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► To cite this version:

Guillaume Desagulier, Philippe Monneret. Cognitive Linguistics and a usage-based approach to the study of semantics and pragmatics. Manuel Díaz-Campos; Sonia Balasch. The Handbook of Usage-Based Linguistics, 1, Wiley; Wiley, 2023, 10.1002/9781119839859.ch2 . halshs-04171386

HAL Id: halshs-04171386

<https://shs.hal.science/halshs-04171386v1>

Submitted on 26 Jul 2023

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Cognitive Linguistics and a usage-based approach to the study of semantics and pragmatics

Guillaume Desagulier¹ and Philippe Monneret²

¹Université Paris 8, Université Paris Nanterre, Institut Universitaire de France

²Sorbonne Université

last update: July 26, 2023

1 Introduction

Usage-based linguistics posits a bottom-up approach to language phenomena: linguistic units, of which grammar is an inventory, emerge from an accumulation of usage events (or utterances), i.e., culture-specific and context-dependent instances of language use that are the product of linguistic behaviors by specific language users. The focus on usage events, and more specifically on how utterances are assembled by speakers and comprehended by hearers in context and interaction, has three consequences. First, contra the generative grammar of Chomsky (1962), competence and performance are not distinguished because knowledge of language is also knowledge of language use.

Second, no clear-cut distinction can be made between dictionary meaning and encyclopedic meaning. Dictionary meaning is understood as the stable, context-independent core meaning associated with a word or expression. A dictionary view, as exemplified by structuralist semantics, views conceptual categories as a set of necessary and sufficient features. Lexical meaning is restricted to the stable, context-independent denotatum associated with a word or expression. Such a view has been shown to be too restrictive on the grounds that the ‘pure’ linguistic meaning of a word or expression falls short of covering everything that speakers acquire through linguistic experience (Fillmore 1975, Coleman & Kay

1981, Langacker 1987). Meanwhile, in an encyclopedic view of language, no strict boundary can be drawn between core meaning and contextual modulation.

Third, usage-based models of language make no principled distinction between semantics and pragmatics, because conceptualization and contextualization depend upon one another. Of course, Cognitive Linguistics does not deny that some usage-events invite more semantic interpretations (i.e., relying on stored meaning), whereas others invite more pragmatic ones (i.e., based mainly on the para- or extra-linguistic context). Nevertheless, semantics and pragmatics are part of a continuum. While the principled non-separation between semantics and pragmatics is a theoretical hallmark of Cognitive Linguistics, which takes a non-modular view of language, it is nonetheless criticized from both inside and outside the field. Some linguists argue that the lack of a clear-cut separation between the study of meaning and the study of pragmatics is detrimental to the latter (Cappelle 2017, Depraetere 2019, Desagulier 2011, Leclercq 2020). Indeed, because usage-based semantics suffers from the loss of connection with propositional content and because it also deals with usage conditions, little is left for pragmatics to handle. For this reason, Cognitive Linguistics has progressively distanced itself from the ‘pragmatics program’ developed since the 1960s in the wake of Peirce (1905), Morris (1938), Grice (1975), and Searle (1979).

While the focus of this chapter is on semantics and pragmatics from a usage-based perspective, it also examines why a separate tradition that does not reject a modular view of language, Cognitive Pragmatics, has developed in parallel. We believe our comparative approach will prove useful for those interested in Cognitive Linguistics. The main objective of this chapter is thus twofold, since we propose to account for the emergence and establishment of the semantic-pragmatic continuum in the usage-based paradigm, while also explaining the rise of a distinct paradigm dedicated exclusively to pragmatics.

The next section returns to the origins of the usage-based methodology and justifies why semantics and pragmatics are considered two poles of the same continuum. We also show how the usage-based treatment of these two poles differs from traditional pragmatics. More recent works in Cognitive Linguistics and traditional pragmatics are then discussed, emphasizing the increasingly irreconcilable research programs. Finally, this article lists pending issues that result from the integration of semantics and pragmatics, with a focus on how each pole could be made compatible with the formalism of Cognitive Linguistics.

2 Background

At the heart of the usage-based framework of Cognitive Linguistics is the double rejection of truth-conditional semantics and of the idea that semantic categories

are determined by necessary and sufficient conditions. Combined with the assumptions that semantics is not an isolated module of the mind, and that meaning is encyclopedic, this rebuttal has radical consequences for the nature of pragmatics, which is seen as the ability to recognize the contextual aspects of meaning that are available to the speaker for a given linguistic cue.

2.1 Before cognitive semantics

Usage-based semantics did not emerge in a vacuum, but rather in response to an analytical approach to meaning, in which concepts are divided into more elementary components, following the structuralist methodology in phonology. Once exported into semantics, word meanings break down into a combination of basic semantic primitives, the list of which is necessarily shorter than the lexicon to be defined, to avoid circularity. The primitives are considered self-explanatory and are therefore undefined. The concept BACHELOR, for example, is composed of the primitives UNMARRIED, ADULT, and MALE. To be a bachelor, someone must meet all three conditions, which are necessary and sufficient.

Componential semantics is one such approach. It was developed and popularized by Katz & Fodor (1963). To define bachelor in a formalized dictionary, these authors list the possible senses that the word is found to have in context and describe their conceptual relations. They propose a list of possibilities that speakers can choose from, which is a hierarchical diagram, with each level containing the following information: word form, word class, markers, and distinguishers. Markers are “that part of the meaning of a lexical item which is systematic for the language” and distinguishers “that part which is not” (Katz & Fodor 1963: 188). In (1), markers appear inside parentheses and distinguishers between square brackets.¹

- (1) a. bachelor > noun > (human) > (male) > [who has never married]
- b. bachelor > noun > (human) > (male) > (young) > [knight serving under the standard of another knight]

Although structured in the form of a hierarchy, the list proposed by Katz & Fodor (1963) fails to specify which meanings are more central, or which are more salient in a given context. In other words, knowledge of usage is not part of the structural description of the category that bachelor denotes. Also, no explanation is given as to why some interpretations are more likely than others when using a given category.

¹Two more specific meanings are part of the list described by Katz & Fodor (1963): [who has the first or lowest academic degree] and [fur seal when without a mate during the breeding time].

Cognitive psychologists from Prototype Theory criticize the componential approach for ignoring “typicality effects” (Mervis & Rosch 1981, Rosch 1978, Rosch & Mervis 1975). For example, instead of incorporating the features UNMARRIED, ADULT, MALE, YOUNG, etc. to define the concept BACHELOR, probabilistic theories start with the premise that not all men are equally representative of the category and, as a result, do not require all of these features to be checked. In a psychological experiment, participants will be quicker to categorize a 25-year-old heterosexual man as a kind of bachelor than they will to categorize the Pope or a superhero who is single. By taking these asymmetries into account, Prototype Theory departs radically from componential analysis. Under the influence of psychology, cognitive semantics has made a point of incorporating pragmatics into linguistic structure to assign weights to some senses, thus turning the list of meaning possibilities into a list of meaning probabilities (Geeraerts 2000).

2.2 The emergence of cognitive semantics

Rejecting the feature-based conception of meaning inherited from early-day structuralism and truth-conditional semantics, Lakoff (1987) shows that lexemes denote conceptual categories and that such categories are both complex and organized according to a specific, network-like hierarchy, each category being structured by a prototype. Distinct yet related meanings are linked to this prototype, conventionally in a radial-network fashion. Access to a specific category is an effect of the contextually motivated activation of a part of this radial network.

Prototype effects are linked to “Idealized Cognitive Models” (ICMs). An ICM captures the idea that knowledge in a given field may not correspond to the real circumstances found on certain occasions. For a bachelor to be classified as a single male adult presupposes an ICM of marital customs in Western cultures. The ICM is idealized because it is the result of the schematization over usage events involving bachelor. It is therefore as biased and sexist as one might find in usage, since it assumes that all citizens are heterosexual and that all are equally eligible for marriage. According to the ICM, a person reaches a legal marriageable age, but chooses not to be married for various reasons. Prototype effects may result from the difference between the model and reality. Because the Catholic clergy are not included in the ICM, the Pope is not an appropriate candidate for the bachelor group. The ICM may also explain why the term bachelor has various meanings.

As opposed to a truth-conditional approach, cognitive lexical semantics is not concerned with the economy of representation, because many contextual meanings can coexist in the lexical network, with possible redundancies, and possible disagreements among usage-based semanticists. For example, in his study of over in English, Lakoff (1987) finds 6 central senses and 21 sub-senses. Subse-

quent studies come up with different numbers. For example, Taylor (1989) lists 17 senses, Vandeloise (1990) groups 9 of Lakoff's sub-senses under the same sense, Dewell (1994) identifies 6 basic senses and 12 senses sub-senses, and Tyler & Evans (2003) see 1 basic sense and 15 sub-senses. The semantic structure of *over* in Dutch is equally tricky. Cuyckens (1991) finds 13 senses, but Geeraerts (1992) sees between 14 (i.e., 3 basic senses, 11 sub-senses) and 16+ senses, depending on where the line is drawn between basic and sub-senses.

This radial-network view has been criticized as being prone to a proliferation of distinct senses for each lexical item (Sandra 1998)(Sandra, 1998).² However, it is the radial-network tradition that took the study of semantic relations away from the idea that senses are discrete, mono-dimensional, and context-independent. As pointed out by Geeraerts (2009: 75), not all components in a prototype-based radial category have equal weights.

2.3 Meaningful grammar

In Case Grammar, Fillmore (1968, 1977) lays the foundations of theory that explicitly connects words' meanings, the syntactic settings in which they occur, and the semantic characteristics of their contexts. A frame is then a syntactic, slot-defining context that provides criteria for membership in particular word classes. For example, the frame [the ball is X] is a context that invites the slot to be filled by an adjective (e.g., red, round, etc.).

With the advent of Frame Semantics (e.g., Fillmore 1985), the frame begins to be seen as a context-dependent cognitive structure, under the likely influence of Bartlett (1932) and Minsky (1981), *inter alia*. From then on, the frame is defined with reference to what it means to understand what one is hearing or observing. Understanding involves general cognitive mechanisms such as memories of past language experiences. The meaning associated with a particular expression cannot be understood independently of the frame with which it is associated, which is socioculturally determined. Therefore, frames are structured mental representations of an area of human experience. They apply to simple concepts (e.g., smartphones) as well as complex events (e.g., going to a restaurant).

Frame semantics formalizes the intuition that meaning is encyclopedic. For

²The following reasons might explain why semantic inventories may give an impression of proliferation. In Cognitive Linguistics, a usage event presents the speaker with a contextualized association between a set of forms and a set of conceptualizations. Acquisition is the sum of generalizations over usage events. Most of the peculiarities associated with context-dependent usage events are lost, but not all of them, and the schematic representation of the form-meaning association remains. Schematization can, therefore, be anywhere between minimal and maximal. As a consequence, low-level and high-level representations can coexist in a usage-based approach to grammar.

example, a dictionary definition of SMARTPHONE might tell us that it is a device with which one can make phone calls and that includes additional software and hardware. In structuralist terms, this could be summarized with the following features: TELEPHONE, CORDLESS, CELLULAR, TOUCH-SCREEN, CAMERA, GPS, and BROWSER. What will most likely be left out is the fact that the type of smartphone one has will be an indicator of wealth or a token of trendiness, and that it might be adored by some people and disliked by others. In this respect, the encyclopedic view of semantics, as generally adopted in Cognitive Linguistics, represents an alternative view. All knowledge components acquired from contextual experience deserve a place in the framing of a concept. Components are ranked depending on how central they are. With respect to the SMARTPHONE frame, certain attributes are so central that they are virtually always activated whenever the word smartphone is used, such as the technical features listed above. Others are activated less frequently (e.g., how trendy a model is). Others are so peripheral that they are accessed only in special contexts, such as the fact that smartphones are disliked by hipsters for not being vintage enough, and by activists for being tracking devices.

Construction Grammar (henceforth CxG) appears in the wake of Frame Semantics and further explores the idea that grammar is meaningful and subject to framing. Lakoff's detailed study of There-constructions is a good example of early CxG reasoning, although this approach was called "cognitive grammar" at the time (Lakoff 1987: 462ff). Because CxG is non-modular, it treats grammar rules and the lexicon as part of a continuum. Accordingly, pioneers of CxG focus on non-canonical idiomatic patterns, like the *let alone* construction (Fillmore et al. 1988), the *way*-construction (Goldberg 1995), or the *what's X doing Y* construction (WXDY) (Kay & Fillmore 1999), to demonstrate that, even though some phenomena fall between the two extreme poles of the lexicon-grammar continuum, they still provide insight into our understanding of how language works.

CxG is a paradigm of related approaches, with commonalities and differences. The main commonality is that grammar is an inventory of symbolic form-meaning pairings. Such pairings are the entrenched product of repeated instances of such associations. For example, to account for WXDY in (2), it is not enough to say that the construction inherits its syntax and its meaning from the more abstract *Wh*-question construction.

(2) What is the pizza doing still uneaten? (Kay & Fillmore 1999: 29)

What singles out WXDY is that it "directly encodes, in addition to a request or demand for an explanation, the pragmatic force of attributing what we call INCONGRUITY to the scene or proposition for which the explanation is required" (Kay & Fillmore 1999: 4). Such a construction is not just a pattern of coining,

but also a fully productive template that incorporates aspects of meaning derived from linguistic experience.

2.4 Meaning is conceptual

As has hopefully become clear from the preceding sections, Cognitive Linguistics adopts a conceptual approach to meaning. Because a key aspect of human cognition is the conceptualization of experience, the study of meaning implies explaining how experience shapes conceptual structure. To conclude this section, we introduce three landmark theoretical frameworks that set this as their objective from the outset: Conceptual Metaphor Theory (CMT), Mental Space Theory (MST), and Blending Theory (BT).

According to CMT (Lakoff & Johnson 1980, Lakoff 1987, Lakoff & Johnson 1999), metaphors are pervasive in everyday speech and are the trace of the effect of a cognitive process through which we interpret one domain in terms of another. Primary metaphors have connections to actual experiences. The metaphor MORE IS UP/LESS IS DOWN, as in (3), is given as an illustration of this fact:

- (3) Prices are going through the roof.

At the conceptual level, cross-space mappings operate between a concrete source domain (verticality) and a more abstract target domain (quantity) (Lakoff & Johnson 1999: 107). The metaphorical association between the two domains is acquired from early age. For example, when a child repeatedly watches a liquid being poured into a container and notices that the amount in the container increases as more liquid is added, he or she is learning the metaphor of MORE IS UP.

Breaking away from the Aristotelian tradition, according to which metaphors imply a similarity between the two related domains, Lakoff & Johnson (1980) contend that many metaphorical expressions, such as *ray of hope* (HOPE IS LIGHT) or *we have come a long way together* (LOVE IS A JOURNEY), connect two domains that are not semantically related. What brings them together is that these metaphors are experientially driven.

Equally ambitious with respect to the link between cognitive processes, experience, and context is Fauconnier's MST (Fauconnier 1994) and its extension, BT (Fauconnier 1997). Again, like cognitive semantics, MST emerged in response to the aporias of truth-conditional semantics. It posits meaning in terms of the relation between a symbol and its referent in three possible worlds: the real world, the possible world, and the counterfactual world. From this point of view, a statement like (4) is self-evident, since it refers to an assertion in the real world:

- (4) Mark bought an elephant, Tara, for £4000 (...).

- (5) Gilles believes that Mark bought an elephant.
- (6) Mark wants to buy an elephant.
- (7) If Mark buys an elephant, then he will need a zoo.

However, statements (5–7) are metaphysically problematic. In (5), the same situation is identified with respect to the opinion of the subject of the sentence. In (6), the identification is no longer made in relation to the subject’s belief but to their will. In (7), the realization of the purchase is hypothetical; hence, the realization of the second process is also hypothetical. In truth-conditional semantics, a possible world refers mainly to beliefs, wishes, or other mental attitudes of the conceptualizing subject. It is an exhaustive representation of what the world could be or could have been. The difficulty is that, from a metaphysical point of view, there is no way of knowing whether such a world exists, nor what it is like. Consider (8), which exemplifies the *If P, (then) Q* construction:

- (8) If Napoleon had been the son of Alexander, he would have won the battle of Waterloo. (Fauconnier 1994: 118)

The *if*-clause builds a space in which the propositional content of the protasis (Napoleon is the son of Alexander) is the opposite of the content of reality (Napoleon is not the son of Alexander). In truth-conditional semantics, counterfactuals are handled by means of the concept of possible worlds. A truth-conditional treatment of (8) would evaluate the absolute truth-value of the sentence. This would require transferring as much structure as possible from the reality space to the counterfactual space. Fauconnier argues that it is enough to project only what guarantees a successful counterfactual reasoning. The absolute truth of each proposition is not evaluated. In Mental Space Theory, only the knowledge structure and the laws that are recognized to be valid in the reality space are transferred into the counterfactual space: Napoleon’s defeat at Waterloo, Alexander’s victorious campaigns, or the adage “like father, like son”. The novelty of Fauconnier’s approach, which is that knowledge is no longer permanently embedded in real or possible worlds, but modelled in mental spaces (Fauconnier 1994: 15).

The theoretical apparatus of BT is close to that of MST but more complex as it is based on at least four distinct spaces, namely:

- i at least two input spaces, structured by information from different domains;
- ii at least one generic space, which encompasses what the input spaces have in common;
- iii a blended space, which includes not only the elements profiled from the structure of the input spaces, but also - and this is its main interest - an emergent structure of its own, i.e. not found in any of the input spaces.

While MST is committed to including meaning among general cognitive processes and by indicating how much it can fluctuate from one space to another, BT emphasizes the production of new conceptual structures from the combination of pre-existing linguistic information from various domains.

2.5 Usage-based pragmatics

Even if some aspects of linguistic context have always been taken into account in cognitive linguistics, the development of usage-based cognitive pragmatics is still recent. This appears for example in the *Cambridge Handbook of Pragmatics* (Allan & Jaszczolt 2012). In this book, Ariel (2012: 32) distinguishes three research paradigms in pragmatics: Inferential Pragmatics (traceable to Grice), form/function pragmatics, historical and typological pragmatics. On the second paradigm, she writes:

Recently, there is a new line of research which incorporates many of the insights introduced by form/function pragmatists, but sees no reason whatsoever to (a) distinguish between + and - truth-conditional meanings and (b) accept formal syntactic analyses: Cognitive Linguistics (Lakoff 1987, Langacker 1987, 1991) and Construction Grammar (Goldberg 1995). On these approaches, form/function correlations are part of grammar, no matter what their nature is.

A similar formulation can be found, the same year, in the handbook *Cognitive Pragmatics* (Schmid 2012: 6):

An increasing number of cognitive linguists are becoming acutely aware of the need to complement the cognitive approach with pragmatic and socio-cultural dimensions of inquiry. Besides Gilles Fauconnier and Mark Turner, whose conceptual blending theory has integrated a context-dependent component right from the start, key representatives include René Dirven, Dirk Geeraerts, Peter Harder, István Kecskés, Gitte Kristiansen and John Taylor).

Schmid (2020) and Panther (2022) are the first to provide detailed syntheses on this topic. We can therefore consider that a usage-based cognitive pragmatics emerged in the early 2010s and has stabilized for a very short time. It is necessary to review some epistemological landmarks in order to comprehend the current situation.

Pragmatics, as a full-fledged discipline, has developed since the 1960s. It has multiple origins: the research by American philosophers Peirce and James, who

inspired research in semiotics, and Morris, who developed the behavioral theory of signs and introduced the division between syntax, semantics, and pragmatics. The impulse that gives pragmatics its autonomy is provided by Austin in the context of the William James Lectures in 1955, at the period when the first generation of cognitive sciences was emerging (the “Symposium on Information Theory” at MIT and the “Summer Research Project on Artificial Intelligence” at Dartmouth took place in 1956). However, Austin’s pragmatics is not yet a form of cognitive pragmatics. It takes place within the philosophy of language and aims to show that the role of language is not restricted to the description of reality: when one uses language, one is performing acts (namely, locutionary, illocutionary, and perlocutionary acts).

With Grice, the distinction between “what is said” and “what is implied” and the role of inference comes to the forefront. Based on these ideas, Sperber and Wilson give Grice’s theory a cognitive dimension, and develop Relevance Theory, which has long been referred to as “cognitive pragmatics.” According to Sperber & Wilson (1986), linguistic communication is cognitively characterized by two stages: (1) a linguistic module (in the Fodorian sense) ensures that the speaker’s meaning is linguistically encoded and that the hearer accesses this information with their own linguistic module; and (2) inferences are made to guide the hearer toward the speaker’s meaning. Such inferences depend on cognitively central processes. They are required because sentence meaning underdetermines speaker’s meaning. The linguistic module, which is of little interest to Sperber and Wilson, can be thought of from a Chomskyan perspective. It produces an output with a logical form. Central aspects of the cognitive system will process them along with other contextual information, according to the principle of relevance. Pragmatics is therefore completely dissociated from linguistics and, therefore, from semantics.

The fact that these principles are incompatible with those of Cognitive Linguistics, where semantics and pragmatics are seen as two poles of a continuum, probably explains why the pragmatic dimension of usage-based cognitive linguistics emerged much later: the academic space of cognitive pragmatics was occupied by a model it needed to detach itself from, while keeping its most interesting contributions.

3 Current approaches

From the early 2000s onwards, there has been an increased interest in quantitative methods to study semantics and pragmatics. Because of the usage-based nature of Cognitive Linguistics, corpora, understood as samples of naturally occurring language, have played a central role.

3.1 The empirical turn in cognitive semantics

Arguably, landmark works in first-generation Cognitive Linguistics are mostly introspective and theory-driven (Fillmore 1985, Lakoff 1987, Langacker 1987, 1991, Talmy 2000a,b). For example, the role of repetition is considered central in the establishment of linguistic conventions:

With repeated use, a novel structure becomes progressively entrenched, to the point of becoming a unit; moreover, units are variably entrenched depending on the frequency of their occurrence (*driven*, for example, is more entrenched than *thriven*). Langacker (1987: 59)

However, little is offered by way of actual quantification in these studies. Instead, such usage-based approaches rely on a relative definition of frequency. To assess entrenchment, it is not so much the frequency that linguists measure that is decisive, but rather the frequency that speakers perceive in linguistic experience. The impact of actual measurements on entrenchment is substantiated later (Bybee & Hopper 2001, Bybee 2006, 2007).

As authors such as Slobin (1996) on language acquisition or Gibbs Jr et al. (1994) on figurative language, first-generation Cognitive Linguistics builds upon a tradition with empirical support. According to Glynn (2010b: 4), research by Dirven et al. (1982) and Lehrer (1983) can be used to trace the origins of a corpus-based tradition in Cognitive Linguistics. As linguists increasingly recognize that the natural follow-up of their theoretical framework is towards empiricism, an "empirical turn" occurs, giving rise to second-generation Cognitive Linguistics. The reasons why cognitive linguists have been attracted to quantitative approaches, particularly a combination of theoretical and historical factors, are described in works by researchers, such as Geeraerts (2006), Gonzalez-Marquez et al. (2007), Glynn (2010b), Glynn & Robinson (2014), and Janda (2013).

3.2 Data-driven semantics

Second-generation cognitive semantics substantiates introspection-driven hypotheses with solid quantitative foundations and an extensive use of corpus techniques. These techniques rely on frequency to operationalize usage-based hypotheses and derive the meaning of a word or construction from its distribution in samples of naturally-occurring language (Gries 2014).

The distributional hypothesis, which states that words tend to have similar meanings when they occur in comparable settings, is the main inspiration for this methodology (Firth 1957, Harris 1954, Bolinger 1968, Harris 1970, Cruse 1986, Miller & Charles 1991). The distributional hypothesis is fully consistent with the usage-based premise that meaning is necessarily contextual. It has been

operationalized in many forms, such as frequency counts, collocational and collostructional techniques, bivariate test statistics, and multivariate statistics (for an overview, see Tummers et al. 2005, Glynn & Fischer 2010, Glynn & Robinson 2014).

Cognitive semanticists have focused on developing quantitative corpus-based approaches to polysemy and near-synonymy that yield cognitively relevant results. Although there are too many methods to list here, they can be divided into two categories: the collocational approach and the behavioral-profile approach (Glynn 2010a).

The collocational approach taps into Firth's intuition according to which "you shall know a word by the company it keeps" (Firth 1957: 179) and holds that patterns of lexical co-occurrence as found in corpora can be used to infer semantic representations for words. A word and its context form a consistent network whose nodes are bound by mutual expectations (Firth 1957: 181). Firth's intuition made its way into cognitive semantics in the early 2000s via a set of related methods that investigate the distributional and therefore semantic interaction between grammatical constructions and lexemes: collexeme analysis (Stefanowitsch & Gries 2003), distinctive collexeme analysis (Gries & Stefanowitsch 2004b), and co-varying collexeme analysis (Gries & Stefanowitsch 2004a). These methods have been applied to various fields, such as diachrony (Hilpert 2006, 2008) and the study of near-synonyms (Desagulier 2014, 2015).

The behavioral-profile approach involves collecting/retrieving a representative sample of a linguistic phenomenon (a lemma or a construction), annotating the dataset for a wide range of formal, semantic, and sociolinguistic features, generating a co-occurrence table and submitting the table to multifactorial exploratory or explanatory statistics to detect meaningful patterns. This approach has been used extensively in studies on polysemy (Gries 2006, Glynn 2009) and near-synonymy (Divjak 2006, Divjak & Gries 2006, Speelman & Geeraerts 2010) at the lexical level. It has also allowed linguists to determine the usage factors that preside over semantic variation at the lexico-grammatical interface (Grondelaers et al. 2008, Heylen 2005, Tummers et al. 2005).

More recently, distributional semantic models (DSMs) have been used in combination with collocational techniques to track semantic shifts in Diachronic Construction Grammar in the wake of the research performed by Sagi et al. (2011) and Kulkarni et al. (2015). Count-based DSMs produce semantic word representations from co-occurrence matrices, i.e., tables of co-occurring words, with target words as rows, and their neighbors as columns. Originally, a co-occurrence matrix is populated with frequency counts (how many times the target word and its neighbors co-occur) and each row is an array of such frequencies, also known as a vector. Hilpert (2016) builds a semantic vector space with the collocates of the most frequent verbs that co-occur with *may* in a 50-million-word sample from a

corpus of American English. The data are arranged in a matrix of co-occurrence frequencies, which are then weighted with positive pointwise mutual information. The matrix is converted into a cosine distance matrix and transformed into a two-dimensional semantic vector space with multidimensional scaling. Diachronic frequency information is then projected onto the reference semantic vector space in the form of contour plots at regular intervals. Hilpert observes that may has shifted away from expression deontic modal meanings toward epistemic ones with a higher degree of informativeness (see also Perek 2016, 2018).

As inspired by neural language models (Bengio et al. 2003, Collobert et al. 2011), and prompted by promising applications (Hamilton et al. 2016), predictive DSMs improve upon count-based DSMs by estimating the probability of finding a context word near a target word rather than generating vectors from mere co-occurrence counts. For this reason, predictive DSMs yield better-quality vectors (Baroni et al. 2014) and are gradually replacing count-based DSMs (whose vectors are both long and sparse) in the detection of shifts in constructional meaning. The efficiency of neural language models in cognitive/constructional semantics have been exemplified by Budts (2020), Budts & Peter Petré (2020), Fonteyn (2021), Fonteyn & Manjavacas (2021), and Desagulier (2022).

By focusing on prototypes and radial networks, by recording and categorizing the various meanings associated with lexical categories as well as their weights, and by deriving meanings from contexts and distributions, recent quantitative and computational implementations of cognitive semantics follow the goals assigned by first-generation Cognitive Linguistics. However, the question remains whether the truly pragmatic nature of usage events is accounted for.

3.3 From cognitive pragmatics to usage-based cognitive pragmatics

Relevance Theory has very little to do with the usage-based approach to language. Following Grice, Sperber and Wilson use rational, philosophical arguments and do not need corpora to test their hypotheses. However, contemporary research has sought to validate Relevance Theory experimentally, which has led to the development of a new paradigm: experimental pragmatics (Gibbs 1999, 2017, Gibbs & Moise 1997, Gibbs & Tendahl 2006, Noveck 2018, Noveck et al. 2021, Wilson & Sperber 2004). Moreover, recent approaches to cognitive pragmatics have freed themselves from Gricean theoretical models. For instance, Bara (2017: 280), who addresses pragmatic issues from a cognitive and interactive perspective (including a neuropsychological approach), considers that “the turning point in cognitive pragmatics is to take into consideration not only communicative competence, but also communicative performance.” In his work, he does not attach

any particular importance to Relevance Theory. Furthermore, his book, *Cognitive Pragmatics: The Mental Processes of Communication*, evokes Sperber and Wilson only to say that he disagrees with their treatment of irony (Bara 2010: 467–468). However, we cannot consider that these cognitive approaches to pragmatics are usage-based only because they have an experimental dimension. They would accept the premise of Cognitive Linguistics according to which knowledge of language is knowledge of how language is used.

One interesting attempt to approach pragmatics from a usage-based perspective is by Schmid (2012), whose volume addresses cognitive pragmatics in several chapters. Schmid (2012: 19) considers that Cognitive Linguistics has not yet developed a satisfactory approach to pragmatic issues:

Relevance theory is not a theory that gives importance to the usage-based approach of language. Sperber and Wilson, following Grice, use rational arguments, just like philosophical argumentation, and do not need corpora to test their hypotheses.

Cognitive Linguistics, with its focus on stored representations and their cognitive foundations, has so far not even attempted, let alone managed, to produce systematic models of how stored knowledge and online processing interact in the construal of linguistically underdetermined, non-explicit and non-literal meanings-in-context.

He therefore proposes an eclectic approach, using Relevance Theory as well as Cognitive Linguistics and experimental pragmatics. He does not examine the problem posed by the theoretical incompatibility between Relevance Theory and usage-based Cognitive Linguistics, but rather juxtaposes these theoretical orientations. For instance, three chapters deal with cognitive pragmatics according to the theory of relevance, and three others deal with usage-based Cognitive Linguistics. Additionally, several chapters are devoted to the cognitive-pragmatic processes that “contribute to the emergence and change of individually entrenched and collectively shared knowledge that is grammar” (Schmid 2012: 17), with particular reference to Traugott & Dasher (2002), Hopper (1987), Langacker (1988), Michael (2003), and Bybee (2010).

Schmid’s acknowledgment of the limitations of this volume is a sign that, in the early 2010s, the integration of the pragmatic field into Cognitive Linguistics remained to be accomplished. The situation has improved in recent years.

4 Pending issues

Given that Cognitive Linguistics subscribes to the view that knowledge of language is knowledge of language use, it is only natural to expect a rigorous and

systematic description of the conditions of language use. In other words, the interest of usage-based linguistics in pragmatics is genuine. Indeed, the paradigm is rife with references to the effects of pragmatic conventions on usage, especially how truth-conditional aspects are systematically overridden by local contextual constraints. However, two open questions remain: (1) can pragmatics integrate the core of Usage-Based Theory and be formalized as a fully-fledged component?; and (2) if so, what kind of pragmatics should be integrated?

4.1 Beyond post-Gricean pragmatics

From the point of view of usage-based Cognitive Linguistics, there are at least three ways of going beyond post-Gricean pragmatics:

- i by integrating relevance theory into a more general framework, where it represents only one aspect of meaning in use;
- ii by reformulating the notion of pragmatic inference based on the the foundational concepts of Cognitive Linguistics;
- iii by integrating a rather general pragmatic component to a usage-based model.

The first alternative is proposed for instance by Kecskés (2002, 2008) and Kecskés & Zhang (2009) within the socio-cognitive approach to communication and pragmatics. In this framework “communication is the result of the interplay of intention and attention motivated by socio-cultural background that is privatized individually by interlocutors” (Kecskés 2012: 180). The dynamic model of communication proposed by these authors is not limited to intention, cooperation, the principle of relevance, and Gricean concepts. It also includes a social part, which is governed by the principles of usage-based Cognitive Linguistics and characterized by egocentricity, salience, and attention.

The second alternative can be found in the works of Panther & Thornburg (1998, 2003b), who construe pragmatic inferences and indirect speech acts in general in terms of conceptual metonymies in the context of speech-act scenarios. This hypothesis has been further developed by Ruiz de Mendoza Ibáñez & Mairal Usón (2007, 2008), Mairal Usón & Ruiz de Mendoza Ibáñez (2009, 2008), Del Campo-Martinez (2011), and Panther (2022). Thornburg & Panther (1997) and Panther & Thornburg (1998, 1999, 2003a) and others in their wake (Ruiz De Mendoza Ibáñez 1997, Ruiz De Mendoza Ibáñez & Pérez-Hernández 2003, Barcelona 2003, 2008) integrate issues that were previously handled by Gricean pragmatics or relevance theory, notably certain types of implicatures, into the field of Cognitive Linguistics. Their strategy is to define scenarios (the Request Scenario, the Suggestion Scenario, the Offer Scenario, the Expression-of-Wish Scenario, etc.), i.e. cognitive domains that consist of several components (Before, Core, Effects,

After), and motivate conversational inferences metonymically within these cognitive domains. For example, in the State-of-Affairs (SoA) scenario, the “Before” element can evoke the “Core” element of the scenario in a metonymic fashion:

The State-of-Affairs (SoA) Scenario (Panther & Thornburg 1999: 337):

- i the BEFORE: necessary preconditions: motivations, potentialities, capabilities, abilities, dispositions, etc., which can bring about the SoA. (ex. to be able to pass the salt);
- ii the CORE: the existing/true SoA (e.g. ask for the salt);
- iii the EFFECTS: necessary consequences immediately following from the SoA;
- iv the AFTER: non-necessary consequences of the SoA.

This analysis does not rule out inference but connects it to conceptual metonymy, a phenomenon that is quite familiar to cognitive linguists. The benefit of this approach is to understand why conversational participants make fast inferences and reach the intended interpretations effortlessly. The difference with relevance theory is that these pragmatic exploitations of metonymy are not considered as belonging to an independent pragmatic module. The metonymies that prompt inference mechanisms are themselves very general but they can also be based on culturally entrenched models. Studies based on this metonymic model of inference tend to describe pragmatic inferences in a variety of contexts using the appropriate metonymies. Thus, cases that are consistent with the theory are found easily. But for the model to be more convincing, more systematic analyses should be carried out in larger corpora in order to evaluate the entrenchment of certain metonymies. Moreover, some implicatures such as irony, seem difficult to treat in terms of just metonymies or metaphors. There is thus still work to do before an exhaustive treatment of pragmatic inferences is obtained in Cognitive Linguistics. Nevertheless, the above suggests that cognitive pragmatics is developing within the theoretical framework of Cognitive Linguistics, as confirmed by Panther’s recent handbook, *Introduction to Cognitive Pragmatics*:

In this book, in line with cognitive linguists such as Schmid and Fauconnier, and by relying on analytical tools developed in contemporary pragmatics, my aim is to demonstrate that a blend of cognitive linguistics and pragmatics can lead to new insights into the mechanisms of language-in-use. (Panther 2022: 19)

Panther explains his theoretical perspective and his disagreement with post-Gricean pragmatics. But at the same time, he presents this perspective as something new, which further confirms the very emergent status of usage-based pragmatics.

The third alternative is Hans-Jörg Schmid's Entrenchment-and-Conventionalization Model (Schmid 2016, 2020). This model places at its center the repetition of usage events, which triggers a reinforcement of conventions (i.e., regularities in linguistic behavior) at the social level and the entrenchment of patterns of associations at the individual cognitive level. In this model, the pragmatic component is mainly included in the "pragmatic associations," which are characterized by three main aspects:

Like symbolic associations, they target meaning; in contrast to symbolic associations, they are context-dependent; and in contrast to all three other types of associations, they have the potential to mediate between entrenchment and conventionalization by linking cognitive activities with interpersonal activities in social contexts. (Schmid 2020: 269)

In Chapter 14, Schmidt shows how his model integrates such pragmatic components as deixis, reference, sentence mode, intonation, stress, information structure, but also implicatures, inferential mechanisms (metaphor, metonymy, irony, and others), connotation and style, register, text type, and genre awareness. All these components are subject to a strengthening through repeated activation. In summary, this model proposes an experience-based representation of pragmatic knowledge in the form of routinized pragmatic associations. It is a very important step in the constitution of a usage-based cognitive pragmatics, because it proposes a general framework that allows for the development of pragmatic analyses in this perspective. But all the analytical work remains to be done: apart from the case of Panther for certain types of inferences, we still do not have any specific cognitive usage-based approach that studies in an original way phenomena such as entailments, semantic presuppositions, conventional implicatures, explicatures, generalized conversational implicatures, particularized conversational implicatures, or pragmatic presuppositions (Moeschler 2012).

4.2 Integrating pragmatics into Construction Grammar

The double question of the theoretical integration of pragmatics and its definition is considered in another influential branch of Cognitive Linguistics: Cognitive Construction Grammar (Goldberg 1995, 2006, 2019). One illustration of the reference to pragmatic factors is made by Goldberg (2006: 183–204), who further develops a theme already central to her previous work (e.g., Goldberg 1995), namely the link between syntactic positions and argument realizations. Goldberg takes a stand against universalist claims such as:

- in a simple active clause, if there is a subject and an object on one side, and a proto-agent and a proto-patient on the other, then the proto-agent role is expressed by the subject, and the proto-patient role by the object (Dowty 1991)
- the number of complements tends to align universally with the number of arguments (Lidz et al. 2003)

Goldberg opposes a relativistic and functionalist view. Contra Dowty (1991), she argues that “(...) the observation that Actors and Undergoers tend to be expressed in prominent slots follows from general facts about human perception and attention” (Goldberg 2006: 189). Contra (Lidz et al. 2003), she rejects their Isomorphic Mapping Hypothesis. On the basis of the Gricean principles of cooperation, relevance, and economy, Goldberg proposes two principles presiding over projection rules grouped under the label “Pragmatic Mapping Generalizations” (Goldberg 2006: 190):

- linguistically expressed NP referents are considered relevant to the message conveyed;
- in the context of describing an event, any relevant semantic participant that is not recoverable in context must be made explicit.

The Pragmatic Mapping Generalizations recognize the existence of strictly contextual and interactional phenomena. However, their formulation indicates that construction grammars passes as much pragmatic information as possible under the caudine forks of the syntax-semantics interface (Desagulier 2011).

Discussing where the line should be drawn between semantics and pragmatics, Cappelle (2017: 118) asks two key questions: (1) “can there be such a thing as ‘the pragmatics of a construction’ without this being a contradiction in terms?”, and (2): “[i]s constructional pragmatics just a kind of constructional semantics?” To the first question, Cappelle answers that pragmatics does have a place in construction grammar. He provides a test to establish whether a meaning has to be stored rather than computed online (Cappelle 2017: Sec. 8.3). This test relies on checking whether another language would express that reading in a very similar way. For example, the excessive resultative *cry one’s eyes out* has no formal equivalent in Dutch, the closest expression being *cry one’s eyes out of the head*. The non-predictability of the English expression serves as evidence against an implicature/inferencing-based pragmatic model in which the literal interpretation is processed first and the hyperbolic reading second, upon the realization that nothing causes the eyes to actually pop out of the subject referent’s head. Cappelle extends the test to patterns such as the *can you X?* construction (‘Can you pass the salt?’), as in (9a):

- (9) a. Can you (please) close the door?

- b. Are you able to (*please) close the door?
- c. Is it possible for you to (*please) close the door?³

As opposed to (9b) and (9c), only *can you X?* in (9a) is compatible with the pre-verbal insertion of *please* in the context of a request. Not all constructions are equal in terms of the amount of pragmatic information that they encode but, whenever they do, storage takes over online computation through conventionalization and the constructions come with pre-installed pragmatics.

The above gives the impression that pragmatics ends up merging with the semantics of the construction. However, as an answer to the second question, Cappelle (2017: Sec. 8.4) claims that constructional pragmatics is not just a kind of constructional semantics. In fact, both can co-exist in the functional pole of the construction without overlap. This is illustrated in (10):

- (10)
- a. If I could say a few words, I would make a sentence.
 - b. If I could say a few words, please.
 - c. If I could say a few words, I would like to thank the organizers.

(10a) is humoristic and reveals that short-circuited implicatures normally apply. In (10b), *could* expresses a request for permission. The functional pole of *if I could* involves a short-circuited semantic interpretation. In (10c), the functional pole involves a short-circuited pragmatic interpretation because of the hedging context (the speaker is not really asking for permission to speak).

In addition to Cappelle (2017), who reflects upon the kind of pragmatic information that should and should not be included in constructions, Finkbeiner (2019) also looks for the kinds of meaning aspects that should and should not count as pragmatic aspects. With respect to “Can you pass the salt?,” the two layers of meaning that exist (i.e., the interrogative reading and the request) should be kept separate. Appropriate criteria are needed to tease apart language conventions from usage conventions. For this reason, Finkbeiner argues for a constructional pragmatics, i.e., a conception of constructional meaning that can accommodate at least four kinds of semantic aspects:

- [+conventional, +truth-conditional] (denotative content),
- [+conventional, -truth-conditional] (use conditions),
- [-conventional, +truth-conditional] (pragmatic enrichment), and
- [-conventional, -truth-conditional] (conversational implicature).⁴

There is consensus that the terms ‘semantics’ and ‘pragmatics’ should be defined more precisely. Unfortunately, the consensus does not seem to apply yet

³This test is originally proposed by Horn (1984).

⁴Based on Moeschler (2018), we could argue that other oppositions would also have a place in the above list: [\pm commitment]; [\pm contextual]; [\pm implicit]; [\pm inferential], etc.

to the definitions themselves. Leclercq (2020: 231) observes that the term 'semantics' has shifted from being a synonym of 'meaning' (Kay & Fillmore 1999) to being a synonym of 'meaning conventions' (Kay & Michaelis n.d.). To avoid confusion, Leclercq sides with Cappelle (2017) and Depraetere (2019) and argues that the terms 'semantics' and 'pragmatics' are most explanatory when defined in truth-conditional terms. Reducing semantics to the encoded content of a construction has the double benefit of handling a missing aspect of Construction Grammar and leaving pragmatics more space in the paradigm's formalism.

All in all, the principled non-separation between semantics and pragmatics, while consistent with the original cognitive commitment and the rejection of a modular approach to language, seems detrimental to the usage-based practice. There are, of course, theoretical and practical reasons to believe that semantics and pragmatics are part of a continuum. However, for the purposes of analysis, linguists often have to isolate, if only temporarily and artificially, encoded meaning from context, interaction, and inference mechanisms, locally or globally. With that said, there is still a long way to go to improve the integration of the pragmatic dimension into a fully usage-based approach to language.

5 Final remarks

Although theoretically relevant, the lack of a principled distinction between semantics and pragmatics in Cognitive Linguistics is detrimental to a certain kind of pragmatics. Indeed, if semantics can handle contextual meaning, little is left for pragmatics. Contextual pragmatics is clearly accounted for (although not always modeled as part and parcel of an explanatory apparatus) and meaning is not reduced to truth conditions, but rather encompasses all kinds of context-related aspects. What is missing is a recognition of the phenomena that inferential pragmatics deals with, i.e., (conversational) implicatures.

In its most recent developments, pragmatics recognizes that some inferences are conventional. From the viewpoint of usage-based linguistics, this means that these inferences are stored in memory rather than computed online. On the one hand, researchers agree that there is a need for a general, stratified theory of meaning compatible with context-specific processes like entailment, semantic presupposition, conventional implicature, and explicature. On the other hand, regardless of the proposed classification, there will always remain conversational implicatures that are unpredictable, not conventionally encoded, and that must be computed online. If we accept that previous pragmatic experience gives rise to inference categories, and because inferences are seldom completely new (most are analogous to previously processed ones), there is room for usage-based pragmatics to determine how different kinds of inferences become entrenched.

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