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Adverbial subordination across variety types: A synchronic analysis of the syntax and semantics of *since*- and *while*-clauses in ENL, ESL, and EFL

Abstract: Adverbial subordination with *since* and *while* has been studied from various angles, but never with regard to potential differences and similarities between English as a Native Language (ENL), English as a Second Language (ESL), and English as a Foreign Language (EFL). In this study, spoken and written components of the *International Corpus of English* (ICE) for Great Britain, Hong Kong, and Singapore, as well as spoken and written portions of the *International Corpus Network of Asian Learners of English* (ICNALE), are analyzed with regard to the syntax and semantics of *since*- and *while*-clauses. In addition to providing a general synchronic survey of the semantic and syntactic properties of clauses introduced by *since* and *while*, this paper also compares usage patterns in different varieties of English. Qualitative and quantitative analyses reveal that Asian EFL sometimes resembles ENL and sometimes ESL, which suggests a largely exonormative orientation with some first signs of (potential) innovations. Cross-varietal analyses using conditional inference trees and random forests reveal that the length of *since*- and *while*-clauses is most heavily influenced by the semantics of a clause. The position of *since*-clauses, however, is most dependent on variety status, whereas the position of *while*-clauses is most dependent on clause meaning.

1 Introduction

Adverbial subordination has been studied intensively with regard to the syntactic and semantic properties of adverbial clauses (Kortmann 1991, 1997), the diachronic development of conjunctions (König 1985; Traugott & König 1991; Bergs, this volume), and also in the context of different frameworks such as the interpersonal grammar framework described in Verstraete (2007). However, adverbial subordination in L2 varieties and Learner Englishes has, so far, received comparatively little attention (notable exceptions include, for instance, Suárez-Gómez 2015 on adverbial relative clauses and Suárez-Gómez, this volume). The current

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paper constitutes a step towards (further) closing this gap by analyzing the syntactic and semantic properties of adverbial clauses introduced by the subordinating conjunctions *since* and *while*. These conjunctions were selected because they both represent semantically plurifunctional subordinators: *since*-clauses may be adverbial clauses of time or reason; clauses introduced by *while* may be adverbial clauses of time, concession, or contrast. Hampe (2015: 299) notes in this regard that “subordinators coding for simultaneity or contiguity in time easily acquire interpretations in the domain of causality or conditionality, thereby creating the polysemy patterns of subordinating conjunctions like *as*, *while* or *since*”.

The corpora analyzed for the present study are the sub-corpora of the *International Corpus of English* (ICE) for Great Britain, Hong Kong, and Singapore, and several sub-corpora of the *International Corpus Network of Asian Learners of English* (ICNALE). The varieties under consideration represent English as a Native Language (ENL), English as a Second Language (ESL), and English as a Foreign Language (EFL). It should also be pointed out that this strict differentiation has been questioned in recent years and that I stick to this terminology for reasons of transparency; the following brief excursus further elaborates on this issue.

In the linguistic study of varieties of English, Kachru’s (1985) Three Circles and Schneider’s (2003, 2007) Dynamic Model of Postcolonial Englishes represent the two most widely received and accepted models. In his model, Kachru differentiates between the Inner Circle (e.g. USA, UK), the Outer Circle (e.g. Singapore, India) and the Expanding Circle (e.g. Germany, Japan). The main criteria which allow for any differentiation between the circles are, for instance, the institutionalization of English in a country and its status as either norm-providing (Inner Circle), norm-developing (Outer Circle), or norm-dependent (Expanding Circle). However, as Edwards notes in her study of English in the Netherlands, “the three circles in his [= Kachru’s] corrective [...] map all too easily onto the categories ENL, ESL and EFL, and thus seem to reinforce rather than break down the divide” (2016: 3). The term “divide” in this context refers to the separate treatment of ESL and EFL. Recent studies have shown that the distinction between ENL, ESL, and EFL as well as the three Circles are too static to account for intranational diversity and the complex dynamics of shifting realities, as evidenced, for instance, by the intermediate stage of English in the Netherlands (cf. Edwards 2014) and the transition back from ESL to EFL in Cyprus (cf. Buschfeld 2013). In order to test the degree to which certain linguistic features are shared between EFL, ESL, and, potentially, ENL, and if certain features represent errors or actual innovations, several recent studies compared single features (e.g. Koch, Lange & Leuckert 2016) or bundles of features on different linguistic levels (e.g. Gilquin 2015). The present paper brings together the theoretical frameworks of contact linguistics and second-language acquisition as well as questions of variation in adverbial subordination.

In order to (a) identify similarities and differences between the varieties and (b) provide a more general account of adverbial subordination with *since* and *while*, the following two research questions are addressed and tested empirically:

1. Are there differences in how *since* and *while* are employed as subordinators in spoken and written ENL, ESL, and EFL with regard to syntax (length and position of the clause) and semantics (plurifunctionality of the subordinators)?
2. Which factors influence meaning, length, and position of *since*- and *while*-clauses, and how do they influence each other?

In order to answer these research questions, both qualitative and quantitative methods are used. The paper proceeds as follows: After this introduction, adverbial subordination with *since* and *while* is introduced from a theoretical perspective. The syntax and semantics of clauses with *since* and *while* are described based on the major grammars of English with a focus on Quirk et al.'s seminal grammar from 1985. The third section introduces the corpora which were used and outlines the methodological procedure, in addition to pointing out some of the flaws associated with the ICE and ICNALE corpora. In the fourth section, the findings from this study are described. After providing details on the distribution of *since*-clauses and *while*-clauses and a qualitative analysis, a third sub-section statistically analyzes the interplay of their semantic and syntactic properties. The fifth section concludes this paper and discusses the implications of the findings from Section 4.

2 Adverbial subordination with *since* and *while*

The label “adverbials” describes a largely heterogeneous category and refers to a number of differently realized constituents which serve to modify elements ranging “from individual words to sentences, with the exception of nouns, pronouns, and noun phrases” (Häcker 1999: 23). Adverbial clauses, while generally fulfilling functions associated with adverbials in a wider sense, require some additional remarks. Identified by Häcker (1999: 23) as a structural subcategory of adverbials, “[a]dverbial clauses are [...] optional structurally in that they can be omitted without affecting the acceptability of their host clause” (Greenbaum & Nelson 1996b: 70). In this paper, I largely draw on classifications described in functional approaches to adverbial clauses. According to Quirk et al. (1985), adverbials can be adjuncts, disjuncts, subjuncts, or conjuncts, but adverbial clauses usually represent adjuncts and disjuncts. Unlike, for instance, the classification given in the *Cambridge Grammar of the English Language* (Mittwoch et al. 2002), Quirk et al. (1985) consider adjuncts to be at least similar in importance to other

syntactic functions. The following two sentences show Quirk et al.'s (1985) understanding of adjuncts and disjuncts in relation to other sentence constituents.

ADJUNCTS are similar in the weight and balance of their sentence role to other sentence elements such as subject and object.

DISJUNCTS, by the same analogy, have a superior role as compared with the sentence elements; they are syntactically more detached and in some respects 'superordinate', in that they seem to have a scope that extends over the sentence as a whole. (Quirk et al. 1985: 613; emphasis in the original)¹

In another approach by Hengeveld (1995), adverbial clauses are considered to be the least syntactically important and the most syntactically dependent type of clause. Hengeveld (1995: 121) offers the following classification of syntactic clause hierarchies (cf. also Quintero 2002: 16).

Table 1: Classification of subordinate clauses.

Superordinate		Main clause		
Subordinate	Open	Relative clause		
	Closed	Governing	Predicate clause	
		Governed	Obligatory	Complement clause
	Optional		Adverbial clause	

For the present study, it is assumed that adverbial clauses typically represent an optional sentence constituent with numerous potential semantic functions (which can also overlap). They may, *inter alia*, indicate location, time, purpose, reason, manner, contingency, and contrast (cf. Quirk et al. 1985: 1077–1120; Mitwoch, Huddleston & Collins 2002: 665–666). It has been shown that adjunct adverbials of time and space are generally the most frequent types in ENL (cf. Hasselgård 2010: 287), which means that comparing their frequencies (as well as their syntax and semantics) across ENL, ESL, and EFL is a highly interesting endeavor. In this study, the focus is on adverbial clauses with *since* and *while*. Although both of these subordinators have a primarily temporal meaning, they may introduce clauses with different and overlapping semantics; the following

¹ Clauses introduced by *since* and *while* represent adjuncts; the reader is referred to the examples provided in the following pages. A disjunct would be, for instance, *frankly* in the example sentence "*Frankly*, I am tired" (Quirk et al. 1985: 615).

paragraphs illustrate this phenomenon with further details and examples for each subordinator.

Adverbial clauses with *since* may serve as (a) adverbials of time and (b) adverbials of reason. Functioning as the former, “[s]ince marks the beginning of the period during which the situation in the matrix clause applies” (Quirk et al. 1985: 1084). See examples (1) and (2) from Quirk et al. (1985: 1084) for illustration.

- (1) He feels much more relaxed *since he left school*.
- (2) *Since I last saw you*, I have given birth to a beautiful daughter.

An example for a reason clause introduced by *since* is given in (3) from Quirk et al. (1985: 1105).

- (3) *Since we live near the sea*, we often go sailing.

Considering the position of *since*-clauses, different options are possible. In their comparison of spoken and written British English, Quirk et al. (1985: 1107) found 14 *since*-clauses in initial position, one in medial position, and 23 in final position.² In Section 4 of this paper, these numbers are compared to the ICE and ICNALE data.³

The second major subordinator analyzed in this study is *while*, which may introduce temporal, concessive, and contrastive adverbial clauses. Temporal clauses introduced by *while* can be finite clauses (4), adverbial *-ing* or *-ed* clauses (5 and 6), or verbless (7) (cf. Quirk et al. 1985: 1078–1079).

- (4) *While I was asleep*, I dreamed about you.
- (5) He wrote his greatest novel *while working on a freighter*.
- (6) He slept *while stretched out on the floor*.
- (7) *While in Rome*, be sure to see the Colosseum.

² These findings are based on a 100,000-word sample each from the London-Lund corpus and the LOB written corpus (cf. Quirk et al. 1985: 1107).

³ Biber et al. (1999: 772) do not give precise figures for the positions of *since*-clauses, but provide an overview for all circumstance adverbials; these overwhelmingly stand in final position in their corpus (ca. 70%) and less frequently in medial (ca. 18%) and initial position (ca. 12%).

Similarly, concessive clauses introduced by *while* may also be finite (8), *-ing* or *-ed* clauses (9), or verbless (cf. Quirk et al. 1985: 1097)⁴:

(8) *While I don't want to make a fuss*, I feel I must protest at your interference.

(9) *While not wanting to seem obstinate*, I insisted on a definite reply.

Quirk et al. consider the contrastive function of *while* (and *whilst*) to be restricted and view it as a subclass of the concessive usage; in such cases, “the concessive relationship aris[es] from a contrary expectation” (1985: 1099) as in (10).

(10) *While he has many friends*, Peter is (*nevertheless*) often lonely.

In spite of this restricted usage, Quirk et al. (1985: 1102) acknowledge that contrast and concession often mix. When this is the case, certain “correlative antithetic conjuncts such as *in contrast* and *by contrast*” (1097) may be used to emphasize contrastive meaning. More recent approaches view concession as a subtype of contrast (cf. Ford 2000; Couper-Kuhlen & Thompson 2000); however, for the present study, the two kinds of meaning were analyzed separately despite being closely related. The next section introduces the data which were used, how the clauses with *since* and *while* were extracted from the corpora, and which criteria were applied in the annotation.

3 Data and methodology

Since this paper aims at a comparison of L2 and Learner Englishes with each other and with ENL, adverbial clauses in ICE (which features ENL and ESL) and ICNALE components (representing EFL) were compared.

The ICE corpora (Greenbaum & Nelson 1996a) are built with a high degree of comparability in mind; the division into spoken and written sections and the overall word count of ca. 1 million words is given as a guideline to adhere to for all research groups creating ICE corpora. In addition to the components which feature ENL, the majority of the ICE sub-corpora feature ESL. For the present

⁴ Quirk et al. (1985) do not provide an example of a verbless clause introduced by *while*; however, they present a verbless concessive clause introduced by another subordinator: “*Though well over eighty*, he can walk faster than I can” (Quirk et al. 1985: 1097).

study, ICE-Great Britain was selected as a representative of ENL and ICE-Hong Kong and ICE-Singapore were chosen to cover ESL. It should be noted that Singapore English is further “developed” in Schneider’s Dynamic Model, which means that it shows an overall higher degree of nativization compared to Hong Kong English (cf. Schneider 2007: 153; see also Lim 2015). In terms of text types, a mixture of free spoken language (direct conversations), informal written language (social letters) and formal written language (timed exams) was selected.

The ICNALE (Ishikawa 2011) features English spoken and written by Asian learners at different proficiency levels, ranging from A2 to C1 according to the *Common European Framework of Reference for Languages* (CEFR, cf. Council of Europe 2001; Ishikawa 2013: 98). ICNALE explicitly features controlled language, with both the spoken and written components focusing on the two topics “It is important for college students to have a part-time job” and “Smoking should be completely banned at all the restaurants in the country” (Ishikawa 2014: 68). Students were given the task to express whether they agreed or disagreed with these statements and also needed to explain why they agreed or disagreed (68). Both the spoken and written components were included, but I analyzed only early interlanguage (cf. Selinker 1972) by focusing on the A2 level of the CEFR in ICNALE. This decision was made primarily in order to achieve a similar word count, but it also entails that the included ICNALE data truly represent learner data.

Table 2 gives an overview of the analyzed corpus segments and the number of words featured in each corpus.

Table 2: Analyzed corpus components and word count.

Corpus	Component	Word count
ICE-Great Britain (ENL)	Direct conversations	180,000
	Social letters	30,000
	Exam scripts	20,000
ICE-Hong Kong (ESL)	Direct conversations	180,000
	Social letters	30,000
	Exam scripts	20,000
ICE-Singapore (ESL)	Direct conversations	180,000
	Social letters	30,000
	Exam scripts	20,000
ICNALE, A2 level (EFL)	Spoken	25,000
	Written	215,000

For the extraction of adverbial clauses introduced by *since* and *while* in the ICE corpora, AntConc (Anthony 2014) was used. Although regular expressions would have been an option for excluding false positives from the analysis, it was decided

to go through the extracted tokens manually so as not to miss any potentially interesting cases.⁵ Thus, all uses of *while* as a noun and of *since* as a preposition and as an adverb were identified manually and excluded from further analysis. Some removed examples can be seen in (11) to (13).

(11) Since as a preposition:

You also asked about Joella & Jessica's exams, well, first paper has been gone since Tuesday [...] <ICE-SIN:W1B-014#40:1>

(12) Since as an adverb:

To be fair you used to come when your Mum and Dad were still living in Portland Road but you haven't been since <ICE-GB:S1A-027 #127:1:D>

(13) While as a noun:

Maybe you know maybe he's been there for a short while <ICE-SIN:S1A-082#194:1:B>

All remaining tokens were subsequently annotated for variety, variety status, meaning, position, register, setting, and length. The possible categories which were used in the annotation are listed in Table 3; details on why these criteria were selected then follow.

Information on variety status was included to see if there are, in fact, significant differences based on a variety's status as ENL, ESL, or EFL. The different meanings of the clauses have already been discussed in the previous section; examples from the corpora follow in Section 4. In the statistical analysis, meaning was taken into consideration as one of the possible predictors for clause position and clause length.

Position refers to the position of the subordinate clause in relation to the main clause. In order to facilitate quantitative analyses, I chose only to differentiate between initial, medial, and final position (see Greenbaum & Nelson 1996b for a more elaborate distinction). Initial position refers to those cases which Greenbaum & Nelson (1996b) describe as *aI* and *I*, i.e. sentences in which the subordinate clause is either the first element (*I*) or follows an optional element (*aI*); see (14) for *aI* and (15) for *I*.

(14) Well *since I was about eleven* I've kept going back to it every few years <ICE-GB:S1A-016 #62:1:C>

⁵ Regular expressions are a tool which can be used to search systematically for recurring patterns (for instance using AntConc) such as cases of *since* in final position as in example (12).

Table 3: Annotation criteria for *since*- and *while*-clauses.

Criterion	Annotation
Variety	British English (BrE) Hong Kong English (HKE) Singapore English (SinE) EFL in China (CHN) EFL in Indonesia (IDN) EFL in Japan (JPN) EFL in South Korea (KOR) EFL in Thailand (THA) EFL in Taiwan (TWN)
Variety status	English as a Native Language (ENL) English as a Second Language (ESL) English as a Foreign Language (EFL)
Meaning	For <i>while</i> : Concession Contrast Time For <i>since</i> : Cause Time
Position	Initial (I) Medial (M) End (E)
Medium	Spoken Written
Setting	Formal Informal
Length	1 w. 2 w. 3 w. 4 w. 5 w. 6+ w.

(15) *While Pam's Mum is busy being offended* I am worse off <ICE-GB:W1B-007 #31:1>

Medial position, in this study, comprises Greenbaum & Nelson's (1996b: 71) initial medial (*iM*), medial (*M*), and final medial (*fM*) positions. Possible options include that the clause stands between subject and auxiliary, between auxiliary and verb, or between verb and complement of the main clause (71). An example for a *while*-clause in medial position is given in (16).

(16) See what happened was uhm these jokers *while building the subway* had driven a wall right down through uhm was it the city's foundations <ICE-SIN:S1A-034#49:1:A>

Final position includes adverbial clauses in the (absolute) end position (*E* in Greenbaum & Nelson 1996b; see [17]) and adverbial clauses in end position followed by an optional element (*Ea* in Greenbaum & Nelson 1996b; see [18]).

- (17) You've had to start *since it's after all all your doing* <ICE-SIN:S1A-019#6:1:A>
- (18) Furthermore, we can acquire some living skills and learn more about life and society *while working* so that we can survive the society with fierce competition and live a better life <ICNALE-W_CHN_PTJ_A2_0>

The criterion “length” in Table 3 refers to the number of words in a subordinate clause which follows after the subordinator. Contractions and hyphenated words were counted as one word and any amount of words that exceeded 6 was indicated as 6+. A clause length of one word could occur, for instance, when a non-finite *-ing* form was the only word following the subordinator.⁶

“Medium” refers to spoken and written language. Spoken language is featured in the direct conversations in ICE and the spoken portion of examinations recorded for ICNALE. Written language, in turn, is featured in the timed exams and social letters in ICE as well as the written portion of examinations in ICNALE. Although setting and medium largely overlap, setting was also annotated, since the written components in ICE feature both formal (timed exams) and informal (social letters) settings.

A methodological problem that remains is the general incomparability of corpora across Kachru's Circles (cf. Gilquin 2015: 118). Learner data are still largely collected in the form of more or less supervised tasks (mostly in written form) and are, therefore, much less spontaneous and natural. For the present paper, this problem is addressed by also incorporating timed exams from the ICE corpora, i.e. a similar setting to that in which the ICNALE data were collected. Generally speaking, it is well-known that spoken language tends to show innovation much more quickly than does written language (cf. Schneider 2004: 247); this is true, in particular, when it represents language of immediacy (as opposed to language of distance, cf. Koch & Oesterreicher 1985/2012). However, learner data is mostly accessible in the form of written language and may also involve the usage of features which might have been called “systematic errors”, but do in fact represent potential innovations in EFL.

Another aspect which was considered to be very interesting is the semantic complexity of certain subordinators. As mentioned in Section 2, both *since* and

⁶ It should be noted that length was favored in this analysis, but (syntactic) complexity in a wider sense (see Hawkins 1994; Wasow 1997) could be included as a factor in follow-up studies.

while can introduce adverbial clauses with different meanings: Quirk et al. (1985: 1077), for instance, point out that “a *since*-clause may be temporal or causal”. In addition, meanings may be combined – some such cases are shown in the analysis in the next section. For the quantitative analysis, I proceeded in a similar fashion to Quirk et al. (1985) by noting the primary meaning of each clause in the annotation.

Despite the fact that thematic role and information status have been analyzed widely for adverbials (cf. Ungerer 1988; Virtanen 1992; Hasselgård 2010) and have been considered as an important factor for the position of subordinate clauses (cf. Wiechmann & Kerz 2013), it was decided not to include these factors here due to the very heterogeneous nature of the different text types which were included. Some of the files contain freely spoken language in dialogue, while others are monologues; similarly, some of the written forms are reactions to previous texts unknown to the corpus reader (social letters in ICE), while other files do not reference texts written by other people (timed exams in ICE and ICNALE).

4 Results

In this section, the findings of the study are presented. For each of the subordinators, its distribution across the corpora and interesting tokens are shown from a (mostly) qualitative perspective, and the focus then shifts to quantitative analyses in Section 4.3.

4.1 Clauses introduced by *since*

After deleting all irrelevant cases, 194 clauses introduced by *since* could be identified. In terms of meaning, temporal *since*-clauses dominate in ENL and EFL, while *since* overwhelmingly introduces causal clauses in ESL. The absolute and relative figures are indicated in Table 4.

Statistically, the difference between the three types is highly significant ($X\text{-squared} = 17.037$, $df = 2$, $p\text{-value} < 0.0005$).⁷ Due to the fact that the use of a specific subordinator for a specific function is not readily predictable, any explanation of the differences between ENL and ESL on the one hand and EFL on the

⁷ Due to the relatively small sample size, Fisher’s Exact Test (see Coult 1965) was also applied to the data and indicates a $p\text{-value}$ of 0.0001842, which confirms the high significance suggested by the Chi-square test.

Table 4: The semantics of since-clauses in ENL, ESL, and EFL.

	ENL	ESL	EFL
Temporal	45.24% (n = 19)	16.24% (n = 19)	40% (n = 14)
Reason	54.76% (n = 23)	83.76% (n = 98)	60% (n = 21)

other hand has to be tentative. A potential way of verifying whether ESL speakers truly favor *since* for indicating reason would be to test the relative proportion of *since*-clauses against the proportions of competing subordinators such as *if* and *because*. However, this needs to be analyzed in follow-up studies. In the following paragraphs, some notable tokens and hapax legomena are presented and discussed before some remarks on the position of *since*-clauses are given to conclude this sub-section.

In some cases, the verb in the subordinate clause is in the expected tense in relation to the main clause, which, however, features an unexpected verb tense or aspect (compared to Standard English). In (19), the verb in the main clause is in the simple present where present perfect progressive would be expected.

- (19) My father is an active smoker, he smokes *since he was 15 years old*
<ICNALE-S_IDN_SMK_A2_0>

Several tokens identified in ICE-Hong Kong and ICE-Singapore in particular show features typical of these varieties. (20) and (21), for instance, demonstrate the lack of past marking and missing third person singular *-s*, which are known as (at least partially) contact-induced features of Asian contact varieties of Chinese dialects⁸:

- (20) She has taken *since she join in July* <ICE-SIN:S1A-001#164:1:A>
(21) *Since somebody know them better* <ICE-HK:S1A-045#601:2:A>

⁸ See features “132 Zero past tense forms of regular verbs” and “170 Invariant present tense forms due to zero marking for the third person singular” in the *electronic World Atlas of Varieties of English* (Kortmann & Lunkenheimer 2013), where the features are indicated as either being “pervasive” or “neither pervasive nor extremely rare” in Hong Kong English and Singapore English.

The potential ambiguity of *since*-clauses becomes evident in (22), which shows a token from the written portion of the analyzed ICNALE files. Both a temporal and a causal relation are possible: the learner could either be referring to the fact that they have hated smokers since the time that they had a child, or they may be giving a second reason for their negative feelings. A temporal relation is clearly favored due to the use of the present perfect in the matrix (and was indicated in the annotation), but using *have* as main verb in the embedded clause creates ambiguity.

- (22) Because I knew it, I have hated smoker *since I have a child* <ICNALE-W_JPN_SMK_A2_0>

In one case, *since* is used by a speaker in lieu of another expected subordinator. The following hapax legomenon is found in ICE-Hong Kong; here, the speaker employs *since* in the sense of *when*.

- (23) May maybe they begin to type <,> *since they are very young* <ICE-HK:S1A-086#272:1:B>

Since and *when* share the function of introducing a starting point of a temporal event; as Quirk et al. (1985: 1084) note, “[s]*ince* marks the beginning of the period during which the situation in the matrix clause applies”. In this particular example, however, a durative matrix clause is expected.

With regard to the position of *since*-clauses in relation to the main clause, Quirk et al. (1985: 1106) found that adverbial clauses of reason introduced by *since* mostly stand in final or in initial position in British English. It is particularly interesting that the percentages identified across the analyzed ICE and ICNALE corpora are almost perfectly in line with the numbers which Quirk et al. (1985: 1106) indicated; see Table 5:

Table 5: Position of *since*-clauses in ICE and ICNALE compared to Quirk et al. (1985).

	Quirk et al. (1985)	ICE and ICNALE
Initial position	36.84% (n = 14)	38.03% (n = 54)
Medial position	2.63% (n = 1)	2.82% (n = 4)
Final position	60.53% (n = 23)	59.15% (n = 84)

The numbers given in comparison to those from Quirk et al.'s (1985) study are the results for all corpora. Details on the criteria which influence clause position and clause length, as well as meaning, follow in Section 4.3, which reveals that there are, in fact, variety-specific differences.

4.2 Clauses introduced by *while*

Across all corpora, 258 tokens of *while* as a subordinating conjunction were identified. The three major types of meanings of *while*-clauses are present in each corpus, although there are quantitative differences. Table 6 gives an overview of the three main types of meaning across the corpora by indicating both the absolute figures and the relative figures for comparison.

Table 6: The semantics of *while*-clauses in ENL, ESL, and EFL.

	ENL	ESL	EFL
Temporal	48.94% (n = 23)	49.37% (n = 39)	83.33% (n = 110)
Concessive	12.77% (n = 6)	11.39% (n = 9)	0.76% (n = 1)
Contrastive	38.29% (n = 18)	39.24% (n = 31)	15.91% (n = 21)

Similar to *since*-clauses, the statistical difference between the three types is highly significant ($X\text{-squared} = 36.826$, $df = 4$, $p\text{-value} < 0.0005$).⁹ Despite the fact that the EFL data cannot be directly compared to the settings in ICE, it is interesting to note that there are only minor differences between ENL and ESL, but major quantitative differences between ENL and ESL on the one hand and EFL on the other.

Examples from ENL, ESL, and EFL for temporal clauses introduced by *while* are given in (24) to (26).

(24) Uhm Matt Street phoned *while I was out* <ICE-GB:S1A-008 #265:1:B>

(25) Is it okay to have my contact lens on *while I'm doing this* <ICE-HK:S1A-072#318:1:A>

⁹ Again, these findings can be confirmed using Fisher's Exact Test which indicates a highly significant statistical difference at a $p\text{-value}$ of 2.715e-08.

- (26) Moreover, having opportunity to have a part time job *while they are studying in the university* is a good chance to get a job in the future
<ICNALE-W_THA_PTJ_A2_0>

According to Quirk et al. (1985: 1080), adverbials of time overwhelmingly stand in sentence-initial and, occasionally, in medial position. This claim could not be substantiated, since only 17 (9.94%) of all temporal *while*-clauses occurred in initial position and the remaining clauses were in medial (n = 36, 21.05%) or final (n = 118, 69.01%) position.

Examples for clauses with (primary) concessive meaning for ENL, ESL, and EFL are given in (27), (28), and (29), respectively.

- (27) And uhm you know *while Dickon now can sort of you know say I want this I want that I don't like this I don't like that* and he may not get what he wants out of it but at least he feels he can I think she feels too threatened to
<ICE-GB:S1A-031 #154:1:B>

- (28) *While the traditional technology was able to effect quantitative changes,* there was no qualitative changes in the form of increase per capita income for the rural peasants
<ICE-SIN:W1A-015#47:1>

- (29) You may become more out going and talking *while you were shy and even never dared speaking in public*
<ICNALE-W_CHN_PTJ_A2_0>

Adverbial clauses with *while* in a concessive sense are mostly in sentence-initial position preceding the matrix clause (n = 12; 63.16%), although concessive clauses in final position are also frequent (n = 7; 36.84%). A possible explanation for the variability of the position may lie in the fact that “[c]oncessive clauses indicate that the situation in the matrix clause is contrary to expectation in the light of what is said in the concessive clause” (Quirk et al. 1985: 1098). This results in a mutuality which entails that, in many cases, either clause may become the subordinate clause.

The third kind of meaning which may be introduced by *while*-clauses is contrastive; examples are given in (30), (31), and (32).

- (30) I suppose what we now need to look at is uhm the complication of something else to have as your main stream *while this is going on on the side* as it were
<ICE-GB:S1A-033 #160:1:A>
- (31) Lao Zi would not dispute that the natural order, which he calls Tao, *while King Xi calls Tian*, is inherently good
<ICE-SIN:W1B-013#33:1>

- (32) Do not forget that the study can help the work *while the work can help the study* <ICNALE-W_CHN_PTJ_A2_0>

Summing up, it can be noted that concessive meaning is most prevalent in initial position. The position for contrastive *while*-clauses is fairly evenly distributed, whereas temporal *while*-clauses mostly occur in medial or final position and less frequently in initial position (contrary to expectations). These findings are robust across all analyzed ENL, ESL, and EFL corpora.

As noted previously, temporal and concessive *while*-clauses may be non-finite (or entirely verbless) and have an *-ing* or *-ed* form instead of a finite verb form (cf. Quirk et al. 1985: 1078; 1097). In the corpora, no verbless clauses in the sense of Quirk et al. (1985) and Huddleston (2002: 1267) could be identified. If a finite verb is missing, it is usually the result of verb omission, for instance in cases of copula or auxiliary deletion as in (33)¹⁰:

- (33) Actually, we will not have many times when we take a job *while we studying* [...] <ICNALE-W_IDN_PTJ_A2_0>

However, *while*-clauses with non-finite *-ing* occurred frequently. Three examples from different corpora are given in (34) to (36).

- (34) Well, you may be wondering why I can still write to you *while watching the video* <ICE-HK:W1B-002#10:1>

- (35) See what happened was uhm these jokers *while building the subway* had driven a wall right down through uhm was it the city's foundations <ICE-SIN:S1A-034#49:1:A>

- (36) I think no one prefers to have a bad air *while eating at the restaurants or the place where they can enjoy the taste of the food* <ICNALE-W_THA_SMK_A2_0>

Clauses with an *-ed* form are very rare across all corpora; an exception is given in (37).

10 The omission of forms of *be* is potentially contact-induced; see Leuckert & Neumaier (2016) for an overview of copula deletion in English as a Lingua Franca in Asia and Sneddon (1996) and Ansaldo (2009) for comments on the usage of *be* in Malay and Sinitic contact languages of English in Asia.

- (37) It seems to endorse Macnamara's suggestion for a more authentic classroom situation where children learn language *while engaged in play such as baking or cooking lessons* <ICE-SIN:W1A-018#38:2>

Following this rather qualitative survey of *since*-clauses and *while*-clauses in select ICE and ICNALE components, the next sub-section analyzes which factors influence clause meaning, length, and position.

4.3 Variables influencing clause meaning, clause length, and clause position

The previous two sub-sections introduced the raw and relative figures for *since*- and *while*-clauses and gave a mostly qualitative overview of innovative usages of both subordinators. In this sub-section, the statistical methods of conditional inference trees and random forests are applied to the data in order to find out which factors most significantly influence the selection of clause position and clause length. Furthermore, the factors influencing clause meaning are discussed.

Conditional inference trees (ctrees) and random forests were used to identify important variables influencing the position and the length of clauses. Both models indicate which independent variables best predict the outcome of a certain dependent variable and were introduced to the field of linguistics by Tagliamonte & Baayen (2012). These forms of data analysis and visualization can be accessed in the statistical software R (R Core Development Team 2015) via the *party* package (Hothorn, Hornik & Zeileis 2006). Ctrees indicate which variables seem to have the greatest influence on the dependent variable by showing branches according to significant predictor variables. Random forests, in turn, “work through the data and, by trial and error, establish whether a variable is a useful predictor” (Tagliamonte & Baayen 2012: 159).

The first factor to be discussed is clause meaning. It became evident in Tables 4 and 6 that variety status is highly influential for the selection of clause meaning in the present dataset. However, ESL has a much higher frequency of *since*-clauses in a causal sense than the other two groups. Considering clauses with *while*, it is clear that temporal meaning dominates in EFL and that variety status is again an important factor. Comparing only ENL and ESL, however, it becomes evident that there is almost no difference, which is already suggested by the almost identical relative percentages. Despite the fact that these differences need to be mentioned, they should be taken with some caution. The ICNALE data very strongly evoke the usage of *while* in a temporal sense, as

evidenced by many very similar expressions by different learners; see (38) and (39) as cases in point.

- (38) Many of them are not allowed to work *while studying* because they may not concentrate to school <ICNALE-W_THA_PTJ_A2_0>
- (39) So, with so many advantages like that, I think have a part time job *while studying* is a good idea <ICNALE-W_IDN_PTJ_A2_0>

In terms of the relation between meaning and variety status, it is evident that variety status is an important predictor for the selection of a specific meaning in the analyzed data. Temporal *while*-clauses occur most frequently in EFL, which may be explained by the assumption that temporal meaning is, presumably, taught before concessive or contrastive meaning for which other, more obvious alternatives may be taught first (e.g. *although* for concessive clauses). In ESL and ENL, the distribution of meaning is fairly even. Regarding the influence of medium/register on meaning, contrastive clauses can be noted as being more frequent in spoken than in written language.

Another aspect tested for both subordinators and the clauses they introduce is which factors influence the length of *since*-clauses and *while*-clauses. As potential factors, variety status, medium, and position of the clause in relation to the matrix clause are taken into consideration. Questions to be answered by analyzing clause length are (a) whether written language favors longer clauses and spoken language over shorter clauses, and (b) if variety status and position of the clause have any influence on the length of a clause. Before moving on to a statistical analysis, the average length of *since*-clauses and *while*-clauses needs to be compared. The figures in Table 7 show that, on average, *while*-clauses in EFL are shorter than in ENL and ESL but *since*-clauses are longer; it should be noted again that six words was a cut-off point, which means that the figures do not necessarily represent actual clause length but relative length.

Table 7: Average length of *since*-clauses and *while*-clauses

Variety status	Average length of <i>since</i> -clauses	Average length of <i>while</i> -clauses
ENL	4.80 words	4.83 words
ESL	5.26 words	5.01 words
EFL	5.37 words	3.84 words

Using a ctree as in Figure 1, it can be seen that meaning creates the first significant split for differences in the length of *since*-clauses.

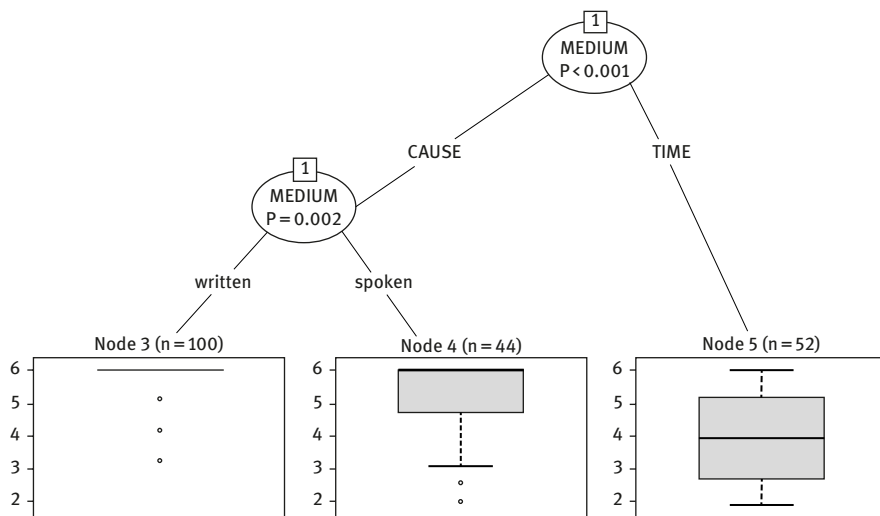


Figure 1: Conditional inference tree for the dependent variable “length” of *since*-clauses.

This, as well as subsequent conditional inference trees, can be interpreted as follows:

Starting at the top node (node 1), one moves along the edges (branches) of the tree towards either the left or right subsequent node, thus restricting the further inspection of the dataset to (a) the independent variable indicated within the node as well as (b) the variable level to the one given on the respective edge of the graph. This process is repeated until a terminal node is reached, which then provides (a) information on the absolute number of points in the dataset with the combination of variables and their levels selected while moving along the edges, and (b) a [box] plot of the relative distribution of [the length].

(Koch, Lange & Leuckert 2016: 164; see also Bernaisch, Gries & Mukherjee 2014)

In contrast to meaning, which creates the first significant split in the tree, variety status does not play a role, and a split between written and spoken language only occurs for *since*-clauses with causal meaning. The first split can be explained by considering which elements may follow after the subordinator: *since*-clauses in a temporal sense may take only an *-ing* form or a short indication of a specific point in time, while causal *since*-clauses require more elaboration in order to make any sense. The second significant split may be explained by taking into consideration the overall facilitated production and processing of longer sentences in writing.

The length of *while*-clauses follows similar dependencies to clauses with *since*; see Figure 2.

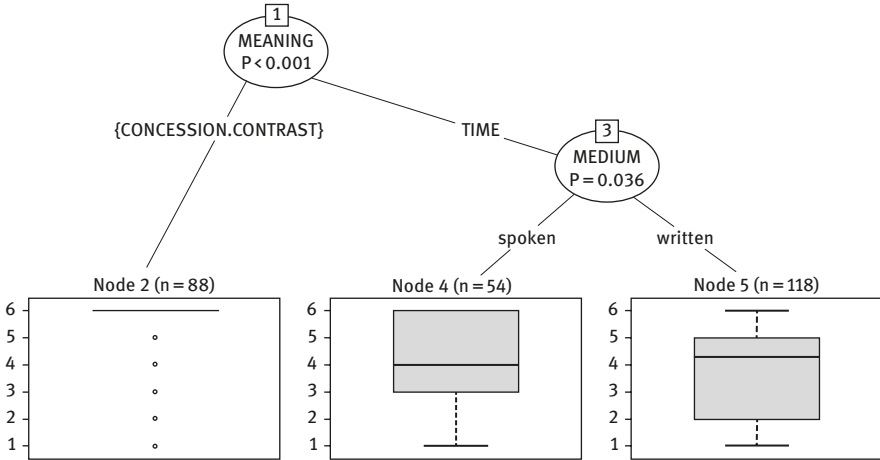


Figure 2: Conditional inference tree for the dependent variable “length” of *while*-clauses.

Again, the first and most significant split is due to meaning, with concession and contrast on one branch and time on the other. Similar to *since*-clauses, *-ing* forms occur more readily with *while* in a temporal sense. This means that shorter subordinate clauses (at times consisting of only the subordinator + *-ing* form) are more frequent with *while*-clauses indicating time. A second split, also based on medium, occurs only for temporal *while*-clauses, with clauses in writing being slightly shorter on average than those in spoken language. Based on the conditional inference trees for the criterion of clause length, the hypothesis that learners in early stages of their English acquisition prefer shorter clauses cannot be substantiated, since no significant split occurs for either of the two analyzed subordinators.

The last criterion to be analyzed is clause position.¹¹ Recent studies acknowledge that the positioning of subordinate clauses is, in fact, multifactorial and cannot be explained by only considering the semantics of a clause or other factors in isolation. Wiechmann & Kerz (2013), for instance, show that numerous factors, such as thematic bridging and meaning, can all play a role for the positioning of concessive clauses. For this reason, the following independent variables were tested as potential influences on the positioning of clauses: (1) variety status, (2) meaning, (3) length, and (4) medium. The results for *since*-clauses are shown in Figure 3.

¹¹ As mentioned in Section 3, information status and thematic role of the clauses were not analyzed, but might be of relevance to this question.

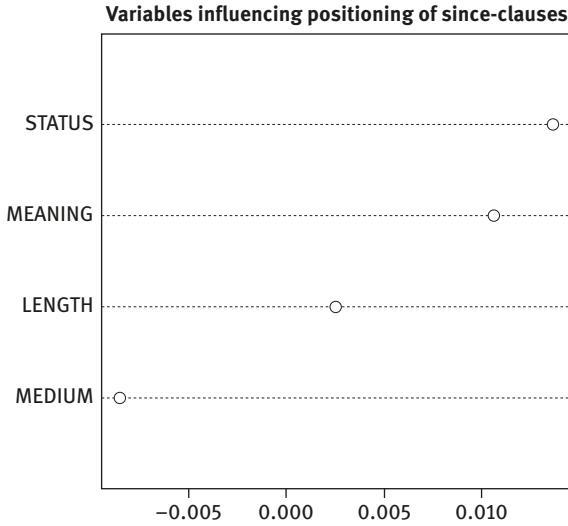


Figure 3: Random forest for the dependent variable “position” of *since*-clauses.

According to Tagliamonte & Baayen, “[r]andom forests construct a large number of conditional inference trees [...]. Each tree in the forest is grown for a subset of the data generated by randomly sampling without replacement (subsampling) from observations and predictors” (2012: 159). Thus, random forests show how “useful” certain predictors are, with a higher value on the x-axis indicating a higher degree of usefulness to predict the outcome of the dependent variable. In this case, the figure shows that medium, i.e. spoken or written language, does not predict the position of a *since*-clause at all. Interestingly, length emerges as a predictor variable which does exert an influence, but stands far behind clause meaning and variety status as the most robust predictors. The importance of the semantics of adverbial clauses for their position in relation to the matrix clause has previously been noted, for instance, by Diessel (2005); the great influence of variety status is reinforced when a ctree is created. According to the ctree depicted in Figure 4, only one significant split occurs based on variety status, but not based on meaning or clause length.

The findings for *while*-clauses show completely different dependencies. Creating both a random forest (Figure 5) and a ctree (Figure 6) for the factors influencing position shows that meaning is by far the best predictor.

An aspect that needs to be looked at in closer detail is the interaction of clause length and position of the clause, since the principle of end-weight might influence where longer and shorter subordinate clauses are located in relation to

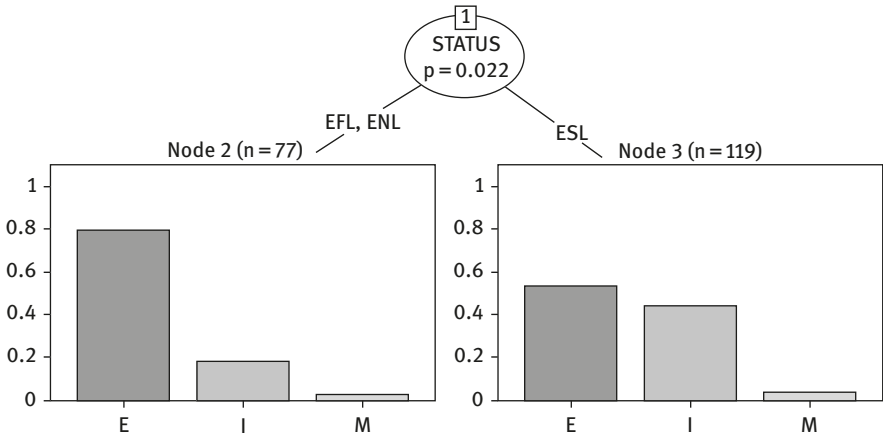


Figure 4: Conditional inference tree for the dependent variable "position" of *since*-clauses.

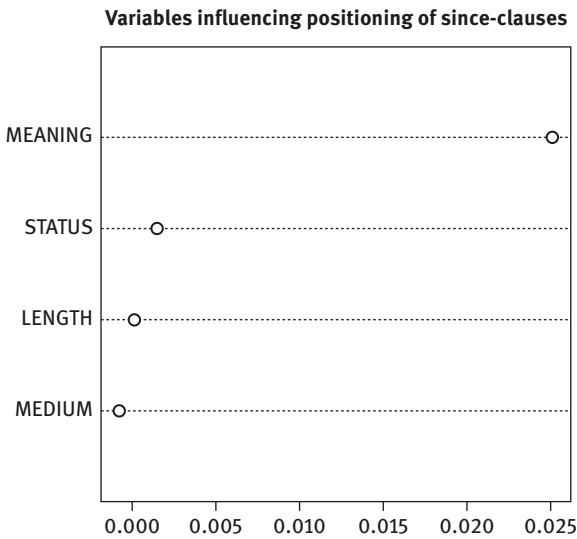


Figure 5: Random forest for the dependent variable 'position' of *while*-clauses.

the main clause. End-weight, "sometimes also referred to as heaviness, [is] measured in terms of the length (number of syllables or words) and/or the morphosyntactic complexity of sentence constituents" (Callies 2009: 17; see also Hawkins 1994; Wasow 1997). Generally speaking, shorter and less complex constituents precede longer and more complex ones (cf. Quirk et al. 1985; Biber et al. 1999; Dik 1989). For the present study, it was decided that only the length of a clause, i.e.

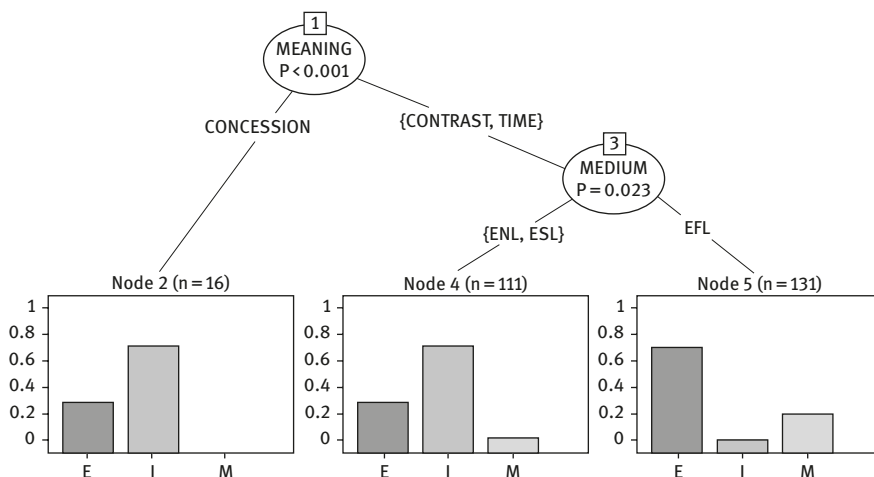


Figure 6: Conditional inference tree for the dependent variable "position" of *while*-clauses.

the number of words following the subordinator, would be counted as a measure. The prediction here is that longer clauses occur more frequently in final position and shorter clauses in initial position.

Considering the analyzed data in their entirety, the end-weight principle does not seem to be very impactful, since initial *since*- and *while*-clauses are either roughly the same length or even longer than final clauses (in the case of *while*). For EFL, however, another tendency prevails. Initial *while*-clauses are shorter (ca. 3.88 words on average) than final *while*-clauses (3.96 words on average). Similarly, initial *since*-clauses are shorter than final *since*-clauses in EFL (4.6 words versus 5.48 words). The reason for this might be that production and processing costs play a lesser role as learners become more proficient, where more complex structures can be produced and processed more easily and potential expectations of being misunderstood become less important. However, idiolectal preferences and the specific demands of text production certainly also affect this, and additional factors, such as thematic bridging, will have to be acknowledged in follow-up studies.

5 Discussion and conclusion

This paper set out to provide a synchronic analysis of adverbial clauses with *since* and *while* in ENL, ESL, and EFL. The two central research questions addressed were (a) whether there were differences in how *since* and *while* are employed as

subordinators in spoken and written ENL, ESL, and EFL with regard to syntax and semantics, and (b) which factors most significantly influenced clause meaning, clause length, and clause position in relation to the main clause.

Despite the general lack of comparability of the analyzed corpora (at least between ENL and ESL on the one hand and EFL on the other hand), some interesting similarities and differences were identified in the usage of *since* and *while* as subordinators. The fact that *since* sometimes replaces other expected subordinators suggests a creative usage in EFL, but may be a learner mistake or error rather than an actual systematic innovation. It has been noted repeatedly that “[t]he line is thin between errors and creative uses” (Gilquin & Granger 2011: 72; cf. also Deshors, Götz & Laporte 2016: 132–133). Interesting tokens such as the replacement of *when* with *since* are frequently isolated cases and do not suggest systematic usage across a larger speech community, which does not speak in favor of innovation in this particular case. Differences in terms of length and meaning of the clauses can be attributed in part to the different nature of the ENL/ESL data on the one hand and the EFL data on the other hand. However, for the case of adverbial subordination, Asian learners of English and Asian speakers of ESL share certain tendencies, while they differ in others. Adverbial clauses introduced by *while* (across all three variety types) share that meaning is the best predictor for position of the clause and variety-specific differences affect only certain facets of meaning. Interestingly, ENL and ESL cluster together as similar types of varieties for *while*-clauses, while ENL and EFL do so for *since*-clauses. In the context of Kachru’s model, this finding suggests that deviations from the norm-providing varieties, most importantly British and American English, can be found in countries traditionally assigned to the Outer as well as the Expanding Circle. The precise reasons for this are notoriously difficult to pin down, but the findings from this paper reinforce the impression that potential linguistic innovations are not limited to second-language varieties in the Outer Circle.

The length and position of *since*-clauses and *while*-clauses are dependent on various factors: meaning is the best predictor for the position of a *while*-clause in relation to the matrix clause, while variety status is the best predictor for where a *since*-clause is located. Length is affected mostly by meaning, which can be explained by the fact that shorter expressions with *-ing* forms are much more frequent with temporal clauses.

While some highly interesting findings resulted from the present analysis, more spoken (learner) data would be very useful as a means of expanding the findings of this study. Data on spontaneous spoken language is still largely absent for learners of English but would be of great advantage to allow for more direct comparisons between ENL, ESL, and EFL. Although several publications help

bridge the so-called paradigm gap (see Mukherjee & Hundt 2011 and Deshors, Götz & Laporte 2016), there is still much that needs to be done in order to deliver more robust results on whether EFL and ESL share certain linguistic innovations. It will be interesting to validate the findings from this paper in further studies and by means of additional corpora.

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