From X *to* Y: Anatomy of a Constructional Pattern

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Compositionality is undoubtedly one of the hardest problems in linguistics. In decoding theories, the speaker occupies a leading role, having to carefully choose the form that better encodes the meaning to be communicated. In contrast, in inferential theories, the burden is shifted from speaker to hearer: linguistic information typically underspecifies meaning and the hearer must make a number of inferences to bridge the gap between what is said and what is meant. In this article, I argue that constructional meaning can aid the process of sentence meaning formation by providing a scaffold that can help the hearer with the construal operations. Constructions, by providing an additional layer of meaning, constrain the range of possible meanings activated by words thereby reducing the combinatorial explosion when several words are joined together. This process is examined here by analysing the meanings associated with the grammatical construction [*from* X *to* Y], which is connected to a polysemy network of related senses, using examples extracted from a multimodal corpus. A preliminary analysis of the gesturing behaviour associated with the different senses proposed is also included, which can be seen to contribute to the characterisation of the different senses of the polysemy network.

Keywords: construction grammar; polysemy; constructional meaning; multimodality

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From X *to* Y: anatomía de un patrón construccional

La composicionalidad es sin duda uno de los problemas más difíciles de la lingüística. En las teorías de decodificación, el hablante desempeña el papel principal, siendo el responsable de la construcción específica del mensaje y teniendo que elegir con cuidado cuál es la forma que mejor codifica el significado que se desea comunicar. En las teorías inferenciales, la carga se

desplaza de hablante a oyente y es este último el que debe realizar una serie de inferencias para cruzar la brecha entre lo que se dice y el significado que se pretende comunicar. En este artículo, sostengo que el significado construccional puede servir como un nivel medio útil para el establecimiento del significado oracional, proporcionando un andamiaje que puede usarse para seleccionar entre las muchas facetas del significado de las palabras, facilitando de esta manera las operaciones de interpretación necesarias para la construcción del significado. Presento aquí una red polisémica de los sentidos asociados con la construcción gramatical [*from* X *to* Y], que se analiza utilizando ejemplos de un corpus multimodal. También se incluye un análisis preliminar del comportamiento gestual asociado con los diferentes sentidos propuestos, que puede verse como una contribución a la caracterización de los distintos sentidos de la red polisémica

Palabras clave: gramática de construcciones; polisemia; significado construccional; multimodalidad

1. Introduction

The process of meaning construction that takes place during language comprehension is still poorly understood. Prominent among the many riddles to be solved lies the issue of compositionality. At first sight, compositionality seems to be a commonsensical assumption that works fairly well in many cases—for example, knowing the meaning of lexical items such as *John*, *Mary* and *love* apparently enables us to take a reasonable guess at what a sentence such as *John loves Mary* could possibly mean. However, problems with compositionality soon arise: guessing the meaning of two conjoined words often seems to involve a certain level of haphazardness. You may know the meaning of the words *red*, *blue* and *eye*, but the meanings of *red eye* and *blue eye* exhibit unpredicted differences (Valenzuela 2017). Thus, the most frequent meaning of *red eye* denotes redness in the sclera, the white part of the eye, while the meaning of *blue eye* normally activates a different part of the eye—namely, the iris. There are also other possibilities: in digital photography, *red eye* normally denotes pupils showing up as red due to light reflection in the retina. It is extremely easy to come up with more examples: in combinations such as *beach house*, *jail house*, *glass house* and *dog house*, the two words hold a different semantic relation in each case—house at the beach, house that serves as a jail, house made of glass, house for a dog.

Inferential theories of language assign much of the work of meaning construction to the listener. From this perspective, the words uttered by the speaker serve merely as prompts, rough cues with which the listener has to work in order to construct a meaning corresponding to the speaker's assumed communicative purposes (Wilson 1988; Wharton 2003; Tomasello et al. 2005; Stolk et al. 2016). How the listener exactly does this is a rather complicated story, normally involving different levels of information, some of them verbal, some experiential— such as having an understanding of the situation at hand or a set of physical and social expectations about the world—all of which are needed to guess the communicative intentions of the interlocutor. Each theory tries to come up with a list of specific mechanisms, such as the assumption of relevance and its associated processes, as proposed by Relevance Theory (Sperber and Wilson 1995), or a set of complex integration networks, as offered by Conceptual Integration Theory (Fauconnier and Turner 2008).

An intermediate solution, which brings the speaker's meaning closer to the hearer's meaning (Haspelmath 2014), is to use not just the meanings of the words by themselves, but the meaning associated with their skeletal combinations, i.e., constructional meaning (Goldberg 1995, 2003, 2006, 2013). It is beyond the scope of this article to provide a full account of the complexities of Construction Grammar, which is in fact more of an approach to language than a single unified theory.[1] Instead, I focus on one of its more interesting and influential proposals,

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[1]   For a review of a substantial number of the different versions of Construction Grammar, see Francisco Gonzálvez-García (2012); for some concrete analyses, see Javier Valenzuela et al. (2005) and Wotjak Lewandoski and Jaume Mateu (2014).

shared by most constructional approaches: the idea that constructional patterns per se, devoid of any lexical content, are linked to specific constructional meanings that are then fused with the lexical material inserted in the construction. The present article applies these ideas to a constructional pattern whose range of meanings cannot be fully explained by strict compositional analyses: the [*from* X *to* Y] construction.

2. Constructional Meaning and Constructional Polysemy

Construction Grammar can be considered to begin with George Lakoff's study of *there* constructions (1987, 462-585) and Charles Fillmore J. et al.'s pioneering analysis of the construction *let alone* (1988). Since then, many different versions of this approach have been formulated. A nonexhaustive list includes Radical Construction Grammar (Croft 2001), Embodied Construction Grammar (Bergen and Chang 2005), Fluid Construction Grammar (Steels and De Beule 2006) and Sign-Based Construction Grammar (Boas and Sag 2012), to which can be added Ronald Langacker's Cognitive Grammar (1987, 2003), Paul Hopper's Emergent Grammar (1987) and, last but not least, Adele Goldberg's Cognitive Construction Grammar (1995, 2003, 2006, 2013). Despite the differences between them, based on their formalisation schemes or their adaptation to a specific purpose, all constructional approaches share a number of assumptions about the structure of language. To start with, they all take the construction as the basic unit of analysis—a construction being any pairing of parameters of form with parameters of meaning. In this sense, there are constructions at all levels of linguistic analysis.

This article is based on Goldberg's version of Construction Grammar since it focuses more centrally on the exploration of how grammatical configurations themselves, not tied to specific lexical content, can be associated with certain meanings. Goldberg exemplifies this by means of argument-structure constructions. For example, the Ditransitive construction— formed by a grammatical configuration consisting of a Subject, a Verb and two Objects [Subj-V-Obj1-Obj2]—is associated with a meaning of transfer, that is, the Subject is the Agent/Giver, the first Object is the Recipient and the second object—the Patient/Theme—is the Transferred Object (1995). (1) is an example of a prototypical verb such as *give* used with this construction, which is represented in figure 1:

(1) I [Giver] gave my girlfriend [Recipient] a flower [Transferred Object]

FIGURE 1. Structure of the Ditransitive construction
(adapted from Goldberg 1995, 142)
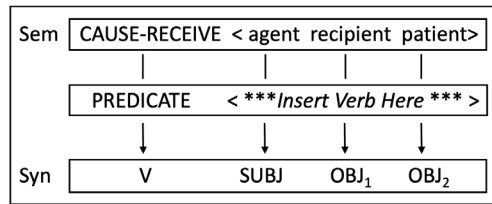
However, since the meaning of transfer is directly associated with the grammatical configuration, it is also active when the construction is used with verbs that do not inherently imply any sort of transfer. For example, the verb *kick* does not denote transfer in itself, but when inserted into this structure—*I kicked my brother the ball*—it does acquire this meaning, roughly "I transferred the ball to my brother by kicking it." There is a process of fusion in which the meaning of the construction and the meaning of the verb are integrated and the final, full meaning of the lexically filled construction emerges. The situation becomes especially interesting for the purposes of this article because this basic constructional meaning can give rise to a number of variants, forming a polysemy network. For example, besides the basic meaning—Agent successfully causes Recipient to receive Theme—the Ditransitive construction is associated with senses like the following: Agent causes Recipient not to receive Theme (2); Agent intends to cause Recipient to receive Theme (3); Agent acts to cause Recipient to receive Theme at some future point in time (4); and Agent enables Recipient to receive Theme (5).

(2) The officials refused him a visa.

(3) Peter wrote Mary a letter.

(4) Peter left Mary a letter.

(5) Peter allowed Mary one cookie.

Further extensions can be added to this list if metaphor is taken into account (Goldberg 1995, 147-50): communication as transfer (6), perceiving as receiving (7) and directed action as transfer (8).

(6) She told Joe a fairy tale.

(7) He showed Bob the view.

(8) She blew him a kiss.

Constructional meaning, therefore, is similar to lexical meaning with regard to its polysemous structure, although it must be noted that the initial sharp distinction between lexical and constructional meaning has been questioned by some authors and both types are more aptly considered as two poles of a continuum (Langacker 1991).

Constructions can also be found at many levels of schematicity. At one extreme, there are fully instantiated, lexically filled constructions, such as we find in idiomatic phrases—e.g., *by and large*, *all of a sudden*. At the other, there are fully schematic constructions, such as the Transitive construction—[S VP NP]—consisting of a concatenation of open syntactic slots. But there are also midlevel constructions, which combine specific lexical items with open slots, a line of research started by Paul Kay and Fillmore with their study of the [*What's* X *doing* Y] construction (1999). Since then, constructions at this level have been shown to be extremely common, and any full description of a language should take them into account. Examples are easy to find: [*How dare* NP VP!]—*How dare you say that!*—[*Far be it from* NP *to* VP]—*Far be it from me to condone tax evasion*—[*What a(n)* ADJ N] —*What a lovely evening*—among many others.

This article is devoted to analysing one of these midlevel constructions, which combines two lexical items, the prepositions *from* and *to*, with two open slots that can be filled in with a wide variety of lexical material, forming the construction [*from* X *to* Y]. Though the meaning associated with this construction might at first seem obvious given that *from* and *to* are spatial prepositions indicating the initial and final point of a displacement, this construction is actually found with a great variety of meanings that differ from the spatial usage, such as *from start to finish* or *from the Beatles to the Rolling Stones*, and even very creative uses such as *from shower to out the door*—the only example found where the Y slot is filled by a prepositional phrase—or *from French fries to riots*—uttered on the Ed Show on the MSNBC Channel in 2010. In what follows, I examine a possible polysemy network for the meanings associated with the [*from* X *to* Y] construction and how these different meanings affect the semantic interpretation of the words inserted into the different constructional variants.

3. STUDY OF THE CONSTRUCTIONAL PATTERN [*FROM* X *TO* Y]

The approach taken in this article is corpus based: 2,000 instances of the construction [*from* X *to* Y] were extracted from the *NewsScape Corpus of TV News* (Uhrig 2018). This corpus is a multimodal database of recorded TV news programs. It comprises around 350,000 hours of TV programs along with their subtitles. Since all subtitles are timestamped, they can be searched—as with any other textual corpus—and the results are linked to the moment in which the search item was uttered. This makes this corpus an ideal tool for studying multimodal information, such as gesturing or

prosody (Valenzuela et al. 2020), which, as will be seen below, proves useful for the characterisation of the polysemy network put forward here.

The pattern [*from* NP *to* NP] was searched for. Due to its high frequency, the search was limited to just one year and the query returned 45,489 hits. Grouping repeated instances together resulted in 31,108 different types, ranging from the most frequent phrase, *from time to time*—repeated 1,386 times—to phrases that were found only once—*from shower to out the door*. A subcorpus was then assembled. From the 31,108 types 2,000 were selected, extracted from three frequency bands: 500 examples of high-frequency items—twelve hits or more—1,000 with frequencies of between four and eight and, finally, another 500 items with a frequency of one. The rationale for choosing examples from three different frequency bands is twofold. Firstly, very frequent phrases often acquire idiosyncratic meanings, thus becoming more idiomatic. The effects of high frequency on word combinations have been widely discussed in the literature; prominent among them is a displacement towards the opacity end of the transparency continuum of compositionality (Bybee 2006). Secondly, items found only once might be more attuned to specific contextual constraints; this sensitivity to context makes them especially interesting as markers of the limits of linguistic creativity, that is, how far a given constructional meaning can be stretched and adapted to a given context. A higher number of midfrequency items—appearing between four and eight times in the corpus—was also selected, since they constitute a suitable level to study the more stable variations in meaning.

All sentences were examined and interpreted in context. The overall goal was to find the whole range of constructional variants—the different meanings associated with the construction—and, accordingly, the semantic relationship existing between elements X and Y of the construction was noted down. Examples indicating similar meanings were grouped together so that eventually a list of categories emerged. The classification process involved two rounds: an initial tentative one and a second for fine tuning. Though the classification was built from scratch, given the special nature of the corpus used—an oral corpus—the few other studies that have explored the polysemy of this construction were taken into account (Bebeniec 2012; Garai and Ibarretxe-Antuñano 2012; Zima 2017).
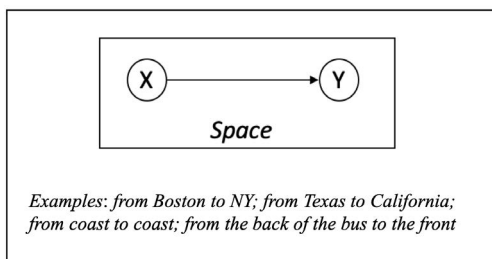
4. Constructional Meanings Associated with the [*from* X *to* Y] Construction

4.1. Spatial [*from* X *to* Y]

X and Y are two different spatial points and the construction [*from* X *to* Y] indicates either physical motion from X—the source—to Y—the goal—or just the distance that separates them. This is most probably the prototypical sense given the centrality of space in cognition, it having been shown to serve as an anchor for many other domains (Clark 1973; Lakoff and Johnson 1980; Núñez and Cooperrider 2013). Though the most typical

case is displacement from one point to another, there are examples where arguably there is no physical motion—*the distance from one house to another*. In these cases, the construction is used to indicate the spatial separation between two points. Many scholars would classify such examples as cases of fictive motion, where a path is followed mentally (Talmy 2000).

FIGURE 2. Spatial [*from* X *to* Y]

Examples: *from Boston to NY; from Texas to California; from coast to coast; from the back of the bus to the front*

Within this category there are also cases where X and Y are used in orientational frameworks, rather than being specific or definite places—*The Sirocco blows from East to West*. Generally speaking, these spatial cases tend to cluster around certain categories, such as cardinal points—*from East to West*—names of specific places—*from Hollywood to Washington*, *from Hawaii to California*—or even objects or parts thereof—*from the bed to the bathroom*, *from the back of bus to the front*.
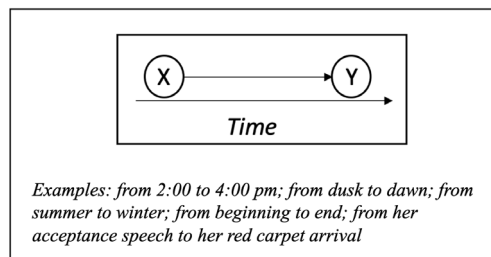
4.1.1. Spatial [*from* X *to* X]

There is a variant in which there is just one spatial point repeated twice and we find the structure [*from* X *to* X], as in *from house to house*, *from door to door*, *from hospital to hospital* or *from farm to farm*. In these cases, an emergent meaning is triggered: the notion of recurrence. In the sentence *the police went from house to house*, the implication is that the motion continued. In this case, the police did not visit two houses only; the two houses mentioned are just two examples from a long list of houses visited—actually, all the houses in the area concerned. The same happens in *from door to door* or *from hospital to hospital*. In order for this type of reading to work, the reference of X has to be unspecific—that is, when the police go from house to house, each house is a different one. It is thus not possible to find this construction with specific reference objects—??*the police went from John Smith's house to John Smith's house*.

4.2. Temporal [*from* X *to* Y]

X and Y are two points in time and the construction [*from* X *to* Y] indicates a period of time that elapses between X—starting point—to Y—end point. Since time is

unidirectional—it flows from the past towards the future—X is always located earlier than Y. In this sense, if we hear *from four to six p.m.* we understand that two hours have elapsed. However, if we hear *from six to four p.m.* we would take six as occurring in the morning and we would therefore guess that a time lapse of ten hours is being referenced. In no way can the normal flow of time between points X and Y be inverted. This is the case even for cyclic events, such as vacations or seasons, which nevertheless follow a very definite order. Thus, the phrase *from winter to summer* includes the passing of spring in its middle point, while *from summer to winter* includes fall.

FIGURE 3. Temporal [*from* X *to* Y]

Examples: *from 2:00 to 4:00 pm; from dusk to dawn; from summer to winter; from beginning to end; from her acceptance speech to her red carpet arrival*

Since X and Y signal a point in time, many of the lexical elements used in this construction are clustered around categories, such as calendrical units—*from January to March*, *from Friday to Sunday*—hours—*from 5:00 to 6:00 p.m.*—or seasons—*from summer to winter*. In these demarcative temporal phrases (Núñez and Cooperrider 2013; Pagán-Cánovas and Valenzuela 2017; Pagán-Cánovas et al. 2020), there is sometimes a coupling of the lexical expressions chosen to signal beginning and end, giving rise to highly entrenched phrases. For example, *beginning* tends to correlate with *end*, *start* is associated with *finish* and *inception* with *completion*. Table 1 shows a list of the co-occurrences found in the *NewsScape Corpus*. This does not mean that other variants are not found; much to the contrary, these patterns are highly flexible and all sorts of open-ended variants occur—*from the end of the Star Wars saga to the rise of the new sci-fi.*

TABLE 1. Frequency of paired combinations of X and Y in [*from* X *to* Y]

		TO		
		end	*finish*	*completion*
FROM	*beginning*	1030	2	5
	start	38	3677	0
	inception	0	0	14

Another frequent possibility is the insertion of what could be called time-anchored words in X and Y, that is, words strongly connected to a temporal point—*from kindergarten to high school*. In many cases, it is precisely the insertion of elements X and Y into the construction that forces a temporal reading of them—a process that has been termed *coercion* (Jackendoff 1997; Michaelis 2002). In all probability, hearing either *iPhone* or *iPad* on their own does not activate a temporal reading. However, their dual insertion in this construction—*from the iPhone to the iPad*—triggers a temporal interpretation; in the corpus, this example was used to describe the short period of time that elapsed between the development of one device and the next. It is thus similar to the transfer reading acquired by the verb *kick* in the Ditransitive construction mentioned in section 1. I have found very creative examples that can only be accounted for in this way—*from shower to out the door (in five minutes)*. In this case, the meanings of X—*shower*—and Y—*out the door*—are coerced into a temporal reading, highlighting the (short) temporal period that elapses from the beginning of the temporal stretch—the shower—to its end—leaving the house.

4.2.1. Temporal [*from* X *to* X]

Temporal constructions also admit the repetition of element X; in fact, as has already been mentioned, the most frequent phrase in the corpus is *from time to time*. This is a very productive variant with many examples, such as *from year to year*, *from month to month*, *from meal to meal*, *from moment to moment*, *from hour to hour*, *from season to season*, *from minute to minute*, *from week to week* and *from day to day*. The meaning of these items is, however, not always the same. As mentioned in section 3, high-frequency examples show a very clear tendency towards idiomatic meanings (Bybee 2006). *From time to time* has a meaning not shared by other [*from* X *to* X] temporal constructs, namely, irregularity—when something is done from time to time, it means it is done occasionally, with no regularity. Similarly, another very frequent phrase, *from day to day*, has also become idiomatic, with its attendant idiosyncratic meaning—without thinking about the future.
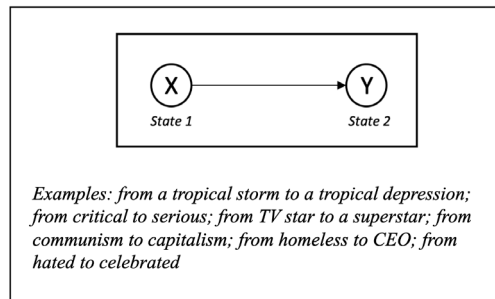
In other examples that use time units, such as *from hour to hour*—also *minute to minute*, *week to week* or *month to month*—the notion of recurrence is again present, as in the spatial case. The two time units mentioned represent a long string of units, not just two. They are associated with the meaning of rapid and continuous change: something changes very quickly and is different every hour/minute/day/month.

4.3. Change of State [*from* X *to* Y]

X and Y designate two different states and the construction indicates that a particular element has undergone a change of state, X being the initial state and Y the final one. The state can be physical—*from tropical storm to hurricane*—or abstract—*from bad*

to worse. This is probably the most flexible, encompassing category on the list. In a way, it is an extension of the main sense, the spatial one. Lakoff & Johnson suggest that changes of state are naturally linked to changes of place—motion—and thus includes these examples in the metaphor CHANGES ARE MOTIONS (1980). The states being described can thus be physical—*from man to werewolf*, *from tropical storm to hurricane*—or mental/emotional—*from happy to sad*, *from triumph to tragedy*. The state changes can be gradual—*from man to werewolf*—or abrupt—*During his speech, he can go from English to Spanish without noticing*.

FIGURE 4. Change of state [*from* X *to* Y]

Examples: *from a tropical storm to a tropical depression; from critical to serious; from TV star to a superstar; from communism to capitalism; from homeless to CEO; from hated to celebrated*

As in previous categories, it is not infrequent to find cases of coercion. By itself, *selling newspapers* describes an activity and *conquering ITT*—an American corporation initially devoted to international communications—describes a very different one. However, in the phrase *the girl that went from selling newspapers to conquering ITT*, there is a person—*the girl*—who goes from performing the former activity to performing the latter. This triggers a number of inferences associated with a change-of-state interpretation: there are great differences between someone selling newspapers—e.g., lack of money or prestige—and someone heading a powerful company—the opposite.

Finally, in this construction there is no possibility of repeating the X element, that is, [*from* X *to* X] is not possible. This makes sense bearing in mind that since X and Y are two different states, it would be difficult to interpret phrases like *from sad to sad* or *from werewolf to werewolf* by reference to a change-of-state reading.
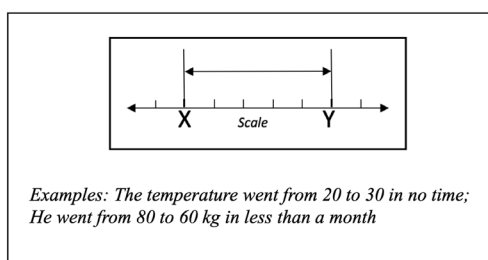
4.4. Interval [*from* X *to* Y]

In this construction, X and Y are two points in an ordered continuum that forms some sort of scale. There are three variants, each highlighting a different part of the scale interval defined by X and Y. The most frequent one indicates the exact quantitative variation of a given transformation. The other two less frequent variants are explained below.

4.4.1. Interval [*from* X *to* Y]: Variation Amount

In this construction, X and Y are used as limits to indicate the exact range of variation that something has undergone. This reading is related to the change-of-state variant; X is used to indicate the initial and Y the final quantity of the resulting state. Contrary to most of the constructions seen so far, in this one the direction is not fixed, so that it can equally be used to indicate an increase—X smaller than Y—and a decrease—X bigger than Y—as the two-headed arrow in figure 5 indicates. Given the type of meaning it expresses, the categories to which X and Y belong are typically units of measurement, such as inches, feet, miles, kilos, percentages, etc.
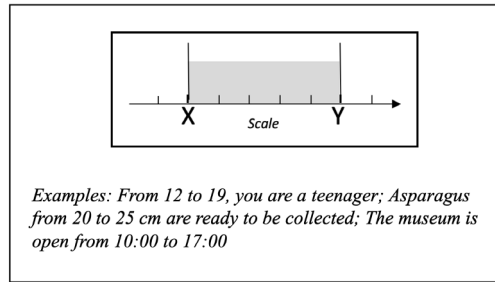
FIGURE 5. Interval [*from* X *to* Y]: variation amount

Examples: *The temperature went from 20 to 30 in no time; He went from 80 to 60 kg in less than a month*

Again, the repetition of X—[*from* X *to* X]—is not possible in this case: given that the construction indicates amount of variation, if X and Y convey the same quantity, there would be no change—??*from 5 degrees to 5 degrees*—and the meaning of the construction would not be instantiated.

4.4.2. INTERVAL [*from* X *to* Y]: VALID RANGE

In this variant of the construction, X and Y are two limits on a scale that define the range within which some condition holds. Thus, the sentence *From 12 to 19 you are a teenager* is not primarily aimed at indicating the passing of time—though it does, once again, fictively—but instead defines the lower and upper limits of the period of adolescence. This time, and in contrast to the previous variant, X cannot be higher in the scale than Y—??*From 19 to 12, you are a teenager*. And as in the previous subtype, this construction variant does not admit the repetition of X, since once again it is not compatible with its basic meaning—??*From 12 to 12, you are a teenager*.
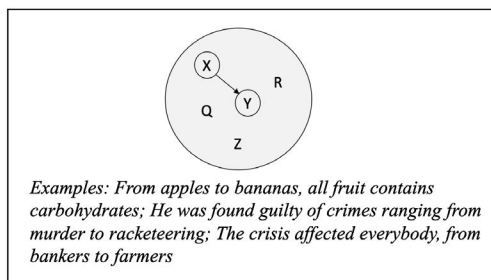
FIGURE 6. Interval [*from* X *to* Y]: valid range

Examples: *From 12 to 19, you are a teenager; Asparagus from 20 to 25 cm are ready to be collected; The museum is open from 10:00 to 17:00*

4.4.3. Interval [*from* X *to* Y]: Approximate Quantity

This construction is used to indicate an approximate quantity where X and Y are the minimum and maximum levels of a given measurement; it can thus be paraphrased by *approximately*. This variant is again predicated upon a directed scale. It would thus be unnatural to use the phrase *from fifty to forty kg* to describe someone's approximate weight. As in the other subtypes of the interval construction, there is no way in which we can accommodate the [*from* X *to* X] format in this meaning—??*He weighs from sixty to sixty kg, approximately*.

FIGURE 7. Interval [*from* X *to* Y]: approximate quantity

Examples: *He must weigh from 40 to 50 kg; from one to two inches; from 50 to 60*
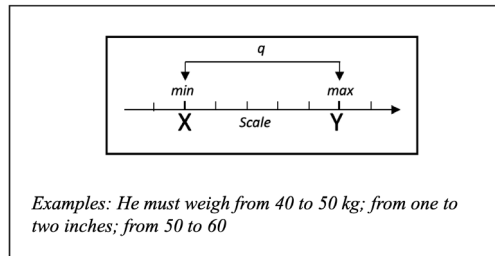
4.5. Inclusion [*from* X *to* Y]

In categories that encompass a number of discrete objects, this construction can be used to designate the whole category—or an unspecified portion of it—by choosing two random elements, X and Y, as examples. In cases where the category can be structured using some type of scale, X and Y tend to signal the extremes.

FIGURE 8. Inclusion [*from* X *to* Y]

Examples: *From apples to bananas, all fruit contains carbohydrates; He was found guilty of crimes ranging from murder to racketeering; The crisis affected everybody, from bankers to farmers*

In the majority of cases, the elements belonging to the category, which can be a few or many, are not ordered in any specific way. In a sentence such as *From the Beatles to the Rolling Stones*, *all rock bands have had their scandals*, the order of X and Y can be reversed with no change in meaning. The same is seen in other examples—*from apples to bananas*, *from murder to racketeering*. One of the characteristics of this construction is that X and Y can belong to an open range of categories: fruit, rock bands, jobs, drugs, crimes, politicians, books, cars, etc. Not only can this construction be used with any category, but even with ad hoc categories not stored in long-term memory, but rather constructed on the fly for a specific purpose (Barsalou 1983). The typical example is "things you'd save from your house in the event of a fire"; even if you do not have a list of items stored in long-term memory, you can create it quite quickly on the spot. This constructional variant is very naturally used in such cases: *In the event of a fire*, *you'd try to save anything that is small and valuable*, *from money to documents*.

A special feature of this construction is that since it is used as a way of enumerating the whole range of possibilities, it allows for the inclusion of more elements without a change in meaning. Thus, the meaning of (a) and (b) in (9) and (10) is roughly the same:

(9)   a. From apples to bananas, all fruit is healthy. [*from* X *to* Y]
       b. From apples to bananas to oranges, all fruit is healthy. [*from* X *to* Y *to* Z]

(10) a. From the Beatles to the Rolling Stones, British music had a strong influence in the States. [*from* X *to* Y]
       b. From the Beatles to the Rolling Stones to the Kinks to Gerry and the Pacemakers, British music had a strong influence in the States. ([*from* X *to* Y *to* Z *to* R])

In most other categories, this is not possible. For example, in temporal phrases the addition of further points would seem unnatural and distort the main meaning—??*from winter to summer to fall*, ??*from 10 to 11 to 12 am*. Finally, as in other cases, there is no possibility of having X repeated—??*From the Beatles to the Beatles*, *all groups are great*.

5. GENERAL DISCUSSION OF THE SENSE CLASSIFICATION

As in many classification schemes, not only are there items that are harder to classify, but a certain degree of overlap among senses is difficult to avoid. For example, though their basic meaning is clearly different, there are some obvious commonalities between change-of-state and temporal readings. A change of state, by its very nature, involves two different points in time: at *t1* an element is found in a given state (*s1*) but has changed state to *s2* at *t2*. That is why (11) can be interpreted as referring to changes of state taking place over a certain temporal span:

(11) from one job to another

In this sense, some examples can be considered to belong, to differing degrees, to several categories at the same time. For example, *from kindergarten to university* involves a change of state, a temporal reading and perhaps even an interval reading, since kindergarten and university are the two extremes of the educational continuum. Other overlaps involving time are also possible: in *Christmas goes from December to January*, it is possible to extract both a temporal and an interval reading.

Nonetheless, the sense classification put forward in this article can very nicely explain why some combinations of words, even when they are the same words, can convey different meanings depending on the context. For example, the phrase *from farm to farm* involves different readings in examples such as *He travelled from farm to farm* versus *Production changes from farm to farm*. Coercion effects hinge on the fact that word meanings have many facets—different aspects that can be activated to different degrees by context (Pustejovsky 1995). The various constructional patterns indicated here constrain which facet is activated in a given case.

6. ADDING ANOTHER LAYER: A BRIEF LOOK AT GESTURING INFORMATION

Given that the construction [*from* X *to* Y] is associated with an array of distinct polysemous senses, there is the possibility that these differences in meaning are linked to different formal parameters when expressed by other semiotic systems; that is, the different meanings could be linked to different gesturing behaviours. Gestures have gained a great degree of importance in the last few decades (McNeill 1992; Kendon 2004; Cienki and Müller 2008). They have been shown to work quite effectively as a window onto conceptualisation that can provide an insight into mental representations (McNeill and Duncan 2000).

The audiovisual corpus used in this study provides access to videos that show the speakers delivering the phrases while simultaneously making accompanying gestures. The 2,000-item subcorpus of examples was, however, too big for a careful examination, so I randomly selected 200 tokens from each of the five main categories identified in

the previous section. This initial list of 1,000 tokens and their associated video clips was analysed in a stepwise process. First the repeated or broken links were discarded; then, the rest were carefully examined and divided into three categories: clips where a voice could be heard but the speaker did not appear on screen (voice-over); clips where the speaker could be seen, but their hands were hidden because the clip was a close-up or some obstacle was hiding the hands; and clips where the speaker's hands were clearly visible while they were uttering the construction. The percentages of each of these categories are shown in table 2.

TABLE 2. Filtering of clips with utterances of [*from* X *to* Y]

	Voice-over	Hands not visible	Visible hands
Spatial	42.86 %	25.82 %	31.32 %
Temporal	32.54 %	32.54 %	34.92 %
Change of state	36.99 %	32.88 %	30.13 %
Interval	55.85 %	15.96 %	28.19 %
Inclusion	48.98 %	31.63 %	19.39 %

Next I focused on the clips with visible hands and categorised them into three classes:

- Those where speakers do not move their hands.
- Those including a gesture that is either clearly nonsynchronised with the phrase or unrelated to the meaning of the phrase—a beat gesture (McNeill 1992). Beat gestures are "simple, rhythmic gestures that do not convey semantic content" (Alibali et al. 2001, 169) and are usually paired with the rhythm of speech and used for emphasis and as an aid to syntactic parsing.
- Those where the speaker makes a gesture that is clearly synchronised with the phrase and connected to its meaning—what Martha Alibali et al. call representational gestures (2001). Such gestures are usually made on one of the three spatial axes— lateral, sagittal or vertical. That is, the speaker moves their hands in a right-to-left or left-to-right direction on the lateral axis, in a front-back direction on the sagittal axis or up-down direction on the vertical axis.

Consistency in the distinction between nonsynchronised or beat gestures and representational or semantic ones was ensured by the inclusion of a second coder for this phase of the process. A high level of agreement was found between both coders—92% congruency; Cohen's κ= 0.80. The resulting classification is shown in table 3.

TABLE 3. Gesture frequencies for utterances of [*from* X *to* Y]

	No gesture	Nonsynchronised	Semantic gesture
Spatial	17.54 %	43.86 %	38.60 %
Temporal	23.73 %	37.29 %	38.98 %
Change of state	31.82 %	34.10 %	34.98 %
Interval	26.42 %	33.96 %	39.62 %
Inclusion	26.32 %	47.37 %	26.31 %

The final number of gestures was uneven across the different categories. Specifically, gestures were underrepresented in the categories of interval and inclusion, so the search list in these two categories was augmented until there was a roughly equivalent number of gestures for all categories.

I then proceeded to examine the different types of representational gestures for the different senses, classifying them with respect to the axis used by the speaker. Again, to ensure the reliability of the results a second coder was used—88% agreement; Cohen's = 0.76. The results are shown in table 4.

TABLE 4. Different types of gestures for utterances of [*from* X *to* Y]

	Lateral	Vertical	Sagittal	Enumeration
Spatial	81.81 %	13.64 %	4.55 %	
Temporal	91.30 %	4.35 %	4.35 %	
Change of state	73.33 %	6.67 %	13.33 %	6.67 %
Interval	76.20 %	23.80 %		
Inclusion	65.00 %	23.08 %	7.69 %	3.85 %

As can be seen, very clear differences were found in the types of gesture associated with the utterance of the [*from* X *to* Y] construction depending on the sense being evoked. More lateral gestures were found in temporal senses than in the others: 91.3% of the gestures performed while uttering constructions with this sense were lateral. This is coherent with a whole range of research that has observed the activation of a lateral timeline in temporal expressions (Cooperrider and Núñez 2009; Valenzuela et al. 2020). Interestingly, lateral gestures accompanying temporal readings of [*from* X *to* Y] had a much higher percentage of left-to-right directionality than other categories, congruent with the flow of time in Western cultures (Santiago et al. 2007). Vertical gestures were found to a higher degree in interval—23.80%—and inclusion senses—23.08%—and to a lesser degree in spatial senses—13.64%. This seems logical and could be iconic in the spatial sense—in cases where utterances describe a physical displacement between two vertically aligned points. However, in

the case of the intervalic sense it could signal a metaphorical reading, related to the metaphor MORE IS UP (Lakoff and Johnson 1980). Sagittal gestures had a higher frequency in change-of-state sense utterances— 13.33%—than in other senses; the exact reason why this is the case should be further researched. Finally, two of the senses included a different type of gesture that I have named enumeration, which is connected with the semantic content of the phrase—and hence is not a standard beat gesture—but does not show any displacement on any of the three spatial axes. Rather, it involves a specific positioning of the fingers to emphasise the poles alluded to by the X and Y in the construction as in a counting gesture, with for example the thumb being raised and shown to reinforce the X and then the index finger being added to the thumb in a second phase of the gesture to signal the Y. This type of gesture was found in change-of-state and interval readings; again, this type of gesture has not been researched so far—but see Adam Kendon (2004) for related cases—and further research should be conducted for a more precise characterisation.

7. FINAL DISCUSSION AND CONCLUSION

The present article has proposed a polysemy network for the meanings associated with the construction [*from* X *to* Y]. It is my belief that establishing a neat polysemy network for a linguistic item of any type—be it a word or a construction—with well-defined, clearly differentiated senses can only be regarded as an academic exercise. A more appropriate take on this topic could come from the adoption of a dynamical system perspective, which regards concepts—and word meanings—not as static entities, but as protean elements, always contingent on contextual pressures (Port and Van Gelder 1995; Casasanto and Lupyan 2015; Barsalou 2016). From this perspective, concepts— and word meanings or senses—are not things we *have* in our minds, but things we *do* with our minds. Thus, as Lawrence W. Barsalou foreshadowed, every time we use a word, we activate a different meaning (1987).

If that is the case with single lexical items, combinations of several words, each of them with their almost infinite multifaceted nature, can seem like barely predictable kaleidoscopic processes. What the present article proposes is that the combinatorial explosion triggered by the conjunction of two or more complex word meanings can be constrained by their fusion with the meanings associated with the grammatical construction into which the words are inserted. These constructional senses can be seen as attractors in a semiotic landscape, where the different contextual clues push the construal towards one of the possible readings (figure 9).

FIGURE 9. Senses as attractors in a dynamic landscape
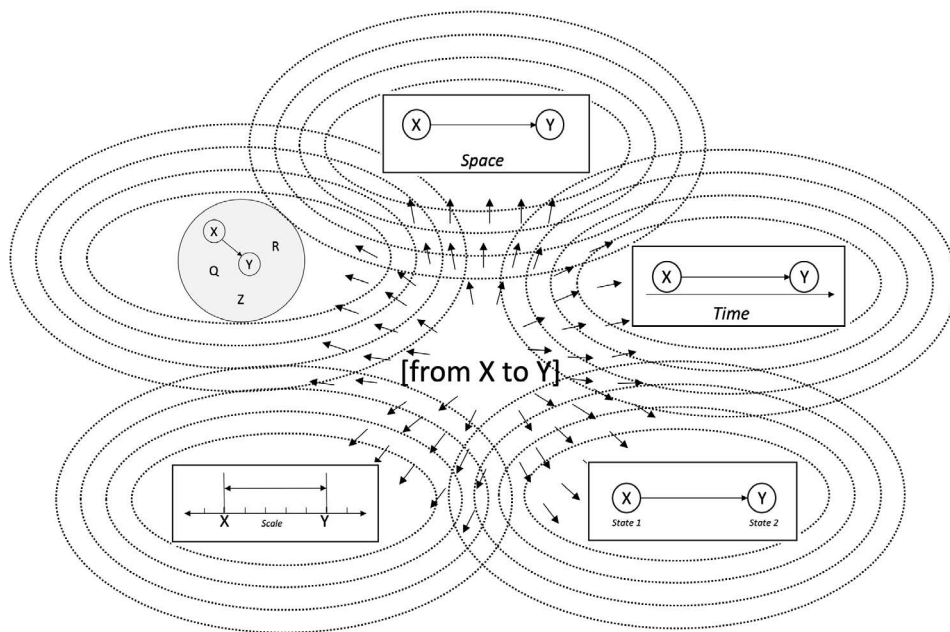
As discussed above, the words that can be inserted into the [*from* X *to* Y] construction can be very diverse and can be characterised as belonging to very different domains. There are words such as the names of cities or others strongly associated with specific physical locations; some are of a temporal nature; some describe different types of states or different units of measurement. The specific words involved will, accordingly, tilt the meaning towards one of the senses in the polysemy network. The different constructional senses are typically associated with specific classes of elements—in spatial readings, X and Y are quite often places and cardinal points; in temporal senses, hours, dates, seasons and other temporally anchored points; in interval readings, X and Y tend to be units of measurement, and so on. The linguistic context is another clue in the activation of one of the senses. For example, a sentence that begins with *in the years that went {from* X *to* Y} is going to push towards a temporal reading of any elements that are inserted as X and Y. Other linguistic clues can push toward a spatial reading—*It's twenty km {from* X *to* Y}—an inclusion reading—*This will have an impact on all elements, {from* X *to* Y} —or an interval reading—*We see an increase in heat {from* X *to* Y}.

As mentioned in section 4, the list of constructional meanings can assist the hearer in making the correct choice of the meaning facet to be activated for a given word in a given context. Thus, if the words *dog* and *wolf* are inserted into a contextually

leaning temporal construction—*The transition from wolf to dog started many years ago*—the linguistic context pushes in favour of a temporal reading. In order to activate this construal seamlessly, it becomes necessary to trigger an evolutionary reading such that the sentence is taken to describe the biological time that the evolution of one species into the other took. This therefore prompts the hearer to add the relevant inferences until a sensible facet of the word and the constructional meaning can be fused. This is reminiscent of the mechanism described by Arthur M. Glenberg and David A. Robertson in their Indexical Hypothesis, which describes understanding in terms of affordance meshing (1999). That is, if the affordances of the elements included in a sentence can be meshed—*Hang the coat on the back of the chair*—then a sensible interpretation of the sentence can be constructed. By contrast, if the affordances cannot be meshed—??*hang the coat on the tea cup*—the sentence is not understood. In the same way, in order to correctly understand an instance of the [*from* X *to* Y] construction, the fusion between one of the possible constructional senses and an available and relevant meaning facet of the words inserted into X and Y must be possible. Needless to say, further work is needed to spell out in more detail how this process operates.

Regarding constructions as multimodal gestalts brings forth another element that could sway interpretation towards one or another sense. Although the conclusions reached in this article can only be taken as preliminary—or even as mere suggestions given the small dataset analysed—the fact that different gestures associated with each sense have been identified could mean that gestural information is an important factor to be taken into account, much in line with other research on multimodality in Construction Grammar (Steen and Turner 2013; Pagán-Cánovas et al. 2020). If it is confirmed that different senses are associated with specific gestural forms, then this could be one of the factors used by hearers in the selection of the relevant sense. For example, Judith Holler et al. found that questions that included gestures obtain faster responses, thus proving that combining signals from different semiotic channels enhances the efficiency of the communicative system (2018). In the context of the present article, these results suggest an interesting avenue for future research aimed at a more precise evaluation of the role of gesturing in the process of sense activation.

Finally, it has also been determined that frequency effects play a very important role in the construction of meaning in the [*from* X *to* Y] construction. Thus, highly frequent phrases, such as *from time to time* and *from day to day*, invoke idiosyncratic meanings unrelated to the senses typically associated with the construction; that is, the known association between high frequency and semantic opacity is also at work here (Bybee 2006). Phrases extracted from the middle band of frequency conformed more easily to the parameters described by the proposed polysemy network. Finally, coercion effects were more frequent in cases occurring only once. That is, when the words inserted do not belong to the typical domains associated with the different senses, contextual cues coming from outside the construction—sentential context—are responsible for

forcing a construal that can achieve the smooth integration of one of the senses of the construction with a relevant meaning facet of the words inserted therein.

In summary, although compositionality remains one of the thorniest problems for language processing, I propose here that constructional meaning provides a scaffold that can be used to select between the many meaning facets of words, thus aiding the construal operations needed for meaning construction. Though human creativity, still poorly understood, no doubt plays a necessary part in the solution, the conundrum can be made a bit less obscure by examining these and other midlevel mechanisms.[2]

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