The ADV speaking-construction in American English: A quantitative corpus-based investigation

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Abstract

In this article, the author applies the theory of frame semantics, a usage-based model of construction grammar, and quantitative corpus-based methodology to investigate the nature of the *ADV speaking-construction* in American English, an adverbial participle construction that has not been previously explored using quantitative corpus-based methods. To investigate this construction, the author extracted its occurrences from the Corpus of Contemporary American English (COCA), analysed its structural, semantic, distributional and discourse-functional properties, and identified adverbs that frequently appear in the construction. The investigation reveals that the construction tends to combine with speech-functional adverbs, which evoke different semantic frames. It commonly occurs in spoken and written registers and serves various functions in discourse. In particular, it is used frequently in spoken discourse and academic prose to comment on the manner of conveying a message and to express speakers' stances and attitudes toward various topics.

Key words

adverbs, adverbials, usage-based grammar, frame semantics, COCA, corpus-based study

1. Introductory remarks and literature review

Since the publication of Greenbaum's (1969) study of adverbials, adverbs functioning as adjuncts and disjuncts, their semantic categories and their syntactic realizations have been investigated extensively by grammarians and other researchers over the last few decades (e.g. Jackendoff, 1972; Leech, 1974; Bellert, 1977; Quirk et al., 1985; Biber et al., 1999; Huddleston and Pullum, 2002; Halliday, 2004; Halliday and Matthiessen, 2014). For example, Jackendoff (1972, chap. 3) was one of the first scholars who argued explicitly for a non-transformational account of adverbs. He differentiated several categories of adverbs, one of which is the class of *speaker-oriented adverbs*, such as *frankly*, *sincerely* or *truthfully* (see also Ernst, 2009, for an account of these adverbs). He observed that speaker-oriented adverbs are commonly used in sentence-initial position and are followed by a slight intonational break. Bellert (1977) divided Jackendoff's class of speaker-oriented adverbs into five distinct subclasses, among which are evaluative adverbs (*happily* and *unfortunately*); modal adverbs (*evidently* and *probably*); and pragmatic adverbs (*frankly*, *sincerely*, *honestly*, *truthfully*, *briefly*, *precisely*, *roughly*, *approximately*, etc.). Bellert's pragmatic adverbs correspond to Greenbaum's (1969, p. 93) *style disjuncts* and Leech's (1974, p. 356) *speech-act adverbials*. In literature, speech-act adverbs are usually treated as a subclass of speaker-oriented sentence adverbials that fall into the category of predicational adverbials. More

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detailed explanations of such adverbials are provided by Ernst (2001) and Maienborn and Schäfer (2019).

Greenbaum's division of adverbials into adjuncts and disjuncts was further adopted by Quirk et al. (1985), who distinguished them based on their meaning and placement in a clause. Adjuncts were defined as adverbials that are integrated with the clause structure, while disjuncts as those that are more peripheral to the basic clause structure. In semantic terms, adjuncts were designated as adverbials of space (position, direction and distance); time (position, duration, frequency and relationship); process (manner, means, instrument and agentive); contingency (cause, reason, purpose, result, condition and concession); modality (emphasis, approximation and restriction); and degree (amplification, diminution and measure). By comparison, disjuncts were treated as adverbials that comment on the content or style of what is being said or written (cf. Greenbaum, 1969). Hence, Quirk et al. (1985) divided them into two types: disjuncts of style (manner and modality: *candidly*, *seriously*, *truly*, *frankly*, *honestly* or *simply*; respect: *figuratively*, *generally*, *literally*, *metaphorically*, *personally* or *strictly*) and disjuncts of content (degree of truth: *admittedly*, *arguably*, *undeniably*, *undoubtedly*, *formally*, *hypothetically*, etc.; value judgment: *correctly*, *unjustly*, *unwisely*, *amazingly*, *incredibly*, *ironically*, *astonishingly*, *curiously*, etc.).

The corresponding terms *circumstantial adverbials* and *stance adverbials* were also introduced by Biber et al. (1999, p. 763). Circumstantial adverbials were defined as adverbials that contribute to the information about the action or state mentioned in the clause; they answer *wh*-questions with how, when, where, how much, to what extent, and why (Biber et al., 1999, p. 763). Stance adverbials in turn were interpreted as those that "typically express the attitude of the speaker/writer toward the form or content of the message" (Biber et al., 1999, p. 131; see also Biber and Finegan, 1988, 1989; Conrad and Biber, 1999). The definitions of these categories, however, were practically equivalent to those proposed by Quirk et al. (1985, p. 501).

Two similar terms, *circumstantial adjuncts* and *modal adjuncts*, were coined in Systematic Functional Grammar (Halliday, 2004, p. 123; Halliday and Matthiessen, 2014, pp. 156–157). According to Halliday (2004, pp. 124–126), circumstantial adjuncts are adverbials that play a significant role in transitivity and fulfil experiential metafunctions: i.e. they refer to different entities and relations in the world. Modal adjuncts in turn serve interpersonal metafunctions because their meanings are connected with the domains of mood, modality, and comment (modal assessment).

Approximately, in all the studies mentioned above, adjuncts or circumstantial adverbials were defined as optional components that contribute to the referential meaning, whereas disjuncts or mood-stance adverbials as those that "express the speaker's attitude to what he is saying" (Greenbaum, 1969, p. 94), introduce "the speaker's comment on the form he is giving his message" (Hasselgård, 2010, p. 21), or "convey the speaker's evaluation of something in the proposition" (Hasselgård, 2010, p. 19). These latter categories are usually divided into subclasses that reflect the various meanings associated with stance adverbials. For example, Biber et al. (1999, pp. 853–857) classified stance adverbials into three subcategories: adverbials of attitude (e.g. *unfortunately*, *inevitably*, *sensibly* or *hopefully*), style (*honestly*, *frankly*, *strictly*, *figuratively*, *confidentially* or *truthfully*), and epistemic stance (doubt and certainty: *undoubtedly* or *certainly*; actuality and reality: *really* or *actually*; source of knowledge: *evidently*, *reportedly* or *apparently*; limitation: *mainly*, *typically*, *generally* or *largely*; viewpoint or perspective: *in our view* or *from our perspective*; imprecision: *kind of*, *sort of* or *roughly*).

A different classification of such adverbials was proposed by Halliday (2004), who distinguished two major subclasses of modal adjuncts: mood adjuncts and comment adjuncts. According to Halliday and Matthiessen (2014, pp. 187–192), mood adjuncts are closely related to the meanings enacted by the mood system: modality (e.g. *possibly*, *probably*, *usually* or *rarely*), temporality (e.g. *eventually*, *still* or *soon*), and intensity (*totally*, *nearly*, *hardly* or *simply*), while comment adjuncts are less strongly associated with the grammar of mood. In addition, comment adjuncts are confined to indicative clauses that serve as propositions, and they signal the speaker's attitude either to the whole proposition or to the specific speech function. In other words, the target of the comment may be ideational (propositional) or interpersonal (speech-functional) (Halliday and Matthiessen, 2014, p. 190). Typical examples of propositional (ideational) adjuncts are *naturally*, *clearly*, *predictably*, *arguably*, *luckily*, *sadly* or *importantly*. Speech-functional adjuncts fall into two subtypes, qualified and unqualified. The qualified types are closely tied to projection (reports, ideas, and facts); they are typically used to denote general or specific validity (*generally*, *broadly*, *roughly*, *academically*, *really*, *legally*, etc.) and a speaker's engagement (*frankly*, *candidly*, *confidentially*, *personally*, etc.). The unqualified types are either factual

claims of veracity (*actually*, *really* or *in fact*) or signals of assurance or concession (*truly*, *seriously* or *admittedly*).

Finally, Huddleston and Pullum (2002) were the only grammarians that did not distinguish between the two types of adverbials. They applied the term *adjunct* to the semantic classes found among circumstantial and stance adverbials (Biber et al., 1999) and the corresponding semantic categories defined by Quirk et al. (1985) and Halliday (2004). However, they used the same criteria formulated by Quirk et al. (1985, p. 504) to differentiate between semantic classes. Among these diagnostic criteria were "focus potential" and "questioning" (2002, pp. 666–7), which help to distinguish between adjuncts and disjuncts. Huddleston and Pullum (2002, p. 667) also introduced the concept of "restrictive" adjuncts, i.e. adverbials that have a "bearing on the truth of the utterance" – the term is similar to Quirk et al.'s class of adjuncts. In the current study, terms such as *disjunct*, *sentence adverbial*, or *modal adjunct* are occasionally used interchangeably to refer to either the function of the *ADV speaking*-construction in discourse or the discourse-functional properties of individual adverbs.

Despite the proliferation of publications on adverbs and their adverbial functions within a clause (e.g. Schreiber, 1972; Ernst, 2007, 2009), to the best of the author's knowledge, no single study has thus far investigated the occurrence of adverbs in the *ADV speaking*-construction and the nature of this kind of construction functioning as a sentence adjunct or disjunct. Some researchers have solely mentioned this pattern in passing or have provided one or two examples of its usage in their accounts of adverbs or adverbials (e.g. Ernst, 2001, 2004; Lang, Maienborn, and Fabricius-Hansen, 2003; Downing and Locke, 2005; Hasselgård, 2010; Maienborn and Schäfer, 2019; Duplâtre and Modicom, 2022). Ernst (2001, p. 44) only mentioned that *roughly*, a degree-of-precision adverb, is used to introduce an approximation in the following proposition; thus, it is equivalent to *roughly speaking* in this "speech-act" or "pragmatic" usage (cf. Mittwoch, 1976; see also Ernst, 2007, 2009). In his later article, Ernst (2004, p. 106) noted that the adverb *psychologically* can colligate with *speaking* to mark a specific domain (cf. Bellert, 1977). Likewise, Lang, Maienborn, and Fabricius-Hansen (2003, p. 9) interpreted *botanically speaking* as a domain adjunct. Downing and Locke (2005, p.74) gave an example of *strictly speaking* to indicate that stance adjuncts can be realized by a non-finite clause (see also Quirk et al., 1985, p. 617, for a similar observation). Hasselgård (2010, p. 21) classified *honestly speaking* as a sentence adjunct or disjunct, while Duplâtre and Modicom (2022, p.198) noted that the adverb *historically* can be used with the word *speaking* as a domain marker to denote "from a historical point of view". Lastly, Maienborn and Schäfer (2019, p. 1396) recognized that speech-act adverbials (see Leech, 1974, p. 356, for the explanation of this term), such as *frankly*, *honestly*, *briefly* or *roughly*, can be supplemented with the participle *speaking* without change in meaning, as in *honestly speaking*.

Likewise, the construction at issue has received little treatment in reference grammars to date. For example, the authors of *Collins Cobuild English Grammar* (Hands, 2017, p. 445) solely mentioned that *speaking* is occasionally added to sentence adverbials (disjuncts) such as *technically*, *politically*, *academically*, *socially*, *legally*, *financially*, and several others to refer to "a particular aspect of something", and that the expressions *broadly speaking*, *generally speaking*, and *roughly speaking* can be used for generalizing about something (2017, p. 446). Biber et al. (1999, p. 764, p. 857, p. 866), the editors of *Longman Grammar of Spoken and Written English*, in turn ascribed combinations such as *technically speaking*, *figuratively speaking*, *generally speaking*, and *comparatively speaking* to the category of style stance adverbials. Quirk et al. (1985, pp. 568–569), the authors of *A Comprehensive Grammar of the English Language*, classified *economically speaking* and *morally speaking* as viewpoint subjuncts, while *generally speaking* and *frankly speaking* as style disjuncts (Quirk et al., 1985, pp. 616-617). Style disjuncts "convey the speaker's comment on the style and form of what he is saying, defining in some way under what conditions he is speaking as the 'authority' for the utterance" (Quirk et al., 1985, p. 615), whereas viewpoint subjuncts denote "from a particular point of view", are non-gradable, and are mainly derived from classifying adjectives (cf. Quirk et al., 1985, pp. 568–569). Finally, Halliday and Matthiessen (2014, p. 191), in *Halliday's Introduction to Functional Grammar*, noted that qualified speech-functional adjuncts, such as *generally*, *broadly*, *roughly*, *academically*, *legally*, *politically*, *frankly*, *candidly*, *honestly*, *personally* or *strictly*, can be followed by *speaking*, while unqualified types, such as *truly*, *seriously*, *admittedly*, *certainly*, *actually* or *really*, cannot be used with *speaking*.

In addition, thus far, no single study has sought to postulate the occurrence of the *ADV speaking*-construction (a pairing of form and meaning/function in its own right), determine its different linguistic

features, quantify adverbs in this construction, and identify the most frequent patterns of its usage. Thus, because of these research gaps, this article attempts to achieve several goals: first, to posit the existence of the *ADV speaking*-construction in a constructional cline; second, to identify its structural, semantic, pragmatic, distributional, and discourse-functional properties; and third, to determine those adverbs that are strongly associated with the pattern in question.

The rest of this article is organized into three sections. Section 2 outlines the theoretical and methodological frameworks implemented in the corpus-based study. In addition, it explains the nature of data and their sources, the process of data extraction and quantification, and the tools and procedures adopted for their retrieval and statistical evaluation. Section 3 presents and discusses the results. First, it examines structural, semantic, distributional, and discourse-functional properties of the *ADV speaking*-construction. Then, it presents and interprets the results of the quantitative investigation of adverbs colligating with *speaking* in this construction. Section 3 concludes with a summary of the findings of this research.

2. Theory and methodology

This section provides an overview of the theoretical and methodological frameworks utilized in this study.

2.1 Theoretical frameworks

2.1.1 Construction grammar

In this article, a usage-based model of construction grammar and the theoretical principles of frame semantics are applied to identify formal and semantic properties of the construction under study. Usage-based construction grammar emphasizes the importance of usage for the cognitive representation of grammatical knowledge, as defined by Barlow and Kemmer (2000), Bybee (2010), Bybee and Beckner (2010), Goldberg (2013), Diessel (2019), and Hoffmann (2017). This theory rests on three main assumptions. First, grammar consists of linguistic units, i.e. constructions, that connect a specific structural pattern with a particular meaning or function. For example, the combination of the adverb *generally* with *speaking* is a construction because it has a complex form, such as [Adverb + the present participle *speaking*]), and a specific meaning or function, such as "in general terms", which are conventionally connected. Second, all grammatical units (i.e. constructions involving both lexical and grammatical elements) are related to each other by different types of links so that grammar can be construed as a dynamic system of interconnected constructions (cf. Diessel, 2019, p. 51). Thirdly, linguistic signs that occur frequently become entrenched in a speaker's linguistic system and acquire the status of constructions (Croft and Cruse, 2004, pp. 292–293; Divjak and Caldwell-Harris, 2015).

2.1.2 Frame semantics

Frame semantics in turn is an approach to lexical semantics developed by Charles Fillmore and his associates (e.g., Fillmore, 2006; Fillmore, Lee-Goldman, and Rhodes, 2012; Boas, 2021) in the last three decades. It assumes that the meanings of words should be interpreted against the background knowledge (a schematic knowledge structure) referred to as *a semantic frame*. For example, the meaning of the verb *speak* can be understood relative to the STATEMENT frame, in which a speaker communicates a certain message about a particular topic to some addressee. This frame consists of core and non-core frame elements (FEs), which can be treated as participant roles realized by specific lexical items evoking this frame. Core FEs, such as a speaker, a message, a medium, and a topic, are crucial for the meaning of the frame, while non-core FEs (e.g. an addressee, time, place or manner) are more peripheral and descriptive.

In this study, the theory of frame semantics is adopted to define the semantics of the construction under consideration and the meanings of adverbs associated with the participle *speaking*. Some semantic frames, including STATEMENT, CANDIDNESS, MORALITY_EVALUATION, and TYPICALITY, as well as their modified descriptions, are taken from the FrameNet lexical database (Boas, 2017; see The FrameNet project in data sources). These descriptions are paraphrases that include core-frame elements, typical participants, and roles that can be found in a given situation. The remaining frames, such as DOMAIN-SPECIFIC STATEMENT, GENERAL STATEMENT, ACCURATE STATEMENT, COMPARISON, LITERAL OR FIGURATIVE USAGE, REAL OR HYPOTHETICAL STATEMENT, EMPHASIZING IMPORTANCE, SIMPLICITY OF

THE STATEMENT, or FORMALITY OF THE STATEMENT, were developed by the author himself to more precisely and accurately define the meanings associated with the adverbs and the participle *speaking*. These frames are narrowed down in their semantic scope to the specific manner or style in which the message is conveyed by the speaker. For example, frames such as DOMAIN-SPECIFIC STATEMENT or GENERAL STATEMENT are more specific versions of the STATEMENT frame because they inherit the semantic properties of that frame but are also restricted in their semantic scope to a domain-specific sense and general statement, respectively.

All the semantic frames were identified based on a simple semantic test: a given adverb (i.e. the adverb that is being tested for its evocation of a semantic frame) evokes a particular frame when its meaning in a context and co-text activates the background knowledge associated with this word. This test involved reading the entire context (including a preceding and following sentence) in which a specific instance of the *ADV speaking*-construction is used to establish a general understanding of the discourse, identifying the lexical units in the context, establishing the meaning of the lexical unit (an adverb) based on its use in this context and co-text (e.g. the way it applies to an entity and its relation in the situation evoked by the contextual meaning), and determining the background knowledge connected with this word.

2.2 Methodological frameworks

2.2.1 Method

Regarding the methodology, this study applies the attraction-reliance measure (Schmid, 2000; Schmid and Küchenhoff, 2013), a quantitative corpus-based method that is specifically adapted for investigating the mutual interdependence between a particular construction and words occurring in one slot of this particular pattern. Attraction is used to compute the degree to which a particular word is attracted to the construction, whereas reliance is applied to measure the degree to which a word is reliant on the pattern under study in comparison with other patterns in the corpus. The first calculation is normally performed by dividing the observed frequency of occurrence of a word in the construction by the total frequency of the construction in the corpus, whereas the second one is undertaken by dividing the frequency of occurrence of a word in the construction by its frequency of occurrence in the whole corpus (cf. Schmid, 2000, p.54). The percentage results of both statistical measures are interpreted as indicators of attraction and reliance: the higher the percentage, the stronger the attraction and reliance.

2.2.2 Corpus data

The source of data in this study is an earlier version of the well-balanced Corpus of Contemporary American English (COCA). This electronic corpus covers the years between 1990 and 2017 and contains a 560-million-word text database of samples of written and spoken American English from a wide range of sources, including spoken transcripts (different TV and radio programmes); fiction (short stories and plays); popular magazines covering a wide variety of domains (e.g. news, health, sports, religion or finance); newspapers (10 American newspapers, including USA Today, San Francisco Chronicle, New York Times, etc.), and academic registers (a large collection of peer-reviewed journals). In March 2020, COCA was updated and now contains more than one billion words of text from eight genres: spoken, fiction, popular magazines, newspapers, academic texts, TV and movie subtitles, blogs, and other web pages.

2.2.3 Data retrieval and their evaluation

The data retrieval process involved several steps. First, the search engine in COCA was used to automatically retrieve the observed frequencies of adverbs that collocate with the participle *speaking*. The search engine was instructed to retrieve all combinations of *ADV speaking*, including phrases like *generally speaking*, *strictly speaking*, and *relatively speaking*. Next, all patterns of usage were manually inspected to identify true combinations, i.e. the occurrences of adverbs with the participle *speaking* functioning holistically as disjuncts. Any false hits, such as the combinations of adverbs like *just*, *still*, or *now* with *speaking* in finite clauses (e.g. *I'm just speaking*, *John was still speaking*, or *Joe Biden is now speaking at his first campaign event*) were discarded from further analysis. The observed frequencies of occurrence (e.g. a: the frequency of the adverb *generally* in the *ADV speaking*-construction and x: the total frequency of all adverbs in the construction) were calculated manually by

inspecting concordance lines. In contrast, the total frequencies of adverbs in COCA (e.g. e: the total frequency of the adverb *generally*) were computed automatically by the software program. The results of these calculations are presented in Table 1 below.

Next, the observed frequencies (a, x, and e) in Table 1 below were entered into an Excel worksheet and used to calculate Schmid's measures of attraction and reliance (cf. Wiliński, 2021). Attraction was estimated by dividing the observed frequency of each adverb in the *ADV speaking*-construction by the total frequency of all adverbs in this construction, whereas reliance was calculated by dividing the frequency of occurrence of an adverb in the construction under study by its frequency of occurrence in COCA (cf. Schmid 2000: 54). The scores of attraction and reliance were expressed as percentages by multiplying the raw frequency of a particular adverb in the *ADV speaking*-construction in each case by 100. The percentage results were treated as indices of attraction or reliance: the higher the percentage, the stronger the attraction to, and reliance on, the *ADV speaking*-construction; conversely, the lower the percentage, the weaker the attraction to, and reliance on, the construction (cf. Wiliński, 2021). In other words, upon evaluating the findings presented in Tables 3 and 4, the most frequent adverbs observed in the corpus, i.e. with the highest scores of attraction expressed as percentages, were considered the most significant lexemes that are strongly attracted to collocate with the participle *speaking*. By contrast, the least common adverbs, i.e. with the lowest scores of attraction, were treated as the least significant lexemes that are weakly or loosely attracted to the construction under study.

Table 1. Frequency data for a quantitative analysis

adverb	a	x	e	attraction	reliance
generally	1147	4290	45447	26.74%	2.52%

Note: a = The frequency of the adverb *generally* in the ADV *speaking*-construction; x = The total frequency of all adverbs in the construction; e = The total frequency of the adverb *generally* in COCA

A quick look at Table 1 reveals that *generally* occurs 1,147 times in the *ADV speaking*-pattern. Its score of attraction is also high, at 26.74%, compared to the other results in Table 4. This means that the adverb accounts for 26.74% of all adverb use in the construction. In other words, *generally* is strongly attracted to the *ADV speaking*-construction. However, as shown in the last column, its score of reliance (2.52%) is lower than its score of attraction. This indicates that only 2.52% of the occurrences of *generally* are observed in the ADV *speaking*-construction compared to other contexts where it appears. This implies that *generally* is more commonly used in other contexts, with 97.48% of its usage relying on patterns outside of the ADV *speaking*-construction. The results were sorted according to the score of attraction and then subjected to further qualitative analysis.

3. Results and discussion

3.1 Corpus-based observations on the *ADV speaking*-construction

A large body of empirical evidence gathered from the Corpus of Contemporary American English supports the existence of the *ADV speaking*-construction, a pattern that is partially filled with lexical components and contains one fixed component (the participle *speaking*) and one flexible slot that can be filled by a variety of adverbs falling into specific semantic categories. Examples of this construction in discourse include the following sentences from COCA:

(1) Cuba, *generally speaking*, is a Catholic country. (SPOK: CNN: New Day)
(2) *Strictly speaking*, he is at the tail end of the Boomer generation. (MAG: Atlantic Monthly)
(3) Sometimes people say things that may not be true to get an edge, *politically speaking*. (NEWS: Houston Chronicle)
(4) The sun, *figuratively speaking*, accepted me in its flaming embrace. (FIC: The Virginia Quarterly Review)
(5) It can, *comparatively speaking*, create a democratic spirit inside the party. (ACAD: Asian Affairs)
(6) *Frankly speaking*, nobody ever said any such things. (SPOK: NPR_Weekend)

A brief examination of these examples reveals that the sentences can be divided into two main parts. One consists of the present participle construction that can be introduced at the beginning of the sentence, inserted in the middle, or placed in the final position (see Frey, 2003, for the discussion of the possible placement of sentence adverbials). The other is constituted by a finite clause, usually placed at the end, but also frequently intruded by the participle construction, as in (1), (4) or (5). The participle construction is italicized in the examples above, and the finite clause is non-italicized. The participle construction contains a specific adverb that functions as an adverbial complement, an obligatory component that cannot be omitted in this construction. Thus, the occurrence of *speaking* with these adverbs or their lexical co-selection in a particular context is restricted semantically and pragmatically. In other words, the omission of each adverb results in odd, unnatural, or unconventional uses of the participle *speaking*, as in the following sentence: *Cuba, * speaking, is a Catholic country*, where the asterisk stands for the missing adverb.

3.1.1 Structural and semantic-functional properties

The grammatical structure of this construction can be represented as [ADVERB *speaking*, FINITE CLAUSE], as shown in Table 2 below. The participle *speaking* is introduced by a specific adverb and is usually followed by a comma and a finite clause. The adverb and the participle together form an adverbial participle clause, which functions as a sentence adjunct, encoding the speaker's intention, interpersonal meaning, and point of view regarding the message. The primary communicative function of this adverbial participle construction is to signal the speaker's stance, attitude, or viewpoint toward the message and to comment on the style or form of the utterance. This construction frequently clarifies how the speaker is conveying the message or how the utterance should be understood. Similar functions of disjuncts or stance adverbials can be found in Quirk et al. (1985) or Biber et al. (1999).

This construction can be treated as an optional element of the sentence, a sentence adverbial that can be omitted in some sentences, since it operates outside the structural limits of the whole sentence, as in examples (1) to (6). On the other hand, in most cases, as in all of the above examples, this participle construction influences the entire sentence: that is, the adverbial clause introduces an impersonal comment on the content or style of the entire proposition, ascribing a certain property to the sentential basis and thus combining with the overall proposition expressed by the rest of the sentence (cf. Ernst, 2001; Maienborn and Schäfer, 2019). The comma separates an adverbial participle clause from a finite clause and is used to indicate a pause between two parts of the sentence. The finite clause normally has a topic-comment structure and designates situations: states or occurrences (activities, accomplishments or achievements). The subject introduces given information, while the predicate expresses new information.

As for the semantics of this construction, its different instantiations in (1) to (6) evoke the STATEMENT frame, in which a speaker communicates a certain message about a particular topic to some addressee in a particular manner or style. The style or manner of speaking is indicated or marked by this construction itself, while the message about a specific topic is expressed by a finite clause. Both the subject (a topic) and the predicate (a comment) in the finite clause convey a specific message. The addressee is not explicitly stated in the entire sentence but rather implied. These specific features of this construction are summarized in Table 2 below.

Table 2. Features of the ADV speaking-construction

form	an adverbial participle clause: *adverb* + the present participle *speaking*	(,)	finite clause (subject + predicate)
meaning	the STATEMENT frame	a comma	states/activities/achievements/ accomplishments/
function	a sentence adverbial or disjunct	a punctuation mark indicating a slight pause or transition	topic/comment; given/new

3.1.2 Variants of the construction and alternative structures

Additionally, there are two other variants of the construction under scrutiny. One variant form does not use an adverbial participle clause; instead, many adverbs are commonly used separately as style disjuncts to express a manner of speaking or to pertain to a particular aspect of something. Examples of these adverbs include *generally*, *honestly*, *politically*, *figuratively*, among others, as in the following sentences:

(7) *Generally*, the private sector is miles ahead of any government. (NEWS: Christian Science Monitor)
(8) *Honestly*, I don't know what she's going to do. (SPOK: FOX HANNITY)
(9) *Politically*, the overriding question is German unification. (NEWS: New York Times)
(10) *Figuratively*, Kennedy was Willow's anchor. (MAG: Nerdist)

Furthermore, most of the adverbs that function as style adjuncts have corresponding variants with the participle *speaking* in the corpus. However, unlike the canonical form of the participle construction under study, where the adverb comes before the present participle (e.g. *generally speaking* or *frankly speaking*), in these equivalent forms, the present participle is followed by specific adverbs, forming an adverbial clause with a present participle. Examples of such forms include (11) and (12):

(11) *Speaking strictly*, I was surprised it hadn't happened sooner. (MAG: Atlantic)
(12) *Speaking generally*, Thomas gave her an explanation of how honest athletes turn bad. (NEWS: New York Times)

Despite this, these variant forms are less frequent than the participle constructions *strictly speaking* or *generally speaking*. For example, *strictly speaking* appears 478 times in COCA, while *speaking strictly* is used only 19 times. Similarly, *generally speaking* is more commonly used than *speaking generally*, with 1,147 and 48 occurrences, respectively.

Alternatively, speakers can use prepositional phrases formed with classifying adjectives to specify the field of reference. For example, *in political terms*, *from a historical point of view*, or *from an economic perspective* can be used for this purpose. Parallel prepositional structures can also be created using the nouns associated with these adjectives. For example, *in policy terms*, *in terms of history*, or *with regard to the economy* can be used instead of *in political terms*, *from a historical point of view*, or *from an economic perspective*. Lastly, when a speaker aims to clarify which aspect of something they are discussing or to state that something is important in the field of history, economics, or politics, they can use sentence adverbs derived from classifying adjectives. For instance, *historically important*, *economically important*, or *politically important* can be used with the adjective *important*.

3.1.3 Productivity of the *ADV speaking*-construction

This construction is highly productive in English. The grammatical template mentioned above can be applied freely in various contexts, creating numerous combinations. For instance, any sentence adjunct can usually be used before the participle *speaking* to indicate a domain, specify a field of reference, or refer to a particular aspect of something (e.g. *financially speaking*, *technically speaking*, or *politically speaking*). This feature is highly productive, allowing speakers to use the pattern presented above creatively and originally, granting them greater freedom of expression in English. The productivity of this constructional schema is also evident in combinations like *broadly speaking*, *generally speaking*, and *roughly speaking*, which are commonly used by speakers or writers in a broad range of contexts to make general, basic or approximate statements or to avoid making firm, forceful comments.

3.1.4 Distributional properties

Regarding the distribution of the *ADV speaking*-construction across different registers in COCA, Table 3 below presents the observed frequencies of the 20 most significant adverbs that collocate with the participle *speaking* in the five sections of the corpus. A closer examination of these frequencies indicates that the construction is prevalent in academic and spoken registers, is relatively common in written texts, such as magazines and newspapers, and tends to occur frequently in fiction. These corpus

findings are consistent with the results of a corpus-based investigation into adverbial stance markers (e.g. *generally*, *honestly*, *frankly* or *roughly*) conducted by Biber et al. (1999). Biber et al. (1999, p. 979) noted that individual stance adverbs are common in all four registers (conversation, fiction, academic prose, and newspapers), particularly in conversation and academic prose.

Table 3. The distribution of the construction across registers

rank	adverbs	ALL	SPOK	FIC	MAG	NEWS	ACAD
1.	generally	1147	397	72	192	155	331
2.	strictly	478	24	110	99	32	213
3.	broadly	220	35	6	52	20	107
4.	relatively	214	60	30	42	40	42
5.	practically	178	37	20	34	28	59
6.	technically	138	16	30	45	14	33
7.	roughly	117	23	7	31	8	48
8.	politically	96	53	4	17	10	12
9.	properly	94	1	18	8	2	65
10.	statistically	84	16	16	27	20	5
11.	historically	82	25	2	15	14	26
12.	figuratively	63	14	19	14	8	8
13.	legally	57	19	12	11	11	4
14.	comparatively	53	7	6	7	18	15
15.	metaphorically	53	7	15	10	4	17
16.	frankly	41	19	6	3	11	2
17.	geologically	31	5	6	13	3	4
18.	realistically	27	13	1	5	5	3
19.	economically	26	11	1	5	2	7
20.	objectively	25	8	5	4	1	7

As can be observed in Table 3, the construction in question is unevenly distributed in COCA. For example, combinations with *generally*, *relatively*, *politically*, *figuratively*, *legally*, *frankly*, *realistically*, and *economically* are more common in spoken discourse than in academic prose. On the other hand, patterns of usage with *strictly*, *broadly*, *practically*, *roughly*, *properly* and *metaphorically* are far more frequent in academic texts than in other registers. Combinations with *strictly*, *properly*, *figuratively* or *metaphorically* in turn tend to occur more frequently in fiction than in spoken discourse. Finally, patterns with *technically*, *roughly*, *politically*, *statistically*, *figuratively* or *geologically* are relatively less frequent in newspapers than in magazines.

The ranking list is headed by frequently used adverbials, including *generally*, *strictly*, *broadly*, *relatively*, *practically*, *technically*, *roughly* and *properly*. These stance markers are commonly found in academic registers and are associated with specific functions in academic discourse. Adverbials like *generally*, *broadly* or *roughly* are frequently used in academic discourse to mitigate the author's assertiveness, while *strictly*, *practically* or *technically* can be employed to comment explicitly on the manner or form of speaking in order to manage ongoing academic discourse. Adverbials such as *strictly speaking*, *technically speaking* and *properly speaking* can also be used to refine a speaker's utterance by providing more precise language or to indicate reformulations. Finally, *relatively speaking* is used to draw comparisons between factual information and similar facts.

3.2 Quantitative findings and their interpretation

The frequencies of adverbs extracted from the corpus covered 319 different types of adverbs, with the majority of them (148 types) occurring only once in the construction under consideration. However, due to space limitations, this section will only focus on the quantitative findings of the 60 most frequently used adverbs in the construction. Nonetheless, several other occurrences of adverbs found in the corpus will be mentioned briefly during the discussion of the findings. To demonstrate their domain-specific use, several dozen adverbs will also be listed in Table 6. Table 4 and Table 5 present the scores of attraction and reliance for the 60 most significant adverbs. Each table contains 30 adverbs, along with

their raw frequency in the construction, the total frequency of all adverbs in the construction, and the total frequency of these adverbs in the entire corpus.

Table 4. The 30 most strongly attracted adverbs of the ADV speaking-construction

rank	adverbs	a	x	e	attraction	reliance
1.	generally	1147	4290	45447	26.74%	2.52%
2.	strictly	478	4290	7016	11.14%	6.81%
3.	broadly	220	4290	5464	5.13%	4.03%
4.	relatively	214	4290	35944	4.99%	0.60%
5.	practically	178	4290	9723	4.15%	1.83%
6.	technically	138	4290	5474	3.22%	2.52%
7.	roughly	117	4290	18430	2.73%	0.63%
8.	politically	96	4290	15391	2.24%	0.62%
9.	properly	94	4290	16130	2.19%	0.58%
10.	statistically	84	4290	14904	1.96%	0.56%
11.	historically	82	4290	10505	1.91%	0.78%
12.	figuratively	63	4290	799	1.47%	7.88%
13.	legally	57	4290	8112	1.33%	0.70%
14.	metaphorically	53	4290	807	1.24%	6.57%
15.	comparatively	53	4290	2085	1.24%	2.54%
16.	frankly	41	4290	12669	0.96%	0.32%
17.	geologically	31	4290	219	0.72%	14.16%
18.	realistically	27	4290	1611	0.63%	1.68%
19.	economically	26	4290	6873	0.61%	0.38%
20.	objectively	25	4290	1422	0.58%	1.76%
21.	financially	24	4290	5936	0.56%	0.40%
22.	evolutionarily	24	4290	199	0.56%	12.06%
23.	culturally	23	4290	6163	0.54%	0.37%
24.	simply	22	4290	89660	0.51%	0.02%
25.	musically	20	4290	1166	0.47%	1.72%
26.	technologically	20	4290	1323	0.47%	1.51%
27.	professionally	19	4290	3182	0.44%	0.60%
28.	mathematically	19	4290	767	0.44%	2.48%
29.	biologically	18	4290	1324	0.42%	1.36%
30.	scientifically	18	4290	1976	0.42%	0.91%

Note: **a** = The frequency of the adverb *generally* in the *ADV speaking*-construction; **x** = The total frequency of all adverbs in the construction; **e** = The total frequency of the adverb *generally* in COCA

The quantitative data and findings presented in both tables are organized and ranked based on the measure of attraction. These results support the hypothesis that certain adverbs strongly associate with the *ADV speaking*-construction. A brief examination of the findings reveals that the top of Table 4 contains adverbs with exceptionally high frequencies, such as *generally*, *strictly*, *broadly* and *relatively*. The primary reason why these adverbs occupy the highest positions in the ranking list is assumed to be their total frequency in COCA overall, which significantly influences their statistical probability of occurrence in the construction under study. For instance, because of their higher frequencies in the construction, *generally* (an attraction score of 26.74%) and *strictly* (an attraction score of 11.14%) received much higher attraction scores than *broadly* (an attraction score of 5.13%) and *relatively* (an attraction score of 4.99%).

In comparison, the reliance list comprises significantly higher scores for less common adverbs that colligate with the construction, such as *geologically* (a reliance score of 14.16%), *evolutionarily* (a reliance score of 12.06%), and *botanically* (a reliance score of 14.52%, see Table 5). The most plausible explanation for these high percentages is that the statistical test used to measure reliance considered the total frequency of each adverb in COCA. In other words, despite *generally* occurring more frequently in the construction than *geologically*, the latter obtained a much higher reliance score

due to its lower frequency of occurrence in COCA (219 occurrences). Consequently, the reliance of *geologically* on the *ADV speaking*-construction is greater (14.16%).

Table 5. The next 30 strongly attracted adverbs

rank	adverbs	a	x	y	attraction	reliance
31.	theoretically	18	4290	3094	0.42%	0.58%
32.	morally	17	4290	4253	0.40%	0.40%
33.	medically	16	4290	1632	0.37%	0.98%
34.	logically	16	4290	1647	0.37%	0.97%
35.	hypothetically	16	4290	343	0.37%	4.66%
36.	genetically	16	4290	4227	0.37%	0.38%
37.	psychologically	16	4290	2247	0.37%	0.71%
38.	formally	15	4290	5832	0.35%	0.26%
39.	literally	13	4290	20129	0.30%	0.06%
40.	loosely	13	4290	3776	0.30%	0.34%
41.	geographically	12	4290	1619	0.28%	0.74%
42.	artistically	12	4290	706	0.28%	1.70%
43.	philosophically	12	4290	869	0.28%	1.38%
44.	physically	11	4290	12817	0.26%	0.09%
45.	theologically	11	4290	630	0.26%	1.75%
46.	ideologically	11	4290	1206	0.26%	0.91%
47.	sexually	9	4290	9319	0.21%	0.10%
48.	personally	9	4290	17183	0.21%	0.05%
49.	honestly	9	4290	8369	0.21%	0.11%
50.	humanly	9	4290	561	0.21%	1.60%
51.	militarily	9	4290	1704	0.21%	0.53%
52.	botanically	9	4290	62	0.21%	14.52%
53.	basically	9	4290	34621	0.21%	0.03%
54.	aesthetically	8	4290	788	0.19%	1.02%
55.	traditionally	8	4290	10113	0.19%	0.08%
56.	typically	8	4290	27655	0.19%	0.03%
57.	symbolically	7	4290	1242	0.16%	0.56%
58.	emotionally	7	4290	7207	0.16%	0.10%
59.	environmentally	7	4290	3740	0.16%	0.19%
60.	chemically	7	4290	1156	0.16%	0.61%

3.2.1 Domain-specific adverbs

The adverbs listed in Tables 4 and 5 can be categorized semantically, with the largest group consisting of adverbials that evoke the DOMAIN-SPECIFIC STATEMENT frame. In this frame, a speaker delivers a message to an addressee, making statements specific to a particular field of reference, topic, subject field, or area of interest, as illustrated in the examples (18) and (19) provided below:

(13) [*Historically*] DOMAIN *speaking*, [that sort of defense has been hard to defeat.] MESSAGE (MAG: U.S. News & World Report)

(14) [*Geologically*] DOMAIN *speaking*, [Southeast Asia lies at the interface of three converging continental plates.] MESSAGE (MAG: Natural History)

The adverb *politically* is the most significant word in this group, ranked 8th with the highest observed frequency and attraction score of 2.24%. It is accompanied by other adverbs, such as *statistically*, *historically*, *geologically*, and others, all of which function as topic restrictors, narrowing down the domain in which the proposition expressed by the rest of the sentence is claimed to hold true (cf. Maienborn and Schäfer, 2019, p. 1397).

(18) *statistically, historically, geologically, economically, financially, evolutionarily, culturally, musically, technologically, professionally, mathematically, biologically, scientifically, logically, genetically, medically, psychologically, geographically, artistically, philosophically, physically, theologically, ideologically, sexually, humanly, personally, militarily, botanically, aesthetically, traditionally, emotionally, environmentally* and *chemically.*

Such adverbials belong to the category of predicational adverbials because they attribute a certain property to the sentential referent they combine with (cf. Ernst, 2001; Maienborn and Schäfer, 2019). These adverbials are formed from classifying adjectives (cf. *Collins Cobuild English Grammar*, 2017, p. 444). Some of these adverbs were mentioned previously in the studies conducted by Bellert (1977), McConnell-Ginet (1982), Bartsch (1986), and Ernst (2004). Table 6 below shows other adverbs serving the function of topic restrictors in discourse, which were observed in the corpus.

Table 6. Other domain-specific adverbs colligating with speaking

anthropologically and *biblically* (with 7 occurrences and an attraction score of 0.16%); *architecturally, astronomically, commercially, conservatively, logistically, educationally, ethically, numerically, sociologically* and *spiritually* (with 6 occurrences and an attraction score of 0.14%); *structurally, strategically, rhetorically, nutritionally, physiologically, etymologically, globally, fiscally, narratively, internationally, constitutionally, clinically, ecologically, demographically, anatomically* and *anecdotally* (with 5 occurrences and an attraction score of 0.12%); *cosmologically, conceptually, linguistically, functionally, proportionally, rationally, theatrically* and *visually* (with 4 occurrences and an attraction score of 0.09%); *socially, temporally, tactically, taxonomically, religiously, racially, scholastically, nationally, ontologically, diplomatically, electronically, metaphysically, methodologically, intellectually, conversationally, cognitively, chronologically, creatively, cosmically, culinarily, domestically, dramatically* and *academically* (with 3 occurrences and an attraction score of 0.07%); *behaviorally, ecumenically, journalistically* (with 2 occurrences and an attraction score of 0.05%), etc.

3.2.2. Adverbs used to make general statements

The second group comprises adverbs that invoke the GENERAL STATEMENT frame, in which a speaker expresses a general feeling or opinion that applies to all the people or things in a group, as seen in examples (21), (22), (23) and (24) below. The most significant lexeme of this category is *generally*, which is followed by *broadly, roughly* and *loosely*, ranked at 3, 7, and 40, respectively. These style adverbials are used to communicate the general style of speaking and allow speakers to be less assertive when formulating their messages.

(19) *Generally speaking*, [barriers to movement are bad for wildlife.] GENERAL STATEMENT (MAG: Scientific American)

(20) *Broadly speaking*, [women tend to be more conservative when it comes to social and moral issues.] GENERAL STATEMENT (ACAD: Political Science Quarterly)

(21) *Roughly speaking*, [insects have two kinds of immune responses.] GENERAL STATEMENT. (ACAD: Natural History)

(22) ["The Emperor's Body" is, *loosely speaking*, a work of historical fiction.] GENERAL STATEMENT (NEWS: Washington Post)

Another example that serves the same purpose, not listed in Tables 4 and 5, is the adverb *generically*, ranked at 95 (with 4 occurrences and an attraction score of 0.09%), as in *Generically speaking, that's outrageous* (NEWS: Washington Post). All these combinations can be treated as realizations of speech-functional comment adjuncts of the qualified type that denote general validity and express the speaker's attitude to the particular speech function (Halliday and Matthiessen, 2014, pp. 190–191).

3.2.3. Adverbs used to formulate accurate statements

The third significant group comprises adverbs that invoke the ACCURATE STATEMENT frame. In this frame, a speaker delivers a message to an addressee in an accurate or precise manner, as exemplified in (25), (26) and (27):

> (23) *Strictly speaking*, [it was Tom and not I who received the snubbing.] _{ACCURATE MESSAGE} (FIC: In the Labyrinth of Drakes)
> (24) *Technically speaking*, [these were exactly the kind of conditions that could get a pilot disoriented] _{ACCURATE MESSAGE.} (FIC: Analog Science Fiction & Fact)
> (25) [Usgaon, *properly speaking*, is divided into three parts.] _{ACCURATE MESSAGE} (FIC: Chicago Review)

Of the adverbs used in this group, *strictly*, ranked second, is the most significant lexeme. It is accompanied by *technically* and *properly* in ranks 6 and 9, respectively. Quantitative analysis shows that *strictly* accounts for 11.14% of occurrences of the construction under study in the Corpus of Contemporary American English (COCA), with 6.81% of those occurrences observed in this specific construction. By comparison, the other two adverbs are much less relevant slot fillers for the pattern, with attraction scores of 3.22% and 2.19%, respectively, and they are less dependent on this pattern, with reliance scores of 2.52% and 0.58%, respectively. In addition to the adverbs mentioned above, corpus data indicates that *precisely* (with 3 occurrences and an attraction score of 0.07%) and *accurately* (with 2 occurrences and an attraction score of 0.05%) also serve the same function, as in *Accurately speaking, however, the matter is not composed of these constitutive unities* (ACAD: Monist) and *He was not, precisely speaking, an atheist, since he did not have a philosophical soul* (Fiction: Chicago Review). All these adverbial collocations with speaking are specific realizations of speech-functional comment adjuncts that express the speaker's perspective and are closely related to the modal assessment of personal engagement (cf. Halliday and Matthiessen, 2014, p. 191).

3.2.4. Adverbs denoting comparison

The two other adverbs that are strongly associated with *speaking* are *relatively* (with an attraction score of 4.99%) and *comparatively* (with an attraction score of 1.24%) in ranks 4 and 15. Their occurrences with this participle can be interpreted relative to the COMPARISON frame, in which a speaker states that a certain fact is true or correct when it is compared with other similar things or factual information, as exemplified in (28) and (29).

> (26) *Comparatively speaking*, [Mono County's population is young, healthy, and upscale.] _{FACT} (NEWS: San Francisco Chronicle)
> (27) It's clear that [St. Louis is a cheap place to live] _{FACT}, *relatively speaking*. (NEWS: St Louis Post_Dispatch)

The use of *relatively* and *comparatively* in these examples suggests that the speaker is making a comparison between the given fact and similar things or factual information. Other adverbs that can be used in this context include *proportionately*, *correspondingly*, *analogously* or *commensurately*, which also indicate a comparison between two or more things. It is worth noting that these adverbs should be used with caution as they can sometimes be ambiguous or unclear, especially if the things being compared are not clearly defined or if the comparison is not precise.

3.2.5. Adverbs indicating literal or figurative usage

The subsequent noteworthy group consists of adverbs whose meanings can be understood with respect to the LITERAL OR FIGURATIVE USAGE frame. In this frame, a speaker expresses an opinion about a particular topic in a way that uses words and phrases with a literal sense or with a more imaginative meaning than usual, making the description more interesting or impressive. For instance, the examples (30), (31), (32) and (33) employ adverbs to convey opinions in a literal or imaginative way.

> (28) [The other Democrats can't, *literally speaking*, get arrested.] _{OPINION} (SPOK: Fox_HC)

(29) [The sun, *figuratively speaking*, accepted me in its flaming embrace.] _{OPINION} (FIC: The Virginia Quarterly Review)

(30) [She spurned the golden ticket and, *symbolically speaking*, went looking for the sink] _{OPINION} (MAG: Smithsonian)

(31) [Faith's gizzard twisted itself into a Gordian knot] _{OPINION}, *metaphorically speaking*. (FIC: Fan Fic)

The most significant adverb of this group is *figuratively* in rank 12 (with an attraction score of 1.47%), followed by *metaphorically* in rank 14 (with an attraction score of 1.24%), *literally* in rank 39 (with an attraction score of 0.30%), and *symbolically* in rank 57 (with an attraction score of 0.16%).

3.2.6 Adverbs referring to real or hypothetical situations

Another category of lexemes strongly attracted to the construction includes adverbs that instantiate the REAL OR HYPOTHETICAL STATEMENT frame, in which a speaker issues a statement about a particular state of affairs in a way that pertains to facts, situations and actions, as in (34), (35) and (36). Alternatively, a speaker makes a hypothetical statement about a particular situation that relates to possible and imagined ideas rather than real and factual ones, as in (37) and (38).

(32) Well, *practically speaking*, [Lusig has never been employed for more than a year at a time.] _{REAL STATE OF AFFAIRS} (FIC: Dead soon enough)

(33) *Realistically speaking*, [bartering is a practical business tool.] _{REAL STATE OF AFFAIRS} (MAG: Black Enterprise)

(34) [In my 40s, I experienced a lot of success] _{REAL STATE OF AFFAIRS}, *objectively speaking*. (MAG: Atlantic)

(35) *Theoretically speaking*, [I believe there is a quite large room for more cuts.] _{HYPOTHETICAL SITUATION} (MAG: MarketWatch)

(36) *Hypothetically speaking*, [what if we get this boat to Sitka and find out somebody wants it back?] _{HYPOTHETICAL SITUATION} (FIC: Ghost Ship)

The corpus data indicates that the primary lexeme in this category is *practically*, which is ranked 5 and has an attraction score of 4.15%. Other lexemes following it in rank include *realistically* (ranked 18), *objectively* (ranked 20), *theoretically* (ranked 31), and *hypothetically* (ranked 35). The data also reveals that *virtually* occurs three times in the corpus and is used similarly to emphasize that a statement is almost entirely true, as in the sentence *Man, I could engrave it on the point, virtually speaking* (FIC: Fantasy & Science Fiction).

3.2.7 Adverbs denoting candidness

The list of adverbs also includes two lexemes that evoke the CANDIDNESS frame. In this frame, the speaker conveys a message about a particular topic, where the truth or sincerity of the message is at issue. Examples (39) and (40) illustrate this frame.

(37) *Honestly speaking*, [they always want the nicest new sneakers.] _{MESSAGE} (SPOK: ABC_Nightline)

(38) *Frankly speaking*, [there is not one diesel engine on this planet that will pass a pollution test, especially a turbojet-engine.] _{MESSAGE} (NEWS: Chicago Sun-Times)

The most significant adverb that invokes this semantic frame is *frankly* in rank 16, followed by *honestly* in rank 49. In addition to these, *plainly* in rank 110 (with an attraction score of 0.07%) and *bluntly* in rank 128 (with the same frequency of occurrence and attraction score) are also used in a similar sense. *Plainly* is used to indicate that someone is speaking honestly without attempting to hide anything, as in *Plainly speaking, I told him she's innocent* (FIC: Harvest). *Bluntly* is used to indicate that someone intends to say something directly and honestly, even if it upsets people, as corpus evidence suggests: *Bluntly speaking, more than three out of four voters preferred someone else* (ACAD: Asian Affairs: An American Review). Finally, corpus evidence points to one occurrence of the adverb *candidly*, as in *Now, candidly speaking, there are some elements of this legislation that I don't like* (SPOK: Meet the Press).

Combinations such as *honestly speaking* and *frankly speaking* seem to function as speaker-oriented speech-act adverbials, which are a subclass of predicational sentence adverbials (Ernst, 2001). These adverbials provide the speaker's commentary on the proposition expressed by the sentence's base and describe the speaker's attitude toward the content of what they are saying (Mittwoch, 1976; Maienborn and Schäfer, 2019, p. 1396).

3.2.8. Other adverbs

The ranking list includes several single adverbs that are significant lexemes. These adverbs include *morally, basically, typically, simply,* and *formally.* The adverb *morally* invokes the MORALITY_EVALUATION frame, in which a judge, usually implicit, describes the evaluee with respect to the morality or rightness of their behavior, as demonstrated in (41). The meaning of *basically* can be interpreted relative to the EMPHASIZING IMPORTANCE frame, in which a speaker expresses an opinion about a certain entity or state of affairs by emphasizing its main feature or the most important reason or fact about it, as seen in (42). The adverb *typically* reflects the TYPICALITY frame, in which a speaker evaluates a particular state of affairs by comparing it to a set of individuals with essential characteristics, as in (43).

The meaning of *simply* can be interpreted in the context of the SIMPLICITY OF THE STATEMENT frame. In this frame, a speaker makes a statement about a complicated topic or situation in a clear and easily comprehensible way, as in (44). Finally, *formally* is used in this construction to indicate a correct or conservative style or manner of speaking that is appropriate for official or serious situations or occasions, invoking the FORMALITY OF THE STATEMENT frame, in which a speaker communicates a message about a particular topic in an official way or in a way that is not suitable for informal occasions, as in (45).

(39) Physically, one might say that I am serving the rich woman, but *morally speaking* [that is not what I am doing] BEHAVIOR (MAG: America)
(40) *Basically speaking*, [what we have is the ability to cut the lines of supply into his troop positions.] THE EMPHASIZED STATE OF AFFAIRS (SPOK: ABC_Brinkle)
(41) *Typically speaking*, [history favors recording the lives and actions of the powerful] EVALUATED STATE OF AFFAIRS, not the marginalized. (NEWS: USA Today)
(42) *Simply speaking*, [last week changed everything.] STATEMENT (NEWS: San Francisco Chronicle)
(43) *Formally speaking*, [[the pope] TOPIC was in line with his predecessors.] MESSAGE (NEWS: Pittsburgh Post-Gazette)

4. Concluding remarks

This study aimed to investigate the nature of the *ADV speaking*-construction, which is an adverbial participial construction that has not been extensively studied before, from the perspective of descriptive grammar, usage-based construction grammar, and quantitative corpus-based linguistics. Unlike earlier publications, which only provided a few examples of its usage with adverbs or adverbials, this corpus-based investigation offers novel insights into the construction and its affinity for certain types of adverbs. As such, this study makes a significant contribution to our comprehension of the *ADV speaking*-construction in various linguistic areas.

Firstly, the findings reveal that the grammatical pattern in question is a partially lexically filled construction, which pairs form and meaning/function in its own right. It has a particular form (adverb + present participle *speaking* + finite clause), conveys the schematic meaning of a speaker communicating a certain message about a particular topic to some addressee in a specific manner or style, and serves diverse functions in discourse. In general, the *ADV speaking*-construction functions as a pragmatic discourse marker that enables speakers to comment on the style or manner of conveying the message and express their stances, attitudes, positions, intentions or viewpoints towards the utterance. Additionally, it fulfils various discourse functions that depend on the adverbs with which the construction colligates. For example, it is commonly used in discourse to specify a particular field of reference (e.g. *politically*, *statistically* or *historically speaking*), make general or accurate statements (*generally*, *broadly*, *strictly* or *properly speaking*), or introduce comparative judgments (*comparatively* or *relatively speaking*). Moreover, it is frequently used to convey literal or figurative meanings of statements (e.g. *metaphorically*, *literally* or *figuratively speaking*), make factual or hypothetical

statements (*practically*, *theoretically* or *hypothetically speaking*), or express a speaker's sincerity and candour in conveying the message (*honestly* or *frankly speaking*). Finally, it can be occasionally used to assess the morality of someone's behaviour (*morally speaking*), highlight the significance of a particular entity or state of affairs (*basically speaking*), make generalizations about typical members of a category (*typically speaking*), simplify complex ideas or concepts (*simply speaking*), or indicate compliance with formal conventions and rules (*formally speaking*).

Secondly, the findings of the present study have significantly enhanced our understanding of the distributional properties of the ADV speaking-construction across various registers. For example, the analysis of its distribution across the five genres of the Corpus of Contemporary American English (COCA) has revealed that the patterns of usage with adverbs such as *generally*, *relatively*, *politically*, *figuratively*, *legally*, *frankly*, *realistically* and *economically* are highly prevalent in spoken registers. On the other hand, the combinations with adverbs such as *strictly*, *broadly*, *practically*, *roughly*, *properly* and *metaphorically* are more commonly observed in academic prose than in other types of discourse. Notably, the patterns with *strictly*, *properly*, *figuratively* or *metaphorically* are found to be far more frequent in fictional texts than in spoken discourse. Furthermore, the combinations with *technically*, *roughly*, *politically*, *statistically*, *figuratively* or *geologically* are relatively more frequent in magazines than in newspapers.

Thirdly, the results of this study have revealed that the construction exhibits a strong tendency to occur with specific categories of adverbs that invoke the following semantic frames: DOMAIN-SPECIFIC STATEMENT, GENERAL STATEMENT, ACCURATE STATEMENT, COMPARISON, LITERAL OR FIGURATIVE USAGE, REAL OR HYPOTHETICAL STATEMENT, CANDIDNESS, MORALITY_EVALUATION, EMPHASIZING IMPORTANCE, TYPICALITY, SIMPLICITY OF THE STATEMENT, or FORMALITY OF THE STATEMENT. Many of these adverbs have not been previously identified in publications on the use of adverbs or adverbials, while others (such as *generally*, *broadly*, *roughly*, *legally*, *politically*, *frankly*, *honestly*, *personally* or *strictly*) have only been mentioned in passing as the collocates of the participle *speaking*.

Fourthly, the present usage-based study has contributed to a better understanding of the status of the pattern and has provided a possible explanation for its frequent combination with specific types of adverbs. The primary reason for the common occurrence of the adverbs identified in this study with the participle *speaking* may be associated with the construction's semantics and its functions in discourse. Nevertheless, the high frequency of these adverbs in the pattern may also eventually reinforce and influence its semantic and discourse-functional features, resulting in its entrenchment as a separate symbolic unit, i.e. a pairing of form and meaning/function. To put it another way, the frequent use of different adverb types in this construction and the high token frequency of one particular prototypical construct (e.g. *generally speaking* with 1,147 occurrences) appear to lead to the entrenchment of the *ADV speaking*-schema and thus to the constructional status of this pattern (for a similar perspective, refer to Casenhiser and Goldberg, 2005; see also Goldberg, 2019).

In conclusion, it is important to consider a few caveats when interpreting these findings. Firstly, this study was solely based on corpus data extracted from American English. Secondly, due to space limitations, the quantitative evidence for all adverbs that colligate with *speaking* could not be fully interpreted. Thirdly, it was not possible to compare the distribution patterns of this construction with its variants. Therefore, future studies could compare and contrast this construction with its variants to identify minor differences in distributional use. Furthermore, it would be beneficial to investigate the occurrence of this construction in other varieties of English, such as British or Australian English, with a specific focus on uncovering subtle variations in its use across various types of written and spoken registers.

References

Barlow, M. and S. Kemmer (eds.), 2000. *Usage-based models of language.* Chicago: The University of Chicago Press.

Bartsch, R., 1986. The construction of properties under perspectives. *Journal of Semantics,* vol. 5, no. 4, pp. 293-320.

Bellert, I., 1977. On semantic and distributional properties of sentential adverbs. *Linguistic Inquiry,* vol. 8, no. 2, pp. 337–351

Biber, D. and Finegan, E., 1988. Adverbial stance types in English. *Discourse Processes*, vol.11, no. 1, pp. 1-34.

Biber, D. and Finegan, E., 1989. Styles of stance in English: lexical and grammatical marking of evidentiality and affect. *Text*, vol. 9, no. 1, pp. 93-124.

Biber, D., Johansson, S., Leech, G., Conrad, S. and Finegan, E., 1999. *Longman grammar of spoken and written English*. Harlow: Pearson Education.

Boas, H.C., 2017. Computational resources: FrameNet and constructicon. In: B. Dancygier, ed. *The Cambridge handbook of cognitive linguistics.* Cambridge: Cambridge University Press, pp. 549-573.

Boas, H.C., 2021. Construction grammar and frame semantics. In: W. Xu and J.R. Taylor, eds. *The Routledge handbook of cognitive linguistics.* New York and London: Routledge, pp. 43-77.

Bybee, J., 2010. *Language, usage, and cognition*. Cambridge: Cambridge University Press.

Bybee, J. and Beckner, C., 2010. Usage-based theory. In: B. Heine and H. Narrog, eds. *The Oxford handbook of linguistic analysis*. Oxford: Oxford University Press, pp. 827-856.

Casenhiser, D. and Goldberg, A., 2005. Fast mapping between a phrasal form and meaning. *Developmental Science,* vol. 8, no. 6, pp. 500-508.

Conrad, S. and Biber, D., 1999. Adverbial stance marking in speech and writing. In: S. Hunston and G. Thompson, eds. *Evaluation in text: Authorial stance and the construction of discourse*. Oxford: Oxford University Press, pp. 56-73.

Croft, W. and Cruse, D.A., 2004. *Cognitive linguistics*. Cambridge: Cambridge University Press.

Diessel, H., 2019. Chapter 3: Usage-based construction grammar. In: E. Dąbrowska and D. Divjak, eds. *Cognitive linguistics: A survey of linguistic subfields.* Berlin and Boston: De Gruyter Mouton, pp. 50-80.

Divjak, D. and Caldwell-Harris, C., 2015. Frequency and entrenchment. In: E. Dabrowska and D. Divjak, eds. *Cognitive linguistics: Foundation of language*. Berlin and Boston: De Gruyter Mouton, pp. 61-86.

Downing, A. and Locke, P., 2005. *English grammar: A university course* (2nd ed.). London: Routledge.

Duplâtre, O. and Modicom, P., 2022. *Adverbs and adverbials: Categorial issues*. Berlin and Boston: De Gruyter Mouton.

Ernst, T., 2001. *The syntax of adjuncts.* Cambridge: Cambridge University Press (Cambridge Studies in Linguistics).

Ernst, T., 2004. Domain adverbs and the syntax of adjuncts. In: J.R. Austin, S. Engelberg and G. Rauh, eds. *Adverbials: The Interplay between meaning, context, and syntactic structure.* Amsterdam and Philadelphia: John Benjamins Publishing Company, pp. 103-130.

Ernst, T., 2007. On the role of semantics in a theory of adverb syntax. *Lingua*, vol. 117, no. 6, pp. 1008-1033.

Ernst, T., 2009. Speaker-oriented adverbs. *Natural Language and Linguistic Theory*, vol. 27, no. 3, pp. 497-544.

Fillmore, C. J., 2006. Frame semantics. In: D. Geeraerts, ed. *Cognitive linguistics: Basic readings*. Berlin and New York: De Gruyter Mouton, pp. 373-400.

Fillmore, C.J., Lee-Goldman, R. and Rhodes, R., 2012. The FrameNet constructicon. In: H.C. Boas and I. Sag, eds. *Sign-based construction grammar.* Stanford: CSLI Publications, pp. 309-372.

Frey, W., 2003. Syntactic conditions on adjunct classes. In: E. Lang, C. Maienborn and C. Fabricius-Hansen, eds. *Modifying adjuncts.* Berlin: de Gruyter Mouton, 163-209.

Goldberg, A., 2013. Constructionist approaches to language. In: T. Hoffmann and G. Trousdale, eds. *Handbook of construction grammar*. Oxford: Oxford University Press, pp. 15-48.

Goldberg, A., 2019. *Explain me this: Creativity, competition, and the partial productivity of constructions.* Princeton: Princeton University Press.

Greenbaum, S., 1969. *Studies in English adverbial usage*. London: Longman.

Hands, P., (ed.) 2017. *Collins Cobuild English Grammar.* Glasgow: HarperCollins.

Halliday, M. A. K., 2004. *An introduction to functional grammar* (3rd ed.), revised by Christian M. I. M. Matthiessen. London: Edward Arnold.

Halliday, M. A. K. and Matthiessen, C., 2014. *Halliday's introduction to functional grammar* (4th ed.). Oxon: Routledge.

Hoffmann, T., 2017. Construction grammars. In: B. Dancygier, ed. *The Cambridge handbook of cognitive linguistics.* Cambridge: Cambridge University Press, pp. 310-329.

Hasselgård, H., 2010. *Adjunct adverbials in English*. Cambridge: Cambridge University Press.

Huddleston, R. and Pullum, G. K., 2002. *The Cambridge grammar of the English language*. Cambridge: Cambridge University Press.

Jackendoff, R. S., 1972. *Semantic interpretation in generative grammar*. Cambridge: The MIT Press.

Lang, E., Maienborn, C. and Fabricius-Hansen, C., 2003. Modifying (the grammar of) adjuncts: An Introduction. In: E. Lang, C. Maienborn and C. Fabricius-Hansen, eds. *Modifying adjuncts*. Berlin and Boston: De Gruyter Mouton, pp. 1-30.

Leech, G., 1974. *Semantics: The study of meaning.* Harmondsworth: Penguin Books.

Maienborn, C. and Schäfer, M., 2019. Adverbs and adverbials. In: C. Maienborn, K. Heusinger and P. Portner, eds. *Semantics: Lexical structures and adjectives*. Berlin and Boston: De Gruyter Mouton, pp. 477-514.

McConnell-Ginet, S., 1982. Adverbs and logical form. A linguistically realistic theory. *Language,* vol. 58, no. 1, pp. 144-184.

Mittwoch, A., 1976. How to refer to one's own words: Speech-act modifying adverbials and the performative analysis. *Journal of Linguistics*, vol. 13, no. 2, pp. 177-89.

Quirk, R., Greenbaum, S., Leech, G. and Svartvik, J., 1985. *A comprehensive grammar of the English language*. New York and London: Longman.

Schmid, H.-J., 2000. *English abstract nouns as conceptual shells. From corpus to cognition*. Berlin and New York: De Gruyter Mouton.

Schmid, H.-J. and Küchenhoff, H., 2013. Collostructional analysis and other ways of measuring lexicogrammatical attraction: Theoretical premises, practical problems, and cognitive underpinnings. *Cognitive Linguistics,* vol. 24, no. 3, pp. 531-577.

Schreiber, P. A., 1972. Style disjuncts and the performative analysis. *Linguistic Inquiry*, vol. 3, no. 3, pp. 321-347.

Wiliński, J., 2021. Nouns in the be of N-construction: A corpus-based investigation. *Studies in Logic, Grammar, and Rhetoric,* vol. 66, no. 3, pp. 747-768.

Data sources

The Corpus of Contemporary American English (COCA). Available at: https://www. englishcorpora.org/coca/

The FrameNet project. Available at: https://framenet.icsi.berkeley.edu/fndrupal/