How Learner Corpus Research can inform language learning and teaching

An analysis of adjective amplification among L1 and L2 English speakers

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This study aims to exemplify how language teaching can benefit from learner corpus research (LCR). To this end, this study determines how L1 and L2 English speakers with diverse L1 backgrounds differ with respect to adjective amplification, based on the *International Corpus of Learner English* (ICLE) and the *Louvain Corpus of Native English Essays* (LOCNESS). The study confirms trends reported in previous research, in that L1 speakers amplify adjectives more frequently than L2 English speakers. In addition, the analysis shows that L1 and L2 English speakers differ substantially with respect to the collocational profiles of specific amplifier types and with respect to awareness of genre-specific constraints on amplifier use, and that even advanced L2 speakers tend to be unaware of stylistic constraints on adjective amplification because they model their academic output based on patterns generalized from informal conversation. These findings are useful for language teaching in that the data can be used to target L1-specific difficulties experienced by L2 English speakers.

Keywords: intensification, second language acquisition, ICLE, adjective amplification, learner corpus research

1. Introduction

Given Australia's immense sociocultural and linguistic diversity, increasing rates of immigration, and a substantial number of international students arriving year-on-year, the Australian education system is faced with a drastic need for language education and training in English that can target learners from a range of native language

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backgrounds.[1] This need is expressed, for instance, by Turcic (2008), who reports on how a lack of English language skills greatly impacts on the quality of life of international students, while the *Adult Migrant English Program* (AMEP) (Department of Education and Training of the Australian Government 2019) documents the need for English language training among diverse adult immigrants. However, the language backgrounds of L2 English speakers (and any language specific difficulties arising from such backgrounds) are not generally taken into account or reflected in ESL (English as a Second Language) and EFL (English as a Foreign Language) course materials (see Ellis, 2004; Mathews-Aydinli, 2008). The present study aims to show how learner corpus research (LCR) can assist in addressing this gap by outlining how learner data across a variety of L1 backgrounds can reveal language-specific difficulties with amplifier use by ESL learners – insights which can then be used to develop future language-specific course materials.

LCR emerged as a field of research during the 1990s and utilizes large computerized datasets of naturalistic learner production (learner corpora) "to describe learner language and/or develop new pedagogical tools and methods that target language learners' specific needs" (Callies & Paquot, 2015, p. 1). Over the past two decades, both language teaching and second language acquisition (SLA) theorizing have increasingly incorporated findings from LCR. Myles (2015) argues that the use of learner corpora is "essential to advance and enhance our understanding of the nature of second language (L2) learner development" (pp. 309–310). Yet, while the use of L1 corpus data in SLA now has a long-standing tradition, SLA and LCR have only relatively recently begun to inform each other systematically (e.g., Hasselgård, 1999; Myles, 2005), such that LCR is now "slowly but surely being integrated into SLA" (Granger, 2009, p. 28). LCR is attractive for SLA research in that it can be used to provide a detailed description of the mental grammar underpinning the interlanguage rules that may surface in L2 learners' output. Corpus-based findings may be considered superior to purely intuition-based judgements about target-like language use in terms of reliability, transparency, and avoidance of arbitrariness (Granger, 2015). Such finding may then reliably and transparently inform language teaching.

For LCR to be informative for SLA theorizing, corpus data should ideally represent different modes (e.g., written versus spoken), varied communicative activities and situational contexts, as well as allow for cross-linguistic comparisons (Myles, 2015). The research presented here exemplifies how LCR can assist language teachers

1. In addition, see Simon-Davies (2018) on the role of net oversea migration and the increasing population growth in Australia and the Department of Education of the Queensland government's (2019) indigenous education resources for documentation of the need of English training among Aboriginal and Torres Strait Islander students in Queensland state schools.

by enabling them to detect, address, and target language-specific idiosyncrasies among a diverse range of advanced learners, with a specific focus in this paper on adjective amplification and adjective-amplifier collocations.

1.1 Adjective amplification

From a language learner's perspective, intensifiers that amplify adjectives (see [1] and [2]) are deemed to play a crucial part in the social and emotional expression of speakers (Labov, 1985; Partington, 1993; Peters, 1994; see also Ito & Tagliamonte, 2003, p. 258).

(1) Amplifier-adjective bigrams in predicative position
   a. [...] because they were *very poor*. (ICLE-BG-SUN-0003.1)[2]
   b. At the same time they made drugs *really popular*. (ICLE-PO-POZ-0046.3)
   c. [...] it is *absolutely irresponsible* to fight against another denomination [...]. (ICLE-GE-SAL-0009.3)
   d. The countries are *so different* (culture, language, tradition) [...]. (ICLE-FR-UCL-0067.1)

(2) Amplifier-adjective bigrams in attributive position
   a. In other words, Europe has to become a *very strong* power. (ICLE-FR-UCL-0066.1)
   b. Also if they are lucky and she gets a *really suitable* husband [...]. (ICLE-SW-LND-0023.8)
   c. [...] you will have an *absolutely excellent* view on the match. (ICLE-DN-NIJ-0007.2)

Yet, even advanced L2 English speakers differ from L1 native speakers (e.g., Lorenz, 1999) in terms of both frequency of amplifier use, and their collocational preferences. Two potential reasons for the difficulties in acquiring target-like use of adjective amplifiers are that amplifier systems are diachronically unstable, and that learner's input may be stylistically impoverished and over-proportionately colloquial (see Lorenz, 1999), which makes it difficult for learners to acquire the grammar that underpins the use of adjective amplifiers in a specific speech community or genre.

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2. In examples, the code ICLE stands for the corpus (ICLE = International Corpus of Learner English). The next two capital letters represent a country or language code (BG = Bulgaria, CZ = Czech Republic, DB = Flemish, DN = Dutch [Netherlands], FI = Finland, FR = France, GE = Germany, IT = Italia, PO = Poland, RU = Russia, SP = Spain, SW = Swedish). The next three capital letters refer to the city in which the data was collected, for example LND for Lund, NIJ for Nijmegen, POZ for Poznan. The numbers at the end of the code identify the essay and the author of the essay.

The focus of the present study does not lie on the frequency of specific amplifier types, such as *very, really*, and *completely*, but on the use of such amplifier types given a certain adjective (for instance *good, nice*, and *beautiful*). To elaborate, the amplifier *very* may be used with the same relative frequency by L1 and L2 English speakers, but their uses could still differ dramatically with respect to the collocational profile of *very*, that is, with respect to the adjectives with which *very* co-occurs. Lorenz (1999, p.165) describes a cumulative effect that causes native-speaking listeners to judge interlanguage as non-nativelike: "[y]et what are perceived as no more than 'stylistic weaknesses' tend to have an accumulative psychological effect on the reader, leading to an impression of overstatement, crudeness of expression – and 'foreign-soundingness.'" In the context of the present study, 'native-like' is conceived of as target-like language production in terms of the relative frequencies of amplifier variants and amplifier-adjective bigrams where the target of reference represents L1 speaker output. Non-nativeness in amplifier use is unlikely to result from qualitative differences between L1 and L2 English speakers, but from subtle, yet reoccurring, use of statistically unlikely combinations. In other words, non-target-like language use represents the use of amplifier-adjective bigrams (i.e., combinations of amplifiers and adjectives) that occur significantly more or less frequently than would be expected given the frequency of these collocations in the output of L1 speakers.

2. Previous research on L1 and L2 adjective amplification

There exists a wealth of research on adjective amplification, particularly from historical and functional points of view (e.g., Bolinger, 1972; Breban & Davidse, 2016; Méndez-Naya & Pahta, 2010; Nevalainen & Rissanen, 2002; Paradis, 2008). In addition, sociolinguistic or variationist studies have provided fine-grained descriptions of the use of intensifiers across social strata (e.g., D'Arcy, 2015; Fuchs, 2017; Ito & Tagliamonte, 2003; Pertejo & Martínez, 2014; Tagliamonte, 2008; Tagliamonte & Denis, 2014). However, despite amplifiers being extensively studied, analyses that have focused on the amplified adjective (e.g., Wagner, 2017) or on differences between adjective amplification by L1 and L2 English speakers have only recently emerged (e.g., Hendrikx, Van Goethem, & Wulff, 2019; Lorenz, 1998, 1999). Studies on amplification that simultaneously encompass speakers from various linguistic and cultural backgrounds are, however, still lacking.

Lorenz's (1999) monograph-length study of differences in adjective intensification between L1 and L2 English speakers with a German language background has produced four main results that require discussion here. Firstly, Lorenz (1999) found that German learners overused all-purpose intensifiers such as *very*. Secondly, *really* was used by German learners of English as would be expected in

speech rather than academic written discourse (1999). Thirdly, lower *Mutual Information* scores (MI, a measure of collocation strength) among learners compared with L1 speaker scores indicate that amplifier-adjective collocations of German L2 English speakers exhibit a lower degree of cohesion. In other words, L2 speakers show more variability in their amplifier-adjective bigrams and use collocations less frequently than L1 speakers. Finally, Lorenz (1998) found that German L2 English speakers use amplifiers significantly more frequently compared with native speakers both in terms of absolute frequencies and relative to the frequency of adjectives. The latter finding is attributed to the overall writing strategies of advanced learners, explained as a tendency in learners for over-expressiveness (Lorenz, 1998) which causes German L2 English speakers to use adjective intensifiers where they are not stylistically required. Other causes for non-nativelike use such as functional differences, cultural predispositions and a lack of lexical differentiation, have been ruled out in light of fine-grained qualitative analyses supported by an extensive variety of examples.

More recently, Hendrikx, Van Goethem, and Wulff (2019) analyzed the acquisition of adjective amplification from a constructionist perspective, based on corpora representing L1 speakers of English, Dutch, and French, as well as French learners of English and Dutch. To test whether increased input and use of the L2 leads to more target-like production of adjective amplification, the data comprised texts produced by learners that were exposed to either traditional foreign language instruction (which does not encompass teaching other subjects in a foreign language), or Content and Language Integrated Learning (CLIL) in which other subjects are (in part) taught in a foreign language. Their results show that similarities between L1 and L2, as well as increased usage and exposure through CLIL, increase target-language-like production of adjective amplification. However, the effect of increased usage and exposure was more prevalent among L2 speakers of English compared to L2 speakers of Dutch. This study is methodologically similar to the approach taken in the present study in that it also focuses on co-occurrence profiles of amplifiers and adjectives, and makes use of statistical means that specifically allow one to evaluate divergencies in collostructional strength (i.e., the degree of attraction or repulsion that words exhibit to constructions) of the amplifier-adjective pairs among L1 and L2 speakers.

Another study that has investigated amplifier-adjective bigrams is Granger's (1998a), which focused on amplifier-adjective combinations in written data from native English speakers and French learners of English. In addition, word combination tasks were administered to tap into different intuitions in both groups. In contrast to Lorenz (1999), Granger (1998a) found that learners amplified substantially less frequently than L1 speakers. Furthermore, the results of the word combination task showed that learners selected optimal combinations substantially less often than L1 speakers, while showing significantly more variation in what learners

deemed acceptable pairs compared with L1 speakers. Granger (1998a) interpreted these results to show that the (French) learners of English sense of collocational salience was missing or misguided (p. 152).

Edmonds and Gudmestad (2014) analyzed intensifying adverbials in academic essays in an attempt to partially replicate Granger's (1998a) study and found that advanced Francophone learners of English (MA students) performed similarly to L1 English speakers, while less advanced learners of English (first- and third-year students) showed notable differences with L1 speakers. This result echoes other recent studies on highly advanced learners of English by Forsberg (2010), who also found that L1/L2 differences diminish as speakers become more advanced.

Furthermore, Hinkel (2003) investigated frequency differences across several adverbial domains including intensifying adverbs between L1 English speakers as well as L2 speakers with Chinese, Japanese, Korean, and Indonesian language backgrounds. The results show that the patterning of adverbs in the learner data mirrored the frequencies of conversational style, thus indicating that learners used a colloquial style (rather than a more appropriate formal style) due to a limited lexical repertoire.

Research that has focused on the expression of stance by learners of English has also provided interesting findings relating to adjective amplification. Fallas Escobar and Chaves Fernández (2017), for instance, found in their analysis of the development of stance in student academic writing that use of boosters (amplifiers) together with other stance-taking strategies allowed students to develop what they call "a stronger voice" (p. 118). Although not focusing on amplifiers in written academic discourse, Friginal et al. (2017) in their study of learner and teacher talk found that learners did not differ significantly in their use of boosters compared with teachers (Friginal et al., 2017, p. 89). However, students were substantially more restricted in their booster repertoire, using only 12 out of the 61 potential booster resources that were examined.

In sum, previous studies have found that L2 speakers of English tend to show usage patterns of amplification that mirror conversational style rather than written discourse, that L2 speakers overuse "all-purpose" amplifiers (*very*), and that increased input and use correlates with more target-like production and leads to a decrease in differences between L1 and L2 speakers with respect to adjective amplification. With respect to frequency differences, previous research has produced mixed results. However, the statistical analyses employed in most previous studies, an exception being Hendrikx et al. (2019), leave open exactly which amplifier types are overused with which adjectival heads. Thus, a precise account of the collocational divergences between L1 and L2 speakers across a broad variety of linguistic and cultural backgrounds is so far missing.

To evaluate the findings produced by previous studies with the use of statistical methods that are better suited for analyses of co-occurrences between amplifiers and adjectives, and to address the research gap left open by the previous mixed results, the present study aims to answer the following research questions:

1. Do L1 speakers amplify more than L2 speakers?
2. Are general amplifiers (*very*) overused by L2 speakers?
3. Are there general tendencies in the way L2 speakers differ from L1 speakers with respect to adjective amplification?
4. Which combinations of amplifiers and adjectives are difficult to acquire by L2 speakers, that is, which amplifier-adjective bigrams are used significantly more or less by L2 speakers compared with L1 speakers?

3. Data and methodology

While building on previous research, the present study is innovative in that it incorporates two methodological advantages: (1) the application of the principle of accountability in LCR according to which analyses must incorporate not only occurrences of instances but also instances where something could have occurred (see Labov, 1972, p. 72; Tagliamonte, 2012, pp. 9–10), and (2) the use of statistical methods that are particularly suitable for analyzing collocations.

The advantage that the principle of accountability has over research findings based on relative frequencies lies in the fact that it allows us to model which and to what extent certain factors contribute to choices made by L1 and L2 English speakers more precisely than analyses which rely on relative frequencies. To address this issue, the study applies covarying collexeme analysis and configuration frequency analysis (CFA) (Krauth & Lienert, 1973). Both methods are particularly apt for analyzing collocational phenomena and allow us to investigate over- and underuse of specific co-occurring patterns of amplifiers and adjectives produced by L2 speakers from diverse language backgrounds.

3.1 Data sources and processing

The current study makes use of two data sources. The first data source is the *International Corpus of Learner English* (ICLE) compiled during the 1990s and published in 2002 (Granger, 1993, 2002). The ICLE includes argumentative writing on different topics by advanced Bulgarian, Czech, Dutch, Finnish, French, German, Italian, Norwegian, Polish, Russian, Spanish, and Swedish higher intermediate to advanced learners of English. The speakers represented in the ICLE data are university students of English, mainly in their second or third year. The essays

vary in length between 500 and 1000 words. Unfortunately, more detailed information about the students, such as their exact age, their gender, socioeconomic background, or (bilingual) language use profiles are not available, which makes it impossible to control for these factors in the data.

The second data source is the *Louvain Corpus of Native English Essays* (LOCNESS) (Granger, 1998b) which contains both argumentative and literary essays written by American and British university students, as well as British A-level argumentative essays. It is important to note here that the LOCNESS corpus was specifically designed to allow meaningful comparisons with the learner data represented in the ICLE.

The data processing of both corpora was done in the programming environment *R* (R Core Team, 2008) and followed identical steps for each corpus so as to not interfere with the comparability of the data. In a first step, the data were cleaned and harmonized by removing, for instance, meta-data such as file identifiers. In a next step, the cleaned data were then part-of-speech tagged by implementing a maximum entropy tagger provided in the *openNLP* package (Hornik, 2016). After part-of-speech-tagging, all adjectives (tag *JJ*) were extracted, and it was determined for each adjective whether it was amplified, and which lexical form served as an amplifier. In a next step, negated adjectives (e.g., *not very good*), misclassified items, as well as comparative and superlative forms were removed from the analysis. In addition, adjectives that were never amplified, or which were not amplified by at least two different amplifier types, were also removed from the analysis.

In the next step of data processing, all adjective tokens that were not amplified were removed from the analysis. The reasoning behind the decision to remove non-amplified tokens was that the linguistic variable can be defined as a situation in which "the speaker reaches a decision-point" (Maddeaux & Dinkin, 2017, para 1). The variable in this context is the decision whether or not to amplify an adjective given that the speaker has already decided to modify this adjective somehow. The variable context thus encompasses only amplified adjectives while leaving out zero context, that is, contexts where the speaker could have amplified an adjective but did not. This means that unamplified adjectives had to be removed as to only focus on contexts that allow for amplification and which thus represent a variable context (this reduced data set is summarized in Table 3 in the Appendix).

In a final step, all amplifier types that occurred less than 200 times in the data, which encompassed all amplifier types except for *very, really, so, extremely*, and *completely*, were collapsed into a single category labelled *other*. This was necessary as their low frequency would have rendered statistical analyses less reliable.

3.2 Statistical methods

The present study makes use of two types of analyses: (1) covarying collexeme analyses (Gries & Stefanowitsch, 2004) to find collocational idiosyncrasies among (and divergences between) L1 and L2- English speakers, and (2) configuration frequency analysis (CFA) to determine where L2 English speakers differ significantly from L1 speakers with respect to amplifier-adjective bigrams.

3.2.1 *Covarying collexeme analysis*

Covarying collexeme analysis is part of the collostructional family of analyses (Gries & Stefanowitsch, 2004; Hilpert, 2006; Stefanowitsch & Gries, 2003, 2005). Covarying collexeme analyses allow for the quantification and evaluation of attraction between elements that occur in two distinct slots within a specified construction. In the present case, the first slot represents the amplifier slot and the second slot represents the adjective slot. Each slot can be occupied by a variant from a set of potential candidates – the set of amplifier variants for the first slot and the set of adjectives for the second slot. Covarying collexeme analysis provides information about whether the likelihood of a certain variant in the first slot affects the likelihood of another variant from another set that occurs in the second slot. In other words, it is more likely that *nice* occurs in the second slot given that *really* occurs in the first slot, compared with another amplifier taking the first slot. The results of the covarying collexeme analysis are Bonferroni-corrected to control for the inflation of α-error rates. This is necessary because a large number of tests were run which would have resulted in an inflation of false positive results (α-error) if the corrections had not been applied. The covarying collexeme analyses were performed for each language background in comparison with the frequencies of the native speakers. The effect size measure reported here is the *logged p-value* (Stefanowitsch & Gries, 2005). The values of this effect size measure inform whether the amplifier and adjective repel or attract each other. Values below 0 indicate rejection, while values above 0 indicate attraction. Values around 0 neither indicate preference nor rejection. In statistical terms, values below 0 show that an amplifier and an adjective occur less frequently together than would be expected by chance, while values above 0 show that an amplifier and an adjective occur more often together than expected by chance. For the analysis, all adjectives other than *dangerous, different, difficult, good, important, little, necessary*, and *new* were collapsed into one category (*other*). The advantage of covarying collexeme analyses over similar methods to evaluate collocational attraction is that it is a very robust method, as it is an extension of Fisher's Exact Test that does not rely on distributional assumptions as tests form the $\chi 2$-family of tests do.

3.2.2 *Configuration frequency analysis*

Configuration frequency analysis or configural frequency analysis (CFA) (Krauth & Lienert, 1973) allows us to detect combinations of amplifiers and adjectives (configurations) in learner data that differ significantly from native speaker data. In contrast to the $\chi 2$-family of tests that only provide information about whether any of the configurations differ significantly from what would be expected by chance, CFAs enable us to determine exactly which configurations differ significantly between learners and native speakers. In other words, CFAs allow us to test whether an individual configuration occurs significantly more often (Type) or less often (Antitype) in the learner data than would be expected given the frequency of the configuration in the native speaker data. As in the case of the covarying collexeme analysis, the present study controls for α-error rate inflation. The following section presents the results of the quantitative analysis.

4. Results

We will begin by reviewing the rates of amplification across languages, as shown in Table 1.

Table 1. Overview of adjective tokens, amplified adjective tokens, and percentage of amplification across languages

Language	Adjective tokens	Amplified adj. tokens	Percent amplified adj. tokens
English	3,201	303	9.5
Bulgarian	8,594	455	5.3
Czech	8,345	648	7.8
Dutch	6,126	395	6.4
Finnish	7,114	453	6.4
Flemish	3,616	277	7.7
French	11,055	540	4.9
German	8,457	575	6.8
Italian	9,611	514	5.3
Polish	9,919	655	6.6
Russian	9,295	674	7.3
Spanish	7,169	529	7.4
Swedish	12,020	731	6.1
Total	**104,522**	**6,749**	**6.46**

Table 1 shows that the vast majority of adjectives are not amplified, with an average of only 6.46 adjectives actually being amplified. In addition, the rate of amplification is relatively homogeneous, with a range of 4.9 percent (French) to 9.5 percent (English). Thus, L1 English speakers amplify more often compared with L2 speakers. Figure 1 visualizes the results captured in Table 1 in descending order from left to right so as to ease interpretation of the overall trends in the data.

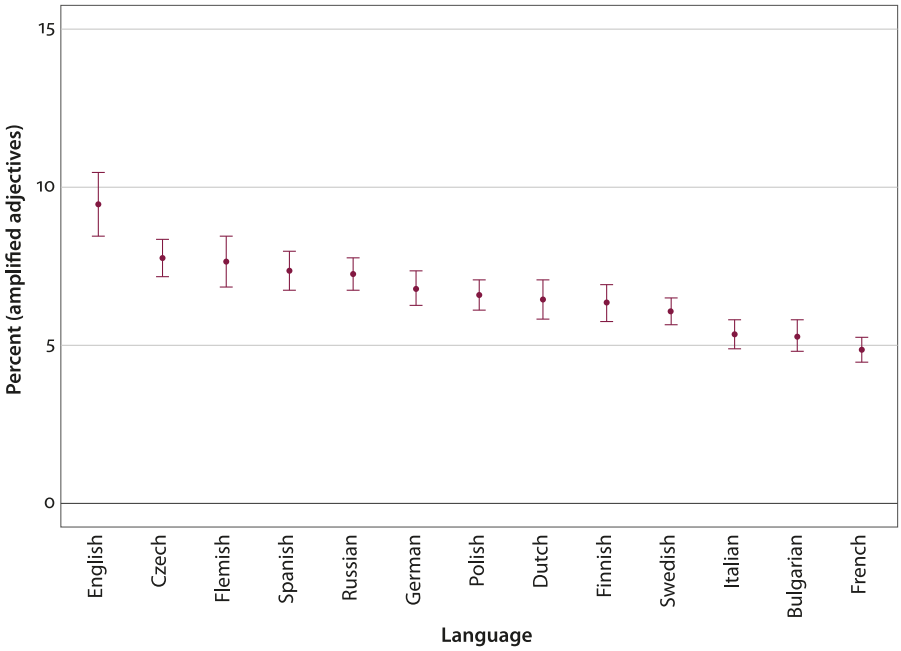

Figure 1. Percentages of amplified adjectives in English by language background

Figure 1 shows that L1 English speakers have consistently higher rates of amplification compared with L2 speakers. We now inspect the absolute frequency and percentages of individual amplifier types across individual language backgrounds (see Figure 2 and Table 3 in the Appendix).

Figure 2 shows that the use of amplifiers across language backgrounds is relatively consistent, with *very* being the dominant and most frequently used amplifier in all groups. In addition, Figure 2 shows that the category *other* amplifiers are consistently the second most frequent way to amplify, with *so* being the third most frequent amplifying strategy.

Figure 2 shows that the most frequent amplifier type, *very*, is not uniformly overused by L2 speakers but that its use differs across language backgrounds. However, Figure 3 also suggests systematic overuse of *really* and *completely* compared with native speakers, and systematic underuse of infrequent variants (*other*)

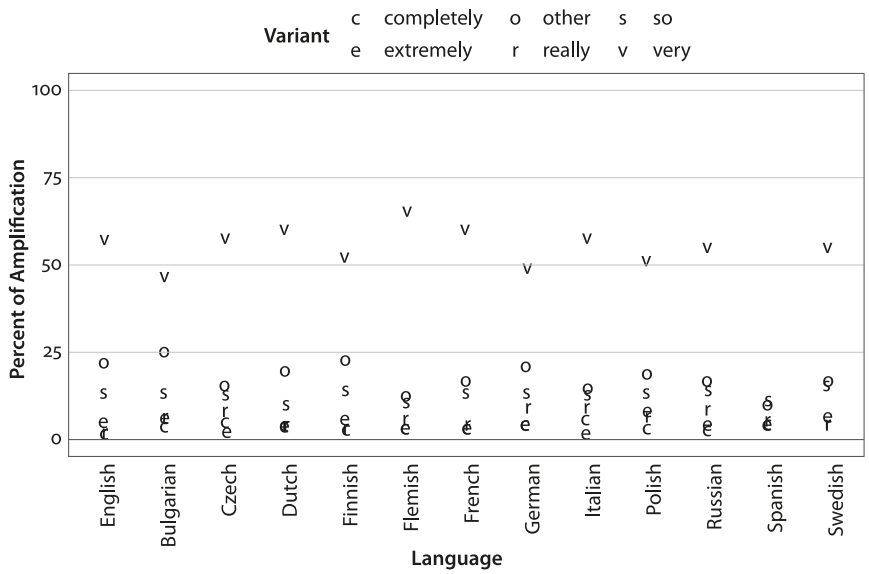

Figure 2. Percentages of amplifier types of all amplifiers by language background

by learners, with speakers from Bulgarian and Finnish language backgrounds as the only exceptions. Furthermore, the usage patterns of *very, so*, and *extremely* vary, and do not present systematic trends with respect to over- and underuse.

Figure 3 presents the variation as deviation from L1 English speakers' use, so as to enable a better understanding of the variation across L1/L2 pairs for the reader. The frequency of L1 English speakers represents a value of 0 on the y-axis and thus serves as a comparative benchmark.

We will now focus on the relationship between amplifier types and the adjectival head of amplified adjective phrases. Figure 4 shows the degree of attraction and repulsion of amplifiers by adjective types. Collocation strength values of 0 indicate that the adjective neither attracts nor repels a specific amplifier. The higher the value of the collocational strength, the greater the attraction between an adjective and an amplifier. In contrast, the lower the collocational strength value, the higher the degree of repulsion between the adjective and an amplifier.

The results of the covarying collexeme analyses have detected various language- and adjective-specific patterns that show divergences between L1 and L2 English speakers. In addition to language specific over- or underuse of amplifiers with adjectives (e.g., *very* with *other* adjectives), the overuse of *very* with *little* by Bulgarian learners of English, or the overuse of *really* with *good* by Polish L2 English speakers, the data shows substantial variation in the amplifiers collocating with specific adjectives. Furthermore, cross-linguistic trends also emerge from the data, as, for instance, an overuse of *extremely* with *dangerous* or *difficult*, or underuse of *very* with *new* or *necessary*.

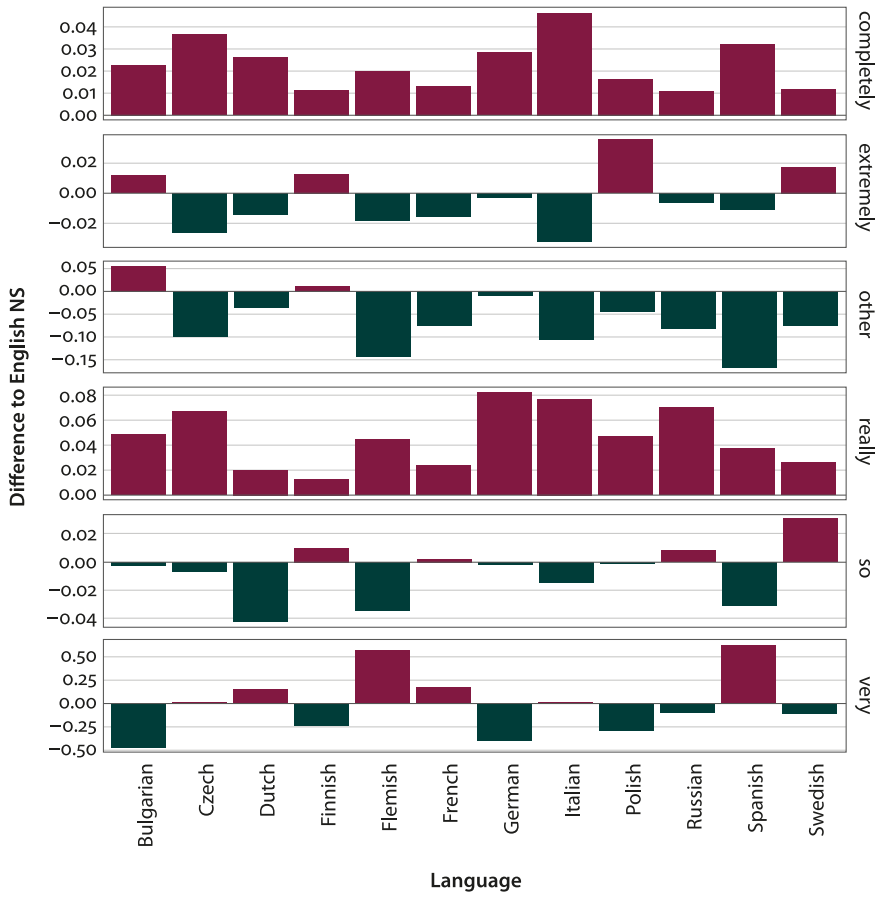

Figure 3. Percentages of amplified adjectives in English by language background and syntactic function (more than English native speakers = red, less than English native speakers = green)

In order to assess which divergences between L1 and L2 English speakers are statistically significant, CFAs were applied to the data. The results of the CFA confirm statistically significant divergences between certain L1 and L2 English pairs (Table 2).

The majority of significant divergences between L1 and L2 English speakers are "Types", which means that L2 English speakers tend to significantly overuse collocations. However, they only rarely underuse collocations – the only exception being *very* collocating with low frequency adjectives in Bulgarian. The most striking observation is that L2 English speakers appear to diverge from L1 English speakers only with respect to a limited set of adjectives, in particular *different* and *difficult*. The results also confirm that across all languages, L2 English speakers use the combination *completely different* significantly more frequently when

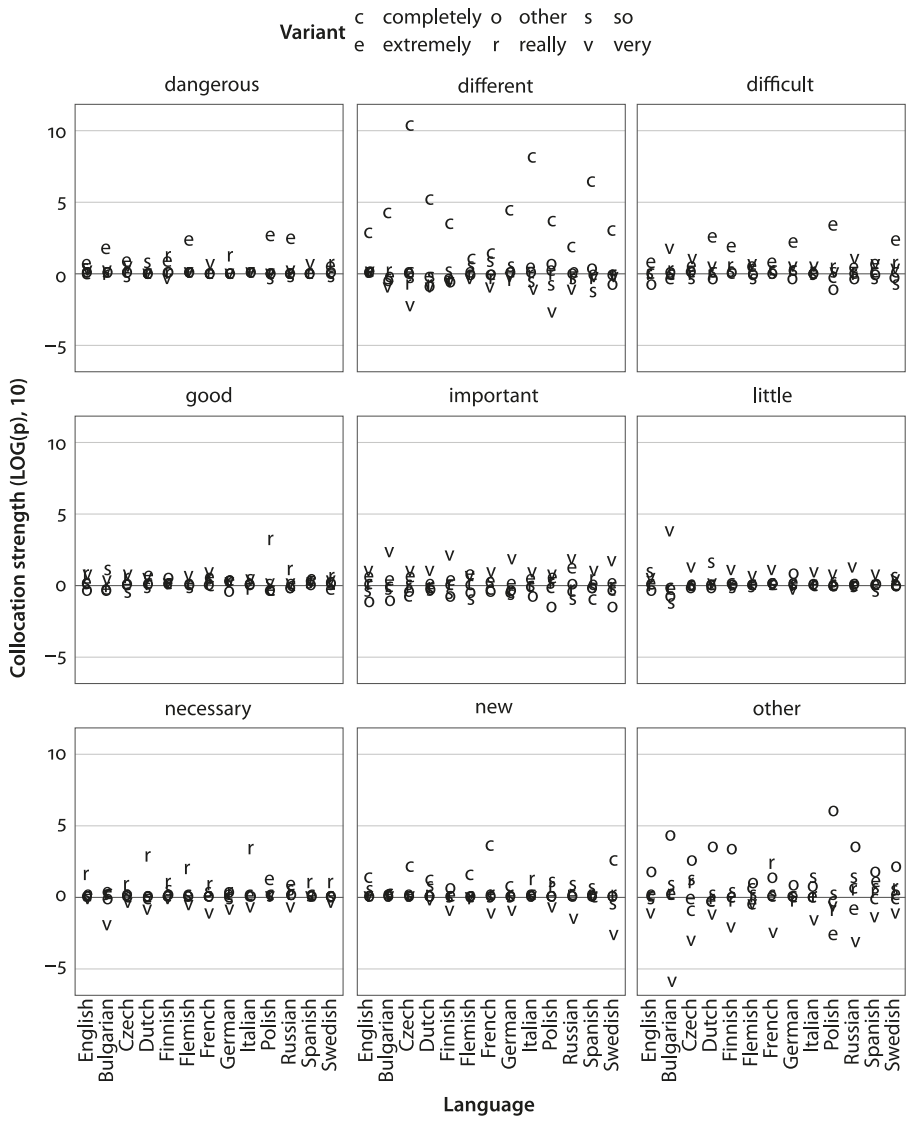

Figure 4. Dot chart showing the results of the covarying collexeme analysis

compared with L1 speakers. Another collocation that is overused by L2 speakers with Dutch, Polish, and Swedish backgrounds is *extremely difficult*. L2 speakers also overuse *really* but the collocations differ across language backgrounds: while *really* co-occurs significantly more frequently than expected with *hard* among Finnish and German L2 English speakers, it is significantly likely to be overused with *good* by Polish L2 English speakers, and with *important* by Spanish L2 English speakers. We now turn to a discussion of these findings.

Table 2. Results of the covarying collexeme analysis

Language	Amplifier	Adjective	Observed	Expected[a]	z-value[b]	p-value[c]	Type[d]
Bulgarian	completely	different	6	0.43	8.52	0.00000***	Type
	very	little	28	11.92	4.66	0.00000***	Type
	very	other	110	157.12	3.76	0.00009***	Antitype
Czech	completely	different	14	0.9	13.78	0.00000***	Type
Dutch	completely	different	8	0.59	9.69	0.00000***	Type
	extremely	difficult	4	0.81	3.54	0.0002***	Type
	other	different	11	4.41	3.14	0.00084***	Type
Finnish	completely	different	5	0.42	7.11	0.00000***	Type
	really	hard	2	0.27	3.32	0.00045***	Type
French	completely	different	3	0.55	3.32	0.00046***	Type
German	completely	different	6	0.44	8.35	0.00000***	Type
	really	hard	5	1.19	3.49	0.00024***	Type
Italian	completely	different	14	1.14	12.02	0.00000***	Type
Polish	completely	different	5	0.43	7	0.00000***	Type
	really	good	6	0.94	5.21	0.00000***	Type
	extremely	difficult	10	2.51	4.74	0.00000***	Type
	other	different	12	3.53	4.51	0.00000***	Type
Russian	completely	different	3	0.38	4.24	0.00001***	Type
	other	different	11	3.37	4.15	0.00002***	Type
Spanish	completely	different	10	0.76	10.57	0.00000***	Type
	very	important	54	35.71	3.06	0.0011***	Type
	really	important	5	2.18	1.91	0.02782***	Type
Swedish	completely	different	5	0.57	5.86	0.00000***	Type
	extremely	difficult	6	1.73	3.24	0.0006***	Type

a. Expected refers to the frequency of an amplifier adjective combination that were expected if there were no difference between L1 and L2 English speakers.
b. The z-value represents a standardized measure that captures the difference between the observed and the expected frequency of an amplifier-adjective combination.
c. The p-value represents the probability for obtaining at least the observed frequency of an amplifier-adjective combination given the assumption that L1 and L2 English speakers do not differ in their use of amplifiers and adjectives.
d. Type refers to whether the amplifier adjective combinations occurred more often (Type) or less frequently (Antitype) than would be expected based on the L1 English speaker data.

5. Discussion

The results of the present study show that the use of amplifiers by L2 English speakers diverges in rather confined and systematic ways from that by L1 speakers. This is relevant in the Australian context because it allows teachers to address specific divergences in an effective and practical manner. The following can thus be read as a guide to avoid non-target-like production in the domain of adjective amplification, while highlighting that both teachers and learners can profit if the linguistic and cultural background of learners in taken into account when using these findings to develop teaching materials.

Overall, *very* is the dominant amplifier in both the L1 and the L2 data, which is to be expected as *very* is the formal amplifier in English *par excellence*. In addition, L1 speakers tend to amplify significantly more than L2 speakers (see Table 1 and Figure 1). While aligning with the trend reported by Granger (1998a) for French learners of English, this finding contrasts with previous research on German L2 speakers of English who amplified substantially more than L1 English speakers (see Lorenz, 1999). To explain the higher frequency of amplification by the learners in Lorenz' (1999) study, he argued that "learners tend towards 'information overcharge'" (p. 217), which can be described as an unnatural density of adjectives and modified adjectives than would be expected given the L1 speaker data. While the corpus data of Lorenz's (1999) study and the present study is very similar (and partially overlapping), the difference in the results is likely a product of differences in focus. To elaborate, the present study applies the principle of accountability (see Labov, 1972; Tagliamonte, 2012) and, therefore, restricts itself to a variable context. This means that the present study only considers amplifiers that occur in variable, non-negated pre-adjectival slots, whereas Lorenz's study (1999) included negated and invariant combinations, such as lexicalized and fixed expressions.

Another difference between previous research (Granger, 1998a; Lorenz, 1999) and the findings of the present study relates to overuse of frequent amplifier variants. The analysis presented here does not show, at least as a general tendency, that L2 English speakers overuse frequent amplifier types such as *very*. In fact, the configuration frequency analyses confirmed only three significant divergences in the use of *very* from L1 speakers: *very* is significantly overused with *little* by Bulgarian and with *important* by Spanish L2 English speakers. Also, *very* is actually significantly underused with low frequency adjectives by Bulgarian L2 English speakers. This suggests that the claim that frequent amplifiers are overused by L2 speakers, as would be predicted both by statistical learning approaches and given previous research, appears too simplistic given the data at hand.

The analysis has also shown that specific amplifier types, *completely* and *really*, are consistently overused by L2 speakers. This trend is interpreted as resulting from an unawareness of stylistic constraints on amplifier usage that are acquired

by L1 speakers but not by L2 speakers of English. What appears to be happening, especially with respect to the overuse of *really*, is that learners apply the collocational patterns they have encountered and appropriately applied in conversational discourse to the more formal genre of essay writing. This trend is indeed widely acknowledged and has been reported on for more than two decades (see, for instance, Granger & Rayson, 1998 or Hinkel, 2003 for a more recent study). From this perspective, the overuse of *really, completely*, and, although to a lesser degree, *extremely* is not an overuse per se, but the result of an unawareness of stylistic constraints on the use of amplifiers that are considered inappropriate in more formal written texts by native speakers. Therefore, a likely reason for the unawareness of stylistic and pragmatic constraints is the lack of experience with a variety of styles and varied input. This finding is particularly intriguing because it highlights the necessity of teaching pragmatic competence in addition to lexis, morpho-syntax, and conversational discourse.

The results of the configural frequency analyses have shown that learners do not struggle with native-like amplification in general, but that L2 speakers encounter issues with a relatively limited set of adjectives (predominantly *different* and *difficult*) and with target-like use of *completely*. This result is promising because it indicates that the divergences appear to be confined to a relatively small set of both adjectives and amplifiers. In addition, based on the limited set of significant divergences, it is both possible and practical to create targeted and relatively specific recommendations for teachers and learners of English. Given the diverse landscape of language teaching in Australia, the present study serves as an example of how learner corpus research may help language teachers in addressing language background specific issues. As such, the present analysis raises awareness that language teaching at an advanced level requires addressing pragmatic competence and the results presented here can be used in the creation of materials that foster target-like use of English and take diverse language backgrounds of learners into account. Accordingly, the findings of the present study align with the need to design new, language background sensitive, teaching materials (Kaszubski, 1998).

With respect to methodology, the present study draws attention to the importance of applying appropriate statistical procedures when analysing co-occurrences of amplifiers and adjectives. While previous research on the use of amplification by learners of English has provided very thorough and fine-grained qualitative analysis, the improved statistical methods here could increase the quality of investigations of differences between L1 and L2 speakers' collocational profiles. In addition, the present study expands on an argument recently brought forward by Gries (2018), who showcased the pitfalls of relying on absolute or even relative frequencies, aggregate data, or on designs that lack statistical control. Elaborating on Gries (2018), the present paper shows that studies in second language acquisition, in par-

ticular, are well advised to carefully define the control against which learner output is evaluated. This is crucial because the control determines what is expected and thus what is within the limit of acceptability given the native speaker data. In this sense, the present study highlights that the concepts of over- and underuse are problematic if not used with respect to significant deviations from expected frequencies given the native speaker output (see Gries, 2018). While the present study is able to remedy previous shortcomings, more advanced, multifactorial statistical modelling is likely to produce even more detailed results.

Before turning to an outlook for future research, certain issues of the present study require further discussion. The first aspect that requires additional attention is the nature and size of the corpus sources of the present study. The findings presented here rely on corpus data that only represent a single written genre (argumentative essays) using data that was compiled during the 1990s. Furthermore, while the data set is not particularly small (and is, in fact, rather extensive compared to similar studies on adjective amplification), larger data sets would allow us to detect any non-native like co-occurrences that could not be detected given the data at hand. Another shortcoming of the present study relates to the disregard of certain individual factors (other than language background) which may have contributed to the production of non-target-like language use. To elaborate, specifics about the L2 speakers' age, gender, and socioeconomic background, how often and with whom the L2 speakers use English, and the L2 speakers' linguistic biography such as the age of first exposure to English, would have been tremendously helpful in gaining a more detailed understanding of the motivations for the L2 speakers' output. Thus, multivariate statistical modelling which would allow the researcher to incorporate other contributing factors is warranted.

Finally, a fruitful direction for future research, particularly in the context of Australian language teaching programs, should incorporate non-European language learners. In the Australian context, corpus data using speakers with Chinese, Japanese, Malay, and Korean language backgrounds would likely prove to be particularly useful to enable addressing substrate specific issues prevalent among learners of English in Australia. In addition, larger and more up-to-date data sets would allow one to tap into non-native like language use that the present study was unable to detect given the relatively out-dated and moderate size of the data sets used here.

Yet, despite these issues, the present analysis has provided useful insight into differences in adjective amplification between L1 and L2 English speakers and exemplified how LCR can incorporate the linguistic and cultural background of learners during analysis. The insights offered by this study could benefit language teaching in Australia by highlighting the importance of teaching pragmatic competencies and taking differences among L2 English speakers due to their linguistic and cultural background into account when designing teaching materials. In

addition, the findings of this study point to specific divergences between L1 and L2 English speakers that could be directly targeted in the future in English teaching classrooms.

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Appendix

Table 3. Overview of the absolute token frequencies and percentages of amplifier types across languages with infrequent amplifier types being collapsed into the category "other"

Language		Completely	Extremely	Other	Really	So	Very	Total
English	N	4	14	66	5	40	174	303
	%	1.3	4.6	21.8	1.7	13.2	57.4	
Bulgarian	N	16	26	114	28	59	212	455
	%	3.5	5.7	25.1	6.2	13.0	46.6	
Czech	N	31	14	98	50	82	373	648
	%	4.8	2.2	15.1	7.7	12.7	57.6	
Dutch	N	15	13	77	14	39	237	395
	%	3.8	3.3	19.5	3.5	9.9	60	
Finnish	N	11	26	102	13	63	238	453
	%	2.4	5.7	22.5	2.9	13.9	52.5	
Flemish	N	9	8	33	16	29	182	277
	%	3.2	2.9	11.9	5.8	10.5	65.7	
French	N	14	17	90	21	72	326	540
	%	2.6	3.1	16.7	3.9	13.3	60.4	
German	N	23	25	121	52	75	279	575
	%	4	4.3	21	9	13	48.5	
Italian	N	29	8	74	44	62	297	514
	%	5.6	1.6	14.4	8.6	12.1	57.8	
Polish	N	19	51	124	39	86	336	655
	%	2.9	7.8	18.9	6	13.1	51.3	
Russian	N	16	27	111	54	93	373	674
	%	2.4	4	16.5	8	13.8	55.3	
Spanish	N	23	19	52	27	57	351	529
	%	4.3	3.6	9.8	5.1	10.8	66.4	
Swedish	N	18	45	122	30	113	403	731
	%	2.5	6.2	16.7	4.1	15.5	55.1	
Total	**N**	**228**	**293**	**1,184**	**393**	**870**	**3,781**	**6,749**
	%	3.4	4.3	17.5	5.8	13.0	56.0	

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