

## You don't get to see that every day

Hilpert, Martin; Perek, Florent

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*You don't get to see that every day:*

On the development of permissive *get*

Martin Hilpert, University of Neuchâtel

Florent Perek, University of Birmingham

## Abstract

This paper contributes to the study of grammaticalization phenomena from the perspective of Construction Grammar (Coussé et al. 2018). It is concerned with modal uses of the English verb *get* that express a permitted action, as in *The prisoners always get to make one phone call*. Different views exist on the contexts in which permissive *get* emerged. Gronemeyer (1999: 30) suggests that the permissive meaning derives from causative uses (*I got him to confess*). An alternative is proposed by van der Auwera et al. (2009: 283), who view permissive *get* as an extension of its acquisitive meaning (*I got a present*). We revisit these claims in the light of recent historical data from American English. Specifically, we searched the COHA (Davies 2010) for forms of *get* followed by *to* and a verb in the infinitive. Besides examples of permissive *get*, we retrieved examples of obligative *got to* (*I got to leave*), causative *get* (*Who did you get to confess?*), possessive *got* (*What have I got to be ashamed of?*) and a category that we label inchoative *get* (*You're getting to be a big girl now*). Drawing on distributional semantic techniques (Perek 2016, 2018), we analyze how permissive *get* and inchoative *get* developed semantically over time. Our results are consistent with an account that represents an alternative to both Gronemeyer (1999) and van der Auwera et al. (2009), namely the idea that permissive *get* evolved out of inchoative uses that invited the idea of a permission.

## 1 Introduction

The English verb *get* is one that can be analyzed as being highly polysemous. Besides its basic meaning of obtaining, it conveys extended lexical meanings such as movement and understanding (Biber et al. 1999: 376), as well as meanings in constructions that are

grammaticalized to different extents, which encode the beginning of an action or state, obligation, causation, and the passive, amongst several others. The examples below, all taken from the Corpus of Historical American English (Davies 2010), illustrate some of these constructions and their meanings.

- (1) It's about a jacket, the one Daniel says he got for his birthday.
- (2) Get into the house.
- (3) Though he didn't get the jokes, he enjoyed our hilarity.
- (4) Now, let's get going.
- (5) This has got to stop, once and for all!
- (6) Doctor, my wife is very ill; can I get you to come at once and see her?

The present paper is concerned with yet another construction with *get*, which is used to express a permitted action, privilege, or opportunity, as illustrated in the examples below.

- (7) In the movies the prisoners always get to make one phone call.
- (8) This is a big day for the guards. They get to remind us who's boss.
- (9) We may not get to see the good times, but maybe our great-grandchildren will.

The meaning of permission puts this use of *get* into the domain of deontic modality (Palmer 1990: 69). As an emerging construction in the English system of modality (cf. Krug 2000), it represents an alternative to established modal auxiliaries such as *may* and *can*, which are also used to express permission (Quirk et al. 1985: 221), amongst other meanings. Dixon (2005: 173) characterizes *get to* as a semi-modal. Bruckmaier (2017: 254) uses the term *catenative get*, which captures the fact that it combines with another verb. The examples of permissive *get* above exhibit a semantic range that go beyond mere permission. In (7), there is a granting authority that gives the prisoners permission. In example (9), there is no specific granting authority, so *get* really expresses an opportunity rather than a permission. In between the two, example (8) expresses a privilege that is ultimately due to a granting authority, which however is not part of the situation that is verbalized. The semantic profile of permissive *get* raises the questions of how this construction emerged historically and how it relates to other lexical and grammaticalized uses of *get*. Early instances of permissive *get*

such as (10) and (11) date back to Early Modern English times, at which point a range of other grammaticalized uses were in existence already. This means that there are different potential sources that have to be weighed against each other.

(10) Then get they to be chaplines to honorable and noble personages. (1583, OED)

(11) By what meanes got's[t] thou to be releas'd. (1591, OED)

The main question that this paper aims to address is how permissive *get* can be tracked back to its source or, considering the possibility of multiple-source constructions (De Smet et al. 2015), its sources. What kind of evidence would allow us to re-trace the steps of the semantic development that has taken place? Rather than focusing on corpus data from Early Modern English, which would directly document the emergence of permissive *get*, we will opt for a different approach. Using the COHA (Davies 2010), we analyze data that is historically more recent, namely from the 19th and 20th century, but also more comprehensive, which means that we can employ methods from distributional semantics that require amounts of data that surpass what is currently available in historical corpora. The examples that we find in the COHA are numerous enough to allow us to determine how the semantic spectrum of permissive *get* has changed as a whole over the past two centuries and how these changes relate to other uses of *get* during the same time. Based on this perspective, we will critically examine two proposals that have been made with regard to the emergence of permissive *get*. As will be explained in more detail in the next section, Gronemeyer (1999: 30) invokes syntactic evidence to suggest that the permissive meaning of *get* derives from causative uses, as in *I got him to confess*. A different account, based on a typological generalization and a semantic map approach, is proposed by van der Auwera et al. (2009: 283), who view permissive *get* as an extension of its acquisitive meaning, as in *I got a present*. This paper will advance an alternative to both Gronemeyer (1999) and van der Auwera et al. (2009), namely that permissive *get* evolved out of inchoative uses that invited the idea of a permission.

Our proposal, in a nutshell, is that examples in which an inchoative process was construed as desirable for an affected party evoked permissive meaning as a conversational implicature at first, and that this implicature gradually conventionalized. More specifically, our research hypothesis can be described as follows. We propose that permissive *get* derives

from inchoative *get*, which makes it a case of secondary grammaticalization (Breban 2014). We advance two predictions, which we motivate with independently established ideas from the grammaticalization literature. First, we follow Hopper (1991: 22) in the assumption that grammaticalized constructions retain traces of their lexical history, a phenomenon known as lexical persistence. This should be apparent in the collocational profile of permissive *get*. Second, we draw on Himmelmann's (2004: 32) concept of host-class expansion, which captures that grammaticalized constructions gradually expand the range of their lexical fillers. Diachronic corpus data of permissive *get* should reveal progressive host-class expansion. Our study aims to contribute to the growing research tradition of Diachronic Construction Grammar (Traugott and Trousdale 2013, Barðdal et al. 2015, Sommerer and Smirnova 2020), specifically as it tries to come to terms with the role of grammaticalization phenomena (Coussé et al. 2018) on the basis of corpus-based data and methods (Hilpert 2013, 2021). We adopt a definition of constructions that views them as symbolic units of language use that are organized in a network (Goldberg 2006, 2019). With regard to the relation of inchoative *get* and permissive *get*, we will test whether or not the two constructions collocate with similar verb meanings, and to what extent permissive *get* emancipated itself from inchoative *get* over the years. We specifically designed a data-driven method based on distributional semantics that allows us to compare the semantic distribution of constructions quantitatively and quantify change in them over time. This method enables us to both quantify host-class expansion and test for lexical persistence effects.

The remainder of this paper will be structured as follows. Section 2 will review previous work that has touched on permissive *get*, and it will spell out our proposed alternative to existing accounts. Section 3 will describe our methodology. For our approach, we retrieved forms of *get* followed by *to* and a verb in the infinitive from the COHA. Besides examples of permissive *get*, we retrieved examples of obligative *got to* (*I got to leave*), causative *get* (*Who did you get to confess?*), possessive *got* (*What have I got to be ashamed of?*) and a category that we label inchoative *get* (*You're getting to be a big girl now*). On the basis of all lexical verbs that occur with permissive *get* and with inchoative *get* in the COHA, we constructed a semantic vector space (Turney and Pantel 2010). Changes in the attested verb types allow us to explore how the two constructions have evolved semantically. Section 4 discusses our results. We observe diachronic developments in the semantic spaces of

permissive *get* and inchoative *get* that reflect initial overlap but increasing divergence between the two constructions. Our concluding remarks are presented in Section 5. We defend the view that permissive *get* evolved out of inchoative meaning, and we discuss this proposal in the light of cross-linguistically common grammaticalization paths of permissive modality.

## 2 Previous work on permissive *get*, and a new proposal

There is currently no consensus on how permissive *get* emerged, and several comprehensive grammars of English (Quirk et al. 1985, Biber et al. 1999, Huddleston and Pullum 2002) do not discuss the construction in any depth. Bruckmaier (2017: 3) points out that previous research on *get* in general is surprisingly limited, given its frequency, semantic range, and syntactic versatility. What is uncontroversial is that several uses of *get* with an infinitive complement emerge during Early Modern English. Gronemeyer (1999: 20) presents frequency data from the Helsinki corpus that documents how the valency patterns of *get* developed from chiefly nominal complements to a larger variety of patterns that includes prepositional, adjectival, and verbal structures. Two historical examples with infinitive complements were shown in (10) and (11), further OED quotations include (12) and (13) below. The OED defines the meaning of all four examples as follows: "To attain, reach, secure an opportunity of (being or doing something), to come (to be or do); to acquire a habit of (doing)" (OED, *get*, 32a). Note that this gloss does not mention permission, but focuses instead on the concept of an opportunity, which may either arise on its own or be granted by an authority.

(12) All those that shall get to read them. (1649, OED)

(13) We .. could never get to see it quick in the Microscope. (1664, OED)

Discussions that explicitly link *get* to the meaning of permission can be found in Kimball (1973), Austin (1998), and Bruckmaier (2017). Johannson and Oksefjell (1996) present an account of the interrelations between different uses of *get* in Present-Day English. Two studies that develop specific hypotheses about the diachronic emergence of permissive *get*

are Gronemeyer (1999) and van der Auwera et al. (2009). The next two sections will focus on the respective semantic pathways that are proposed in the two papers.

## 2.1 The causative-to-permissive pathway

Gronemeyer (1999) presents a comprehensive corpus-based study of *get* in the history of English, which links its lexical roots to its various grammaticalized uses. The analysis develops a polysemy network that spells out the diachronic relations between the different meanings and syntactic patterns that are attested. The quote below describes the network in prose; Figure 1 offers a visual summary.

Using diachronic data, I show that possession leads to movement as well as stative uses (possession and obligation), movement develops into the causative and inchoative, from which the passive develops, and the infinitival causative gives rise to permission and ingressive aspect. (Gronemeyer 1999: 1)

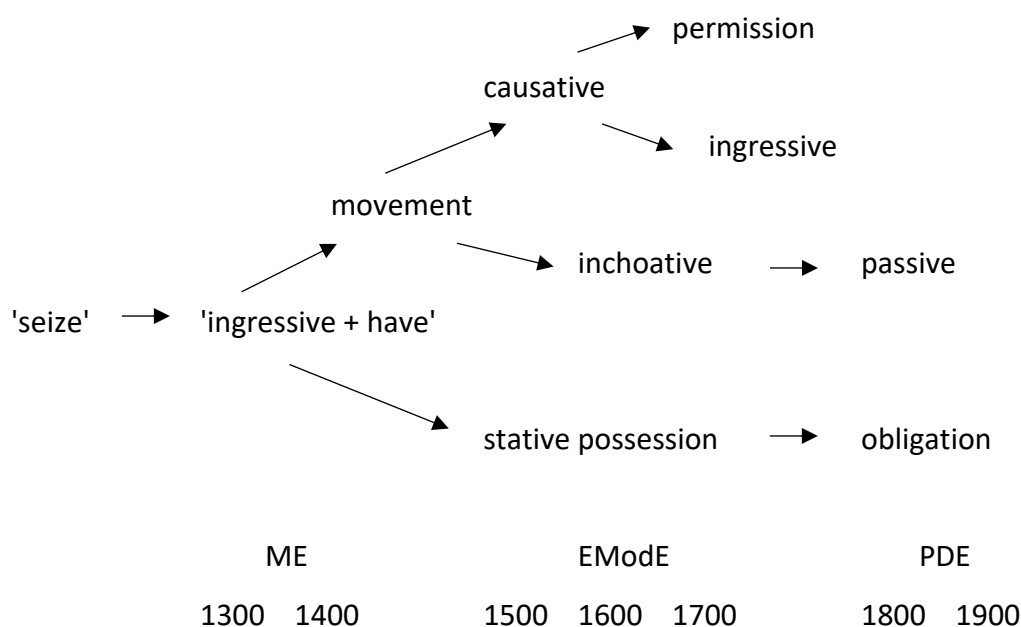


Figure 1: The senses of *get* and their diachronic development (Gronemeyer 1999: 35)

What is particularly relevant for the purpose of the present study is the proposed development from causative to permissive meaning that is shown at the top of Figure 1. Gronemeyer (1999: 30) argues that permissive *get* emerged in a specific lexical context, namely in the collocation *get to be*. One example of this collocation (*Then get they to be chaplains to honorable and noble personages*) was presented above in (10). Gronemeyer proposes that examples of this kind were produced by speakers who analyzed *get* as an unaccusative verb. Unaccusative verbs such as *to melt* can be used transitively (*The sun melted the ice*) and intransitively (*The ice melted*). The transitive pattern encodes causation, while the intransitive pattern describes a spontaneous process. Gronemeyer argues that *get* was treated as a member of the class of unaccusative verbs. It is possible to construct causative examples such as *I got him to be a chaplain*, which would represent the transitive, causative use of *get*. If *get* is treated as an unaccusative verb, intransitive uses of the verb would yield examples such as *He got to be a chaplain*. Without the verbal argument of a causer, this use invites the idea of permission, which can then conventionalize and spread to uses with verbs other than *be*. Gronemeyer's proposal of the causative-to-permissive pathway is thus syntactically based. It takes a phenomenon that is well-documented, the causative alternation, and uses that phenomenon as an explanation for the emergence of permissive *get*.

The same explanation is meant to hold for the emergence of ingressive meaning. Gronemeyer (1999: 30) draws a distinction between dynamic activity verbs (*read, do, etc.*) and stative verbs (*feel, like, etc.*) and argues that the former yield permissive meaning when combined with *get*, while the latter convey ingressive meaning. We will examine this distinction more closely in the discussion of our own data in Section 3. We argue that the lexical aspect of the verb in the infinitive does not completely disambiguate between permissive and ingressive meaning. Example (14) conveys ingressive meaning but includes a dynamic verb. Conversely, in (15) a stative verb combines with permissive meaning.

(14) In time we got to read French well enough. (COHA)

(15) The only way you get to have a good business is by serving the customer well. (COHA)

A point of clarification is in order on Gronemeyer's use of the terms inchoative and ingressive, which could be thought to capture a semantic distinction, when in fact her use of



the terms reflects a syntactic difference. Semantically, she defines both in terms of a change of state. Gronemeyer uses the label inchoative (1999: 6) for constructions in which *get* combines with an adjectival phrase or participle (*get mad, get interested*). The label ingressive (1999: 7) is reserved for constructions in which *get* pairs with a stative verb in the infinitive (*get to expect, get to understand*) or an *ing*-form of a dynamic verb (*get going, get to talking*). As Figure 1 indicates, both constructions emerge at roughly the same time. The general concept of a change of state is represented even during earlier historical stages, for example in locative uses (*get up, get away*). The figure also shows that Gronemeyer analyzes the basic lexical meaning of *get* as a change of state that describes the onset of possession. Inchoative meaning is thus a core semantic component of lexical *get*.

As will be discussed further below, our analysis of how permissive *get* emerged draws on Gronemeyer's insights in important ways, but we do not share the assumption that causative uses were instrumental in the process. While Gronemeyer's account is well-motivated, it needs to be acknowledged that the proposed causative-to-permissive pathway is not widely attested across languages. For grammaticalized markers of permission, Heine and Kuteva (2002: 334) only mention the meanings of ability, acquisition, and departure as attested sources. Moreover, their survey does not list causation as a source for any kind of secondary grammaticalization.

## 2.2 The acquisitive-to-permissive pathway

A different account of permissive *get* is presented by van der Auwera et al. (2009: 284), who criticize the idea of a causative-to-permissive pathway: "Gronemeyer (1999: 30-32, 35) actually claims that what she calls 'permissive' *get* derives from 'causative' *get* [...]. This is not very plausible, though". Across the world's languages, a well-attested grammaticalization pathway leads from acquisitive meaning to permissive meaning (Kuteva et al. 2019: 484), and van der Auwera et al. (2009) argue that permissive *get* is an instantiation of that pathway. Their analysis draws on van der Auwera and Plungian's (1998) typological analysis of modal meanings. A key point is the observation that modal meanings commonly undergo a trajectory from participant-internal possibility (ability, *I can swim*) to participant-external possibility (permission, *You can stay*), to epistemic possibility (*That*

*cannot be true*). Van der Auwera and Plungian (1998: 104) stated that acquisitive meaning typically does not give rise to participant-internal possibility, but is a direct source for participant-external possibility. English actually illustrates that. Lexical *get* encodes the meaning of acquisition, and *get* with an infinitive complement encodes permission, but crucially, *get* does not function as a marker of ability. A sentence such as *He gets to swim* does not express that someone has the ability to swim (van der Auwera et al. 2009: 283). Incidentally, permissive *get* also has not given rise to epistemic meanings. The sentence *He gets to be the murderer* cannot be uttered with the intended meaning of him possibly being the murderer.

Data from Mandarin Chinese and Northern European languages lead van der Auwera et al. (2009: 293) to reconsider some aspects of the acquisitive-to-permissive pathway. Specifically, they show that, in Mandarin, forms with permissive meaning have taken on the meaning of ability. Similarly, forms that encode acquisition can express ability in several Northern European languages, including Estonian. The semantic pathways that give rise to permissive modal meaning are thus not completely unidirectional. Within the space of modality, bidirectional semantic change between participant-internal and participant-external possibility is attested, and lexical forms that encode acquisition can develop directly into either of the two modal categories.

The present analysis does not question the general claim that the ultimate source of permissive *get* is a lexical verb with the meaning of acquisition. What we are arguing against is a more specific notion that is not explicitly endorsed by van der Auwera et al. (2009), namely that acquisitive meaning gave rise directly to permissive meaning. As we will discuss in the next section, we propose that the inchoative meaning that is present in lexical *get* and several grammaticalized uses has been central to the emergence of permissive meaning.

### 2.3 The inchoative-to-permissive pathway

The inchoative-to-permissive pathway that we propose has as its starting point a meaning of *get* that denotes a change of state, an onset of a new activity, or a new state of affairs. In Present-Day English, that meaning can be seen in examples such as the ones below, which instantiate different syntactic patterns.

- (16) I got into the habit of rising very early in the morning. (COHA)
- (17) It gets worse and worse. (COHA)
- (18) You're getting to be a big girl now. (COHA)

Historically, examples with prepositional complements and locative meanings are attested in the 15th century, while adjectival and verbal complementation patterns only emerge in the late 16th century (Gronemeyer 1999: 20, 28). The crucial context in which permissive *get* can conventionalize as a meaning would be uses verbalizing a change of state that is simultaneously a kind of privilege or fortunate turn of events. Examples from our COHA data that illustrate that kind of meaning are shown in (19) to (21).

- (19) Oh thank you and you'll get to meet our new minister then sure! (1909)
- (20) I guess we won't get to see Colonel Morrison after all. (1914)
- (21) Some day she'd get to be an editor herself. (1939)

The historical examples (10) to (13) that were discussed above are semantically very similar, in that they encode changes of state that represent positive developments. For instance, the example *By what meanes got's[t] thou to be releas'd* expresses an outcome that is desirable for the affected party. This tendency is also visible in syntactic patterns that do not include a verbal infinitive. Gronemeyer (1999: 27) lists the following examples, all of which illustrate the positive semantic prosody (Bednarek 2008) that *get* has as a change-of-state predicate.

- (22) And another sorte is called newe Wine, which hath left his sweetnes & gotten clearenesse, but yet it is not long since it was made. (1568)
- (23) On the instant they got cleare of our Shippe. (1602)
- (24) her heart was bursting within, and she was only happy when she cou'd get alone, to vent her griefs and moans with sighs and tears (1688)
- (25) we staid so long to take our leave of your Huntsmen this morning, that the Sun is got so high, and shines so clear, that I will not undertake the catching of a Trout till evening (1676)

We argue that examples in which an affected party underwent a desirable change of state that was expressed by an infinitive served as bridging contexts between the inchoative, change-of-state meaning of *get* and the permissive meaning of *get*. Bridging contexts are a time-honored concept in grammaticalization studies (Heine 2002, Traugott 2012), that is however not invoked in the accounts presented by Gronemeyer (1999) and van der Auwera et al. (2009). Bridging contexts rest on the pragmatic principle that often more is meant than what is said. What is explicitly verbalized is thus not identical to what is implied. In our case, the verbalized message is that there is a change of state; the implicature is that the change of state was granted by some authority. Note that this interpretation is compatible with Gronemeyer's (1999: 30) claim that the collocation *get to be* played a central role in the process. Our account, however, does not hinge on the assumption that examples with *get to be* would relate to presumed causative counterparts in which *get* has an additional argument.

In the following sections, we aim to substantiate the plausibility of the inchoative-to-permissive pathway with further empirical evidence that draws on data from the recent history of American English.

### 3 Data and methods

#### 3.1 Corpus data

For the present analysis, we searched the COHA (Davies 2010) for a range of constructions with *get*. The target constructions share important aspects of form. Specifically, they are composed of an instance of the verb *get*, followed by the infinitive marker *to* and a verb in the infinitive. As will be discussed in more detail below, the constructions that conform to this general structure represent different symbolic units, as they differ in their respective meanings. We restricted our search to the fifteen most recent decades of the COHA, i.e. 1860 to 2009, during which the genre composition of the corpus is relatively evenly balanced. The search yielded a concordance of 31'316 examples, which instantiate a range of constructions that correspond to different semantic categories. Besides examples of permissive *get*, we retrieved examples of obligative *got to* (*I got to leave*), causative *get in*

the form of passives or questions (*Who did you get to confess?*), possessive (*have*) *got* (*What have I got to be ashamed of?*), and inchoative *get* (*You're getting to be a big girl now*). We further identified a category of non-target examples, in which the infinitive was mistagged (*get to land*) or where no syntactic dependency obtained between *get* and the infinitive (*Imagine how tricky it can get to negotiate about shipping*). Table 1 shows the text frequencies of the categories we distinguished, as well as the type frequencies for inchoative and permissive *get*; Figure 2 offers a display of their diachronic developments.

category	COHA frequency	type frequency
non-target	1155	
causative	110	
obligative	22828	
inchoative	3658	109
permissive	2500	365
possessive	1065	
TOTAL	31316	

Table 1: Text frequencies of *get to V* in the COHA

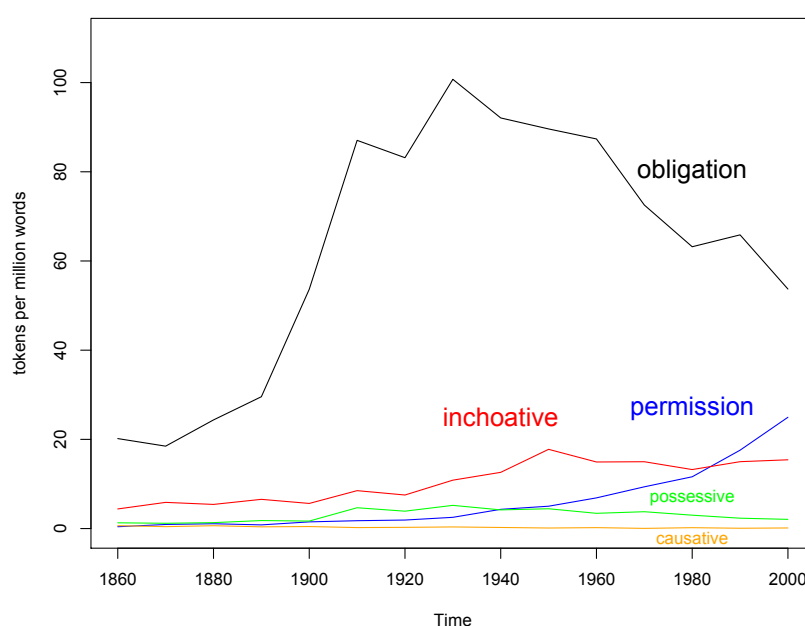


Figure 2: Frequency developments of *get to V* in the COHA

The low frequency of the causative examples is due to the fact that in the canonical pattern of the construction, a noun phrase intervenes between *get* and the *to*-infinitive. These examples were not retrieved by our search pattern. Similarly, our pattern only retrieved a small subset of possessive *get*, which typically projects a nominal constituent rather than a *to*-infinitive. The pattern with the highest frequency is the one in which *get* expresses an obligation. The apparent recent decline of this construction has to be contextualized with the rise of the contracted form *gotta* (cf. Lorenz 2013: 127), which more than compensates for the decrease of the full form. Of central concern for our analysis are the two remaining patterns, namely inchoative *get* and permissive *get*. Inchoative *get* increases in usage up to the 1950s, after which its frequency stays relatively constant. With regard to permissive *get*, Figure 2 motivates why we are interested in its more recent history. During the 20th century, permissive *get* shows a progressive frequency increase that suggests that a change of some sort is underway. The two panels of Figure 3 offer a closer look at the verb types that occur with permissive *get* over the decades. The first panel shows that its rising token frequencies have been accompanied by increasing type frequencies and more hapax legomena. The second panel zooms in on the six most frequent verbs in the construction, out of which the collocation *get to see* is the most frequent one for most decades since the 1860s.

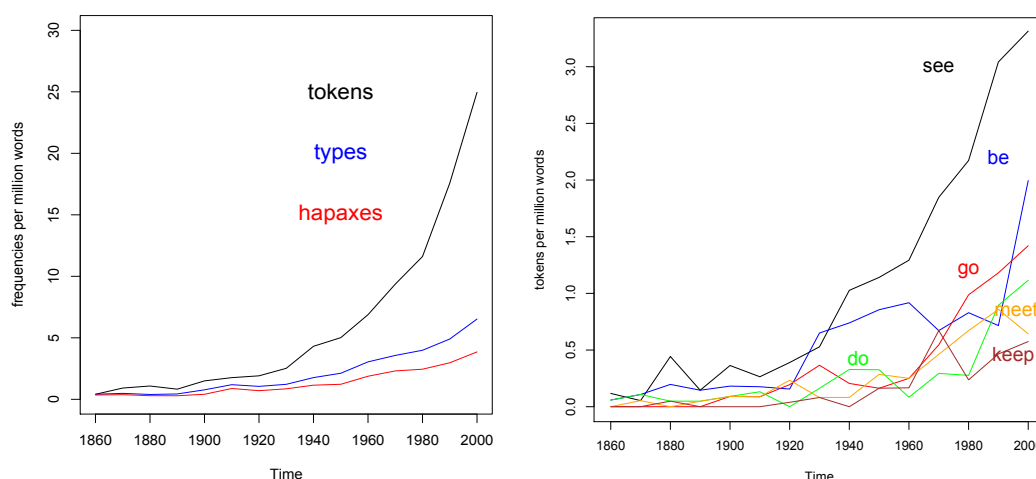


Figure 3: Developments in permissive *get* in the COHA

The most frequent verbs are compatible with the notion of an inchoative event that is desirable for the affected party. Someone who gets to see a famous place or who gets to be

in a privileged position may owe this privilege to favorable circumstances. In other words, what we see in these collocational preferences can be interpreted as the persistence of the inchoative meaning that we argue is the source for permissive *get*.

It was pointed out above that Gronemeyer (1999: 30) relates the distinction of permissive meaning and what she calls ingressive meaning to the lexical aspect of the verbs in the infinitive that combine with *get*. Both meanings are argued to evolve out of the collocation *get to be* and extensions of that pattern in which *be* is replaced by other verbs. Permissive meaning is argued to arise in the context of dynamic activity verbs such as *read* or *do*, while ingressive meaning results from a combination of *get* with stative verbs such as *feel* or *like*. Our data broadly corroborates this claim, but it also shows that the distinction is not discrete. Table 2 shows the 15 most frequent verbs that are attested with permissive *get* and inchoative *get* in the COHA. What supports Gronemeyer's claim is that many of the verbs that are frequent with permissive *get* can indeed be classified as dynamic (*go*, *do*, *meet*, *play*, *eat*, etc.), while inchoative *get* exhibits a collocational preference for stative verbs (*love*, *hate*, *know*, *understand*, etc.). The fact that both meanings are frequently conveyed by *get to be* is further compatible with Gronemeyer's analysis. Still, it is worth pointing out that most of the verbs in Table 2 are found in both constructions. Furthermore, permissive *get* frequently co-occurs with the stative verbs *see*, *have*, and *hear*, and inchoative *get* collocates with the dynamic verbs *do* and *learn*.

most frequent permissive verbs			most frequent inchoative verbs		
verb	permissive	inchoative	verb	inchoative	permissive
<i>see</i>	418	5	<i>be</i>	1607	223
<i>be</i>	223	1607	<i>know</i>	1572	1
<i>go</i>	144	4	<i>like</i>	95	0
<i>do</i>	102	8	<i>feel</i>	55	8
<i>meet</i>	102	0	<i>sleep</i>	30	12
<i>keep</i>	64	1	<i>look</i>	28	8
<i>play</i>	62	1	<i>love</i>	27	0
<i>eat</i>	54	5	<i>understand</i>	27	0
<i>have</i>	45	8	<i>hate</i>	21	0

<i>hear</i>	41	17	<i>hear</i>	17	41
<i>talk</i>	39	4	<i>believe</i>	13	0
<i>take</i>	34	4	<i>do</i>	8	102
<i>live</i>	32	2	<i>have</i>	8	45
<i>use</i>	31	5	<i>think</i>	6	8
<i>spend</i>	31	0	<i>learn</i>	6	1

Table 2: Most frequent verbs in the permissive *get* construction and the inchoative *get* construction in COHA

With these first impressions of the data in mind, the next section will turn to methods of distributional semantics that we apply with the aim of substantiating our proposal of the inchoative-to-permissive pathway.

### 3.2 Distributional semantics

The key insight of distributional approaches to semantics is that linguistic elements occurring in similar contexts tend to have related meanings (Miller & Charles 1991). This idea is commonly labeled *the distributional hypothesis* (Turney and Pantel 2010: 148). It follows from the distributional hypothesis that a way to characterize the meaning of words and constructions is through their distribution in large corpora, specifically by taking into account their collocating elements and their respective frequencies. For example, a verb such as *drink* will frequently co-occur with lexical elements that refer to beverages (*water, coffee, beer*) and containers (*glass, cup, bottle*). It will share this profile with near-synonymous verbs such as *sip* or *slurp*. By contrast, verbs such as *write* or *publish* will exhibit a very different profile, sharing a common preference for collocates such as *book, article, or report*. Given co-occurrence data from a large corpus, it can be determined for a larger set of verbs, or indeed any group of linguistic forms, how similar or dissimilar they are in terms of their collocational profiles, and how each element compares to every other element in the set. Common to distributional approaches is that the meaning of each linguistic element is



represented by a vector of collocating elements and their frequencies. Comparisons of these vectors allow a quantitative assessment of semantic similarity and dissimilarity.

For the present study, we created collocate vectors for the verbs attested in permissive and inchoative *get* in the COHA. We extracted co-occurrence data for all verb types from the COHA, using a context window of two words to the left and two words to the right. Only the 10,000 most frequent nouns, adjectives, verbs, and adverbs collocates were included as collocates. This left out all function words (e.g., articles, pronouns, auxiliary verbs, etc.), which are distributed quite evenly across the lexicon of the language and tend to contribute little information on word meaning. By contrast, high-frequency content words are the most likely to be useful collocates: they co-occur with other content words in meaningful ways and provide robust measurements of frequent lexical semantic associations.

The reliability of distributional semantic models depends on the amount of data collected for the collocational profile of each word; therefore, from the 420 verbs that co-occur in the infinitive with permissive or inchoative *get*, we only kept those with an overall frequency of at least 1000 in the COHA. This left us with 389 types matching this frequency threshold, including 338 types for permissive *get*, and 103 types for inchoative *get*. Of the 389 verbs, 52 (13%) occur in both constructions, the remaining types do not alternate.

To improve the quality of the distributional semantic model and reduce noise, the frequency counts of the collocate vectors were refined in two ways. First, they were turned into association scores using positive point-wise mutual information (PPMI), which measures collocation strength by taking into account the frequency of individual words compared to their frequency of co-occurrence. Second, the whole set of collocation vectors was submitted to dimensionality reduction with singular value decomposition, bringing the 10,000 co-occurrence values in each vector to only 300. Dimensionality reduction aims to reduce the length of collocate vectors without losing any information contained in them; it basically removes redundant information by aggregating frequency counts into more general distributional features that single out the most informative aspects of word distributions.

The collocate vectors allowed us to perform two different types of analysis. Following a method introduced by Perek (2014, 2016, 2018), the first type is concerned with visualizing the semantic spread that can be observed with permissive and inchoative *get*. We measured semantic similarity between verbs by computing the cosine distance between all possible

pairs of collocate vectors. Based on these pairwise distances, the t-SNE algorithm (Van der Maaten and Hinton 2008) was used to create two-dimensional plots that represent the semantic space of the lexical verbs that occur with permissive and inchoative *get*.

The second type of analysis relies on hierarchical clustering (Levshina 2015: 301), which is applied here with the goal of discerning semantic verb classes in our data. The clustering algorithm assesses pairwise similarities between the collocate vectors in our dataset and iteratively groups together verbs with similar collocational profiles. Using a combination of qualitative and quantitative criteria (such as average silhouette widths, cf. Levshina 2015: 312), we identified an optimal clustering solution that distinguishes between eleven verb clusters, corresponding to various semantic areas. The thirteen clusters do tend to contain verbs with similar meanings, and some of them can even be directly interpreted in terms of coherent semantic classes matching all verbs in the cluster (to a few exceptions); a few examples are shown below in Table 3.

meaning	verbs in the cluster
speech and sound	answer, ask, clap, dance, fuck, hear, interrupt, laugh, play, repeat, say, scream, sing, sound, speak, swear, tell
food	add, chew, do, drink, eat, garnish, get, nibble, sample, seed, smell, sniff, spit, suck, swallow, taste
manipulation and force	beat, check, clean, dress, drop, dry, flip, hit, inspect, iron, jump, kick, kiss, knot, lift, lock, miss, open, pack, peek, pick, pinch, pitch, pound, press, pull, punch, push, rock, roll, rub, rummage, run, shake, skip, slide, smack, smear, snap, sort, stick, stuff, switch, throw, touch, turn, wash, wave, wear, yank

Table 3: Some of the verb classes identified by the cluster analysis

The following section discusses what results these techniques produce and how the findings relate to our main hypothesis.

Figure 4 shows in four panels how the semantic space of the verbs in our database develops over time. Each verb is placed in the plot according to how similar it is to other verbs, as measured by the distributional semantic model; the closer two verbs are in the plot, the more similar they should be. Verbs occupy the same position from one period to the next; what changes is which verbs are attested in each period. Verbs shown in blue occur only with permissive *get* in that period. These include, for example, the verbs *play* and *dance* in the first period, which are shown towards the right of the first panel. Verbs in red are only used with inchoative *get*, as for instance *give* and *accept* in the first period, which are visible at the top end of the cloud of verbs. Verbs that appear in green occur with both constructions, as for example the verbs *dress* and *hear* in the first period, which can be seen at the very bottom of the graph.

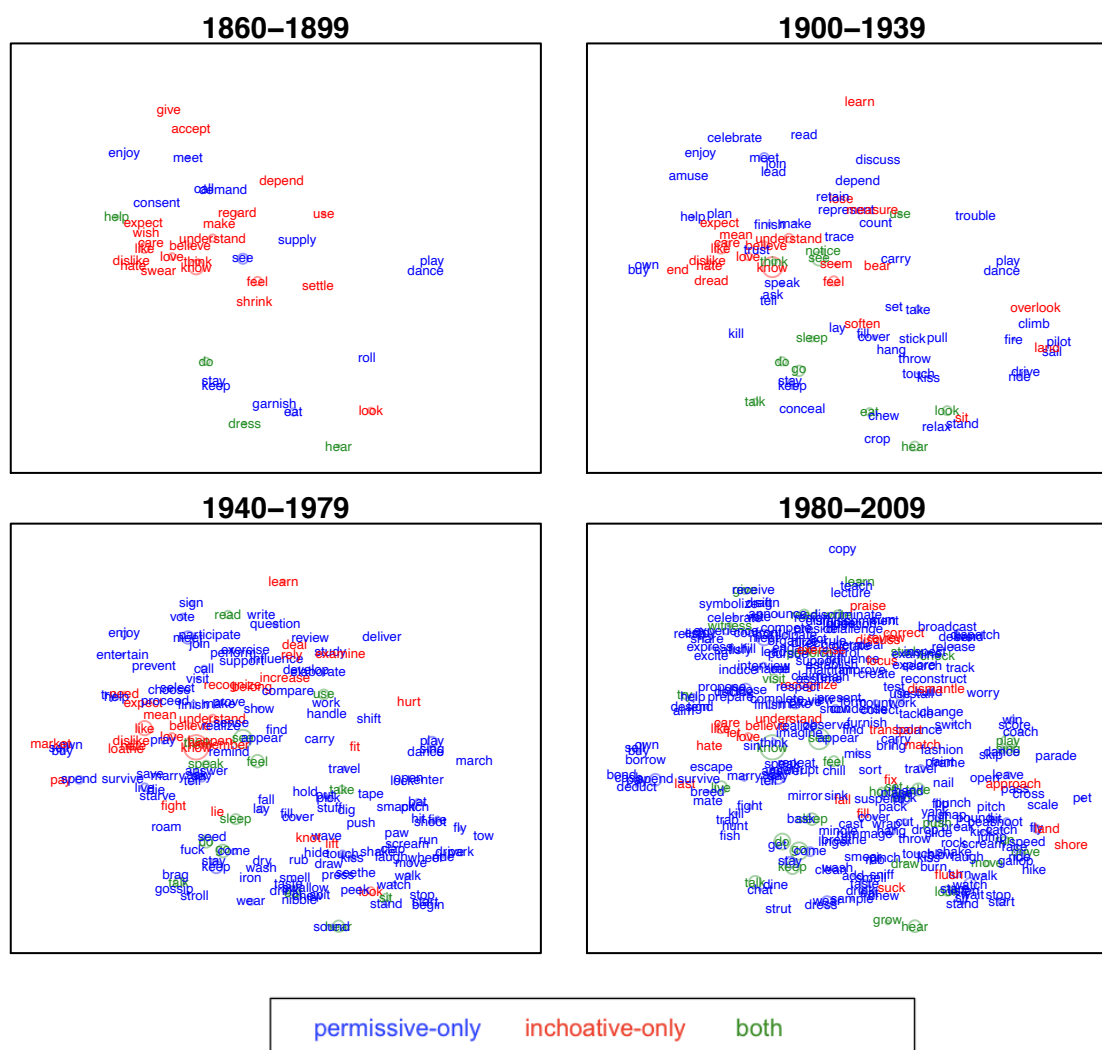


Figure 4: Semantic vector spaces of permissive *get* and inchoative *get*

Our hypothesis led us to expect a gradual decline of shared verbs, and an incremental diversification of permissive-only and inchoative-only verbs. Contrary to our expectations, that kind of development is not apparent in Figure 4. Instead, we make two observations. First, both constructions occupy overlapping areas of semantic space, which is consistent with the idea of lexical persistence, but which is also due to the fact that verbs can be coerced into different aspectual interpretations. The first panel of Figure 4 includes the dynamic verb *dress* as an overlapping verb. Example (26) illustrates how the verb is coerced into a stative, habitual interpretation in the context of inchoative *get*. By contrast, example (27) shows *dress* in the context of permissive *get*, where it conveys a more dynamic meaning.

- (26) Men the world over are getting to dress alike, eat alike, and disbelieve in the same things. (inchoative)
- (27) The chosen few got to dress scantily, mingle with C-list actors and serve wine in plastic cups. (permissive)

The same holds for the verb *read*. Example (28) construes the verb meaning as 'being able to read', while example (29) conveys the verb's basic, dynamic meaning.

- (28) We read and drew and wrote little essays and chattered, either in English or bad French, though in time we got to read French well enough. (inchoative)
- (29) Every story has another story inside, but you usually don't get to read the inside one! (permissive)

A second observation that is supported by Figure 4 is that permissive *get* expands semantically over time, both inward and outward. Inward the verbs occurring with the construction covers areas of semantic space that were previously not filled, and outward, the verbs of the construction claim new semantic territory that was not covered previously. This is consistent with the claim that permissive *get* undergoes host-class expansion.

In order to examine the semantic developments of inchoative and permissive *get* more closely, we turned to the cluster analysis that was presented above. All verbs in our dataset belong to one of twelve clusters. These clusters are represented unevenly over time and across inchoative and permissive *get*. Table 4 shows how many verb types are attested with either of the two constructions in each of our four corpus periods.

	1860-1899		1900-1939		1940-1979		1980-2009	
cluster	inchoative	permissive	inchoative	permissive	inchoative	permissive	inchoative	permissive
#1	2	3	1	6	2	14	3	13
#2	5	2	6	4	6	11	6	15
#3	14	3	15	16	19	30	20	70
#4	0	1	4	10	2	20	12	34
#5	1	3	2	3	2	10	2	10
#6	3	2	5	9	5	12	6	22
#7	0	1	0	4	1	8	2	14

#8	1	2	0	5	2	20	3	38
#9	0	1	0	0	3	6	2	19
#10	0	0	0	3	0	8	3	18
#11	0	0	0	3	1	4	0	11

Table 4: Type frequencies of verb classes in inchoative and permissive *get*

The information in Table 4 allows us to ask whether over time, the same areas of semantic space are populated in the same way by the two constructions. Using Kendall's tau as a correlation statistic, we can compare inchoative and permissive *get* at any given point in time in order to quantify their semantic overlap. We can further draw comparisons between historical periods, contrasting for example inchoative *get* across the first and the second period, which can quantify the rate of semantic change within a construction from one period to the next. Figure 5 shows correlation statistics that result from synchronic (horizontal) and diachronic (vertical) comparisons. Kendall's tau is bounded between 0 and 1, with 1 measuring a perfect correlation between two distributions (i.e. the same elements are present with the same prominence). In synchrony, a high correlation between the two constructions indicates that their distribution is highly similar; if this correlation decreases over time, it means that the two constructions become distributionally more distinct (and vice versa). In diachrony, the correlation statistic measures the degree of distributional change within a given construction: a low correlation between two time periods is a sign of semantic change, while a high correlation indicates that things remain more or less the same.

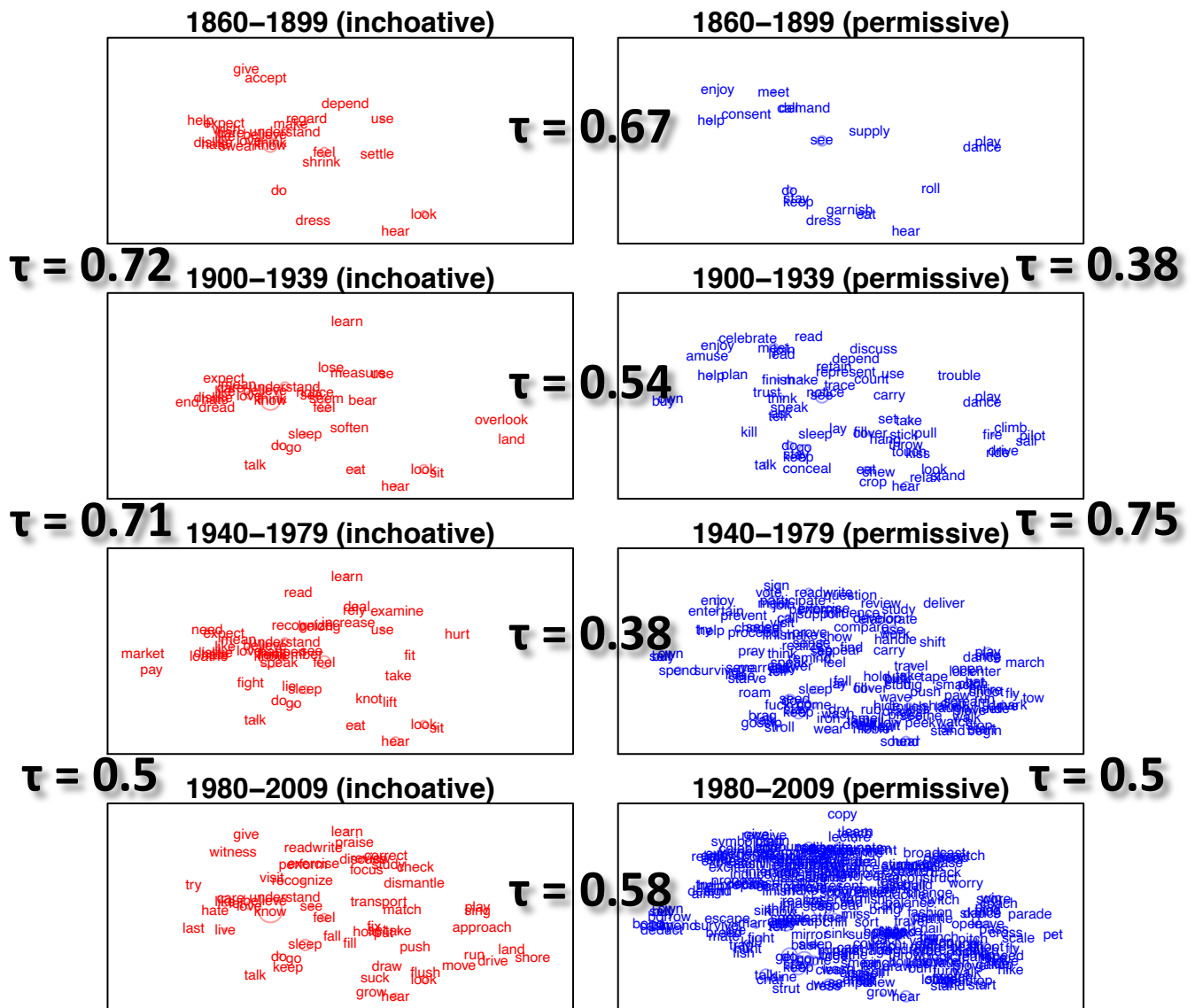


Figure 5: Synchronic and diachronic comparisons of inchoative and permissive *get*

During the first historical period, inchoative and permissive *get* are relatively similar with regard to their semantic distribution. This similarity decreases during the second and third period, where the correlations become weaker. These results are in line with the idea that permissive *get* emancipates itself more and more from its semantic source. The fourth period however marks a surprising return to stronger similarity between the two constructions. We interpret this as a ceiling effect. As permissive *get* broadens semantically, it expands into areas of meaning that are conventionally associated with inchoative *get*, as for example stative verbs of cognition (*think*, *feel*, *worry*, etc.). With regard to diachronic developments, permissive *get* shows a fair amount of change between the first and the second period, while inchoative *get* stays relatively more stable. Between periods two and

three, both constructions show a high degree of semantic stability. The transition to period four is characterized by moderate change for both inchoative and permissive *get*.

These results show an interplay of gradual semantic divergence and expansion. The overall frequency developments of inchoative and permissive *get* (cf. Figure 2) indicate that permissive *get* underwent an increase in type and token frequency that started at the beginning of the 20th century. This development is reflected also in Figure 5, specifically in the semantic divergence of inchoative and permissive *get* during the second and third period. While permissive *get* continually expanded its range of host classes, this is not true to the same extent for inchoative *get*. Lastly, the expansion of permissive *get* caused it to share an increasing number of verb types with inchoative *get* in the fourth period, which yields the impression of semantic convergence.

In the remainder of this section, we will discuss three points that are relevant to the inchoative-to-permissive pathway that we posit for permissive *get*. First, we would like to point to several cases of acquisitive modality in other languages that are consistent with our proposals for English. For example, Usoniene and Jasionyte (2010) analyze the Lithuanian acquisitive verb *gauti* 'get', which, like English *get*, can express participant-external possibility but not participant-internal possibility. They comment that "[t]he reading of participant-external possibility in Lithuanian is preferable in situations where outer circumstances seem to be more favourable and grant the acquisition of the possibility, which in its turn can extend to permission" (Usoniene and Jasionyte 2010: 211), which is fully congruent with our argument. They illustrate this point with the following example.

- (30) O      čia              gaunu              skaityt              už dyką  
       and    here.ADV      get.PRS.1SG    read.INF        for gratis.ACC  
       And here I can read for free.

A similar set of facts is attested for Chinese, specifically the Nanning Yue dialect. Kwok et al. (2011) study a pre-verbal element that conveys the meaning of acquisition, and they reconstruct its path of development in Classical Chinese and Early Cantonese. In present-day usage, examples such as (31) are ambiguous between a deontic, permissive meaning, and an aspectual meaning that construes the action as having come about through a prior event (Kwok et al. 2011: 121-122).



(31) 做 工 陣 時 冇 得 傾 偈。

tsu<sup>33</sup> koŋ<sup>55</sup> tsen<sup>22</sup> si<sup>21</sup> mu<sup>24</sup> tek<sup>55</sup> khen<sup>55</sup> kei<sup>35</sup>

working cl. time neg. ACQ chat

Prior-event reading: '(You) would not get the chance to chat when you are working.'

Deontic reading: '(You) are not allowed to chat when you are working.'

The gloss 'get the chance to' corresponds to our notion of a change of state that has favorable consequences for an affected party. This change of state may have been brought about through an authority, but in the absence of an explicit verbalization of that authority, the deontic meaning of permission is present only as an implicature.

Thepkanjana and Ruangmanee (2015) discuss data from Vietnamese. The verb *được* expresses a wide range of meanings that includes both permission and what the authors call circumstantial possibility, i.e. the opportunity to do something. The overall grammaticalization path that Thepkanjana and Ruangmanee (2015: 137) propose for *được* starts with the lexical meaning 'succeed/win', which is extended to the participant-internal modal meaning of ability, which gives rise to circumstantial possibility, which in turn is extended to permissive meaning. A crucial difference between Vietnamese and English concerns the meaning of ability, which is conveyed by *được* but not by *get*. An important convergent point however is the proposed semantic step from circumstantial possibility to permission. Example (32) illustrates the meaning of circumstantial possibility.

(32) Vì thời tiết tốt nên tôi đi bộ ngắm phong cảnh được

Because weather good so I go walk watch scenery cir.poss.

Because the weather is good, I can walk and watch the scenery around.

The English expression *weather permitting* captures the relevance of the example for the extension to permissive meaning. A fortunate turn of events can be interpreted as resulting from the consent of a granting authority. Thepkanjana and Ruangmanee (2015: 141) thus invoke the same pragmatic process that we posit for the emergence of permissive *get* in English. They phrase their argument as follows:

A type of social enabling conditions present in the permission modality is the authoritative speaker's directive attitude towards an action to be carried out. The speaker's directive attitude is pragmatically inferred from the notion of social enabling conditions. This inference is later pragmatically strengthened and became semanticized, which results in the permission modality.

Summing up our first point, three cases from languages other than English yield insights that are compatible with our proposals. While these cross-linguistic examples provide only impressionistic evidence, they lend some further plausibility to our account.

The second issue that we want to raise relates to the observation that common grammaticalization paths may reflect relatively parallel developments across different languages that are actually different from each other at a finer level of granularity. Viewed from a distance, permissive *get* is indeed a modal construction that has grammaticalized out of an acquisitive marker, and the analysis could end there. A closer look suggests that inchoative meaning represented a crucial intervening stage, which is not necessarily the case for acquisitive modals in other languages. Variation of this kind has been discussed in other grammatical domains. For example, Hilpert (2008) showed that English *be going to*, Dutch *gaan*, and Swedish *komma att*, which are all future constructions that developed out of motion verbs, differed in the way they acquired their respective meanings of future time reference. Collocational evidence from historical corpora suggests that English *be going to* followed the common grammaticalization path of a motion verb that turned into a marker of intention and subsequently a marker of future time (Hilpert 2008: 122). Dutch *gaan* evolved in a similar way, but whereas the collocational profile of *be going to* in current usage exhibits a strong preference for dynamic, agentive verbs, that is not the case for Dutch *gaan*. Swedish *komma att* differs from the two other constructions not only in its deictic orientation ('come' vs. 'go'), but also in its semantic development. The historical evidence leads to the conclusion that *komma att* did not acquire the meaning of future time reference via an intermediate stage of intention, but rather went through a phase during which it expressed inchoative meaning (Hilpert 2008: 126). Cases like this one illustrate that well-attested grammaticalization paths can show internal variation, so that the same source and the same target are connected in ways that are subtly different. Some steps of the way can

differ while others are shared, as a comparison of Vietnamese *được* and English *get* illustrates.

Our third point is that, metaphorically speaking, grammars have long memories. Hopper's principle of persistence (1991: 22) rests on the observation that grammaticalized forms retain some aspects of meaning and distributional characteristics of their lexical sources. This notion includes how a grammaticalized form typically combines with other linguistic elements. The initial grammaticalization of permissive *get* precedes the data that we used for our analysis by several centuries. Yet, the developmental trajectory that the distributional characteristics of permissive *get* exhibit in the 19th and 20th century allow us to explore how the construction relates semantically to inchoative *get*, and how this relation has changed over time. We would argue that the distributional semantic approach taken in this paper is a useful way of engaging with claims and hypotheses that have been put forward in studies of grammaticalized elements and their lexical sources.

## 5 Concluding remarks

In this paper, we have argued that inchoative *get* is a plausible source for the development of permissive meaning. This account contradicts an alternative theory put forward by Gronemeyer (1999), and it adds specificity to the account of van der Auwera et al. (2009). Historical data from Early Modern English provides examples that illustrate bridging contexts between inchoative and permissive *get*, in which a change of state could be seen both as positive for an affected party and being granted by some authority. These examples provide a qualitative motivation for our claim, which we followed up on the basis of more recent diachronic corpus data. Distributional evidence from the COHA portrays a quantifiable trajectory of semantic change in permissive *get* that shows traits of lexical persistence and host-class expansion. The inchoative-to-permissive pathway is further compatible with studies of acquisitive modal markers in Lithuanian, Chinese, and Vietnamese.

Methodologically, this paper has devised a new way of measuring the semantic similarity of constructions with overlapping sets of lexical collocates. A cluster analysis of all attested collocates allowed us to check how inchoative and permissive *get* compared with regard to their relative preferences of different semantic verb classes, such as speech act

verbs and verbs of emotion and cognition. Since this technique is relatively easy to implement, we hope that it will be applied to the analysis of other pairs of constructions in the future in order to further test its potential.

## References

- Austin, Frances. (1998). Points of Modern English usage LXXIV. *English Studies* 79: 73-5.
- Barðdal, Jóhanna, Smirnova, Elena, Lotte Sommerer & Spike Gildea (eds). (2015). *Diachronic Construction Grammar*. Amsterdam: Benjamins.
- Bednarek, Monika. (2008). Semantic preference and semantic prosody re-examined. *Corpus Linguistics and Linguistic Theory*. 4(2): 119–139.
- Biber, Douglas, Stig Johansson, Geoffrey Leech, Susan Conrad, & Edward Finegan. (1999). *Longman Grammar of Spoken and Written English*. Harlow: Longman
- Breban, Tine. (2014). What is secondary grammaticalization? Trying to see the wood for the trees in a confusion of interpretations. *Folia Linguistica* 48/2, 469–502.
- Bruckmaier, Elisabeth. (2017). *Getting at GET in World Englishes. A corpus-based semasiological-syntactic analysis*. Berlin: De Gruyter.
- Coussé, Evie, Peter Andersson and Joel Olofsson (eds.) (2018). *Grammaticalization Meets Construction Grammar*. Amsterdam: Benjamins.
- Davies, Mark. (2010). *The Corpus of Historical American English (COHA): 400+ million words, 1810-2009*. <http://corpus.byu.edu/coha>.
- De Smet, Hendrik; Lobke Ghesquière; Freek van de Velde. (eds.) (2015). *On multiple source constructions in language change*. Amsterdam: John Benjamins.
- Dixon, R.M.W. (2005). *A Semantic Approach to English Grammar*. Oxford: Oxford University Press.
- Goldberg, Adele E. (2006). *Constructions at Work: The Nature of Generalization in Language*. Oxford: Oxford University Press.
- Goldberg, Adele E. (2019). *Explain Me This: Creativity, Competition, and the Partial Productivity of Constructions*. Princeton: Princeton University Press.
- Gronemeyer, Claire. (1999). On deriving complex polysemy: The grammaticalization of *get*. *English Language and Linguistics* 3, 1-39.
- Heine, Bernd. (2002). On the role of context in grammaticalization. In Wischer, Ilse & Gabriele Diewald (eds.) 2002. *New reflections on grammaticalization*. Amsterdam, Philadelphia: Benjamins. Pp. 83-101.
- Hilpert, Martin. (2008). *Germanic Future Constructions. A usage-based approach to language change*. Amsterdam: John Benjamins.

- Hilpert, Martin. (2013). Corpus-based approaches to constructional change. In Graeme Trousdale & Thomas Hoffmann (Eds.), *The Oxford Handbook of Construction Grammar*. Oxford: Oxford University Press, 458-477.
- Hilpert, Martin. (2021). *Ten Lectures on Diachronic Construction Grammar*. Leiden: Brill.
- Hilpert, Martin & Florent Perek. (2015). Meaning change in a petri dish: Constructions, semantic vector spaces, and motion charts. *Linguistics Vanguard*. DOI: 10.1515/lingvan-2015-0013
- Himmelmann, Nikolaus P. (2004), Lexicalization and grammaticization: Opposite or orthogonal?, in Walter Bisang, Nikolaus P. Himmelmann, and Björn Wiemer (eds), *What Makes Grammaticalization: A Look from its Components and its Fringes*, Berlin: Mouton de Gruyter, pp. 21–42.
- Hopper, Paul J. (1991). On some principles of grammaticization. In E. C. Traugott, & B. Heine (Eds.), *Approaches to Grammaticalization: Volume I. Theoretical and methodological issues* (pp. 17–36). Amsterdam, Philadelphia: John Benjamins.
- Huddleston, Rodney and Geoffrey K. Pullum (2002). *The Cambridge Grammar of the English Language*. Cambridge: Cambridge University Press.
- Johansson, Stig & Signe Oksefjell. (1996). Towards a unified account of the syntax and semantics of GET. In Jenny Thomas & Mick Short (eds.), *Using corpora for language research: Studies in the honour of Geoffrey Leech*, 57–75. London & New York: Longman.
- Kimball, John P. 1973. GET. In John P. Kimball (ed.), *Syntax and Semantics*. Vol. 2, 205–215. New York & London: Seminar Press.
- Krug, Manfred G. 2000. *Emerging English Modals: A Corpus-based Study of Grammaticalization*. Berlin: Mouton de Gruyter.
- Kuteva, Tania, Bernd Heine, Bo Hong, Haiping Long, Heiko Narrog & Seongha Rhee. (2020). *World Lexicon of Grammaticalization*. 2nd ed. Cambridge: Cambridge University Press.

- Kwok, Bit-Chee, Andy C. Chin, and Benjamin K. Tsou. 2011. Poly-functionality of the preverbal “acquire” in the Nanning Yue dialect of Chinese: an areal perspective. *Bulletin of the School of Oriental and African Studies*, 74/1, 119-137.
- Levshina, N. 2015. *How to do Linguistics with R: Data exploration and statistical analysis*. Amsterdam: John Benjamins.
- Lorenz, David. 2013. *Semi-Modal Contractions in English: The Emancipating Effect of Frequency*. Freiburg: Rombach.
- Miller, G., & Charles, W. (1991). Contextual correlates of semantic similarity. *Language and Cognitive Processes*, 6/1, 1–28.
- Palmer, Frank R. (1990). *Modality and the English Modals*. 2nd edition. London: Longman.
- Palmer, Frank R. (2003). Modality in English: Theoretical, descriptive and typological issues. In Facchinetti, R., Krug, M., and Palmer, F.R. (eds.) 2003. *Modality in Contemporary English*. Berlin: de Gruyter, pp. 1-20.
- Perek, Florent. (2018). Recent change in the productivity and schematicity of the way-construction: a distributional semantic analysis. *Corpus Linguistic and Linguistic Theory*, 14(1), 65-97. DOI: 10.1515/cllt-2016-0014
- Perek, Florent & Martin Hilpert. (2017). A distributional semantic approach to the periodization of change in the productivity of constructions. *International Journal of Corpus Linguistics* 22(4): 490–520.
- Perek, F. (2014). Vector spaces for historical linguistics: Using distributional semantics to study syntactic productivity in diachrony. In *Proceedings of the 52nd Annual Meeting of the Association for Computational Linguistics, Baltimore, Maryland USA, June 23-25, 2014* (pp. 309-314).
- Perek, Florent. (2016). Using distributional semantics to study syntactic productivity in diachrony: A case study. *Linguistics* 54(1): 149–188.
- Perek, Florent. (2020). Productivity and schematicity in constructional change. In Sommerer, L. & Smirnova, E. (Eds.), *Nodes and Links in Diachronic Construction Grammar*. Amsterdam: John Benjamins.

- Quirk, Randolph, Sidney Greenbaum, Geoffrey Leech, and Jan Svartvik (1985), *A Comprehensive Grammar of the English Language*. New York: Longman.
- Sommerer, Lotte & Elena Smirnova. (eds.) (2020). *Nodes and Links in Diachronic Construction Grammar*. Amsterdam: John Benjamins.
- Thepkanjana, Kingkarn and Soraj Ruangmanee (2015). Grammaticalization of the verb 'to acquire' into modality: A case study in Vietnamese. *Taiwan Journal of Linguistics* 13.2, 117-150.
- Traugott, Elizabeth Closs. (2012). The status of onset contexts in analysis of micro-changes, in Merja Kytö (ed.), *English Corpus Linguistics: Crossing Paths*. 221-255. Amsterdam: Rodopi.
- Traugott, Elizabeth C. & Graeme Trousdale. (2013). *Constructionalization and constructional changes*. Oxford: Oxford University Press.
- Turney, Peter D. and Patrick Pantel. (2010). From Frequency to Meaning: Vector Space Models of Semantics. *Journal of Artificial Intelligence Research* 37, 141-188.
- Usoniene, Aurelija & Erika Jasionyte (2010) Towards grammaticalization: Lithuanian acquisitive verbs *gauti* ('get') and *tekti* ('be gotten'), *Acta Linguistica Hafniensia* 42:2, 199-220.
- van der Auwera, Johan, Petar Kehayov & Alice Vittrant. (2009). Acquisitive modals. In Hogeweg, L., de Hoop, H. and Malchukov, A. (eds.), *Cross-linguistic Semantics of Tense, Aspect and Modality*. Amsterdam. John Benjamins, 271–302.
- van der Auwera, Johan & V. Plungian. (1998). Modality's semantic map. *Linguistic Typology* 2, 79-124.
- Van der Maaten, Laurens and Geoffrey Hinton. (2008). Visualizing Data using t-SNE. *Journal of Machine Learning Research* 9, 2579-2605.



Appendix: List of all thirteen verb clusters identified by hierarchical cluster analysis

1	answer, ask, clap, dance, fuck, hear, interrupt, laugh, play, repeat, say, scream, sing, sound, speak, swear, tell
2	aim, begin, care, chat, choose, come, consent, decide, design, expect, go, gossip, help, let, like, mean, need, plan, prepare, proceed, propose, start, stop, talk, tend, try, wish
3	accept, act, amuse, appear, assume, balance, believe, belong, challenge, claim, comment, compare, complete, confront, control, copy, correct, deal, demand, depend, dictate, direct, discriminate, discuss, dislike, dismiss, draft, dread, elaborate, end, engage, enjoy, entertain, escape, examine, excite, exercise, experience, express, find, finish, fit, give, govern, happen, hate, hurt, imagine, influence, interview, judge, know, last, learn, lecture, loathe, lose, love, make, match, measure, meet, notice, observe, organize, participate, perform, praise, pray, present, preside, prove, pursue, question, read, realize, receive, recognize, regard, relish, remember, remind, represent, resign, respect, retain, review, rule, save, seem, select, settle, share, show, sign, sin, study, sum, survive, teach, test, think, trace, trouble, trust, understand, use, view, vote, witness, worry, write
4	approach, bear, blow, break, bring, burn, carry, cast, catch, climb, cover, cross, cut, deliver, dig, draw, enter, fall, fashion, fill, fire, fix, fly, frame, hand, hang, hold, land, leave, move, nail, overlook, paint, pass, place, put, sail, scale, see, seethe, set, shoot, sink, stroll, suspend, take, walk, wheel, wrap
5	add, chew, do, drink, eat, garnish, get, nibble, sample, seed, smell, sniff, spit, suck, swallow, taste
6	bask, brag, breathe, breed, chill, conceal, crop, feel, flush, gallop, grow, hide, keep, lay, lie, linger, listen, look, mate, mingle, paw, pet, relax, sense, shrink, sit, sleep, soften, stand, stare, stay, strut, wait, watch
7	announce, call, celebrate, die, dine, fight, join, kill, lead, live, march, marry, name, parade, score, starve, visit, win
8	beat, check, clean, dress, drop, dry, flip, hit, inspect, iron, jump, kick, kiss, knot, lift, lock, miss, open, pack, peek, pick, pinch, pitch, pound, press, pull, punch, push, rock, roll, rub, rummage, run, shake, skip, slide, smack, smear, snap, sort, stick, stuff, switch, throw, touch, turn, wash, wave, wear, yank
9	build, change, compete, condense, create, develop, dismantle, establish, focus, form, fulfill, furnish, handle, improve, increase, induce, install, maintain, market, mirror, prevent, reconstruct, rely, satisfy, shift, supply, support, symbolize, work
10	bat, broadcast, coach, dispatch, drive, explore, fish, hike, hunt, park, pilot, race, release, ride, roam, search, send, shore, speed, tackle, tape, tow, track, transport, trap, travel
11	bond, borrow, buy, cash, collect, count, deduct, own, pay, sell, spend