Genre and lexical distribution of subject-characterizing -ly adverbs



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ABSTRACT

Subject-orientation and subject-relatedness have been defined as properties of adverbs that have the ability to characterize the subject, the former simultaneously with the expression of adverbial meaning as circumstance. According to the definition of subject-related -ly adverbs as subject-oriented adverbs that can only characterize the subject, subject-relatedness would be expected to be dependent on subject-orientation, also because it is farthest from the prototypical function and meaning of -ly words and well into the prototypical function and meaning of adjectives. As this syntactic and semantic behavior is not signaled formally, it parallels, in principle, what happens in conversion, where syntactic transposition is without phonological change. Based on the evidence of 29,759 bigrams extracted by lemma from the *Corpus of Contemporary American English*, this paper analyzes the genre distribution of subject-oriented and subject-related -ly words, and their most relevant lexical features. The results show similarities and also differences in the behavior of subject-orientation and subject-relatedness as regards text genre distribution and in their formation from various types of adjectival bases. The interpretations of these results are manifold, within and outside word-formation processes.

KEYWORDS

Adjectives, adverbs, corpus genre, -ly suffix, subject-orientation, subject-relatedness, word-class interface.

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1 INTRODUCTION

In the classification of adjectives and adverbs, there is a categorial space (Givón, 1993) or an interface (Hummel, 2014) where members of both grammatical categories display fewer properties than their presumed prototypes and more properties of a different word-class than their presumed one. One such case is that of the so-called *subject-oriented* -ly *adverbs*, which are morphologically marked adverbs that can refer to the verb while at the same time also characterize the subject (cf. Guimier, 1991, p. 97 for the original description of the concept in French). A closely related, subsequent type has been defined by the term *subject-related* -ly *adverb*, i.e. -ly adverbs that are not interpretable in terms of a putative adverbial function and meaning, but only in terms of their predicative reference to the grammatical subject (Díaz-Negrillo, 2014; Valera, 2014). The ability of -ly adverbs to be subject-oriented or subject-related is illustrated in (1) and (2), respectively:



(1) He **moved uncomfortably** and his chair scraped against the dusty edge of the grate [...]

Adverbial > [He moved in an uncomfortable manner / in an

uncomfortable way]

Predicative > [He was uncomfortable as he moved]

(2) The door was tightly laced, and a pressure lamp **burned whitely**.

Adverbial > *[A lamp burned in a white manner / in a white way/to

a white degree]

Predicative > [A lamp was white as it burned]

All in all, the interpretations of subject-oriented and subject-related *-ly* adverbs, their connection, and their implications in the context of the conventional system of wordclasses have not received enough attention in the literature. This paper looks at two aspects which may disclose insights as to their (distinct) nature and also their connection. The first aspect is language use, and more specifically, corpus genre. Previous research has provided corpus evidence on subject-relatedness, identifying fiction as the corpus genre where subject-related -ly adverbs markedly cluster (Jiménez-Pareja, 2022; Jiménez-Pareja & Čermák, 2023). This genre-related behavior of subject-related -ly words is not limited to Present-Day English. In fact, subject-relatedness has recently been associated with prose also in Old and Middle English adverbs (Jiménez-Pareja & Čermák, 2023, p. 18). The second aspect to explore in the present study is the lexical nature of these -ly adverbs' adjectival bases. Subject-relatedness was firstly identified in -ly adverbs formed on color adjectives (Valera, 2014) (see example (2) above) which, incidentally, are also considered central members of their wordclass in Dixon's lexical typology of adjectives (Dixon, 1977). Subsequent research has investigated subject-relatedness outside color adjectives and has argued that subject-relatedness is also present in adjectives from different lexical classes such as physical property or states (Iiménez-Pareja, 2022; Iiménez-Pareja & Čermák, 2023). The aim of this paper is to uncover whether subject-orientation and subject-relatedness have the same distribution with respect to the two aspects identified above or, rather, whether subject-relatedness may have a narrower application and, therefore, ultimately stand as a function of subject-orientation.

By doing this the paper is expected to throw light on the interface between the word-classes adjectives and adverbs, and also word-formation processes which operate in the transposition of units from one class to the other. Note that, in the latter regard, these units' profile matches the profile of conversion, in that one form displays properties of different word-classes (cf. Bauer, Lieber & Plag, 2013, p. 562). The difficulties in the separation between English adjectives and adverbs have been discussed at length in the literature, except that it typically revolves around words without a final affix, e.g. slow in a slow driver vs. drive slow, where a number of processes may be responsible for the formal identity and grammatical contrast (cf. Bauer, Lieber & Plag, 2013, p. 560).

The paper is structured as follows: §2 focuses on the description of subject-orientation and subject-relatedness; §3 elaborates on aspects that may affect the distri-

bution of subject-orientation and subject-relatedness; §4 describes the method used for data collection and data analysis; §5 presents the results and discussion; and §6 outlines the main conclusions.



2 SUBJECT-ORIENTATION AND SUBJECT-RELATEDNESS

Subject-orientation was originally described for French -ment adverbs, but it can also be observed in other languages, as in Spanish -mente adverbs and also in English -ly adverbs. In English, subject-orientation similarly describes -ly adverbs that simultaneously have an adverbial and a predicative character, in other words, these adverbs are participant- and event-oriented (Guimier, 1991, p. 100). Guimier (1991, p. 97–98) proposed that their two-fold syntactic profile is evidenced by their compatibility with the adverbial paraphrase 'in a(n) base adjective way' and the predicative paraphrase 'Subject is Adjective', as shown in the examples below translated from French from Guimier (1991):

(3) Pierre drives carefully.

Adverbial > [Pierre drives in a careful way]
Predicative > [Pierre is careful as he drives]

Based on the original definition of 'subject-orientation' (Guimier, 1991), the two-fold character of instances like 'carefully' in (3) above is a feature which can be exhibited by only some -ly adverbs, and not all of them, placing subject-oriented adverbs at the interface between the classes Adverb and Adjective. Guimier (1991, p. 97–98) established two conditions for the occurrence of subject-orientation in French:

- i. The subject-oriented adverb should stand close to the subject: subject-orientation is more likely to occur when the adverb takes post-verbal or pre-verbal position in the sentence.
- ii. The nominal head of the subject and the adjectival base of the adverb should be semantically compatible, which explains the relationship between the adverb and the noun. The paraphrase proposed by Guimier (1991) 'Sujet est Adj.' ('Subject is Adjective') can be used to test this compatibility. Subject-orientation is rendered by the predicative position of the base adjective in the paraphrase.

These conditions have been questioned for English because some adverbs can never be subject-oriented regardless of their position in the sentence and some adverbs can be subject-oriented without taking those particular positions in the sentence (Valera, 1998, p. 273). This is shown in (4) and (5) below, where the adverbs take the expected position described by Guimier, but are not subject-oriented:

(4) He **died suddenly** in the night.

*[he was sudden]



(5) 'I've a duty to my skin,' James Lambert said tightly.*[James Lambert said [being] tight]

Allegedly, the key factor for these adverbs to be subject-oriented in English is that the adverbial component should be derived from an adjective that maintains an intensive relationship with the subject of the sentence (Valera, 1998, p. 274). Hence, as shown in (6) and (7), position is not a decisive variable in subject-orientation in English, since this time the adverbs are subordinated to adjectives and therefore hierarchically less accessible to the predicated noun. Still, the predication arises from the semantic compatibility between the nominal head of the subject and the adjectival base of the *-ly* adverb:

(6) If the history of the play throughout the latter part of the eighteenth century is **monotonously** uneventful, the same is by no means true of the first half of the nineteenth century.

[The history of the play is uneventful and monotonous]
[The history of the play is uneventful in a monotonous way]

(7) In fact, only a few days before I was taken ill, my manner had been **deliberately** offensive to Father Stevenson, the Roman Catholic priest attached to my company mess.

[My manner had been deliberate]

[My manner had been offensive in a deliberate way]

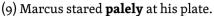
The concept of subject-relatedness has been defined successively to the concept of subject-orientation. This is a term used to define subject-oriented -ly adverbs that no longer have an adverbial nature, in contrast with the examples above, and only show a predicative character (Díaz-Negrillo, 2014, p. 459; Valera, 2014, p. 88). Subject-relatedness is motivated by:

- i. The semantic compatibility between the nominal head of the subject and the adjectival base of the *-ly* adverb, which is also described for subject-oriented *-ly* adverbs.
- ii. The semantic incompatibility between the *-ly* adverb and the verb head of the verb phrase, which rules out the interpretation of the adverb as a circumstantial adverbial. This feature is specific to subject-relatedness.

Subject-related -ly adverbs can be found in two types of syntactic structures depending on whether they are at phrase level or at clause level (Valera, 2014, p. 92). At phrase level, shown in (8), subject-related -ly adverbs precede adjectives. However, instead of modifying the subsequent adjective, the -ly adverb actually shows a predicative function for the noun. At clause level, shown in (9), subject-related -ly adverbs are located immediately after the verb, also showing a predicative function for the referent in the subject.

- (8) The attractive latticework top looks **nicely** brown.
 - Adverbial > *[The top looks brown in a nice way/to a nice degree]

Predicative > [The top looks brown and nice]



Adverbial > *[Marcus stared in a pale manner/in a pale way/to a pale degree]

Predicative > [Marcus was pale as he stared at his plate]

As shown, according to their syntactic function, subject-related -ly adverbs have the same type of reference as predicative complements. Moreover, while open to debate, it has even been claimed that the only difference between subject-related -ly adverbs and predicative complements is the realization of the former by the addition of the suffix -ly to the base adjective (Valera, 2014, p. 88). The type of reference in predicative complements and subject-related -ly adverbs can be observed in the following example from Valera (2014, p. 89):

- (10) (a) [T]the clouds stood **black** against the unexpected sunlight and the land-scape took on another, indefinable dimension.
 - (b) He grinned as she pushed up on the window sill, her head down, hair hanging **blackly**.

Blackly in (10b) displays subject-relatedness since it exclusively characterizes the subject by expressing a quality of the hair. Arguably, it is not analyzable as a circumstantial adverbial because it cannot be paraphrased as in a black way. The adjective in (10a) also characterizes the nominal elements in the subject so that, except for their morphology, no differences can be found in the type of references in these predicative complements and subject-related -ly adverbs. Note that some -ly adverbs that display subject-relatedness in some contexts can express manner in other combinations, depending on whether the adjectival base of the -ly adverb is semantically compatible or not with the grammatical subject in question, respectively. In relation to the above, there are two types of subject-relatedness, namely extrinsic and intrinsic subject-relatedness (Valera, 2014, p. 92):



A reviewer remarks that there are cases where the actual sense of the verb may constrain the interchangeability of the adjective and its derived -ly adverb. For example, as the reviewer claims in "her hair gleamed **red** in places" and "his eyes gleamed **redly** again" the actional nature of the verb in the second example ("radiating a red light") adds a nuance which is missing in the first example ("the hair having a shiny red quality"), and which would be lost in "his eyes gleamed **red** again", after the replacement of the -ly adverb with the adjective. Therefore, whether the adjective and corresponding -ly adverb are always fully interchangeable is a question that needs further investigation. The authors are grateful to the reviewer for this remark.



- i. Extrinsic subject-relatedness depends on the verb which the -ly word combines with. Therefore, it is a property that appears as a result of the semantic incompatibility between a certain verb and a certain -ly word. This type of subject-relatedness can be observed in adverbs such as coldly. Consider example (11a) where the adverb means 'in a distant or cold way', and hence it is compatible with the verb and expresses manner; in contrast, in example (11b), it only characterizes the subject, as its meaning 'having a low temperature' is not semantically compatible with the verb (Jiménez-Pareja & Čermák, 2023, p. 11–13).
- (11) (a) "On the floor," she **said coldly**.
 - (b) Snow flurries **touched coldly** against her cheeks.
- ii. Intrinsic subject-relatedness depends on the intrinsic semantic properties of the -ly words. This type of subject-relatedness is described when the -ly word cannot express adverbial meaning in combination with any verb. Intrinsic subject-relatedness is displayed by adverbs such as wetly, as in (12a) and (12b) where wetly blocks an adverbial interpretation.
- (12) (a) His lower lip **protruded wetly**.
 - (b) Russell's thick green lawn glittered wetly.

On a more theoretical level, the profile displayed by subject-oriented and subject-related -ly adverbs is an exceptional case in grammatical categorisation for two reasons: first, because a morphological form marked virtually unequivocally for a given word-class displays properties of a different one and, second, because the properties in question involve addition of the properties of precisely the base of the morphologically-marked -ly word, or even complete replacement. In subject-orientation, addition of these properties results in an outcome that can be explained lexically (it is a lexical effect of the base) and syntactically (syntactic categories can be mixed categories). In subject-relatedness, replacement results in a substantially different outcome, and in one that evidences once again the ease with which categories may overlap despite morphological marks, counterintuitively, and even recursively or regressively (from morphologically-marked adverb back to the original base).

3 DISTRIBUTIONAL TENDENCIES OF SUBJECT-RELATEDNESS

Recent research has explored a number of factors in connection to subject-relatedness. Two of them are i) corpus genre and ii) the lexical nature of their adjectival bases (Jiménez-Pareja, 2022; Jiménez-Pareja & Čermák, 2023; Jiménez-Pareja, 2024).

Corpus genre has been explored synchronically and diachronically in previous studies on subject-related -ly adverbs (Jiménez-Pareja & Valera, 2018; Jiménez-Pareja, 2022, p. 60; Jiménez-Pareja & Čermák, 2023, p. 17–19). Synchronically, Jiménez-Pareja & Čermák (2023) explored the *British National Corpus* (hereafter *BNC*) and the *Corpus*

of Contemporary American English (hereafter COCA) and showed that subject-related -ly adverbs predominantly occur in fiction, while their presence in other corpus genres is particularly scarce. The distribution of the subject-related -ly adverbs in the study is in Table 1 below:



	Data BNC		Data COCA	
	n	%	n	%
Spoken	0	0	4	1.1
Fiction	154	86	260	77.8
Magazine	1	0.5	37	11
Newspaper	4	2.2	24	7.1
Academic	0	0	9	2.6
Non-academic	4	2.2	0	0
Miscellaneous	16	8.9	0	0

TABLE 1. Distribution of subject-related -ly adverbs in the BNC and in the COCA (Jiménez-Pareja & Čermák, 2023, p. 17) 2

As shown in Table 1, fiction gathers 86% of the analyzed concordances in the BNC and 77.8% in the COCA, while the rest of the genres show much lower frequencies. Particularly low is the presence of subject-relatedness in spoken language, which is only found in American English, and with a very low frequency (4, 1.1%). On the other hand, the study of genre distribution of subject-related -ly adverbs in Old and Middle English elaborated on the main genres and subgenres of prose and poetry. Most of the cases of subject-relatedness occurred in prose (58.5% in Old English and 50.6% in Middle English). Regarding the subgenres considered, homily is the prominent subgenre in both time periods, which again has been explained in its narrative style, and is then also in line with the findings for Present-Day English (Jiménez-Pareja & Čermák, 2023, p. 18). These findings suggest that the use of subject-related -ly words could be highly conditioned by genre. Hence, based on previous synchronic and diachronic evidence, it may be hypothesized that the occurrence of subject-related -ly adverbs is determined by a specific genre, namely fiction (Valera, 2014, p. 88; Jiménez-Pareja, 2022, p. 60; Jiménez-Pareja & Čermák, 2023, p. 18). Incidentally, this is also compatible with claims that the productivity of some word-formation processes may be conditioned by variables such as register and domain (Bauer, 2021; Plag et al., 1999).

The genres represented in the two corpora are not fully comparable. Non-academic and Miscellaneous are not identified in the COCA, and Web, Blogs and TV/Movies from the COCA are not identified in the structure of the BNC. So please note that Non-academic and Miscellaneous could only collect occurrences in the BNC, while Web, Blog and TV/Movies could only collect occurrences in the COCA, but they did not in Jiménez-Pareja & Čermák (2023) so they were not shown in the table.



Another distributional factor explored for subject-relatedness is the type of lexical bases on which the subject-related -ly adverbs are formed. This factor is particularly relevant given their well-marked adjectival character. It has been pointed out that -ly adverbs formed on color-(related) adjectival bases are bound to show subject-relatedness (Valera, 2014). More recent research has explored subject-related -ly adverbs formed on adjectives of a wider variety of lexical classes (Jiménez-Pareja & Čermák, 2023; Jiménez-Pareja, 2024). These studies set off from Dixon's (1977) lexical categorisation of adjectives where adjectives are classified according to a set of morphological and syntactic criteria (Dixon, 1977, p. 31–45). Dixon's categories are not defined in the source study, but are instead illustrated with adjectives for every lexical class, as below:

- i. dimension: big, large, little, small, long, thick, etc.
- ii. PHYSICAL PROPERTY: hard, heavy, smooth, hot, cold, soft, etc.
- iii. COLOR: black, white, red, etc.
- iv. Human propensity: jealous, happy, kind, clever, generous, proud, etc.
- v. AGE: new, young, and old.
- vi. VALUE: good, bad, proper, perfect, etc.
- vii. SPEED: fast, quick, slow, etc.

Jiménez-Pareja & Čermák (2023, p. 8) and Jiménez-Pareja (2024) adapted Dixon's categories above to the study of subject-related *-ly* adverbs. Their classification comprised these three categories:

- i. PHYSICAL PROPERTY, consisting of adjectives in Dixon's categories dimension, physical properties, and color, e.g., fat, black, invisible, toothless, wet, etc.
- ii. (MENTAL) STATE, consisting of adjectives denoting feelings or states. This category also includes adjectives such as happy that in Dixon's classification are in the category human propensity, e.g., grateful, delighted, concerned, interested, etc.
- iii. HUMAN PROPENSITY, consisting of adjectives denoting attitudes or behavior, e.g., sincere, innocent, immature, curious, etc.

In contrast with Dixon's categories, this revised classification includes the category (Mental) state to cover for adjectives in the areas of 'feelings' and 'states', and human propensity to cover for those in the area of 'behavior'. In Dixon's classification, 'feelings', 'states', and 'behavior' adjectives are classified in human propensity. On the other hand, Dixon's age, value and speed adjectives are not part of the adapted classification, as they were not found in the data where the adapted classification was used.

While Jimenez-Pareja & Čermák (2023) provided a classification of the adjectives within the lexical classes above, Jimenez-Pareja (2024) provided quantitative data on the diachronic development of this lexical feature in subject-relatedness. This study showed that the majority of adjectives associated with subject-related -ly adverbs referred to physical properties and states, the lexical class Human propensity being

the least frequent one (Jiménez-Pareja, 2024, p. 156). Thus, it has been suggested that the lexical class of the adjective is closely related, first, to its classification as (un) controllable and, second, to its ability to derive subject-related -ly adverbs. Adjectives within the lexical categories Physical property and State have been typically associated with uncontrollable properties, but adjectives referring to attitude or behavior and classified within the lexical class human propensity tend to be controllable. Adjectives denoting properties that cannot be controlled by the subject have been reported to be less liable to convey adverbial meaning and, therefore, more likely to create subject-related -ly adverbs (Jiménez-Pareja, 2024, p. 147–157).

Based on what was revealed for subject-relatedness, and also given that subject-relatedness is farthest from the prototypical function and meaning of -ly words and well into the prototypical function and meaning of adjectives, the following question may be asked: does subject-relatedness stand as a specific function of subject-orientation? In other words, do subject-relatedness and subject-orientation show a complementary distribution or, instead, is their distribution similar? In order to answer this question, subject-oriented -ly adverbs will be explored in relation to the two variables corpus genre and lexical nature of the bases, and the results will be contrasted with those from previous research on subject-relatedness in relation with these two variables (Jiménez-Pareja & Čermák, 2023; Jiménez-Pareja, 2024). The variable corpus genre will be explored chronologically also across the recent decades, so as to uncover any possible variation in the genre tendencies of each type of -ly adverb. The latter is relevant given that any changes across the decades may stand as an indication of future directions in the distribution of the types of -ly adverb as to this factor.

4 METHOD

The present study draws on some of the data used in previous research (Jiménez-Pareja & Čermák, 2023), and further analyzes it to meet the objectives of this paper. Therefore, the type of data and the data analysis used in the previous studies and the present paper will be similar, although it will also show some developments. In terms of the data, the latter studies relied on the BNC and the COCA, but the present study exclusively relies on data from the COCA (Davies, 2008). The BNC was last updated in 1994, while the last update of the COCA was in 2020, so the COCA seemed more reliable in terms of recent lexical uses of subject-relatedness and subject-orientation. Besides, the COCA allows to compare language use across the 1990s and the 2000s, and hence explore possible chronological variation in the presence of subject-orientation and subject-relatedness in these two periods.

On the other hand, the data analysis is based on the analysis of corpus concordances for a variety of -ly adverbs. This approach allows the classification of every relevant corpus token as either subject-oriented or subject-related depending on the specific environment of the concordance, and similarly with the other variables in the study, i.e. corpus genre and corpus year. This means, for example, that the same -ly adverb may have been classified as subject-oriented in one concordance and sub-





ject-related in another. The rest of the section describes more specific methodological aspects of the study.

4.1 DATA

Subject-orientation and subject-relatedness are constrained by the environment of the -ly adverb in question, and importantly by the verb, so the data collection was aimed to retrieve concordances of bigrams of verbs followed by -ly adverbs. The sequences of verbs followed by -ly adverbs were retrieved using a series of queries aimed at past tense verbs followed by -ly adverbs ($[vvd^*]$ *ly.[R]). The verbs to be retrieved in the bigrams were in the past tense form, since -ly adverbs of both types were found to co-occur with verbs in this grammatical form, a decision which was based on previous research ([iménez-Pareja, 2022)) where subject-relatedness was most often identified in combinations with past tense verbs. Only bigrams of frequency 1 were aimed at in the data collection, as this frequency is taken as an indication of productivity.

The initial concordances used for the identification of subject-related -ly adverbs in Jiménez-Pareja & Čermák (2023) were no longer available when conducting the present paper. So new concordances had to be retrieved from the COCA for the identification of subject-oriented -ly adverbs this time. Even if the same bigrams and frequency (frequency 1) were targeted on both occasions, the two-year gap between the two studies affected the number of concordances that were retrieved from the online corpus. Thus, while the previous study on subject-relatedness was based on 34,743 concordances of which 334 were classified as cases of subject-relatedness, the present research relies on the analysis of 29,759 concordances out of which 224 were classified as cases of subject-orientation. It should be noted that the dataset from previous research used in the present paper is exclusively from the COCA. Therefore, this study is particularly relevant for US English since data from the BNC have not been used for the comparison of subject-orientation and subject-relatedness.

- Given the very high number of concordances targeted with this query, the concordances returned had frequencies higher than 1 the number of concordances that the engine returns is limited. So as to minimize the number of targeted concordances and therefore reach those with frequency 1, a series of narrower queries were used aimed at bigrams with the verbs starting with each letter of the alphabet, that is, a*.[vvd*]*ly.[R], b*.[vvd*]*ly.[R], c*.[vvd*]*ly.[R], c*.[vvd*]*ly.[R], etc. until completion of the alphabet. The query for letter 's' did not retrieve concordances with frequency 1 because of the high number of verbs under this letter. In this case, an individual search for every verb that had provided evidence of subject-relatedness in Jiménez-Pareja & Čermák (2023) was conducted. The verbs were stand, sit, seem, say, stare, sigh and smile.
- 4 The association of subject-related and subject-oriented *-ly* adverbs and past verb forms may be explained on the grounds that the past tense is probably the most widely used verb tense in novels and short stories, and that the two types of *-ly* adverbs explored in this paper are most often found in fiction.

4.2 DATA ANALYSIS

For the identification of subject-oriented adverbs, for this paper, and subject-related -ly adverbs, for Jiménez-Pareja & Čermák, 2023, the paraphrases used in previous literature (Guimier, 1991; Valera, 2014), and discussed above (see section 2), were applied to the concordances, to test the compatibility between the -ly adverbs and the predicate, on the one hand, and the subject, on the other. For convenience, the paraphrases are described again below:

- i. Testing adverbial meaning. The compatibility between the -ly adverb and the predicate was tested applying the paraphrase in a __ way, the gap of the paraphrase being filled with the adjectival base of the adverb. In addition, the paraphrase with __ was used to further check a possible adverbial interpretation of some concordances, the gap in this paraphrase being filled with the noun or
- ii. Testing predicative meaning. The compatibility between the -ly adverb and the subject was tested using the following paraphrases: Subject [be] Adjective and Subject [verb] [base adjective], the verb in the second paraphrase being the main verb in the example provided by the corpus. The first paraphrase revealed the relation between the subject and the adjectival base of the adverb, while the second paraphrase indicated the possibility of replacing the adverb with its adjectival base in the same sentence without variation in the sentence meaning.

the verb related to the adjectival base of the -ly word in each case.

The concordance under analysis was classified as subject-oriented when both the adverbial and the predicative paraphrases were possible, and as subject-related when only the predicative paraphrase was possible. This is shown in (13) and (14), respectively. If the adverb only allowed the adverbial paraphrase, as in (15), the item was discarded. In addition, cases where the adverb premodified adjectives in adjective phrases, as in *This looks absolutely perfect*, were discarded as they were outside the scope of our study.

(13) When he came out of her, he **came angrily**.

Adverbial > [When he came out of her, he came in an angry way/with anger]

Predicative > [When he came out of her, he came [being] angry]

(14) A shell of wall **stood brokenly** among the rubble.

Adverbial > *[A shell of wall stood in a broken way among the rubble]
Predicative > [A shell of wall stood [being] broken among the rubble]

(15) Laurie **ate slowly**, trying to savor each bite.

Adverbial > [Laurie ate in a slow way, trying to savor each bite]

Predicative > *[Laurie ate [being] slow, trying to savor each bite]

After the classification of the data, the 224 concordances showing subject-orientation were classified for their corpus genre and then computed — the 334 showing





subject-relatedness had already been classified for corpus genre for Jiménez-Pareja & Čermák's (2023). There are eight genres in the COCA, comprising spoken and written genres, and genres of various levels of formality (see Appendix for a list and a brief account of the COCA genres). Then, the concordances for each type of -ly adverb were classified for their year information and then computed. The two categories here were either 1990s and 2000s, to allow comparison across both periods of time.

The last step consisted in the lexical analysis of the adjectival bases of subject-oriented and subject-related -ly adverbs. First, the adjectival bases were identified for the different adjectives, 79 bases for subject-orientation, and 115 bases for subject-relatedness. Please note that since the same -ly adverb may be involved in subject-orientation and subject-relatedness, the same lexical base may belong to each type of adverbs. Then, the bases were classified according to the adapted version of Dixon's (1977) categories in Jiménez-Pareja & Čermák (2023) (see §3). The adapted classification consisted of the three categories Physical Property, Mental State and Human Propensity.

Overall, the data analysis encountered a number of issues. First, some examples did not seem grammatical when the predicative paraphrase was applied. This problem was faced with, for instance, stance verbs such as stood in she stood worriedly where the paraphrases she stood being worried was not used and the verb form 'being' was deleted. Another difficulty was the actual classification of the concordances as subject-oriented or subject-related, which required very careful interpretation of the actual adverb in the surrounding context. In order to apply paraphrases accurately, and also for the classification of the adjectival bases in their semantic category, the meaning of every adjectival base and -ly adverb was looked up in the online Oxford English Dictionary (hereafter OED). In addition to this, the meaning of the verb activated in the concordance in question was also looked up in the OED to confirm or discard compatibility between the verb and the adverb.

5 RESULTS AND DISCUSSION

The initial analysis of the concordances for subject-oriented and subject-related -ly adverbs revealed a very low incidence in the data: 334 (0.96%) were classified as subject-related -ly adverbs, out of the 34,743 COCA concordances analyzed for Jimén-ez-Pareja & Čermák (2023), and 224 (1.21%) as subject-oriented out of the 29,759 COCA concordances analyzed for the present study. Still, their low incidence seems to be consistent with the peripheral nature of the features under study and their characterization as standing at the interface of the categorial spaces between adverb and adjective.

The rest of the section is structured as follows: §5.1 focuses on the frequency of occurrence of subject-orientation and subject-relatedness and explores differences

The results for this aspect reported by Jiménez-Pareja & Čermák (2023) could not be used for the present paper, as they were based on the BNC and the COCA. The present paper instead conducts its own lexical analysis of the adjectival bases of subject-related -ly adverbs.

and similarities in the distribution of subject-orientation and subject-relatedness into text genres. §5.1.1 presents the chronological development of subject-oriented and subject-related *-ly* adverbs during the 1990s and the 2000s. §5.2 elaborates on the lexical distribution of the adverbs under study.



5.1 CORPUS GENRE DISTRIBUTION

Table 2 shows the distribution of subject-orientation and subject-relatedness among the different corpus genres.

Genre	Subject-orientation		Subject-relatedness	
	n	%	n	%
Spoken	5	2.23	4	1.10
Fiction	146	65.17	260	77.80
Magazines	25	11.16	37	11.00
Newspaper	12	5.35	24	7.10
Academic	5	2.23	9	2.60
Web	23	10.16	0	0
Blog	4	1.78	0	0
TV/Movies	4	1.77	0	0
TOTAL	224	100.00	334	100.00

TABLE 2. Distribution of the results in COCA genres⁶

As shown, subject-orientation occurs in all the COCA genres while subject-relatedness has a more restricted distribution. Despite this difference, on closer inspection there are also a number of similarities in their distribution. While most subject-relatedness occurrences cluster in Fiction (77.8%), subject-orientation is not different in this respect, with Fiction also gathering over 50% of the cases and the highest amount of concordances (65.17%). In addition, both subject-orientation and subject-relatedness show a strong tendency towards the written genres in the corpus, while the spoken genres gather very low frequencies (together, 4% of subject-oriented adverbs are gathered in Spoken and TV/Movies; and 1.1% of subject-related adverbs are in the same categories). In addition, neither type of the -ly adverbs explored predominate in very formal genres (only 2.23% of subject-oriented and 2.6% of subject-related adverbs are gathered under Academic). In contrast, it seems that, in addition to Fiction, the two types of adverbs occur in genres which are half-way between very informal and very formal genres (26.67% of subject-orientation adverbs are gathered in Magazines, Newspapers and Web; and 18.1% of subject-related adverbs are gathered in the same categories). Admittedly, subject-relatedness shows a very strong tendency

⁶ Please note that sometimes the total percentage may be close to but not equal 100% in this table and the subsequent ones, because only two decimals are shown in the respective tables.



towards genres that exhibit a descriptive style (Fiction, Magazines, Newspapers, 95.9%), and while this is also true for subject-orientation (81.68%), the tendency is slightly less marked for the latter given its presence also in other genres.

The present results reveal that, while the distribution of subject-related adverbs is strongly confined to stylized genres and subject-orientation operates in a wider variety of genres, subject-orientation also shows a strong tendency towards fiction and, overall, genres that have a descriptive, expressive component. It seems then that despite the differences, subject-orientation and subject-relatedness are not substantially different to claim a clear specific function for subject-relatedness.

5.1.1 CHRONOLOGICAL DEVELOPMENT OF CORPUS GENRE DISTRIBUTION Table 3 below shows the distribution of subject-oriented and subject-related tokens during the different periods under study.

	Subject-orientation		Subject-relatedness		
	n	%	n	%	
1990s	85	37.94	145	43.41	
2000s	139	62.05	189	56.58	
TOTAL	224	100.00	334	100.00	

TABLE 3. Subject-orientation and subject-relatedness in the 1990s and 2000s.

As shown above, both subject-orientation and subject-relatedness occur during both time periods. Both also show an increase in the 2000s, while this increase is higher for subject-orientation (24.11%) than for subject-relatedness (13.17%).

Table 4 and Table 5 show the frequencies for subject-orientation and subject-relatedness respectively in each time period and for each genre.

C	1990s		2000s	
Genre	n	%	n	%
Spoken	1	1.15	4	2.92
Fiction	63	72.41	83	60.58
Magazines	12	13.79	13	9.49
Newspapers	7	8.05	5	3.65
Academic	2	2.30	3	2.19
Web	0	0.00	23	16.79
Blog	0	0.00	4	2.92
TV/Movies	2	2.30	2	1.46
TOTAL	87	100.00	137	100.00

TABLE 4. Chronological development of subject-orientation in the COCA

_	1990s		2000s	
Genre	n	%	n	%
Spoken	2	1.36	2	1.07
Fiction	108	73.47	152	81.28
Magazines	21	14.29	16	8.56
Newspapers	12	8.16	12	6.42
Academic	4	2.72	5	2.67
Web	0	0.00	0	0.00
Blog	0	0.00	0	0.00
TV/Movies	0	0.00	0	0.00
TOTAL	147	100.00	187	100.00

TABLE 5. Chronological development of subject-relatedness in the COCA

As shown in Table 4, the occurrences of subject-orientation increase in the 2000s in most of the genres. In these genres, the overall frequencies may remain low (Academic, Spoken, Blog), or the increase may not be substantial (Magazines). One relevant case, however, is that of Fiction, which shows a higher increase (20 occurrences higher in the 2000s). Interestingly, however, the space it gathers in the 2000s decreases in overall terms with respect to the previous period (72.41% to 60.58%), as a result of the important increase of subject-orientation in Web in the 2000s. The latter finds all its occurrences in the 2000s, gathering almost 17% of the total tokens in the 2000s. This important shift may be explained as due to the greater development and wider use of the internet during the most recent time period, which is also applicable to the presence of subject-orientation in Blog only in the 2000s. Finally, Magazines, Newspapers and TV/Movies show little variation across the periods, and also show a lower incidence in the 2000s as a result of the important increase of Web in the same time period.

Table 5 shows little variation for subject-relatedness across the two time periods and the corpus genres. What is probably relevant is that, first, Fiction shows an increase of 17% in the 2000s gathering over 80% of the occurrences for the latter period and that the genres that did not gather occurrences in the 1990s show no differences in the 2000s (Web, Blog and TV/Movies). This contrasts with the increase in Web revealed for corpus-orientation in the 2000s, which was explained above possibly as the result of the wider development of the internet in the later period.

It seems then that the diversification of language use associated with subject-oriented -ly adverbs is largely explained by their recent presence in internet-related genres in the 2000s. In contrast, subject-related -ly adverbs remain strongly clustered in fiction regardless of the time period. This is consistent with the diachronic results obtained for this type of adverbs in Old English and Middle English where prose stood as the predominant genre. Based on this evidence, while subject-orientation appears slightly more prone to genre diversification, a strong and stable association with fiction seems inherent to subject-relatedness and can therefore be expected from subject-related -ly adverbs in future time periods.





5.2 LEXICAL DISTRIBUTION OF THE ADJECTIVAL BASES

The subject-oriented -ly adverbs were created from 79 different adjectival bases, and the subject-related -ly adverbs from 115. Table 6 shows a distribution of all the lexical bases in the three lexical categories. Table 7 shows their distribution for each type of -ly adverb:

Lexical category	n	%
PHYSICAL PROPERTY	40	20.61
HUMAN PROPENSITY	48	24.74
(mental) state	106	54.63
TOTAL	194	100.00

TABLE 6. Lexical distribution of all the adjectival bases

Tarrian antown	Subject-orientation		Subject-relatedness	
Lexical category	n	%	n	%
PHYSICAL PROPERTY	5	6.32	35	30.43
HUMAN PROPENSITY	35	44.30	13	11.30
(mental) state	39	49.36	67	58.26
TOTAL	79	100.00	115	100.00

TABLE 7. Lexical distribution of adjectival bases by adverb type

Table 6 shows that, all in all, the lexical category which gathers the highest number of occurrences is (MENTAL) STATE, with over 50% of the adverbs. Table 7 shows that, while Physical property and human propensity are more populated by members of one type of adverb, (MENTAL) STATE is similarly populated by both types. Below there is a detailed account of each lexical class.

As to Physical property, subject-orientation gathers 6.32% of the adjectival bases in this lexical class, while subject-relatedness gathers 30.43% of the bases. Subject-oriented and subject-related -ly adverbs in this lexical class are illustrated in (16) and (17), respectively. In (16) beautiful refers to a property of the roses and also to how they bloom, while fat in (17) can only refer to a physical characteristic of the subject and is devoid of circumstantial meaning:

- (16) His roses **bloomed beautifully** each season, but with each season, old age claimed the elderly nuns until only one nun was left.
 - Adverbial > [His roses bloomed in a beautiful way each season, but with each season, old age claimed the elderly nuns until only one nun was left]
 - Predicative > [His roses bloomed [being] beautiful each season, but with each season, old age claimed the elderly nuns until only one nun was left]

- (17) Bucktoothed rodents that sometimes **galloped fatly** across the road from one hayfield to another.
 - Adverbial > *[Bucktoothed rodents that sometimes galloped in a fat way manner across the road from one hayfield to another]
 - Predicative > [Bucktoothed rodents that sometimes galloped [being] fat across the road from one hayfield to another]

The tendency of subject-related adverbs to be built on adjectival bases expressing physical property has been explained in that physical properties are uncontrollable features, which makes them less liable to express how an action is carried out. In fact, the semantic feature -control has been considered one of the main features of subject-related -ly adverbs and, therefore, one which could disfavor the possibility of subject-related -ly adverbs to express circumstantial meanings like manner (Jiménez-Pareja & Valera, 2020; Jiménez-Pareja & Čermák, 2023, p. 17).

Previous research has argued that one of the most relevant features of subject-relatedness is that it is found in color adjectives (Valera, 2014), analyzed in this lexical class. The present study also finds subject-related -ly adverbs formed on color adjectives but no subject-oriented -ly adverbs formed on this type of adjectives, which supports Valera's (2014) initial remarks in this respect. It should be noted, however, that color adjectives may sometimes express adverbial meaning, but only if the adjective has a metaphorical interpretation which is compatible with an adverbial interpretation. For instance, black has the figurative meaning 'having or demonstrating evil intent; malignant, deadly; sinister' that allows an adverbial interpretation of the example Pumpkins grin blackly at her. Note, however, that this metaphorical interpretation is not possible of every color adjective. For example, orange only allows a literal interpretation 'of the colour of an orange', which means that only a predicative interpretation (subject-relatedness) is possible. A final remark in this respect is that while color adjectives can derive adverbs with metaphorical meaning, it has been claimed that adjectives in Human propensity can form adverbs that "cover the same semantic range as the parent adjective" (Dixon, 1977, p. 39), which would apply to adjectives in this study in human propensity and mental state.

All in all, the relevance of color adjectives in the matter is related to the centrality of this semantic class within the word-class Adjective (cf. Dixon, 1977). Dixon (1977) and more recently Dixon (2004), a typological study of adjective classes, explain that color adjectives are to be considered central members of the word-class Adjective, given their presence in the largest variety/number of languages. This is remarkable because the centrality of color adjectives within the word-class is further evidence of the genuine adjectival character of subject-related -ly adverbs.

As to human propensity, as shown in Table 7 above, adjectival bases in this class markedly show subject-orientation (44.30%), while subject-relatedness shows a much lower incidence in this lexical category (11.30%). As with the lexical class physical property, this lexical class can be related to the semantic property +/-control, which may explain the results. Most adjectival bases of subject-oriented -ly adverbs in this lexical class refer to controllable properties which are compatible with the meaning of the verb and can, therefore, express manner, as (18) and (19) show:





(18) "I certainly love seeing you..." Carlton said. "That's reassuring," Joanna interjected sarcastically.

Adverbial > ["I certainly love seeing you..." Carlton said.

"That's reassuring," Joanna interjected in a sarcastic way

Predicative > ["I certainly love seeing you..." Carlton said.

"That's reassuring," Joanna interjected [being] sarcastic]

(19) Colin **left dramatically**, allowing the big barn door to bang several times in its frame.

Adverbial > [Colin left in a dramatic way, allowing the big barn door to bang several times in its frame]

Predicative > [Colin left [being] dramatic, allowing the big barn door to bang several times in its frame]

The adverbs sarcastically and dramatically express the way in which the subjects speak and leave, respectively. The adjectival bases used to create these adverbs have the semantic property +control so that the subject can control whether or not to show their state. In contrast, subject-related -ly adverbs display the semantic feature -control, as in (20) and (21):

(20) More than two million young Vietnamese on both sides **died innocently** and unnecessarily because of foreign political theories.

Adverbial > *[More than two million young Vietnamese on both sides died in an innocent way and unnecessarily because of foreign political theories]

Predicative > [More than two million young Vietnamese on both sides died [being] innocent and unnecessarily because of foreign political theories]

(21) He must be at least six feet two, she **decided confusedly**, wondering why those blue eyes turned her legs to jelly so quickly.

Adverbial > *[she decided in a confused way]

Predicative > [she decided [being] confused]

Unlike the grammatical subjects in (18) and (19), those in (20) and (21) do not have the ability to carry out the action denoted by the verb in the way expressed by the adverb. It is not possible to die in an innocent way or to decide in a confused way, but the adverbs only refer to a feature of the subject who was innocent at the moment of dying or who was confused while deciding.

As to MENTAL STATE, the adjectival bases show a similar distribution among subject-oriented and subject-related -ly adverbs, each of them gathering around 50% of the occurrences (49.36%, and 58.26% respectively) (see Table 7). In this class, there are also adjectives that occur both in subject-orientation and subject-relatedness, depending on their semantic context. For instance, the adjective angry occurs in (22)

and (23) in subject-orientation and subject-relatedness, respectively, and similarly proud in examples (24) and (25):



- (22) Strine **kicked angrily** at the abandoned suitcase.
 - Adverbial > [Strine kicked in an angry way at the abandoned suitcase]
 Predicative > [Strine kicked [being] angry at the abandoned suitcase]
- (23) Jack **reflected angrily** that in only one night he had managed to lose an entire snake.
 - Adverbial > *[Jack reflected in an angry way that in only one night he had managed to lose an entire snake]
 - Predicative > [Jack reflected [being] angry that in only one night he had managed to lose an entire snake]
- (24) At the doorway of the lodge he once again checked his shadow out, and everything being fine, he **entered proudly**, head high.
 - Adverbial > [At the doorway of the lodge he once again checked his shadow out, and everything being fine, he entered in a proud way, head high]
 - Predicative > [At the doorway of the lodge he once again checked his shadow out, and everything being fine, he entered [being] proud, head high]
- (25) When he **listened proudly** to the choir he conducted on Empire Days, I didn't think he was conscious of listening to voices descended from slavery and colonization.
 - Adverbial > *[When he listened in a proud way to the choir he conducted on Empire Days...]
 - Predicative > [When he listened [being] proud to the choir he conducted on Empire Days...]

In (22) and (24) above, the subject carries out an action in a specific way as expressed by the adverbs, but the adverbs also refer to the state of the subjects when the action is carried out. In contrast, in (23) and (25), the subjects do not carry out any specific material action. Instead, *reflect* refers to the mental process of "considering something", while *listen* means "to hear something attentively" so no adverbial meaning is possible in these combinations of the data sample.

These examples show the ability of this lexical class of adjectives to form -ly adverbs which may be subject-oriented or subject-related depending on the context where they occur. This is closely related to the two types of subject-relatedness proposed in Valera (2014, p. 92). Extrinsic subject-relatedness describes those cases where the nature of the adverb is relative to the contextual event, as in the examples above, while intrinsic subject-relatedness refers to those -ly adverbs which cannot express adverbial meaning in combination with any verb. According to the results just presented, adverbs in the present lexical class, (Mental) State, are therefore to



be closely associated with extrinsic relatedness. In contrast, according to what was described earlier, intrinsic subject-relatedness is more closely associated with formations in the lexical class PHYSICAL PROPERTY.

All in all, the results show that, as observed for corpus genre distribution, with respect to the lexical distribution of the -ly adverb bases, there are areas of overlap, in this case their cluster is on (MENTAL) STATE, also gathering the highest number of occurrences, while the categories PHYSICAL PROPERTY and HUMAN PROPENSITY gather a higher number of subject-related adverbs and subject-oriented adverbs, respectively. This has been explained in that adjectives with the semantic property +CONTROL are more liable to be subject-oriented, while adjectives with the semantic property -control are more liable to be subject-related.

On a more theoretical level, the profile displayed by subject-oriented and subject-related -ly adverbs is an exceptional case in grammatical categorisation for two reasons: first, because a morphological form marked virtually unequivocally for a given word-class displays properties of a different one and, second, because the properties in question involve addition of the properties of precisely the base of the morphologically-marked -ly word, or even complete replacement. In subject-orientation, addition of these properties results in an outcome that can be explained lexically (it is a lexical effect of the base) and syntactically (syntactic categories can be mixed categories). In subject-relatedness, replacement results in a substantially different outcome, and in one that evidences once again the ease with which categories may overlap despite morphological marks, counterintuitively, and even recursively or regressively (from a morphologically-marked adverb back to the original base).

While the processes discussed in this paper deal with grammatical categorisation they contrast with conversion on several grounds. Subject-relatedness does not entail a new word — even less subject-orientation, where an adverbial interpretation remains alongside the predicative interpretation. Additionally, other differences are the lack of a lexical rule as can be argued in the case of conversion, or the strong contextual constraints that apply in subject-orientation and subject-relatedness and that do not concur in conversion.

6 CONCLUSIONS

This paper explores the Adjective-Adverb interface and focuses on two behaviors of -ly adverbs known as subject-orientation and subject-relatedness. Previous research elaborated on the properties of subject-related -ly adverbs providing evidence of their language use and also of their lexical nature. The present paper has further explored the distributional behavior of subject-relatedness by also contrasting it with that of subject-orientation with respect to the two factors mentioned above. Based on previous indicative evidence, the objective was to determine whether subject-relatedness actually serves a specific function within subject-orientation.

The results obtained show that, despite their differences with respect to the two distributional factors explored, subject-orientation and subject-relatedness do not

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show a clear complementary distribution and, therefore, it cannot be claimed that subject-relatedness stands a clear function of subject-orientation. Instead, the picture is one where there are areas of overlap, and areas which are covered primarily by one of the two adverb types. With respect to genre, even if a wider variety of genres are associated with subject-orientation, Fiction stands as the dominant genre among both subject-oriented and subject-related -ly adverbs. This suggests that the two types of adverbs similarly contribute to the vivid imagery and descriptive, expressive style characteristic of fiction. Their presence, however, is particularly scarce in more formal (i.e. Academic) or conversational (Spoken or TV/Movies) genres. The diachronic analysis of the two types of adverbs across the 1990s and the 2000s reveals that, while the distribution of subject-relatedness remains very similar across the two decades, being primarily clustered in Fiction, subject-oriented -ly adverbs noticeably spread over the Web genre in the 2000s — internet-related genres, however, do not gather occurrences for subject-relatedness. The latter is evidence of the greater flexibility of subject-orientation in terms of language use, which is also coherent with its more versatile application, having both an adverbial and a predicative character.

Regarding lexical distribution, just as for corpus genre, there are areas where one type of adverb is more predominant, but there is also an area where both co-exist. In relation to the former, adjectives in the lexical class physical property are more liable to create subject-related -ly adverbs, while those in Human propensity subject-oriented -ly adverbs. Subject-orientation and subject-relatedness had been previously associated with the semantic property +control and -control, respectively. This paper explains that this association can be further extended to the lexical categories Physical Property, for -control and subject-relatedness, and to Human PROPENSITY for +CONTROL and subject-orientation. On the other hand, in relation to their lexical overlap, the lexical category (MENTAL) STATE shows a similar distribution of subject-oriented and subject-related adverbs. In fact, it has been found that the same bases are sometimes liable to both types of adverbs, something which has been termed as "extrinsic subject-relatedness" in the literature (Valera, 2014). This paper has extended this term to a variety of adverb forms on bases in (MENTAL) STATE, and has associated the lexical class PHYSICAL PROPERTY more readily with "intrinsic subject-relatedness", given that some of its members are only compatible with a predicative interpretation, regardless of the semantic context of the adverb.

All in all, the paper has aimed to throw light on the interface between the classes adjective and adverb and, ultimately the lexical processes which explore reinterpretation of elements in the spectrum of grammatical word-classes, like conversion.

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APPENDIX. GENRES IN THE COCA

(5th December, 2024, https://www.english-corpora.org/coca/help/coca2020_overview.pdf)

Genre	Description
Spoken	Transcripts of unscripted conversation from more than 150 different TV and radio programs (examples: All Things Considered (NPR), Newshour (PBS), Good Morning America (ABC), Oprah)
Fiction	Short stories and plays from literary magazines, children's magazines, popular magazines, first chapters of first edition books 1990-present, and fan fiction.
Magazines	Nearly 100 different magazines, with a good mix between specific domains like news, health, home and gardening, women, financial, religion, sports, etc.
Newspapers	Newspapers from across the US, including: USA Today, New York Times, Atlanta Journal Constitution, San Francisco Chronicle, etc. Good mix between different sections of the newspaper, such as local news, opinion, sports, financial, etc.
Academic	More than 200 different peer-reviewed journals. These cover the full range of academic disciplines, with a good balance among education, social sciences, history, humanities, law, medicine, philosophy/religion, science/technology, and business
Web (Genl)	Classified into the web genres of academic, argument, fiction, info, instruction, legal, news, personal, promotion, review web pages (by Serge Sharoff). Taken from the US portion of the GloWbE corpus.
Web (Blog)	Texts that were classified by Google as being blogs. Further classified into the web genres of academic, argument, fiction, info, instruction, legal, news, personal, promotion, review web pages. Taken from the US portion of the GloWbE corpus.
TV/Movies	Subtitles from OpenSubtitles.org, and later the TV and Movies corpora. Studies have shown that the language from these shows and movies is even more colloquial than the data in actual "spoken corpora".