breathe, life, soul* (François 2008). For example, in English *breathe* is related to *take a breather* (a short period of rest). The verb *-pumula* in Makonde, a Bantu language of Africa, is used for both these senses and also for a third, 'take a vacation' ('extended period of rest'). Such extensions are not available in e.g. Latin *anima* or Chinese *qi.* Semantic maps for individual words for *breathe* in different languages show that different regions of semantic space are covered in different languages.

6. Motivations for semantic change
Most historical linguists distinguish motivations for and mechanisms of change. Motivations concern reasons why change occurs. Mechanisms concern how change occurs. They will be discussed in the next section.

Motivations for semantic change, like motivations for language change in general, are often not directly discoverable from the historical record. They may or may not lead to change.

6.1 Changes in cultural discourse practices

Motivations that are discoverable tend to be the result of linguistic legislation (e.g. changes in the meaning of *rape, harrass*), cooptation by a group (e.g. *queer*, *Yankee*). As these examples suggest, they are deeply embedded in cultural values and changes in discourse practices, and "external" factors. Work on key words (e.g. R. Williams 1976, Wierzbicka 2006) highlights not only how vocabulary shifts as cultural scripts shift, but also how meanings of words themselves may change, reflecting and/or promoting cultural change. Arguing that there was a shift in the 17thC from valuing faith to valuing knowledge, from certainty to search for empirical evidence, Wierzbicka (2010) discusses how use of the word *evidence* shifted from 'clarity, evidentness, knowledge based on sight' > 'possible grounds for belief' > 'support for a hypothesis'.

6.2 The role of pragmatic inferencing

More strictly linguistic, "internal" motivations for semantic change include the kinds of non-literal meanings that arise in the production and perception of speech and negotiation of meaning among interlocutors. Such non-literal meanings are considered to be pragmatic "implicatures" (see Grice 1989, Horn 1994, Levinson 2000), on the assumption that there is a distinction between pragmatics (meaning beyond what is said) and semantics (coded meaning). It is often supposed that change is the result of mismatch in perception between what is said and what is understood. In other words, hearers reinterpret in context (see Heine, Claudi & Hünnemeyer 1991: Chapter 3 on "context-induced reinterpretation", and, from a formal perspective, Eckardt 2009). On this view, a language learner hearing *all but* 'all except' in a context like *All but the sickest children ran the race* might infer that 'almost all children ran the race'.[viii] If this misinterpretation was replicated often enough, the new meaning 'almost' as in *The jaguars have all but disappeared* could be enabled by (mis)perception alone.

An alternative model that focuses on production is known as the Invited Inferencing Theory of Semantic Change (IITSC) (Traugott & König 1991, Traugott & Dasher 2002). Speakers are assumed to engage in negotiated interaction and to invite addressees to interpret what is said. Since much of what is said/written conveys implicatures beyond the literal meaning, addressees may (or may not) interpret precisely what is meant. If an implicature becomes salient in a community (a social factor) such implicatures may become conventionalized (coded or semanticized) via semantic reanalysis (a linguistic mechanism). While the end result may be the same in both models, the researcher's assumptions are different. In the perception model, the language acquirer is passive and "misinterprets", in the production-perception model, the language users are actively engaged and may simply "interpret differently".

Evans & Wilkins (2000: 55) call a regularly occurring context which "supports an inference-driven contextual enrichment" of one meaning to another a "bridging context" (a term adopted for grammaticalization in Heine 2002). Bridging contexts are ones where hearers may interpret either an innovative or an old meaning. Sometimes inferences may be absorbed into the meaning of an expression with which they were formerly only pragmatically associated, a process known as "context-absorption" (Kuteva 2001: 151). What was once a cancelable inference comes to be uncancelable, or cancelable only with difficulty. In this case semantic reanalysis has occurred (Eckardt 2006) and a new coding has become available, as evidenced by the use of an old form with the new meaning in a context which was not available before. For example, in Old English *siþþan* meant temporal later time ('after'). Like *after*, it could be used in certain contexts with a causal implicature, and later *since* came to be used with a coded causal meaning. In other words, semanticization of a formerly pragmatic meaning occurred, resulting in polysemy (unlike in the case of *after*, which still implies but does not code cause).

Although originally discussed mainly with reference to grammaticalization, invited inferencing is conceived as a major motivation for semantic change in general (Traugott & Dasher 2002). It encompasses the changes associated with metonymy and metaphor, and also pejoration and amelioration.

7. Mechanisms for semantic change
Mechanisms for change are hypotheses about the mental processes leading to an observed change.

7.1 Metaphorization
Seeking to differentiate metaphorical and metonymic change, Koch (2012) builds on prior synchronic work such as is represented in Barcelona (2000a) and proposes that metaphor is based on similarity, metonymy on contiguity and taxonomic hierarchization. Drawing on Anttila (1989: 142), we may say that:

a) Metaphor arises from perception of similarity. There are links with analogy, iconicity, paradigmaticity, and onomasiological perspectives.
b) Metonymy arises from perception of association and contiguity (Piersman & Geeraerts 2006). There are links with indexicality, linear production, perception, and semasiological perspectives.

Examples that Koch (2012: 278) gives of the difference between metaphorization and metonymization are *belly* and *bar*. The word *belly* derives from Old English *bælg* 'bag, purse'. Koch proposes that *belly* (body-part) belongs to a different conceptual frame from *bag*; it has been metaphorized. By contrast, *bar* 'public house', is derived from *bar* 'counter in a public house' within a single conceptual frame; *bar* has been metonymized.

Heine, Claudi & Hünnemeyer (1991) privilege a specific kind of metaphorization in grammaticalization that is:

a) "based on a structure of conceptual chaining that is metonymic in nature" (p. 50), in other words, there are overlaps in meaning,
b) "structure-changing" (p. 44), e.g. when a body part term is grammaticalized, it ceases to be a nominal contentful item and is used as an adposition (as a body part, *back* can be used freely as a noun, but as a grammatical marker of location it can be used only as a complex preposition as in *back of the house*),
c) based in experience (p. 50), e.g. body shape and posture (in several languages *head* is a source for 'in front', cf. *ahead*)
d) unidirectional (p. 51): the resulting meaning is more abstract (the concept 'completive' is more abstract than the verb for 'finish').

In cognitive linguistics much of the literature on lexical semantic change conceptualizes it as "mapping" (projecting) and metaphorical change, for example, Sweetser (1990) suggested that the kind of mapping from the socio-physical world to that of reasoning such as was illustrated in section 3.2 above with *wit* and *idea* also occurs in the grammatical domain. Drawing on Talmy's (1988) theory of image-schematic structure and force-dynamics including exertion of force and blockage by barriers, she suggested that *must* in its deontic sense 'be required' signals 'compelled by socio-physical force' while in its epistemic 'can be inferred' sense it signals 'compelled by reasoning' (compare *You must go,* with *You must be crazy!*). While *must* involves force and barriers, *may* represents a potential barrier that is not yet in place, again in two worlds: the sense 'be permitted' in the socio-physical world, and the sense 'possibly' in the world of reasoning (compare *You may go, You may be crazy, but ...*).[x]

7.2 Metonymization
Despite the privileging of metaphor in cognitive linguistics, metonymy has sometimes been seen to be more basic, indeed the "cornerstone of human cognition and ordinary language use" (Nerlich and Clarke 1999: 197). Barcelona (2000b: 13) hypothesizes that "the target and/or source must be understood or perspectivized metonymically for the metaphor to be possible".

There has therefore been extensive discussion of the role of metonymy as well as of metaphor in semantic change and many putative cases of metaphorization have been rethought as the result of metonymic processes. For example, the *be going to* future was initially thought to be the result of metaphorical mapping of motion *go* onto time; later it was understood to result from association of motion-with-a-purpose contexts, as in *I am going to visit my aunt*, since purpose implicates later time. While grammaticalization was initially conceptualized mainly in terms of metaphor, metonymy was also recognized as an important factor in e.g. Heine, Claudi & Hünnemeyer (1991), Hopper & Traugott (2003). Focusing on syntagmatic production and semasiological perspectives on semantic change in grammaticalization, Traugott (e.g. 1989) privileged conceptual metonymy as the

main mechanism of change in grammaticalization. She proposed that the metaphorical mapping from the socio-physical world to that of reasoning that Sweetser hypothesizes for the development from deontic to epistemic *must* is actually the outcome of small local changes in inferencing suggested by the historical textual data, e.g. one can infer that if someone is obligated to do something then the state of affairs will be (epistemically) true. Arising in context as they do, and being associative, such invited inferences can be considered to be a conceptual metonymy to the act of speaking or writing. Bybee (2007: 979) concludes that "the most powerful force in creating semantic change in grammaticalization is the conventionalization of implicature, or pragmatic strengthening". However, Heine, Claudi & Hünnemeyer (1991: 75) provide a counter argument for the primacy of metonymy in some cases by suggesting that conceptual metaphors such as TIME-to-CAUSE provide frames for particular instances of metonymic change, such as *since* underwent.

7.3. Subjectification

A mechanism of semantic change that can be considered to be a kind of conceptual metonymization motivated by invited inferences is "subjectification". Broadly speaking, this is a shift toward meanings that are based more in the speaker's perspective than earlier ones. For example, during Middle English *þa hwile þe* 'at the time that' came to be used with the concessive meaning 'although'. 'At the time that' can refer to an identifiable reference time, whereas 'although' is non-referential and a matter of speaker's perspective. Subjectification encompasses shifts from the perspective of the *sujet d'énoncé* 'syntactic subject' to the *sujet d'énonciation* 'speaking subject' (Benveniste 1971, Langacker 1990, 2006[xi]). For example, a crucial step in the development of future *be going to* was use in the early 18[th]C with inanimate, non-agentive subjects, as in *There is going to be a storm*. But in Traugott's view it encompasses much more as well (Traugott 1989, 2010; Davidse, Vandelanotte & Cuyckens 2010), since it is "a process of change giving rise to expressions of the Speaker's beliefs, and stance toward what is said" (Traugott 2014: 9). Examples include the development of:

a) uses of *be going to* from relative future 'be about to', based in event time, to a deictic future based in speaker time,
b) phrases like *after all, anyway* as discourse markers; for example, *after all* originated in 'after everything' and came to be used as a concessive (*it wasn't a movie after all* ('despite what we thought'), *it was real*) and as the speaker's justification for what is said or done (*Their values and interests are*, *after all*, *opposed to ours*).
c) adjectives as scalar modifiers, like *pretty, very* 'true' > 'to a high extent', *pure* 'unadulterated' > 'utter' (*that's pure nonsense*) (see Vandewinkel & Davidse 2008 for a detailed history of *pure*).

These are examples of grammaticalization as well as subjectification.

Subjectification is also evidenced in the contentful domain by such developments as the use of verbs of locution as speech act verbs. Many of the latter derive ultimately from past participles of Latin verbs, such as *promise* (< Latin *pro + miss-* 'forward sent'), *suggest* (< Latin *sub + gest-* 'under carried'). As a performative speech act, *promise* requires a subject *I* (and ability to carry out the promise, etc.). Note that the sources of *promise* and *suggest* originate in conduit metaphors such as are mentioned in section 3.2.

7.4 Intersubjectification
A mechanism of semantic change that occurs to different degrees in different cultures is intersubjectification, "the development of markers that encode the Speaker's (or Writer's) attention to the cognitive stances and social identities of the Addressee" (Traugott 2014: 9). It is found in the development of politeness markers such as *please* (< 'if it please you'), of discourse markers like *surely* (< 'securely') that anticipate a response (*Surely you'll agree*), and use of euphemisms for taboo avoidance (e.g. use of *toilet* discussed in section 3.1).

In considering both subjectification and intersubjectification, it is important to distinguish them as mechanisms of change from synchronic subjectivity and intersubjectivity, which are ambient in all language use and arise out of coordination between speaker and hearer. For a detailed account of work on both subjectification and intersubjectification, see López-Couso (2010).

8. New directions
Over the last thirty years or so it has become widely accepted that pragmatic shifts in meaning that arise in context are "the necessary basis of semantic change" (Fitzmaurice 2016: 260). Why this is the case and how some pragmatic inferences that arise on the fly may give rise to new coded semantics has been a major concern of scholars of semantic change during this time. There are two areas in which new synergies are currently developing, both involving the mutual influence and enhancement of synchronic and diachronic work.

As studies of variation and discourse have expanded, a far closer link between synchronic and diachronic semantic theory has become possible and indeed promises to be characteristic of work in the future. An example is the way in which synchronic subjectivity and intersubjectivity are being rethought. For example, De Smet & Verstraete (2006) propose that subjectivity is a gradient phenomenon and that a distinction be made, among other things, between:

a) "ideational" subjectivity that denotes attitudes to content (e.g. in English *dumb* 'unintelligent'),
b) "rhetorical" subjectivity. The latter is intersubjective as it marks speech acts, for example causal conjunctions like *as, since, because, after*.

Focusing only on intersubjectivity, Ghesquiére, Brems & Van de Velde (2014) propose that it is of three types:

a) attitudinal (coding the speaker's image of his or her relation to the hearer, expressed by hedges such as *well*, and T/V pronouns),
b) responsive (eliciting certain speech behavior on the part of the addressee, expressed by turn-taking tags and response-eliciting markers such as *surely*),
c) textual (including focus and backgrounding devices that steer the hearer's interpretation).

These suggestions about synchronic (inter)subjectivity build in part on work on gradual semantic and pragmatic change in language use.

An important line of synchronic research in semantics that has until recently barely been addressed from a historical viewpoint is formal semantics. Some exploratory steps were taken in von Fintel (1995), but Eckardt (2006) is to date the only monograph that investigates how truth-conditional semantics can help understand the types of reanalysis typical of grammaticalization, as exemplified by the development of future *be going to*, French negative polarity items like *ne pas* (< 'not a step'), and the German focus marker *selbst* (< intensifier < 'self'). Deo (2015a) presents a detailed formal account of the shift from progressive to imperfective in Indo-Aryan, with focus on grammaticalization and evolutionary game theory. In a review article Deo (2015b) briefly summarizes several threads of research on semantic-pragmatic change. She concludes that "The recent development of techniques/applications that are suited to modeling context, gradualness, and frequency effects—all essential elements of a usage-based theory of change" are crystallizing into a robust program within semantics-pragmatics that accounts "for how meaning, use, and change are tied together" (Deo 2014: 194).

Videos on semantic change
Etymology (n. d.)
http://www.bing.com/videos/search?q=videos+semantic+change&&view=detail&mid=59BCCF9CEC041272337459BCCF9CEC0412723374&rvsmid=A51A40ED2D7DA09AE9CFA51A40ED2D7DA09AE9CF&fsscr=0&FORM=VDFSRV

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http://www.bing.com/videos/search?q=video+lectures+semantic+change&qpvt=video+lectures+semantic+change&view=detail&mid=4D9FD083A6B3A7D30A454D9FD083A6B3A7D30A45&FORM=VRDGAR

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Notes

[i] This paper draws in part on Traugott (2012).

[ii] A more restricted domain of study has been how meanings change as referents change (see Brown 1958), e.g. the meaning of *phone* clearly changed referentially as rotary phones began to be replaced by digital phones and desk phones by cell phones.

iii Croft (2000: 4) stresses that innovation and propagation are both equally essential for change.

iv Synecdoche has been regarded as one of three figures of speech from Aristotle's time on (the other two are metaphor and metonymy). However, Nerlich and Clarke (1999) and Koch (2012) regard it as ordinary categorization, not a figure of speech.

v Capital letters are by convention used for abstract cross-linguistic concepts.

vi The term "procedural" is adopted from Blakemore (1987).

vii A balanced corpus is equally divided among different genres, varieties, etc. It should be noted that although the *Oxford English Dictionary* (OED) on-line is a very important data source for the history of English, it is not a corpus, because it does not provide full contexts (many are abbreviated) and several examples are repeated (Mair 2004). Allan (2012) discusses some problems in using the OED for researching semantic change.

viii De Smet (2012) gives an account of the history of *all but*.

x Sweetser's cognitive, image-schematic interpretation of modality may be contrasted with that of formal semanticists, who interpret modality in terms of quantification over possible worlds, not metaphor. In formal semantics deontic modality quantifies over worlds that satisfy relevant laws, epistemic modality quantifies over what is known (e.g. *ought to* and *have to* differ in strength) (see van Fintel 2006 for an overview). There is little work on semantic change from this formal perspective.

xi Langacker's view of subjectification is largely synchronic and associates it with changes in the cognitive construal of vantage-point (see Athanasiadou, Canakis & Cornillie 2006).