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“Speaker reactions to grammatical errors as a result from cross linguistic influence”

“An exploration of different English L2 speakers’ sensitivity to syntactic and morphological errors using acceptability ratings in comparison to native speaker controls”

Master’s thesis in Master’s thesis in Language Studies with Teacher Education - Master's Program in English

Supervisor: Mila Vulchanova

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Abstract

This study explores speaker sensitivity to a specific selection of grammatical errors in the English language. The choice of the target errors are motivated by cross linguistic influence/transfer theory and could be predicted by distance between the speakers L1 (Norwegian) and their L2 (English). The study focused on purely syntax-related errors (adverb placement errors), purely morphological-related errors (missing past tense inflection) and syntax-morphology interface errors (subject-verb agreement error). Speaker sensitivity to these errors were measured in a survey based on acceptability ratings across three different speaker groups. The groups were based on their L1, their proficiency, and metalinguistic awareness level. Group 1 was made up 'lower proficiency L2 speakers' (N=48) and was comprised of high school students. The second group was made up of higher proficiency L2 speakers (N=32) and was comprised of Norwegian university students of English in bachelor or master's level courses at NTNU. The third group was made up of native speakers of English (N=34) and was comprised of British and American English speakers. The participants were given a selection of 60 sentences, 30 of which contained the three error types of interest, the remaining 30 were grammatical counterparts of the error types. The results showed that the native speakers were in fact less sensitive to adverb placement errors than both L2 speaker groups. Furthermore, the higher proficiency L2 group proved more sensitive to these errors than both the lower proficiency group and the native speaker group. The conclusions drawn from the results suggest that the proximity as well as distance between the L1 and the L2 can affect the language acquisition process. Proximity helps learners use existing grammatical structures from their L1 in their L2, whereas distance allows learners with higher levels of metalinguistic awareness to notice and utilize the difference to learn the L2 pattern more effectively. Finally, the results suggest a significant difference in sensitivity to tense inflection errors on regular and irregular verbs for L2 speakers, whereas the native speakers showed no such differentiation.

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1. Introduction

Grammatical errors in language have long been of interest for researchers in language acquisition. The source of errors has been an issue of contention in later years, and different paradigms have offered different explanations as to what underlies (occasional) ungrammatical use in language users. This is no different when we discuss errors made by learners of a second language. The interplay between first- and second language has been a contentious issue in second language acquisition research. In the 1950's and 60's, it was believed that errors made by learners of a second language could be explained by the differences between the first and the second language of the learner. This perception changed in the 70's, when the prominent idea claimed that the second language was learned more independently from the first language than previously thought. The current paradigm regarding the role of the L1 on L2 acquisition is that there is transfer from the L1 to the L2, but that transfer does not necessarily lead to errors (Benson 2002, p.68). There are however errors which might be explained through influence from the native language of a learner of a second language. This can be explained by *cross linguistic influence*, *cross linguistic interference*, or *transfer*. There are differing explanation as to what is transferred across and what role the 'distance' between the two languages play in the acquisition process.

This study investigates the sensitivity of different English speakers to different grammatical errors which might a result to cross linguistic influence from Norwegian to English. This was done through a survey-based study based on acceptability ratings of sentences containing grammatical errors. 114 participants divided into three groups gave their acceptability ratings to 60 different sentences. These groups were grouped into Group 1: a lower proficiency group of L2 speakers (N=48), Group 2: a higher proficiency group of L2 speakers (N=32), and Group 3: a native speaker group (N=34). The L2 speakers were all native speakers of Norwegian. There were three different errors in the sentence selection as well as grammatically correct counterparts to each error type. The following errors were included in the survey: purely syntactic-related errors in the form of adverb placement errors, purely morphological related-errors in the form of tense inflection errors, and syntax-morphology interface-related errors in the form of subject verb agreement errors.

1.1 Expected findings

The initial expectations for the study can be divided into three predictions: (i) the difference in metalinguistic awareness across the groups would result in a significant difference in sensitivity to error types. The initial prediction was that the participants would demonstrate higher sensitivity to morphological errors which are more directly discernible. (ii) That the lower level of metalinguistic awareness in the lower proficiency group would result in lower sensitivity (higher ratings) of sentences with errors, as well as greater internal variation in the ratings (higher standard deviations). (iii) That the higher proficiency group would approximate the native speaker group due to their high proficiency in their L2 and high(er) level of metalinguistic awareness.

2. Theory

This chapter will provide the theoretical foundation of the different error types dealt with by this study. Furthermore, I will provide a brief discussion on transfer/cross linguistic influence as well as metalinguistic awareness as concepts in language acquisition. I will use this concept to explain how Norwegian L2 users of English can have an erroneous conceptualization/representation of different language patterns and features.

The target errors will be explained based on relevant literature and illustrated with demonstrative examples. This chapter will take a generative approach to the grammatical framework of interest and offer visual representations of the source of potential errors in the form of tree structures (x-bar).

2.1 Metalinguistic awareness.

Since this study deals with speaker reactions to different types of language errors, one must consider metalinguistic awareness and its relevance to the process of judging whether a sentence is erroneous or correct in terms of its construction. The participants of the study will rely on their competence and metalinguistic awareness to decide whether the sentence they are presented with is acceptable or not, and then provide an acceptability rating using a scale. Sometimes, the participant will notice that the sentence is unacceptable, without being able to formulate an explanation on why that is. This is metalinguistic awareness in action.

Metalinguistic awareness is related to the term metalanguage. However, it is important to differentiate between the two. While *metalanguage* refers to the language used to describe language, metalinguistic awareness refers to the speaker being aware of the instantiations of the metalinguistic terms and expressions such as phoneme, word, or phrase. A metalinguistically aware child might thus perform well on tasks on manipulation of phonemes without knowing what the term phoneme means (Tunmer & Herriman, 1984, p. 12). To exemplify, let us consider Chomsky's famous utterance "Colorless green ideas sleep furiously". Knowledge of metalanguage would entail knowledge of the different functional categories of the sentence. "Colorless" and "green" functions as adjectives while "ideas" is a subject, "sleep" is the verb, and "furiously" functioning as an adverb. Meanwhile, metalinguistic awareness is the conscious relationship to the actualization and instantiations of the functional categories. Metalinguistic awareness is used to judge language and its use in broader terms. It can be implicit, for example when stating that some expression is not appropriate, or explicit stating why it is not appropriate. While the sentence is semantically flawed, a metalinguistically aware speaker

would be able to utilize their awareness to conclude that this sentence is grammatically acceptable. This is because the speaker applies their awareness of these categories and what function they serve.

There are different theories that offer a more specific explanation of metalinguistic awareness. Some theories claim that (i) metalinguistic awareness is understood as an intentional object of the individual's thoughts while some theories claim that (ii) metalinguistic awareness should be thought of as both the intentional object and the cause of it. Tunmer & Herriman (1984) argue that the second definition is true. A linguistic entity X does, in fact, exist as part of the language processing system and, in addition, can be the object of conscious reflection by means of invoking "control" processing. Their discussion concludes that metalinguistic awareness is most accurately defined as the use of control processing to perform mental operations in order to process the mental mechanisms involved in sentence comprehension and production (Tunmer & Herriman, 1984, p. 35). As such, this paper will deal with metalinguistic awareness as per the definition offer by Tunmer & Herriman in their discussion of the term.

2.2 Language transfer and cross linguistic influence.

Language transfer is a concept within second language acquisition. The term cross linguistic influence has been used to describe the same process in later years. In this paper, the two terms will be used interchangeably. The theory behind the term transfer/cross linguistic influence suggests that a person learning an L2 will use the grammar competence of their L1 as a point of departure for the language acquisition process. This grammar competence can for example include syntactical patters, morphological rules, or lexical choices. By doing this, the L2 learner may assume a construction which is grammatical in their L1 is also acceptable in the target L2. The term 'transfer'¹ is used to signify the use of knowledge or skills from one linguistic context to another linguistic context (Foley & Flynn, 2013 p. 98). Scwhartz & Sprouse (1994) hypothesis on transfer states that the final stage of L1 acquisition is the initial stage of L2 acquisition (40). The concept of transfer/cross linguistic influence is one possible explanation for the type of language errors made by L2 speakers of a language. The original

¹ There are different views regarding transfer's role in SLA. Chief amongst which are the Contrastive Analysis and the Creative Construction approach. I will not go into detail on this here, but I will direct the reader to Foley & Flynn's (2013) chapter length discussion of 'The role of the native language' in the Cambridge Handbook to Second Language Acquisition.

consensus on transfer in the 1950s and 60s argued that learner errors could be explained by the difference between L1 and L2 (Benson, 2002, p. 68). By using their L1 as a reference when processing syntactical or morphological patterns in their L2, it is possible that this will result in a very specific form of errors. One example of how an L1 can affect L2 is described as *interference*, this occurs when grammatical structures from the L1 is directly transferred to the L2, resulting in an error. An example of this can be seen in native speakers of Spanish learning English as an L2.

- (1) (a) They are hungry
 (b) *They have hunger

(1a) is the target sentence of English, whereas (1b) is the sentence produced by 5-8-year-old L2 English learners with Spanish as an L1. This is an example of how L1 can interfere with the L2 through transfer of a grammatical pattern from the L1 directly translated into the L2. The Spanish utterance ‘(ellos) tienen hambre’ translates to the utterance we see in (1b) (Foley & Flynn, 2014, p. 99).

In reaction to the full transfer hypothesis as stated by Schwartz & Sprouse (1994), several differing theories about transfer between L1 and L2 have been presented. One of which is the Minimal trees hypothesis as stated by Vaikka & Young-Scholten (1994;1996) as well as the Weak Transfer hypothesis suggested by Eubank (1993/94). The Minimal Trees hypothesis suggests that while there is transfer between the two languages, there is no transfer of the functional categories of the L1 to the L2. In the Weak Transfer hypothesis, Eubank argues that the functional categories do transfer, but the strength of inflection associated with functional categories does not transfer (Schwartz & Sprouse, 1996, p.53). Schwartz & Sprouse (1996) claim that the Minimal Trees hypothesis is inadequate to account for the stages of Interlanguage subsequent to the L2 initial state. Furthermore, they argue that the morphosyntactic empirical foundation of the Weak Transfer hypothesis is flawed. As such, this paper will consider transfer/cross linguistic influence in the form of full transfer as suggested by Schwartz & Sprouse (1996) as well as Foley & Flynn (2014) in that it suggests the use of knowledge from one linguistic context in another, and that there are no categorical limitations to what is transferred. When establishing the theoretical framework of what transfer entails, one must consider what effect transfer might have on the L2 acquisition process.

It is imperative to highlight that transfer/cross-linguistic influence theory has evolved from its origin in the 1950s and 60s. The general consensus at the time was that learner’s errors could be predicted by comparing and contrasting the grammars of their L1. The grammar that differed could lead to errors. In the 1970s the consensus changed. L2 was thought to be learned

independently of L1, with learners following their own ‘internal syllabus’. Errors were the result of developmental factors instead of as a result of transfer. The current theory regarding transfer is far more complex than previously thought. While transfer does occur, it is not the sole reason for errors, nor does transfer always lead to errors. Instead, transfer may occur and result in some learners spending longer time learning L2 grammar which are inherently different to their L1, as well as allow learners to ‘accelerate’ when learning L2 grammar which is similar to their L1. Furthermore, it may lead to *avoidance* of grammatical features in the L2 which are not present in their L1. One example of this is how Chinese and Japanese speakers avoid using relative clauses in English, as their L1 does not have relative clauses (Benson, 2002, p. 68). Another example can be Norwegian L1 speakers avoiding subject verb agreement in English, as Norwegian does not have inflections for subject verb agreement. This will be discussed further in the chapter on agreement errors.

It is also important to note that there are different theories as to what significance the L1 has on the acquisition process of the L2. Foley and Flynn argues through the contrastive analysis that less negative transfer will occur if the L2 is similar to the speakers L1. Negative transfer is transfer or influence of grammatical structures from the L1 which results in erroneous utterances in the L2 (Ringbom, 1987, p. 58). This view is shared by other researchers studying cross linguistic influence. Ringbom (1987) also argues that the relation between the L2 and the L1 would either result in positive or negative transfer from the L1 to the L2. This view is also opposed, as some claim that greater the ‘distance’ between the L1 and the L2, the easier it will be to mark the differences between them. The perceived distance theory claims that since it is easier to register the distances between L1 and L2, it will be easier for the learner to store this information. This view is supported by Kellerman (1986) who discussed the implications of perceived distance between L1 and L2. There seems to be a general consensus in the field that both theories hold some truth. The proximity of L1 and L2 is believed to be beneficial for younger learners, who transfer knowledge from their already developed L1 to the L2. Meanwhile, the perceived distance theory is thought to be helpful for older learners, who have an increased metalinguistic awareness, and are thus able to reflect more on the structure of language. The role of the similarities and differences between L1 and L2 is still being discussed and will be brought up in the later chapters of this paper.

2.3 Target errors

The target errors discussed in this project are based on typical errors made by L2 learners of English, specifically learners with Norwegian as their L1. The errors are based on theoretical accounts from relevant literature as well practical experience as both an L2 speaker of English and as a teacher in the ESL classroom. The errors discussed in this chapter can to some extent be related to Foley & Flynn's findings on full/transfer as an agent in SLA. All three error types demonstrate, in different ways, how the syntactical and morphological structure of Norwegian can affect the L2 speaker's conceptualization of English as an L2. According to the contrastive analysis approach to transfer/full transfer discussed in Foley & Flynn (2014) and Ringbom's (1987) claim about L1 and L2 proximity, the process of learning English as an L2 should be "less challenging" for native speakers of Norwegian. This is due to the proximity of the two languages. They share similar grammatical structures with regards to personal pronouns, sentence structure, verb conjugation, and noun categories. Yet, there are differences between the languages which, according to the full transfer model, can lead to systematic errors among Norwegian L2 speakers of English. In the following sub-chapters I shall go into more detail concerning the three error types investigated in the study, and why these could be argued to be a source of errors for Norwegian L2 speakers of English. The errors explored in this study is divided into three different categories. (i) Pure syntax-related errors, represented by erroneous adverb placement. (ii) Pure morphology-related errors, represented by missing tense inflection. (iii) Syntax-morphology interface-related errors, represented by erroneous agreement inflection.

2.3.1 Adverb placement

The first specific error type discussed in this chapter is a purely syntax-related error. Despite sharing the SVO² sentence pattern, there are differences concerning word order in English as opposed to Norwegian. Adverb placement is one such issue. Consider the following sentences:

- (2) (a) He often plays football after work.
 (b) *He plays often football after work.

Sentence (2a) is a grammatical sentence, where the adverb '*often*' is placed between the subject '*He*' and the inflected verb '*plays*'. Sentence (2b) is not a grammatical

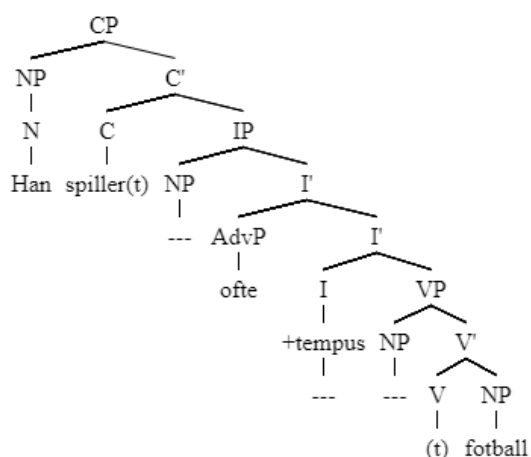
² Subject – Verb – Object. The basic structure which governs the word order in both English and Norwegian sentences. Norwegian however, is a covert SVO language.

sentence, the adverb is placed between the inflected verb *'plays'* and the object *'football'*. Now consider the corresponding sentences in Norwegian:

- (3) (a) *Han ofte spiller football etter jobb.
 (b) Han spiller ofte fotball etter jobb.

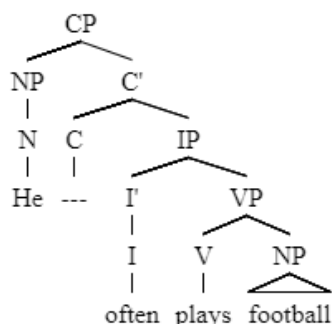
In this example, sentence (3a), whose word order is identical to the grammatically correct English sentence in (2a) is not grammatical. However, sentence (3b), which word order is identical to the grammatically incorrect English sentence in (2b) is correct in Norwegian. This demonstrates that there are differences between the two languages when considering the rules governing adverb placement in declarative sentences.

Figure 1. Han spiller ofte fotball



Norwegian is a verb second (V2) language, which means that in a main declarative clause, the inflected verb must appear in second position (regardless of the type of constituent in clause-initial position). This means that in a declarative sentence following the SVO pattern (Subject in clause-initial position), the adverb cannot be positioned between the subject and the object (Åfarli 2011, p. 38). This is because verbs raise to a higher hierarchical node in Norwegian sentence structure. As we can observe in the tree structure in Figure 1, the finite verb “spiller” raises from the V-node to the C-node, receiving its tense features from the I-node (Åfarli 2011, 1990 pp. 64-69). This is indicated by the trace marker (t) in the V-node and in the finite verb after it has moved to the C-node. This is an example of how Norwegian syntax rules ensure that the finite verb immediately follows the subject in declarative sentences. This is not the case in English, as English is not a V2 language.

Figure 2. He often plays football



As demonstrated in Figure 2, the verb does not raise from the V node to position itself in the C-node. This is due to the fact that English is not a V2 language, thus allowing the SAVO sentence pattern not permitted in Norwegian declarative sentence. In Figure 2, the tense and agreement features (-s) move from the higher hierarchical C-node to the V-node (play), sometimes described as affix-hopping. The verb remains in the VP whereas it raises to the I-node in Norwegian. It should be observed that some English verbs do raise to a higher node, but in that case the verb raises from the V-node to the I-node. This is limited to copula and auxiliary forms of the verb “to be” and “to have” raising to receive tense and agreement features generated in the I-node. Other verbs receive their tense and agreement through affix hopping. For further explanation about verb movement in English tree structures, see chapter 2.3.3 on agreement errors.

Adverb placement is an example of potential language specific errors for Norwegian L2 learners. Note that Norwegian native speakers are not the only L2 learners of English to show this potential for adverb placement errors due to rules governing L1 word order. French also allows the adverb to be placed between the verb and the object. As seen in:

- (4) (a) Marie regarde souvent la télévision.
 (b) *Mary watches often television.

(White 1991, 135)

As we can see, there are several other languages whose learners might experience interference due to transfer from their L1 syntax when learning English as an L2, for example through rules in their L1 dictating verb placement, such as the V2 rule. There are several other languages aside from Norwegian which use the V2 rule, such as the Germanic languages German, Icelandic, Danish, Dutch, and Swedish (Wilder 2018, p. 32)..

2.3.2. Tense morphology

Tense is related to the universal concept of time, which can be expressed in many different ways in language. In noun phrases, the aspect of time can be specified by adding temporal expressions like: *The ex-convict, my former boss, pre-war Europe*. This is however not possible when we consider verbs, which are governed by tense. Tense is a *deictic* category, which means that past, present, and future are all relative to the time when an utterance is made. Since the coding time varies, what is past, present, and future also varies. Tense is expressed systematically in verbs, and grammarians usually limit the systematic concept to two different tenses: *present tense* and *past tense* (Hasselgård et al. 1997, p.176). Tense is expressed by adding suffixes to the verb stem. We tend to differentiate between *derivational* and *inflectional* suffixes. Derivational suffixes are suffixes which when added, change the functional category of the word it latches on to.

- (5) a) Hospital
b) Hospitalize

In (5a), the word hospital is a noun, it signifies the building where patients are brought for treatment. In (5b) the word hospital has been paired with the suffix *-ize*, making *hospitalize*, which is a transitive verb; ‘to put someone in the hospital’. By adding the suffix, the noun ‘hospital’ has been changed into the verb ‘hospitalize’.

An inflectional suffix is a suffix which does not alter the functional category of the base word, but adds tense and/or agreement features to the root. Inflectional suffixes are used to express tense in regular verbs.

- (6) a) Promise
b) Promised

In (6a) the root *promise* appears in its bare form. In (6b) the verb has been paired with the suffix *-ed*, changing the tense of the verb to the past tense, but not changing the functional category of the word, as is the case with the derivational suffix we saw in (5). We usually differentiate between regular and irregular verbs. Regular verbs can generally be conjugated to the past tense by adding the *-ed* suffix as demonstrated in (6), whereas some irregular verbs demonstrate changes to their root in order to express past tense.

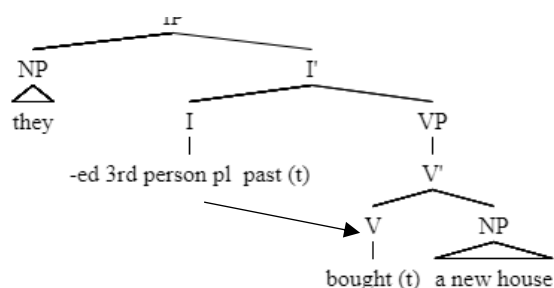
- (7) a) I *drive* to work every day.
b) I *drove* to work yesterday.

There are different theories as to how tense morphology is stored and applied in language. Morphology, being part of the grammar of the language has to be stored and be

available in both written and spoken language. But how does the brain differentiate between when to apply regular verb affixes (-ed) rather than irregular affixes such as b(ought), s(poke), or r(an)? One theory is that regular tense markings are system-generated. The brain identifies the verb and recognizes it as regular verb; then couples it with the -ed suffix through productive schemas to create past tense. Irregular verbs are thought to be stored in memory, so the brain can identify the irregular verbs from the regular verbs. The theory is that we generalize the verbs not stored in our memory, while the past tense markings of the irregular verbs are stored in the memory (Pinker, 1998). In other words, words with irregular phonological relations to their root must be learned and stored in order for the learner to know that the past tense of *cling* is *clung*, whereas the past tense of *sing* is *sang* (Jackdendonff & Audring, 2019, p. 6). This theory is widely accepted in terms of the L1, but there are studies that suggest that this also applies to the L2. A study conducted by Williams (2019) found evidence that Norwegians learning English as an L2 displayed the same learning curve as native English speakers learning English in terms of correctly assigning tense markings for regular and irregular verbs (63).

From a generative point of view, tense morphology tense markings and agreement features are generated in the I-node in the syntactical structure. The tense marking then either moves “down” to the verbs position in the verb phrase by “affix hopping”, or the verb moves to the I-node through “verb raising”

Figure 3. They bought a new house



Even though Norwegian has a similar system when marking tense on verbs, there are differences as to which verbs are irregular and which verbs are regular. For example, the Norwegian word for *drive-drove* is *kjøre-kjørte* and the Norwegian word for *run-ran* is *løp-løpte*. Both examples show that, while the English verb is irregular and thus displays an irregular tense morphology, the Norwegian verb uses a generalized tense morphology ‘-te’ to mark past tense. This lack of equivalence in what verbs inflect regularly or irregularly can lead Norwegian learners of English to wrongly use the general tense marking on irregular verbs by

overgeneralizing the general tense morphology -ed or lead to errors when dealing with tense markings on irregular verbs.

2.3.3 Agreement

Verbs and verb suffixes demonstrate a systematic difference between English and Norwegian. Norwegian does not have overt verb inflections for person agreement. In contrast, English uses overt inflections in cases when the finite verb is paired with the third person singular pronoun or an NP as a subject.

- (8) a) She walks to work every day.
 b) *She walk to work every day.
 c) I walk to school every day
 d) *I walks to school every day.

- (9) a) Hun går til skolen hver dag.
 b) Jeg går til skolen hver dag.

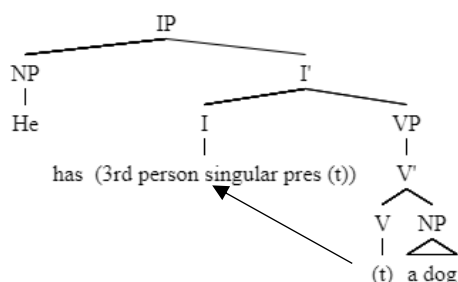
As demonstrated in (8), pairing the verb with a third-person singular pronoun requires the speaker to add the -s suffix to the verb stem. This is not required when the verb is paired with a first-person pronoun in the subject position as seen in (8c). In Norwegian the same verb form is used both when the verb is paired with a first- and third-person singular pronoun in the subject position as demonstrated in (9). The agreement between the subject and verb is called *subject-verb agreement*. Subject-verb agreement errors are a common error among Norwegian speakers of English. The rule of agreement between subject and verb applies whenever the verb displays distinctions in person and number. This can be both in relation to *person*, as demonstrated in (8), but can also be in terms of *number*.

- (10) a) The noise distracts them.
 b) The noises distract them.

In both (10a) and (10b), the subject is in the third person, but (10a) is in the singular form and (10b) is in the plural form. The singular form requires the -s suffix while the plural form does not (Nelson & Greenbaum 2016, 147).

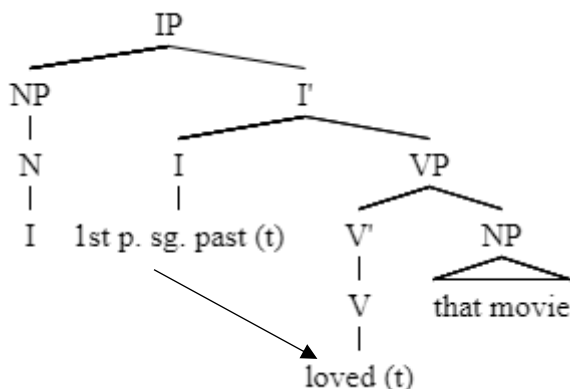
From a generative standpoint, the agreement features, like tense morphology originates in the syntactical properties of a sentence or utterance.

Figure 4. He has a dog.



As demonstrated in Figure 4, the agreement features are created in the I-node; the verb then raises from the V-node of the verb phrase and is then paired with the tense and agreement features. Tense and agreement features can also move “down” through the syntactical structure by affix hopping. As demonstrated in figure 5.

Figure 5. I loved that movie.



In affix-hopping, the tense and agreement features move “down” through the tree structure to latch on to the verb, which remains in its position in the V-node subordinate to the verb phrase. Affix-hopping takes place for every verb in English except main verb use of ‘to have’ and ‘to be’.

As stated earlier, Norwegian does not add any suffix to differentiate between the person or number of the subject. This can be seen in Figure 6 and 7 below.

Figure 6. John spiser ost.

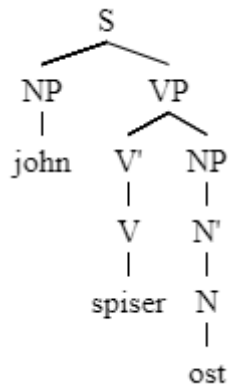
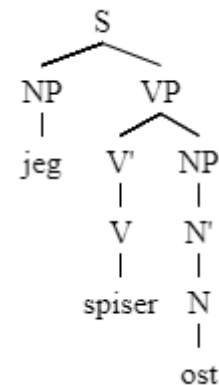


Figure 7. Jeg spiser ost.



As we can observe in figures 6 and 7 there are no differences between the verb “spiser” when paired with a subject in the 3rd person singular or a subject in the 1st person singular as we can observe in English. This can be a source of systematic errors for native Norwegians learning English as an L2. By viewing this through the theory of cross linguistic influence, one may argue that Norwegians could overgeneralize patterns of agreement based on the lack of the requirement that subject, and verb must agree overtly in their L1. The errors investigated in this project were mainly third person singular subjects paired with verbs in the Present Tense lacking the -s suffix, as well as first or second person singular and first, second-, and third-person plural subjects paired with the verbs in the Present Tense inflected with the -s suffix. For the reader’s convenience I have included two examples of the erroneous interface (EI) sentences used in the survey and their Norwegian translation below:

- (11) a) *John talk on the phone a lot.

John snakker mye i telefonen.

- b) *You walks too quickly.

Du går for fort.

In (11a) we can see that the third person singular subject *John* is paired with a verb in the present tense *talk* which lacks the -s suffix, thus making an erroneous sentence according to the subject verb agreement rules. In sentence (11b) the second person singular *you* is paired with a verb in the present tense *walks* which has the -s suffix, which is only used on third person

singular subjects, thus making the sentence erroneous according to the rules of subject verb agreement.

3. Methods

In this chapter I am going to provide a discussion on the methodological approach used in the study. I will argue for why this approach was chosen, as well as highlight the strengths and limitations imposed by the method itself. Furthermore, I will discuss the process of formulating the survey used in the project, how it was designed, and how the survey was distributed to collect the necessary data. Lastly, I will provide information about the process of data collection and analysis in the project, and a descriptive representation of the participant groups.

3.1 Methodology in linguistic research.

Language, being the complex phenomenon that it is, can be challenging to examine, and may be approached from many different perspectives. There are many different areas within language research which all make use of different methodological approaches. The research question or hypotheses being tested influence what approach and method may be most suited for a particular language study. That is not to say that each field within language and each research question has one perfect methodological approach. As research has progressed, mixed method approaches have become more common within language research. This is a natural methodological development within language research, as every method have their own strengths and limitations (van Peer et al., 2012). Methods used in language research can be divided in several different ways considering (i) what kind of data is being collected or how these data are processed and analyzed (qualitative vs. quantitative analysis), (ii) how these data are collected (observation vs. elicitation), and (iii) what the main focus of the study is (actual human language vs. general language skills) (Vinichenko, 2021, p 19). Examples of methods common in language research are corpus analysis, introspection, and experimental studies.

3.2 Methodological approach

The methodological approach of a study is determined by different factors, chief amongst which is the question of what type of data is to be collected in the study. It is common to differentiate between qualitative and quantitative research when looking at the methodological approach. Qualitative research traditionally deals with research and data which is not readily quantifiable. In linguistic research, this kind of data might include data on

attitudes, beliefs, or perceptions of language. Qualitative data are open for interpretation and may therefore be subjective by nature. Qualitative data may be collected through human interactions such as interviews. Data collected in qualitative research may provide *deep data* but are limited in terms of comparative or statistical analysis. Quantitative research deals with data that *is* readily quantifiable. Quantitative research advocates the collection of data from an outsider perspective, meaning the researcher observes data from a position where he or she may not interact or affect the data collected in real time. Quantitative data often requires statistical analysis to process results of the collected data. The data is thus not readily available for interpretative analysis and is therefore claimed to place a greater focus on objectivity than qualitative where the analysis can be less inclined towards statistics and more towards interpretation. Examples of methods used in quantitative research may be experimental methods such as eye tracking, MRI scans, electroencephalography (EEG), survey and questionnaire data, or non-experimental methods such correlational research, and observation research. Nunan (1992) divides methodological approach into different paradigms for gathering empirical data. He classifies approaches into *pure-form paradigms* and *mixed-form paradigms*. The pure form paradigms are the purely qualitative and the purely quantitative approaches where the qualitative paradigm involves (i) non-experimental design, (ii) qualitative data, and (iii) interpretive analysis. The purely quantitative analysis involves (i) experimental or quasi-experimental design, (ii) quantitative data, and (iii) statistical analysis. Furthermore, Nunan describes mixed paradigms, which are different combinations of the pure paradigms. For example, a mixed paradigm can involve (i) experimental or quasi experimental design from the quantitative analysis, (ii) the quantitative data from the quantitative paradigm, and (iii) the interpretive analysis from the qualitative paradigm (Nunan, 1992 p. 6). In other words, research design does not have to strictly adhere to either of the two pure paradigms but can combine different parts of the quantitative and qualitative paradigms. In addition to dividing research methods into different paradigms based on the use of quantitative or qualitative data and method for data collection, one can also discern between primary and secondary research. Brown (1998) differentiates between these two types of research in that the data elicited from primary research is elicited from the primary sources of information whereas secondary research data is derived from the literature on the topic. In other words, primary research is derived from a group of students who are learning a language whereas secondary research data is derived from books about students who are learning a language. Furthermore, primary studies are subdivided into case studies and statistical studies (Brown 1988, p. 1). This means that research design differs

both in terms of whether the research question is to be investigated by primary or secondary research and which paradigm is used to formulate the research design.

The aim of this study was to (i) investigate the competence of different groups of speakers of English (including both native and L2 speakers) as well as (ii) to gather evidence of speaker responses to specific error types and to establish to what extent sensitivity to these errors might be affected by language competence and metalinguistic awareness. The study included targeted participant responses to certain error types, which means that the study was based on primary sources with data elicited from participants rather than corpora or other secondary sources. Moreover, this study relies on statistical analysis to identify patterns or trends among the different groups of what type of error elicits the most negative response and whether cross linguistic influence can explain the different reactions. This means that this is a statistical primary research study according to Brown (1988). One could argue that this study belongs to Nunan's (1992) purely quantitative paradigm, as it involves (i) experimental or quasi-experimental design, (ii) quantitative data, and (iii) statistical analysis. However, there is also the possibility of claiming that this study uses an interpretive approach to the results, hence suggesting adherence to a mixed-paradigm.

3.2.1 Survey/questionnaire

When reviewing research methods in language research which deal with quantitative data, it is impossible to avoid discussing questionnaires, also known as surveys. For the sake of consistency, I am going to use the term 'survey' when discussing this method for the remainder of this paper. Survey research can be a very useful method in linguistic research and has already been used and has made substantial contributions to second language acquisition. Survey studies can provide data on people's opinions and attitudes concerning learning processes in L2, and their feelings regarding second language (Dörnyei & Csizér, 2012, pp. 74-75). Survey-based research is useful for gathering large sets of quantitative data from a wide selection of participants, which data is well suited for statistical analysis. There are however certain considerations to be made when designing a survey to minimize methodological flaws. Preferably one should avoid making the survey too long by attempting to focus on several things at once. By keeping focus on one thing, one can keep the survey short, which makes it easier for participants to remain focused during the survey itself. Keeping a singular focus in the survey also reduces the number of variables which in turn makes the statistical analysis less challenging for the researcher. The researcher can combine the survey with qualitative

approaches, such as interviews, to expand and investigate other angles of interest in relation to the study. Another benefit of survey-based research when used in second language research is that it can implement scales to gather information about acceptability or grammatical judgements. One example of such scales is the use of the Likert scale, which is useful for collecting data related to abstract variables such as attitudes, beliefs, and motivation (Dörnyei et al. 2012, 76). In summary, a survey-based approach is a platform which is well suited for judgement tasks in linguistics.

3.2.2 Judgement tasks in linguistics

Studying grammar is a challenging exercise. Since grammar is a mental construct, it is not available for the conscious awareness of most people, one could argue that the common reaction to sentences is limited to whether the sentence sounds “good” or “bad” to them. Judgement tasks in linguistics are usually based on asking whether a certain sentence is a possible utterance in a certain language. Using judgement data in linguistic research has its own strengths and limitations, some of which I will now discuss. Judgement tasks are well suited to gather information about ill-formed expressions of a language. Judgement tasks may also give information about a specific type of sentence structure or error which the researcher may be interested in (Schütze, 2011, 210-211). In this study, I am interested in sensitivity to specific errors across different English speakers based on their metalinguistic awareness and language proficiency. It therefore makes sense to use judgement tasks as they make it possible to access different English speakers’ judgement of whether different utterances containing different error types are “good” or “bad”. There are however some drawbacks to using judgement ratings as data in linguistic research. Firstly, judgement tasks can be construed as difficult for some learners, especially if they are still early in the acquisition process in the target language. The challenge can be described a dual task, as the participant must both be able to read and understand the utterance presented to you, but also to have enough awareness and knowledge to conduct an “examination” of the construction of the sentence. This task can be challenging when researching younger speakers or low proficient speakers. This survey deals with a relatively high proficiency of English across the three groups, so I am not considering this as a potential issue. Secondly, there is less room for the researcher to follow up and verify that each participant understands and actively attempts to answer the survey to the best of their abilities. This is especially the case on electronic surveys done from home. Furthermore, judgement tasks lean into introspection as a methodological approach. The participant is asked to use intuition to judge what is grammatical or not in a target language. There are some criticisms related to

the use of introspection as a method in language research, such as when the researcher uses introspection on themselves, relying on their own intuition for judgement ratings and acceptability ratings. Sceptics claim that this is a limitation of the method, as one cannot expect someone with a stake in the outcome to remain unbiased due to their individual theoretical conviction (Schütze 2011, 212). In light of this possible limitation, this study will be based on the judgement data elicited from a wide pool of participants. This is done in order to avoid bias, as I have developed the sentences in order to elicit a certain response, using introspection would result in very biased judgement ratings.

3.2.3 Survey design

When using surveys as a means of data collection, one has the option to use physical forms on printed paper, or an electronic survey through different websites or software applications. Each option comes with their own advantages and disadvantages. On one hand a physical survey requires nothing but a pen and the paper to complete, they are easy to pass out and keep track of in an administrative sense. Moreover, a survey is also impervious to hardware malfunctions or other technical impediments. On the other hand, an electronic survey makes it much easier to recruit and retrieve data from participant groups which are far away, which is very useful when the research requires access to native speakers of a certain language. It is also easier to make changes in the early stages of the survey, as one does not have to print a new set if one small error is discovered. The digital survey also saves the researcher from tedious transfer from paper to digital software, as many survey design websites and programs allow for direct transfer to analytical software. Obviously there is the environmental factor as well when considering large projects with very large participant pools. The survey used in this project was digital. The platform chosen for this project was *Nettskjema*, created by Universitetet i Oslo. It allows the researcher to create an electronic survey with a variety of question types. The platform also allows direct download of the data to an excel file, making it much easier to retrieve, sort, and analyze the data.

3.2.3 The survey

The survey used in this project is based on acceptability tasks. A selection of 60 English sentences were made. See appendix A for the full list of sentences used in the survey. This data set contained 30 erroneous sentences and 30 grammatically correct sentences. In the survey

design and the following statistical analysis, the erroneous sentences were coded into the following categories:

- Pure syntax errors: EA (Adverb placement error): 10 sentences.
- Pure morphology errors: ET (Tense morphology error): 10 sentences.
- Syntax-Morphology Interface errors: EI (Agreement error): 10 sentences.

The grammatical sentences were coded as:

- Correct pure syntax: CA (Correct Adverb placement): 10 sentences.
- Correct pure morphology: CT (Correct tense morphology): 10 sentences.
- Correct syntax-morphology interface: CI (Correct Agreement): 10 sentences.

The following examples are sentences which were used in the survey.

(12) *He plays often football. (*Adverb placement error*)

(13) *In 1986, the nuclear reactor at Chernobyl explode. (*Tense morphology error, missing tense inflection*)

(14) *You always walks so quickly. (*Agreement error: 3rd person singular -s inflection used on the finite verb with a 2nd person singular subject*)

Additionally, tense morphology errors were further subcategorized by dividing the ten sentences into two groups of five sentences where five erroneous sentences contained a regular (weak) verb, whereas five erroneous sentences contained irregular (strong) verbs. This was in order to represent a realistic selection of verbs which the participants might encounter in language use in everyday situations. Furthermore, it allowed me to investigate whether there was a statistically significant difference between the average acceptability rating for sentences containing regular or irregular verbs. The aim of this was to detect differential sensitivity to the two categories as suggested by the dual processing account offered by Pinker (1991). The examples below were used in the survey itself:

(15) *Last week I start cleaning my garden. (*started*).

(16) *Catherine run the New York Marathon in 2014. (*ran*).

Example (15) shows a sentence with missing tense morphology with a regular verb (to start), whereas (16) shows a sentence with missing tense morphology with an irregular verb (to run). The decision was made to portray the erroneous verbs in their bare form across all ten

sentences to reduce the impact of irregular tense morphology on participant judgement and to reduce the number of variables.

Table 1.

Table showing the N(sentences) across the different error types.

| Adverb placement errors | Tense morphology errors | | Agreement errors |
|-------------------------|-------------------------|-----------------|------------------|
| | Regular verbs | Irregular verbs | |
| 10 | 5 | 5 | 10 |

The 30 grammatical sentences were also grouped into three categories, where ten sentences showed correct adverb placement, ten sentences showed correct tense markings (five regular and five irregular) and ten sentences showed correct agreement features.

Table 2.

Table showing the N(sentences) across grammatically the correct data set.

| Correct adverb placement | Correct tense morphology | | Correct agreement |
|--------------------------|--------------------------|-----------------|-------------------|
| | Regular verbs | Irregular verbs | |
| 10 | 5 | 5 | 10 |

The sentences were given a number between 1-60, where 1-30 were ungrammatical sentences and 31-60 were grammatical sentences. In the paper, I am referring to sentence groups as: Adverb Error sentences (#1-10), Tense Error sentences (#11-20), Agreement Error sentences (21-30), Correct Adverb sentences (#31-40), Correct Tense sentences (#41-50), and Correct Agreement sentences (#51-60). The entire set of 60 sentences was run through a random sequence generator to create five different sequences of the sentences. All five sequences consisted of the same sentences, the only difference being the order in which the sentences occurred. The five randomized sequences were adjusted manually to avoid error types coming in groups. Randomizing the sentence order across five sequences helped prevent any form of bias towards any of the three groups of participants. This meant that the groups had to fill each of the five sequences.

The participants were asked to rate each sentence on a Likert scale where 1 (incorrect) was the lowest and 7 (correct) was the highest. The data elicited from the survey was then subject to a statistical analysis to determine trends or patterns on what errors were most/least acceptable in the different groups.

The survey design is in line with Nunan's (1992) paradigm of research design discussed earlier. The study is experimental in that it is set up to investigate speaker judgements on

different types of errors to determine which error type elicits the lowest score. It deals with quantitative data in the form of rating values between 1-7 of 60 sentences per participant, these scores are readily available for statistical analysis which may reveal a statistical difference between rating values for different errors between different groups. However, one could also argue that this study follows Nunan's *eighth paradigm*, which mixes the experimental design and use of quantitative data with an interpretive analysis from the purely qualitative paradigm. The results of the statistical analysis can be interpretive by viewing and discussing any potential differences in rating values as a consequence of cross linguistic influence. In short, the analysis of the survey may be conducted in the form of statistical analysis, but the results are also open to interpretation as to what causes any eventual difference in sentence acceptability rating between the different groups.

3.3 Participants and recruitment

This study is based on participant judgement on English linguistic data. This requires a conscious approach to the subjects recruited for participation. This study was conducted on three different groups of participants. The groups were divided into three different levels of proficiency in English, lower proficiency, high proficiency, and native speaker proficiency. Each group consisted of a minimum of 30 participants. In the following subchapter I will discuss the different groups and present the recruitment process in the data collection of the project.

3.3.1 Lower proficiency group

The lower proficiency group consisted of students in their first year of high school. This group largely consisted of native speakers of Norwegian who speak English as an L2. The participants were recruited through connections at a local high school, and the participants completed the survey as part of an English class. The class was divided across the five sequences of the survey, where a given number of students completing each sequence. The students were given a full class to complete the survey, and I was present during the class to answer any questions and clarify the data collection process. It should however be noted that the school used for recruitment is a high admission school, where students must achieve high grades from upper secondary school in order to be admitted. This might skew the results as the as many of these students perform above the average level in academic work. Furthermore, several of the

students have English native speaking parents and are very proficient in English. This will be taken into account in the discussion chapter.

3.3.2 High proficiency group

The high proficiency group was recruited from a pool of students of English at the Department of Language and Literature at the Humanistic Faculty at NTNU, Trondheim. This group also consisted of native speakers of Norwegian who speak English as an L2. The participants were recruited from bachelor and master level courses to ensure a higher degree of English proficiency than the high school students in the lower proficiency group. The recruitment process was done through informational talks in classes and students then signing up as participants for the high proficiency group.

3.3.3 Native speaker proficiency group

The native speaker group was recruited more or less ad hoc. Due to the number of participants in each group (30 participants) I decided not to do a structured recruitment process. Instead, I used the network of native speakers existing among professional as well as personal acquaintances. My supervisor also volunteered to share the survey among native speaking colleagues and acquaintances.

3.4 The process

The survey was distributed as specified while keeping track of the number of participants for each group and sequences. The lower proficiency group had by far the highest number of participants as two entire classes were recruited. After data collection was complete, the data could be directly imported to excel. This is one of the benefits of using an electronic survey as opposed to a paper based one where the researcher has to manually transfer the data from paper to a digital format. After filtering the scores from all 114 participants into the different sentence category (EA, ET, EI, CA, CT, CI), the data was analyzed in IBM SPSS. This statistical analysis consisted of two parts. (1) Descriptive statistics on each error type and their grammatical counterpart across the three groups. The reason for this was to compare the mean as well as the standard deviation score on each error type across the three groups. The results of the descriptive statistics were graphically represented in box-plot charts to visualize the findings. (2) Inferential statistics where the goal was to determine whether there were any statistical significance between the means of the participant average score across the groups.

The statistical significance was investigated through an independent t-test, putting the average participant score on each error type of one group against another. The significance level was determined by looking at the p -value as well as the t-score compared to a critical value of $\alpha=0,05$. Additionally, the significance level could be verified by checking the 95% confidence interval. The p -values of the t-tests were controlled by applying the Bonferroni correction to account for the multiple comparison problem.

3.4.1 Pilot testing

The survey was pilot tested before any recruitment started. A total of 23 people participated in the pilot test, which was a complete survey with its own randomized sequence of sentences. The pilot test revealed several issues which were addressed in the revising process. Some of these issues were missing punctuation and spelling errors. There were also more systematic issues such as phrasing of the questions. The decision was made to change the extremal values of the Likert scale from “grammatical” and “ungrammatical” to “correct” and “incorrect”. This was done to accommodate lower proficiency participants with lower meta linguistic awareness as some of them might not fully understand what was meant by the terms “grammatical” and “ungrammatical”. The issue was revised, and the terms replaced on all 60 questions in all five sequences. The pilot survey was done separately; none of the data collected in the pilot survey was included in the analyses of this study.

3.4.2 Recruitment and data collection

Data collection turned out to become a problematic process. Mostly due to the lower-proficiency group. By the time the survey was ready, and the arrangements made, the school had to implement measures due to rising contagion numbers, making it impossible to have the students complete the survey. I made the decision to not allow the students to complete the survey from home as I wanted control over whether they understood the questions and to be at hand if they had any uncertainties. The following weeks saw rising infection numbers and more absence in school, making it impossible to have the necessary numbers to fill out the participant pool of >30 people. Eventually the decision was made to recruit two classes to ensure the necessary number.

For the higher proficiency group, the process also became a drawn-out endeavor, as the pandemic reduced in-person attendance in lectures. This meant fewer chances for me to address different bachelor and master’s level courses in person. This resulted in a slow recruitment

process based on personal relations and classmates. Eventually, with physical appearance again allowed per university guidelines, I managed to recruit enough people for the high proficiency group, mostly from different master's level courses I attended and addressed. Participants signed up on a digital list and were sent the link to a survey sequence.

The native speaker group turned out to be the easiest to fill. This, in part, is due to the fact that the restrictions imposed by the pandemic could not influence this process, as the survey was always meant to be digitally distributed across borders; no physical interaction was required. I am eternally grateful to my supervisor Mila, who reached out to personal and professional connections to ensure a sufficient number of participants. Much like the high-proficiency group, participants signed up on a digital form and were then sent the survey sequence by e-mail.

3.5 The participants

In total, 114 people participated in the project across the lower proficiency group (N=48), the higher proficiency group (N=32), and the native speaker group (N=34).

3.5.1 Group 1 – Lower proficiency Group.

The Lower proficiency group of L2 learners consisted of 48 participants who were students in their first year of high school. The survey was completed as part of their English tuition. Average age of the lower proficiency group was 16,2 years with little variation as they were recruited from the same class. The group consisted of 21 males, 26 females, and 1 non-decided. The language background was more varied and diverse than initially anticipated with 34 Norwegian monolinguals, nine English bilinguals, and 4 Norwegian bilinguals. The groups were instructed that the term bilingual only applied to participants who had grown up speaking more than one language at home. Native Norwegian speakers who learn English as part of their education did not qualify as bilingual in this study. It is possible that this question was not fully understood, and the numbers should not be taken at face value.

Table 3.
Group 1: The lower proficiency group.

| Group 1 | |
|-------------|------|
| N | 48 |
| Average age | 16,2 |
| Male | 21 |
| Female | 26 |
| Non decided | 1 |
| Monolingual | 34 |
| Bilingual | 14 |

3.5.2 Group 2 – Higher proficiency group.

The higher proficiency group consisted of 32 participants with an average age of 25,5. The group consisted of 9 males and 23 females. The group consisted of 31 Norwegian native speakers and 2 bilinguals. The participants were recruited through different English BA- and MA-level courses at the Department of language and literature at NTNU. This was done to ensure a homogenous group in terms of English proficiency and language background. This meant that there was no need for a proficiency test to assign the participants into the groups, as students at BA- and MA- level courses in English will be more proficient in English than the average Norwegian. Naturally differences were observed in terms of how the participants understood and rated the different error types, as is shown in the descriptive statistics in the results chapter.

Table 4.
Group 2: The higher proficiency group.

| Group 2 | |
|-------------|------|
| N | 32 |
| Average age | 25,5 |
| Male | 9 |
| Female | 23 |
| Monolingual | 31 |
| Bilingual | 2 |

3.5.3. Group 3 – Native speakers.

The native speaker group consisted of 34 participants with an average age of 35,7 years. The group consisted of 9 males, 24 females and 1 undecided. Of the 34 participants, 31 were monolingual English speakers whereas 3 were bilingual English speakers. Again, note that the term bilingual is reserved for speakers who grew up in a household speaking two or more languages.

Table 5.

Group 3: The native speaker group.

| Group 3 | |
|-------------|------|
| N | 34 |
| Average age | 35,7 |
| Male | 9 |
| Female | 24 |
| Non decided | 1 |
| Monolingual | 31 |
| Bilingual | 3 |

4. Results

The following chapter will present the results from the data collection. In total, 114 participants gave an acceptability rating to the 60 sentences. The sentences were separated into sentence type EA (#1-10), ET (#11-20), EI (#21-30), CA (#31-40), CT (#41-50), and CI (#51-60). The scores were grouped into group 1: lower proficiency group (N=48), group 2: higher proficiency group (N=32), and group 3: native speaker group (N=34). An average score for the acceptability rating for each error type as well as its grammatical counterpart was made for every participant (See APENDIX B for the full list of results). The participant average scores were split into their respective groups. The descriptive statistics demonstrate the difference between the different error types across the three groups. The means and standard deviation illustrate the different response each error type were given from the different groups. This has also been represented graphically as box-plots to visualize the findings. Furthermore, the findings were subject to an independent t-test to establish whether one group's score was significantly different from another group's score. The tense error sentences were split into regular and irregular verbs, to examine whether the verbs being regular or irregular had a statistically significant effect on the ratings given to them. The inferential statistics were done on a basis of $\alpha=0,05$ and a confidence interval of 95%. The Bonferroni correction was applied to counteract the multiple comparisons problem. The Bonferroni correction was applied to the results of the independent t-tests by dividing the alpha-level (p) = 0,05 by the number of comparisons (N=3). The t-tests thus had produce a $p<0,0166$ in tests with three comparisons and a $p<0,025$ for tests with two comparisons.

4.1 Group averages and differences

4.1.1 Adverb error sentences (#1-10)

The 114 participants gave their acceptability rating to 10 (#1-10) sentences with erroneous adverb placement. The acceptability ratings given to the adverb error sentences can be found in Table 6 and visualized in Figure 8.

Table 6.

Descriptive statistics for Adverb error sentences across the three groups.

| Group | N | Mean | Std. Dev |
|--------------------------|----|--------|----------|
| Lower proficiency group | 48 | 2,1042 | 0,81870 |
| Higher proficiency group | 32 | 1,7125 | 0,69827 |
| Native speaker group | 34 | 2,3324 | 0,92694 |

The group averages ranged from 1,7125 to 2,3324. The higher proficiency group gave the sentences with erroneous adverb placement the lowest score and had the lowest standard deviation of the three groups. The native speaker group rated the erroneous sentences the highest and also had the highest standard deviation.

Figure 8.

Box plot showing means and distribution of participants average score on adverb error sentences.

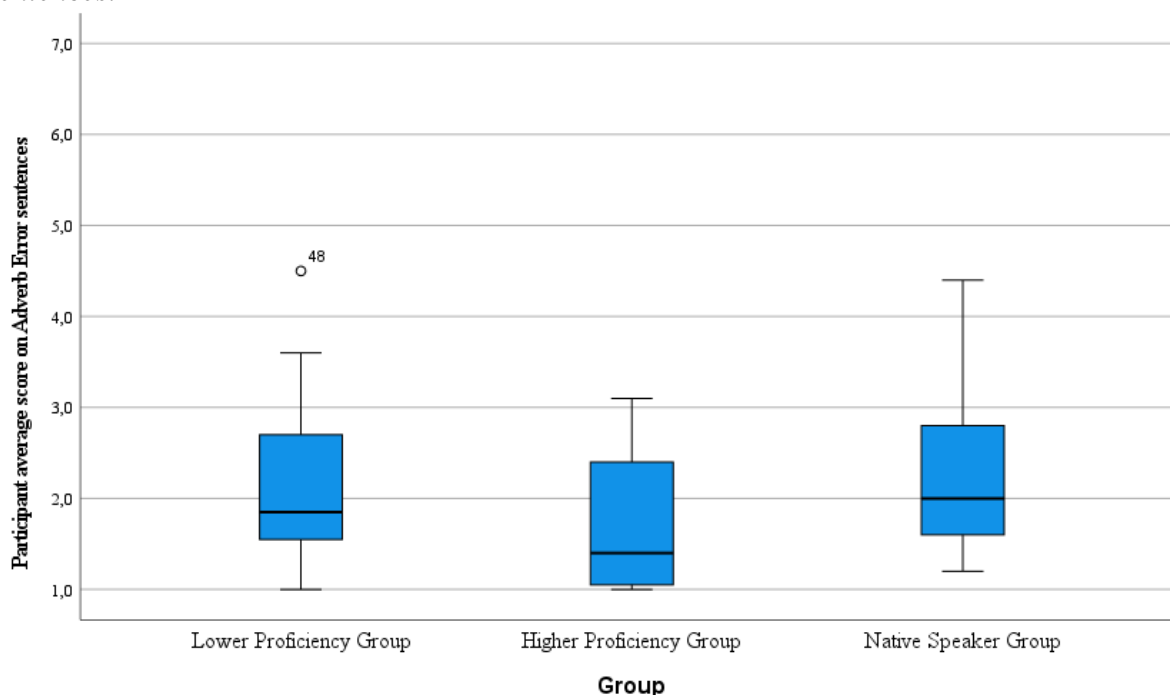


Table 7.

Results of independent t-test: Inferential statistics for Adverb Error sentences. Group 1=Lower proficiency group, Group 2=Higher proficiency group, Group 3=Native speaker group.

| Adverb Error | t | df | Sig. (2-tailed) | 95% Confidence Interval | |
|---------------|--------|----|-----------------|-------------------------|----------|
| | | | | Lower | Upper |
| Group 1 and 2 | 0,220 | 78 | 0,029 | 0,04043 | 0,74290 |
| Group 1 and 3 | -1,177 | 80 | 0,243 | -0,61403 | 0,15766 |
| Group 2 and 3 | -3,054 | 64 | 0,003 | -1,02229 | -0,21741 |

Bonferroni correction: $0,05/3=0,0166$

The difference between the lower- and higher proficiency was not statistically significant. The $p > 0,0166$, 95% CI[0.04, 0.74]. Although the confidence interval does not include 0, the Bonferroni correction p is not lower than the critical value.

The difference between the native speaker group and the higher proficiency group is statistically significant. We can observe this in the $p < 0,0166$ 95% CI[-1.92, -0.21]. We can thus conclude that there is a significant difference between the acceptability ratings of the adverb error sentences between the native speaker group and the higher proficiency L2 speaker group but not between the lower proficiency group and the native speaker group nor between the lower proficiency group and the higher proficiency group.

4.1.2 Correct adverb sentences (#31-40)

The 114 participants gave their acceptability rating to 10 (#31-40) sentences with erroneous adverb placement. The acceptability ratings given to the correct tense sentences can be found in Table 8 and visualized in Figure 9.

Table 8.

Descriptive statistics for correct adverb sentences across the three groups.

| Group | N | Mean | Std. dev |
|--------------------------|----|--------|----------|
| Lower proficiency group | 48 | 5,8042 | 0,82460 |
| Higher proficiency group | 32 | 6,0719 | 0,67357 |
| Native speaker group | 34 | 6,5471 | 0,42940 |

The group average ratings ranged from 5,8042 to 6,5471. The native speaker gave the highest ratings to the sentences showing correct adverb placement (#31-40). The native speaker group also showed a significantly lower standard deviation than the other groups, thus being

more unanimous in their judgement. The lower proficiency group gave the lowest rating and also displayed the highest standard deviation in their ratings of tense error sentences.

Figure 9.

Box plot showing means and distribution of participants average score on correct adverb sentences.

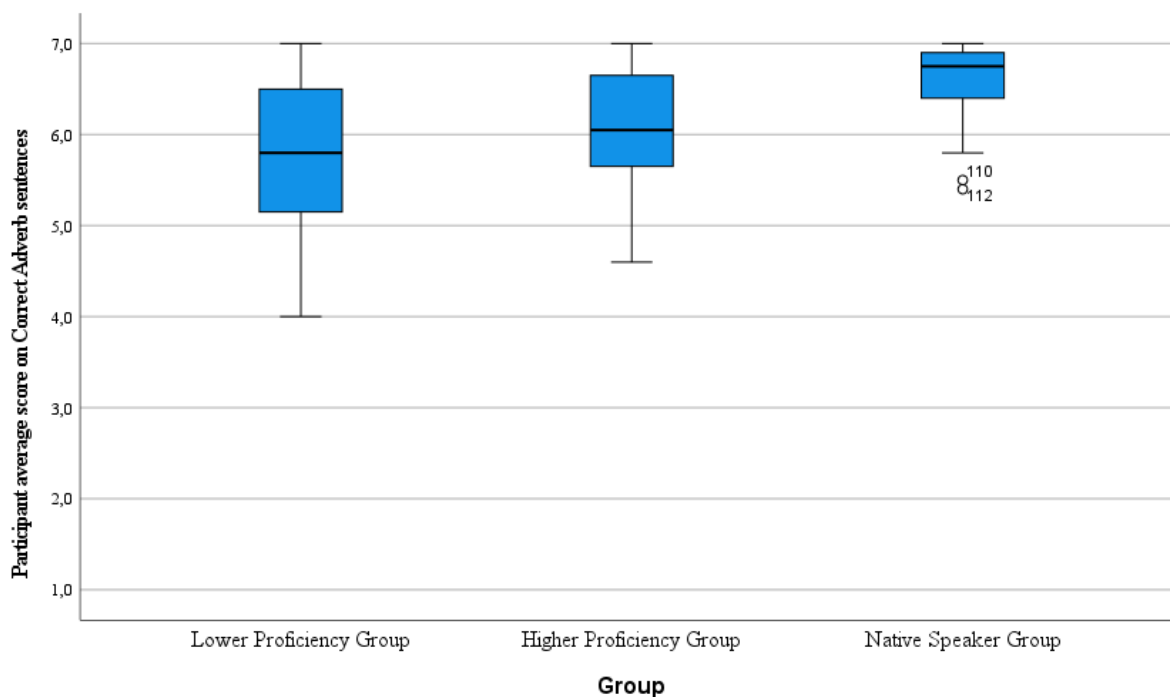


Table 9.

Results of independent *t*-test: Inferential statistics for Correct Adverb sentences. Group 1=Lower proficiency group, Group 2=Higher proficiency group, Group 3=Native speaker group.

| Correct Adverb | t | df | Sig. (2-tailed) | 95% Confidence Interval | |
|----------------|--------|----|-----------------|-------------------------|----------|
| | | | | Lower | Upper |
| Group 1 and 2 | -1,527 | 78 | 0,131 | -0,61671 | 0,08130 |
| Group 1 and 3 | -4,806 | 80 | 0,000 | -1,05051 | -0,43527 |
| Group 2 and 3 | -3,394 | 64 | 0,001 | -0,45126 | -0,19910 |

Bonferroni correction: $0,05/3=0,0166$

The analysis shows that there is a statistical difference between the ratings given to the correct adverb sentences between the lower proficiency group and the native speaker group ($p < 0,0166$) 95% CI [-1,05. -0,43] and between the higher proficiency group and the native speaker group ($p < 0,016$) 95% CI [-0,45. -0,19].

4.1.3 Tense error sentences (#11-20).

The 114 participants gave their acceptability rating to 10 (#11-20) sentences with erroneous tense inflection. The acceptability ratings given to the tense error sentences can be found in Table 10 and visualized in Figure 10.

Table 10.

Descriptive statistics for tense error sentences across the three groups.

| Group | N | Mean | Std. dev |
|--------------------------|----|--------|----------|
| Lower proficiency group | 48 | 1,9563 | 0,82740 |
| Higher proficiency group | 32 | 1,4969 | 0,62242 |
| Native speaker group | 34 | 2,0529 | 1,16287 |

The group averages ranged from 1,4969 to 2,0529. The native speaker group gave the highest average ratings as well as the highest standard deviation. The higher proficiency group gave the lowest average score and had the lowest standard deviation of the groups.

Figure 10.

Box plot showing means and distribution of participants average score on tense error sentences.

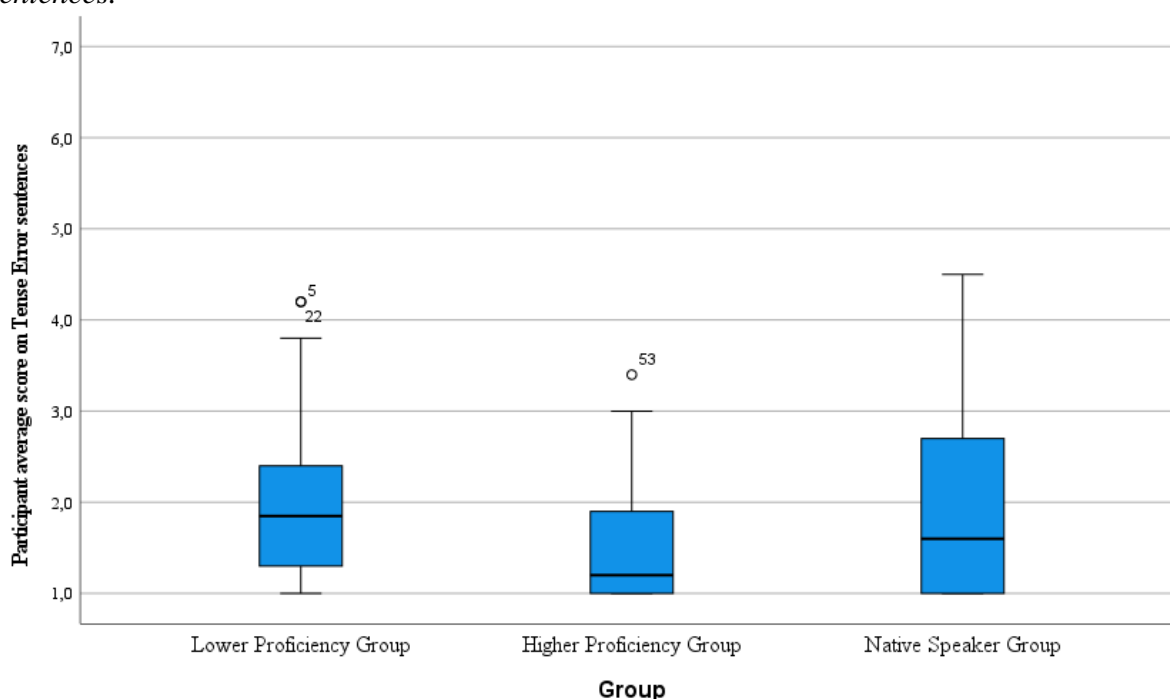


Table 11.

Results of independent t-test: Inferential statistics for Tense Error sentences. Group 1=Lower proficiency group, Group 2=Higher proficiency group, Group 3=Native speaker group.

| Tense Error | t | df | Sig. tailed) | (2- 95% Confidence Interval | Lower | Upper |
|---------------|--------|----|--------------|-----------------------------|----------|-------|
| Group 1 and 2 | 2,674 | 78 | 0,009 | 0,11740 | 0,80135 | |
| Group 1 and 3 | -0,440 | 80 | 0,681 | -0,53377 | 0,34039 | |
| Group 2 and 3 | -2,400 | 64 | 0,018 | -1,01331 | -0,09882 | |

Bonferroni correction: $0,05/3=0,0166$

There is a statistically significant difference between the L2 speaker groups ($p < 0,0166$) 95% CI[0.11, 0.80]. There was no statistically significant difference between the lower proficiency group and the native speaker group ($p > 0,0166$) 95% CI[-0.53, -0.34]. The difference between the higher proficiency group and the native speaker group is, according to the requirements for p in hypothesis testing, not statistically significant ($p < 0,0166$) 95% CI [-1,02, -0,09]. However, it is notable that the sig-value approximates the critical value once the Bonferroni correction is applied. The 95% confidence interval also suggests difference between the two groups. This will be addressed further in the discussion chapter.

4.1.3.1 Regular and Irregular verbs

The tense error sentences (#11-20) were split into five regular verbs (#11-15) and five irregular verbs (#16-20). The average scores for these sentences were subject to an independent t-test to establish statistical difference. The descriptive statistics for the average ratings given to regular and irregular tense error sentences can be seen in tables 12, 13, and 14.

Table 12.

Descriptive statistics tense errors on regular and irregular verbs for the lower proficiency group.

| Verb type | N | Mean | St. dev |
|-----------|-----|------|---------|
| Regular | 240 | 2,24 | 1,716 |
| Irregular | 240 | 1,68 | 1,680 |

The lower proficiency group gave the regular verb sentences a higher mean score than the irregular verb sentences with very similar standard deviation between the two.

Table 13.

Descriptive statistics tense errors on regular and irregular verbs for the higher proficiency group

| Verb type | N | Mean | St. dev |
|-----------|-----|------|---------|
| Regular | 160 | 1,64 | 1,179 |
| Irregular | 160 | 1,36 | 0,857 |

The higher proficiency group gave the regular verb sentences a higher mean score than the irregular verb sentences. The ratings for the regular verb sentences also showed a higher standard deviation than the irregular verbs.

Table 14.

Descriptive statistics tense errors on regular and irregular verbs for the native speaker group.

| Verb type | N | Mean | St. dev |
|-----------|-----|------|---------|
| Regular | 170 | 2,09 | 0,1124 |
| Irregular | 170 | 2,01 | 0,1160 |

There was little difference between the ratings given to regular and irregular tense error sentences. The average score only differed by 0,8 on a scale from 1-7; the standard deviations showed little variation between the two subsets. The values for the independent t-test can be seen in Table 15.

Table 15.

Results independent t-test for average ratings for regular and irregular verb tense error sentences. Group 1=Lower proficiency group, Group 2=Higher proficiency group, Group 3=Native speaker group.

| Group | t | Sig. (2-tailed) | 95% Confidence Interval | |
|---------|-------|-----------------|-------------------------|-------|
| | | | Lower | Upper |
| Group 1 | 4,148 | 0,000 | 0,298 | 0,835 |
| Group 2 | 2,441 | 0,015 | 0,055 | 0,508 |
| Group 3 | 0,484 | 0,628 | -0,252 | 0,417 |

Bonferroni correction: $0,05/2=0,025^3$

Both L2 speaker groups showed a statistically significant difference between the regular and irregular verbs. Both groups rated the sentences with missing tense inflection on irregular verbs lower than sentences with missing tense inflection on regular verbs ($p < 0,025$), 95% CI[0.298,0.835|0.055, 0.050]. Thus, we can conclude that there is a statistical difference between the ratings given to regular or irregular verbs in this study. The native speakers ratings

³ For the t-test between regular and irregular verbs, the Bonferroni correction required the alpha level (0,05) to be divided by 2, as there were only two observation that were compared.

were not statistically significant between sentences with missing tense inflection on regular or irregular verbs ($p > 0,0166$) 95% CI [-0.252, 0.417]

4.1.4 Correct Tense (#41-50)

The 114 participants gave their acceptability rating to 10 (#41-50) sentences with correct tense inflection. The acceptability ratings given to the correct tense sentences can be found in Table 16 and visualized in Figure 11.

One sentence labeled as a correct tense sentence was a duplicate of an erroneous adverb placement sentence and thus had a much lower score than other sentences in the sentence group. This error was limited to one sequence of the native speaker group only and was removed from the analysis. The reader will observe that the number of observations for correct tense in the native speaker group is lower than for the other sentence types as a result. The descriptive statistics for the average ratings given to correct tense sentences can be seen in Table 16.

Table 16.

Descriptive statistics for correct tense sentences across the three groups.

| Group | N | Mean | Std. Deviation |
|--------------------------|----|--------|----------------|
| Lower proficiency group | 48 | 6,0229 | 0,66850 |
| Higher proficiency group | 32 | 6,4094 | 0,44167 |
| Native speaker group | 33 | 6,8050 | 0,24535 |

The group average ranged from 6,0229 to 6,8050. The native speaker group gave the highest average ratings to the correct tense sentences as well as the lowest standard deviation. The lower proficiency group gave the sentences the lowest score and showed the highest standard deviation.

Figure 11.

Box plot showing means and distribution of participants average score on correct tense sentences.

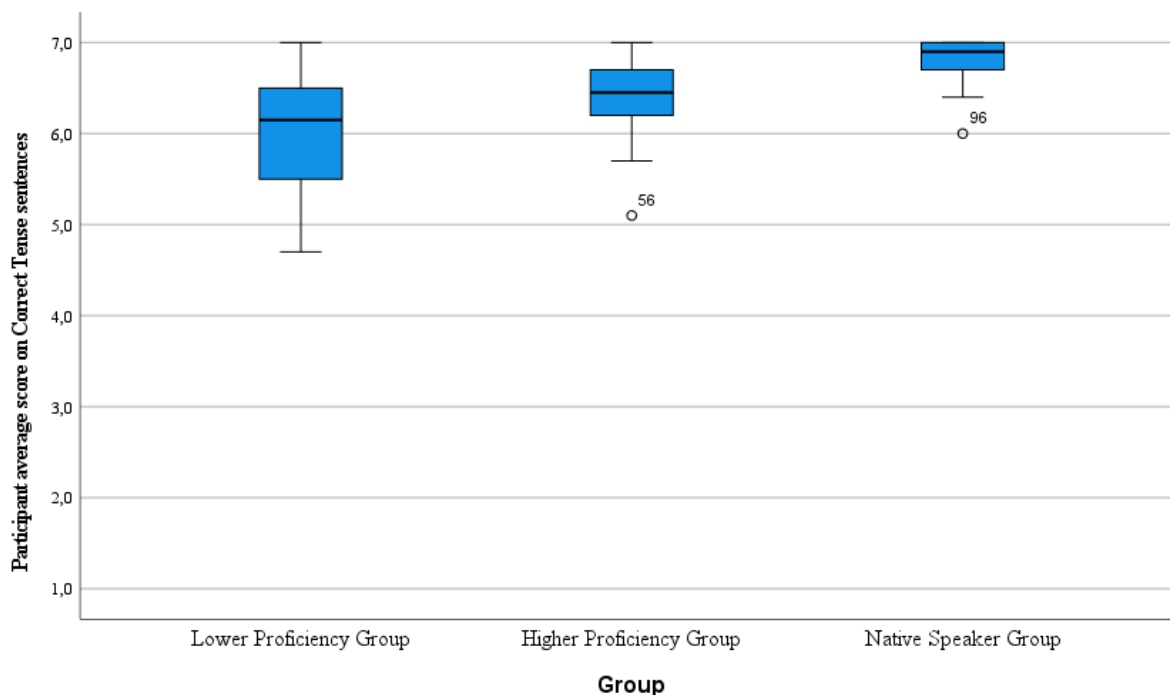


Table 17.

Results of independent t-test: Inferential statistics for Correct Tense sentences. Group 1=Lower proficiency group, Group 2=Higher proficiency group, Group 3=Native speaker group.

| Correct Tense | t | df | Sig. (2-tailed) | 95% Confidence Interval | |
|---------------|--------|----|-----------------|-------------------------|----------|
| | | | | Lower | Upper |
| Group 1 and 2 | -2,875 | 78 | 0,005 | -0,65403 | -0,11889 |
| Group 1 and 3 | -6,508 | 80 | 0,000 | -1,02122 | -0,54294 |
| Group 2 and 3 | -4,534 | 64 | 0,000 | -0,56995 | -0,22130 |

Bonferroni correction: $0,05/3=0,0166$

All three comparisons displayed a statistically significant difference after applying the Bonferroni correction. The lower proficiency group and the higher proficiency group ($p < 0,0166$) 95% CI[-0.65,-0.11], the lower proficiency group and the native speaker group ($p < 0,0166$) 95% CI[-1.02, -0.54] and the higher proficiency group and the native speaker group ($p < 0,0166$) 95% CI[-0.56, -0.22]. We can thus conclude that there is a statistically significant difference between all three groups in their average rating on correct tense sentences.

4.1.5 Agreement error sentences (#21-30).

The 114 participants gave their acceptability rating to 10 (#21-30) sentences with erroneous agreement inflection. The acceptability ratings given to the agreement error sentences can be found in Table 18 and visualized in figure 12.

Table 18.

Descriptive statistics for agreement error sentences across the three groups.

| Group | N | Mean | Std. Deviation |
|--------------------------|----|--------|----------------|
| Lower proficiency group | 48 | 2,5833 | 1,27540 |
| Higher proficiency group | 32 | 1,8781 | 1,10854 |
| Native speaker group | 34 | 1,9765 | 1,23780 |

Group averages ranged from 1,8781 to 2,5833. The lower proficiency group gave the highest average score and had the highest standard deviation. The higher proficiency group gave the lowest average score and had the lowest standard deviation.

Figure 12.

Box plot showing means and distribution of participants average score on agreement error sentences.

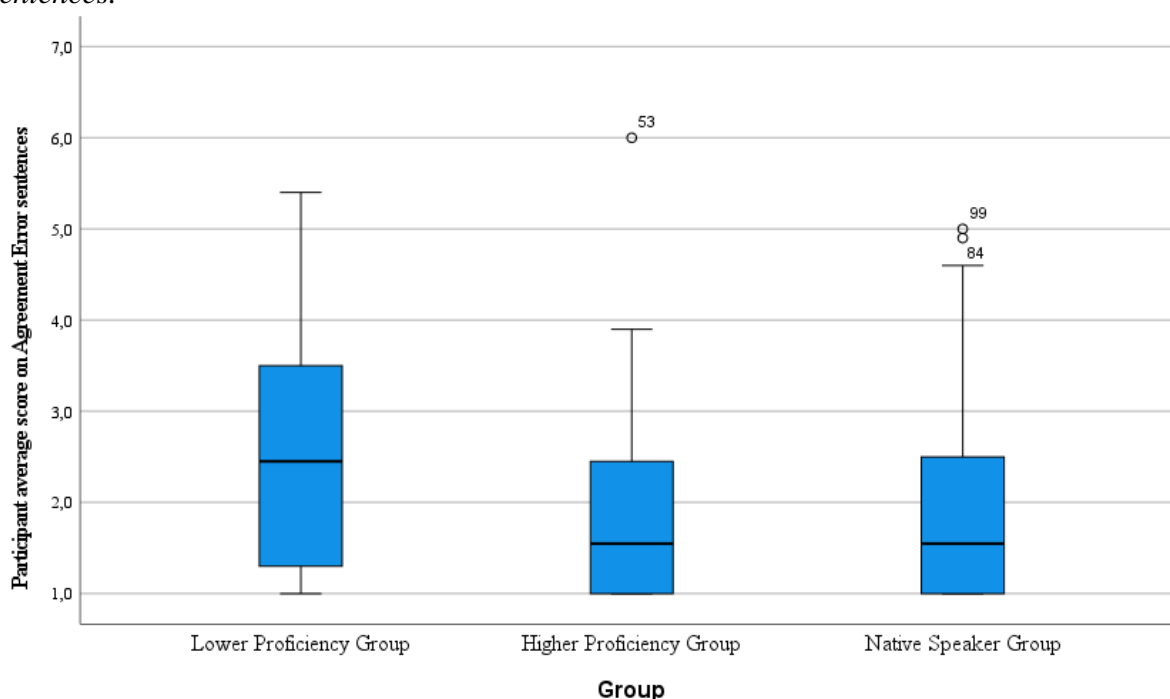


Table 19.

Results of independent t-test: Inferential statistics for Agreement Error sentences. Group 1=Lower proficiency group, Group 2=Higher proficiency group, Group 3=Native speaker group.

| Agreement Error | t | df | Sig. (2-tailed) | 95% Confidence Interval | |
|-----------------|--------|----|-----------------|-------------------------|---------|
| | | | | Lower | Upper |
| Group 1 and 2 | 2,550 | 78 | 0,013 | 0,15463 | 1,25579 |
| Group 1 and 3 | 2,149 | 80 | 0,035 | 0,04480 | 1,16892 |
| Group 2 and 3 | -0,339 | 64 | 0,735 | -0,67746 | 0,48079 |

Bonferroni correction: $0,05/3=0,0166$

There is a statistically significant difference between the average rating given by the lower- and higher proficiency group ($p<0,0166$) 95% CI [0,15. 1,25]. There is no statistically significant difference between the average rating given by the lower proficiency group and the native speaker group ($p>0,0166$) 95% CI [0,04. 1,16]. Although the average ratings are somewhat apart, the lack of significant difference can be seen in the high standard deviation and high maximum outliers of the native speaker group (See Figure. 12). The difference between the higher proficiency group and native speaker group is not statistically significant ($p>0,0166$) 95% CI [-0,67. 0,48].

4.1.6. Correct Agreement sentences (#51-60).

The 114 participants gave their acceptability rating to 10 (#51-60) sentences with correct agreement inflection of the verbs. The acceptability ratings given to the tense error sentences can be found in Table 20 and visualized in figure 13.

Table 20.

Descriptive statistics for correct agreement sentences across the three groups.

| Group | N | Mean | Std. Deviation |
|--------------------------|----|--------|----------------|
| Lower proficiency group | 48 | 6,1313 | 0,65730 |
| Higher proficiency group | 32 | 6,4344 | 0,43449 |
| Native speaker group | 33 | 6,7265 | 0,28952 |

The group averages ranged from 6,1313 to 6,7265. The native speakers group gave the highest average score of the correct agreement sentences and had the lowest standard deviation of the groups.

Figure 13.

Box plot showing means and distribution of participants average score on correct agreement sentence.

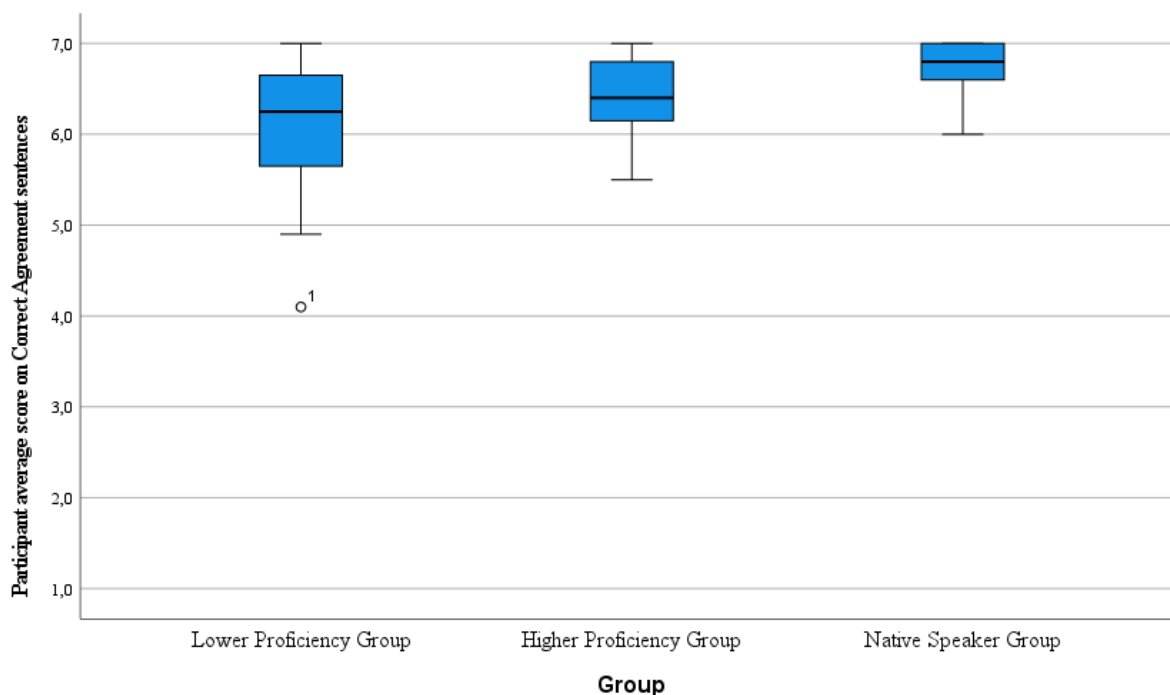


Table 21.

Results of independent t-test: Inferential statistics for Correct Agreement sentences.

| Correct Agreement | t | df | Sig. (2-tailed) | 95% Confidence Interval | |
|-------------------|--------|----|-----------------|-------------------------|----------|
| | | | | Lower | Upper |
| Group 1 and 2 | -2,294 | 78 | 0,024 | -0,56622 | -0,04003 |
| Group 1 and 3 | -4,945 | 80 | 0,000 | -0,83476 | -0,35568 |
| Group 2 and 3 | -3,232 | 64 | 0,002 | -0,47265 | -0,11154 |

Bonferroni correction: $0,05/3=0,0166$

There is no statistically significant difference between the lower and higher proficiency group ($p > 0,0166$) 95% CI[-0,56. -0,04] when one applies the Bonferroni correction. There is however a statistically significant difference between the lower proficiency group and the native speaker group ($p < 0,0166$) 95% CI[-0,83. -0,35] as well as between the higher proficiency group and the native speaker group ($p < 0,0166$) 95% CI[-0,47. -0,11].

5. Discussion

5.1 Expectations and hypotheses going into the study.

The expected findings of the study were (i) that the difference in metalinguistic awareness would result in a significant difference in the sensitivity to the target error types. The initial hypothesis was that speakers would be more sensitive (give a lower score to) overt morphological errors (tense errors, agreement errors) than to syntactic errors which might involve processing of clausal structure/hierarchy. Secondly, the expectation was to see (ii) that the lower proficiency group, having a lower level of metalinguistic awareness, would have the greater internal variation and give a higher rating to error sentences and a lower rating to correct sentences. In short, the lower proficiency group was predicted to have the highest standard deviation in their average ratings. Furthermore, it was expected that (iii) the higher proficiency group would approximate the native speaker group due to higher level of proficiency and metalinguistic awareness while the lower proficiency group would differ from the other two groups.

To give a preliminary conclusion to the expected findings, the analysis presented in chapter 4 suggests that (i) the groups reacted differently to the different target error types. The hypothesis that morphological errors would be rated lower than syntactical errors proved to in large part be in line with the results. The results of the agreement error sentences proved that morphological errors in the form of erroneous agreement inflection is the most vulnerable domain for Norwegians learning English as an L2. This is quite obvious at the lower level (Lower proficiency group) but improves with increasing proficiency and metalinguistic awareness, as there is no significant difference between the high proficiency speakers and the native speakers. The adverb placement sentences were rated higher than the agreement and tense error sentences across the three groups with the exception of the lower proficiency group. This supports the expectation that errors related purely to syntax are ‘slower’; thus, they do not elicit as negative a response as the morphological errors, which are ‘quicker’ and easier to spot.

Table 22.

Average acceptability ratings given to each error type by each participant group in the study.

| Group | Adverb Error | Tense Error | Agreement Error |
|--------------------------|--------------|-------------|-----------------|
| Lower Proficiency group | 2,1042 | 1,9563 | 2,5833 |
| Higher Proficiency group | 1,7125 | 1,4969 | 1,8781 |
| Native speaker group. | 2,3324 | 2,0529 | 1,9765 |

In terms of internal variations (ii), the lower proficiency group performed as expected most cases, showing the highest standard deviation of the group mean in four out of the six sentence types. Surprisingly, the native speaker group had the highest standard deviation in the adverb error sentences and the tense error sentences. As for (iii) the higher proficiency participants seemed as sensitive if not more so than the native speaker participants. The higher proficiency group gave the lowest score for each of the three error types, and also had the lowest standard deviation for each of the target errors. The lower proficiency group showed a statistically significant difference from the higher proficiency group in their rating of adverb tense and agreement errors, and from the native speaker group in their rating of tense errors. The native speaker group showed surprisingly high standard deviations in their rating of tense error and adverb placement error sentences. If one considers the box-plots in the previous chapter, one may observe that the native speaker group has high maximum ratings (outliers) which are very similar to the lower proficiency group.

When we consider the grammatically correct sentences, the native speaker group gives them the highest rating and has the lowest standard deviation. The lower proficiency group had the highest standard deviation as well as the lowest average score of the correct sentences. One may argue that according to the results, the lower proficiency group performs as expected in the initial expectations of the study. They are generally more insecure about what is correct sentence and what is an erroneous sentence, which may be related to their lower competence and level of metalinguistic awareness.

In the following subchapters, I will discuss some of the more surprising results from the study and explore how these observations may be related to the theory of cross linguistic influence.

5.2 Adverb placement

One of the surprises from the data collection and subsequent analysis was that the native speaker group rated adverb error sentences higher than any of the L2 speaker groups. Going into the study, the expectation was that the L2 speaker groups would rate the sentence higher due to the fact that the sentences followed a Norwegian V2 sentence structure, with the adverb being placed after the finite verb. If one assumed that cross linguistic influence occurs and the L1 SVAO pattern transferred to the L2, one would observe a higher rating of the adverb error sentences, or at least a higher standard deviation to demonstrate confusion or avoidance as described by Benson (2002) due to L1 influence on the L2. While the lower proficiency participants gave a higher rating than the higher proficient L2 participants, the native speakers gave a higher rating than the lower proficiency group and a significantly higher rating than the higher proficiency to the adverb error sentences. This leads to the question, why are native speakers less sensitive to the adverb error sentences than the L2 speakers?

If we consider the L2 speaker groups, an explanation can be found in the theoretical framework of cross linguistic influence. The option of placing the adverb before the finite verb in a declarative phrase is something which is possible in English but not in Norwegian. As such, this is a marked difference between the two languages, one might argue that there is a greater distance between them. As argued by Kellerman (1986), the perceived distance theory claims that distance between the L1 and L2 leads the learner to be more attentive to the differences between them. In this case, one might argue that the L2 speakers, especially the higher proficiency users, have become overtly attentive to adverb placement errors as many of them are consciously aware that English differs from Norwegian in this aspect. The higher proficiency group comprised of L2 speakers with a high degree of competence and metalinguistic awareness gave the lowest rating as they are both aware through metalinguistic awareness that the sentence is erroneous, and they have the competence to understand what is making it so. The lower proficiency students also show that they are sensitive to this error, be it by metalinguistic awareness or by their L2 competence. But why do the native speakers find this erroneous sentence structure acceptable? "

Further attention was given to this issue, as it was an intriguing finding. The issue was further explored by exposing two native speakers to the one of the erroneous adverb placement sentences "He plays often football after work". Both speakers immediately rejected the sentence as unacceptable. Both native speakers asked were of British origin, leading to certain theories about difference in sensitivity. One possible explanation for this might be attributed to the mixed background of the native speaker group. The speakers in the native speaker group were

a mix of native speakers originating in the US and Britain. Based on the immediate rejection by the British native speakers, it might be the case that British English speakers are more conservative about variations of syntax. They are thus more sensitive to deviations from the “accepted syntax”, whereas the ones from the US are more relaxed and less sensitive to this. This theory is based on a very limited data set, but the high level of variations could be attributed to the mixed native speaker group.

5.3 Tense inflection

Evidence for different storage of regular and irregular inflections.

In the case of tense inflection, the native speaker group once again showed a lower sensitivity than the lower and higher proficiency L2 speaker group. The native speaker group also had a higher standard deviation. The higher proficiency group proved most sensitive with the lower proficiency group in the middle. As demonstrated in chapter 4.1.3, the difference between the higher proficiency group and the native speaker group could not be defined as statistically significant as the $p > 0,0166$. However, one could still argue that there is a notable enough difference to see a trend of how native speakers proved less sensitive to tense inflection errors than the higher proficiency group. This is supported by the confidence interval 95% CI [-1,02. -0,09]. It is important to note that all groups proved sensitive to this, with the L2 groups giving tense error sentences the lowest score of the three error types. One could argue that the morphological errors such as tense inflection errors are ‘quick’ errors, which differ from their correct form by a single morpheme, making errors easier to spot than syntax errors, which might take longer to register, process, and react to. Once again the L2 speaker groups proved more sensitive than the native speaker group. Can this be ascribed to a heightened sensitivity on behalf of the L2 learners? It is a possibility, as L2 learners would have had to adhere to verifying their tense markings in the acquisition process, especially in their formal instruction. However, this is not the most interesting finding in the data of the tense error sentences. As specified in previous chapters, the ten tense error sentences were split into two sets with one containing irregular verbs and one containing irregular verbs. Upon analysis, the L2 speaker groups were both more sensitive to sentences containing irregular verbs missing tense inflection than sentences containing regular verbs. The differences between the average score for regular and irregular verb tense error sentences were statistically significant after applying the Bonferroni correction, indicating that L2 speakers are more sensitive to tense inflection errors when an

irregular verb is involved. The native speaker group demonstrated little to no difference in their sensitivity based on the verbs being regular or irregular. Why is this significant difference occurring? And why is it only prevalent in the L2 speaker groups?

To explore this issue, we must return to Pinker (1998) and Jackendoff (2019) and their explanation of how verbs and inflection are stored and processed in the learners language faculty. The theory claims that the brain can identify a regular verb form and to recognize it as a regular verb which then allows the -ed suffix to be attached to the root. With irregular verbs, the process is more set, as the irregular forms differ from the root to an extent to which it becomes a separate lexeme, stored individually in the lexicon. In short, the learner has to individually remember the past tense form of irregular verbs, whereas the regular verbs are recognized and then processed to pair it with past tense inflection. It is therefore natural to assume that L2 speakers are more sensitive to irregular verbs, as the past tense of the verb is stored as its own lexeme, and the L2 learner recognizes that the root verb is not just missing its -ed suffix but is the *wrong lexeme* entirely. Another interesting notion is that the native speakers do not differentiate. They are equally sensitive to tense errors whatever the category of the verb in terms of its regularity. One possible theory to deduce from this, is that the L2 speakers are not yet able to process both verb types similarly to the native speakers and are more sensitive to tense errors on irregular verbs. In other words, the native speakers have both acquired the rule and stored the correct form, which could indicate *ultimate attainment*, whereas the L2 speakers groups are in an ongoing process of L2 acquisition. This is an interesting finding which may be more thoroughly explored in future research.

5.4 Agreement

Ringbom proximity theory.

The higher proficiency group proved most sensitive to agreement error types, scoring slightly lower than the native speaker group. The lower proficiency group was less sensitive than the other groups. If we focus on the lower proficiency group, how might cross linguistic influence account for the reduced sensitivity to the other English speakers? As with the adverb error sentences, we must consult the theoretical paradigms of transfer theory. While the perceived distance theory might account for the case of adverb placement, Ringbom's (1987) theory on proximity might explain the lower proficiency groups results on the agreement error sentences. Ringbom's theory is diametrically opposed to the perceived distance theory argued by Kellerman in that it states that the greater the proximity (less distance) between the L1 and the L2, the less negative transfer, or interference will occur in the acquisition process. This claim is also argued by Foley and Flynn's (2014) Contrastive Analysis theory in their discussion of transfer. As specified in the theory chapter, Norwegian has no equivalent of the English requirement for agreement inflection. This means that there is a distinct difference between native Norwegian speakers L1 and their L2 (English). According to Ringbom and Foley & Flynn, this difference (lack of proximity) would be potential source of negative transfer leading to errors and would to some extent explain why the lower proficiency speakers would struggle more in identifying and reacting to these errors.

Why was the higher proficiency group more sensitive than the native speakers? The prevailing idea in language acquisition is that Kellermans perceived distance theory and Ringbom's claim about the importance of proximity are both valid in the second language acquisition process. The theory is that proximity is important early in the acquisition process, it helps the learner lean on their knowledge of their L1, and to draw on similarities to form a foundation upon which to build their L2 competence. Meanwhile, as the learner matures, their metalinguistic awareness levels evolve as well; they are able to consciously observe, register, and use the differences between L1 and L2 to make observations and remember what is different from their L1 to the L2.

5.5 Reliability and validity

5.5.1 Lower Proficiency group

As mentioned in the initial description of the group. The lower proficiency group was recruited from a high-school with above average admission requirements. This results in a student pool which performs above average in many academic disciplines. Many of these students have a higher degree of metalinguistic awareness and English proficiency than their peers and may as such create an artificially high level of performance on the judgement tasks used in this study. It is possible one may observe different scores if the survey was repeated using a different school for recruitment. One might therefore argue that the lower proficiency group used in this study affects reliability.

5.5.2 Higher proficiency group

The higher proficiency group was recruited from BA and MA level English courses at NTNU. Many of whom are embarked on the teacher-training program. In addition to having a high degree of proficiency and competence in English grammar and language, many of them are used to actively look for errors in English utterances as part of their professional education. This might have influenced the average scores given to different sentence types. Many of them have experience from the English SLA classroom and are used to the type of errors often conducted by Norwegian L2 speakers of English which were the target errors of this study. This might affect the reliability of the survey. Conversely, a highly proficient L2 speaker will in most cases be sensitive to grammatical errors, as they would have had to adhere to explicit rules as part of their formal instruction on the language, so I would argue that error sensitivity is a natural trait of the highly proficient L2 speaker of any language.

5.6 Methodological strengths and weaknesses.

There are some limitations to the method and approach of this study that must be addressed. The first limitation I would like to mention is the absence of any proficiency test to clearly assign the participants to the different groups. At the onset of the study, the notion was that the clear recruitment process (one group from high school, one group from university, and one group of native speakers) would result in a clear difference in competence and metalinguistic awareness. After observing the lower proficiency group, it is clear that several of the participants could have been placed in the lower proficiency group as they were clearly well

above the average of their peers. A proficiency test would have detected this and would probably have an effect on the results of the study. Conversely, grouping the participants by category rather than test scores allowed me to investigate age as a factor, which is an important tenet in the discussion of the importance of distance versus proximity between L1 and L2.

The second acknowledgement I am going to make is that the entire selection of groups were in fact, highly proficient speakers of English. It would have been interesting to observe how younger/less proficient L2 speakers would have scored in relation to the native speakers high ratings of adverb sentences for example. This could have provided evidence of whether the Norwegian word order would interfere with their sensitivity to SAVO sentences. However, as discussed in chapter 3, acceptability tasks might be construed as hard for the average middle school student, as the task both involves having the awareness to spot errors but also the competence awareness to essentially “rate” the sentence. In conclusion to this, I stand by my choice of subject groups, even though this likely has influenced the results.

When it comes to the strengths of the study, there are also several things to comment. The quality of the stimuli is something I consider a strength to the study. The sentence selection is simultaneously varied and specific (See APENDIX A). With 10 sentences for each error type, the study was able to get the average rating of sentences using a broad range of different adverbs and verbs, recreating a realistic representation of English utterances for the participants to react to. Another strength of the study worth mentioning is a large participant pool. 114 participants reacted to the 60 sentences, allowing me to analyze a large number of average ratings. This helps compensate for higher extremal ratings and statistical outliers for each group, as can be seen in some instances for all three groups. The large group sizes permitted me to get representable averages for each speaker category (lower proficiency, higher proficiency, and native speaker).

5.7 Further research

Based on the limitations discussed in the previous subchapter, there are several topics and approaches which would help expand on the findings of this study. In the following subchapters I will address some of the possible areas of interest for future research.

5.7.1. Bilingualism and acceptability ratings

In addition to speaker proficiency, the study also gathered data on speakers language background in terms of whether the speaker was monolingual or bilingual. The data on the language background of the participants proved too limited to form any conclusions. The

hypothesis was that the bilinguals would differentiate less from native speakers in the judgement of English sentences than monolingual Norwegians. The theory behind this is that bilinguals would be less impacted by cross linguistic influence, as the hierarchy of L1 and L2 is not as prevalent as it is for L2 speakers. An independent t-test was carried out for monolingual and bilingual average ratings for each sentence type for each group. The analysis showed no statistically significant difference between monolingual and bilingual speakers for any of the sentence types for any of the groups. Even if this was not the case, the data would have been discarded. The sample size was deemed too small (N=15/48, lower proficiency group, N=2/32, higher proficiency group, and N=3/34, native speakers group) to form any sort of conclusion about the general pattern concerning the role of cross linguistic influence on monolingual versus bilingual speakers. Furthermore, there was no way for the researcher to ensure that the participants answered in earnest on the language background question, and the high number of reported bilinguals for the lower proficiency groups indicated that some participants might have misunderstood the question. The exploration of bilingualism and cross linguistic influence is one I leave for future research on the topic.

5.7.2. Experimental studies on error processing

This aim of this study was to explore speaker sensitivity to different language errors. The choice of approach and the scope of this project meant there was little opportunity to go into greater depth as to the processing of these errors. An experimental study using eye-tracking equipment might produce more in-depth data about the English speaker groups and how the errors are registered, processed, and how distracting they are to the speaker's processing of specific utterances. This might provide deeper data on the native speaker groups lower sensitivity to syntax errors, or the lower proficiency groups lower sensitivity to morphological/agreement errors. Supplementing the findings on sensitivity to errors with quantitative experimental data would allow more detailed insight into the nature of the role of metalinguistic awareness and the interplay between L1 and L2.

5.6.3. Differences in sensitivity to syntax irregularities: British and American English

In the discussion about the native speaker groups' apparent low sensitivity to syntax variations, an exploration was made into what might cause this. Two native English speakers of British origin were contacted, and they both immediately rejected the V2 pattern used in the erroneous adverb placement sentences. This might suggest that British native speakers are more conservative, and that native speakers of US origin are more relaxed, as the native speaker group was composed by a mix of both. I concede that the data selection for this is by no means sufficient to draw a conclusion, but there is a trend this might propose. Future research could focus on whether L1 speakers differ in their sensitivity to variations in syntax. By focusing explicitly on language background/origin, this might provide an explanation to the findings of this study, as well as uncover trends about attitudes towards language by different L1 speakers.

6. Conclusion

This study set out to explore speaker sensitivity to a specific set of grammatical errors across groups of different English speakers. The expectations going into the study were that the speakers would prove more sensitive to the ‘quicker’ morphological errors (tense/agreement) than the ‘slower’ syntactical errors (adverb placement errors). Evidence suggests that this proved to be the case, as the errors related to morphology generally elicited a lower average score than the errors related to syntax. The native speakers proved the least sensitive to the adverb errors. This could be explained by Kellermans perceived distance theory. The L2 speakers have noticed the distance between their L1 and the target L2 in the acquisition process and draw on their metalinguistic awareness to register and respond to the erroneously placed adverbial. An interesting finding from the tense error sentences was that the L2 groups proved more sensitive to irregular tense errors than regular ones, whereas the native speakers showed no difference between the two. This might be explained by the storage of inflected forms with significant difference from its root, which is the case for many irregular verbs in the past tense. The lower proficiency group proved significantly less sensitive to subject verb agreement errors, suggesting that this is the most vulnerable domain for Norwegians learning English as an L2. This might be explained by a lack of proximity between L1 and the target L2 in terms of the requirement for agreement inflection between subject and finite verbs. Ringbom argues that the greater the proximity between the L1 and the L2 are, the easier it is for the learner to acquire the necessary grammatical knowledge. This might explain why the lower proficiency speakers, the youngest of the three groups of the study struggled more with the requirement for agreement inflection, something not found in their L1.

Furthermore, the expectation was that the higher proficiency group would approximate the native speaker group’s sensitivity to errors. The result from this study suggests that the higher proficiency L2 speakers were in fact more sensitive than the L1 native speakers to all error types. The native speaker group proved more sensitive to correct sentences, with a higher average score and lower internal variation when giving acceptability ratings to grammatical sentences. This could be explained by their native-level competence, allowing them to quickly register, process and determine a grammatical sentence. This theory would benefit from an experimental study in the form of eye tracking or MRI to further investigate the issue. Lastly, the lower proficiency group proved to approximate the other groups with the exception of in their sensitivity to agreement errors. This is not in line with expectations. The lower

proficiency did, in most cases, display the highest internal variation in the ratings, which was in line with initial expectations.

In conclusion, the results from this study suggest that native speakers are not as sensitive to syntax errors in the form of erroneous adverb placement as L2 speakers and that morphological errors generally elicit a more negative response than syntax errors. Several theories might explain this. The results from this study seem to agree with the prevailing paradigm of the importance of distance/proximity between 'L1 and L2' in transfer theory. In younger learners (the lower proficiency group) proximity between L1 and L2 is important, whereas more mature and proficient learners (the higher proficiency group) the distance between L1 and L2 might actually serve as helpful tool in the acquisition process. More study is needed on the subject, and it is my personal recommendation that experimental studies on the relationship between bilingualism and error sensitivity as well as psycholinguistic studies (MRI, EEG, Eye-tracking) on the registering and processing of the errors explored in this study.

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Appendix A Sentence bank

| Sentence # | Sentence type | Sentence |
|------------|-----------------|--|
| 1 | Adverb Error | He plays often football. |
| 2 | Adverb Error | Susan runs always on Tuesdays. |
| 3 | Adverb Error | John watches sometimes old movies. |
| 4 | Adverb Error | Christine likes certainly chocolate cake. |
| 5 | Adverb Error | Steven takes probably the bus to work. |
| 6 | Adverb Error | My boss wants clearly to quit his job. |
| 7 | Adverb Error | I lost almost my balance crossing the narrow bridge. |
| 8 | Adverb Error | Josh dines never at the same restaurant twice. |
| 9 | Adverb Error | I order rarely things from online stores. |
| 10 | Adverb Error | My brother became suddenly interested in horses. |
| 11 | Tense Error | Last week, I start cleaning in my garden. |
| 12 | Tense Error | In 1986, the nuclear reactor in Chernobyl explode. |
| 13 | Tense Error | In the second World War, Japan attack the American fleet at Pearl harb |
| 14 | Tense Error | Winston Churchill serve as prime minister during The War. |
| 15 | Tense Error | Last year air pollution decrease due to the pandemic. |
| 16 | Tense Error | The mailman bring the package last Wednesday. |
| 17 | Tense Error | The moose swim to the other side of the lake last night. |
| 18 | Tense Error | I stand outside the shop for over three hours before it opened. |
| 19 | Tense Error | Jane and Tom come over for dinner yesterday. |
| 20 | Tense Error | Catherine run the New York Marathon in 2014. |
| 21 | Agreement Error | Every Tuesday she ride her bike to the lake and back. |
| 22 | Agreement Error | We keeps going back to the same restaurant . |
| 23 | Agreement Error | John talk on the phone a lot. |
| 24 | Agreement Error | Susan eat at the same restaurant every weekend. |
| 25 | Agreement Error | Christine bake a cake every Friday. |
| 26 | Agreement Error | I enjoys bluegrass music. |
| 27 | Agreement Error | You always walks so quickly. |
| 28 | Agreement Error | Steven like to drive his new car to work. |
| 29 | Agreement Error | The children reads at a very high level. |
| 30 | Agreement Error | The construction workers stays at the local hotel. |
| 31 | Correct Adverb | Kate sometimes listens to her father's records. |
| 32 | Correct Adverb | Peter usually drinks three cups of coffee a day. |
| 33 | Correct Adverb | The sun always sets in the west. |
| 34 | Correct Adverb | The staffing shortage probably caused the late arrival. |
| 35 | Correct Adverb | I almost put salt instead of sugar in my coffee. |
| 36 | Correct Adverb | Joe rarely uses his car to get to work. |
| 37 | Correct Adverb | Germany clearly played better than Brazil in the World Cup match. |
| 38 | Correct Adverb | I certainly thought that Usain Bolt would win the sprint. |
| 39 | Correct Adverb | The Dutch National team traditionally wears orange jerseys. |

| | | |
|----|-------------------|--|
| 40 | Correct Adverb | They finally found the remote control after looking under the sofa. |
| 41 | Correct Tense | I felt like I was punched in the stomach. |
| 42 | Correct Tense | She forgot where she put the remote. |
| 43 | Correct Tense | They gave me until noon to move my car out of the street. |
| 44 | Correct Tense | Last winter, the lake froze to a depth of three feet. |
| 45 | Correct Tense | He hung his coat on the rack by the door. |
| 46 | Correct Tense | They accepted my application. |
| 47 | Correct Tense | Spain challenged Britain's naval supremacy. |
| 48 | Correct Tense | The teacher was interrupted by the fire alarm. |
| 49 | Correct Tense | It rained for three days and three nights. |
| 50 | Correct Tense | We warned you that there would be consequences |
| 51 | Correct Agreement | Sofia keeps saving money for her trip to Australia. |
| 52 | Correct Agreement | I do not believe that textbooks should be completely removed from schools. |
| 53 | Correct Agreement | They prefer watching movies on Friday nights. |
| 54 | Correct Agreement | We chat a lot on Skype. |
| 55 | Correct Agreement | She works hard to finish her assignment. |
| 56 | Correct Agreement | My computer crashes on a daily basis. |
| 57 | Correct Agreement | Dogs need more exercise than people think. |
| 58 | Correct Agreement | We make pizza every Friday after football practice. |
| 59 | Correct Agreement | He thinks you are being too strict. |
| 60 | Correct Agreement | Andrew sells farming equipment for a living. |

Appendix B – Survey excerpt

Included are information writes about data collection, consent, biological data and examples of acceptability rating questions from the survey used in the study.

Information about data collection and handling

The information gathered in this survey is anonymous.

1.

None of the data collected in this survey can be related to a specific individual, as none of the data is specific enough to reveal any given participant's identity.

No names, dates of birth, or other biological data which may be used to identify you as an individual will be collected.

2. The data is going to be stored and processed with considerations to security and ethical guidelines to ensure your privacy. This means that:

- The data will be stored on a very restricted selection of devices,
- The data will only be seen by the researchers responsible for the project

3. The data will be coded throughout the processing and analysis making it impossible to connect any of the data to any specific individual.

Obligatoriske felter er merket med stjerner *

Consent to data collection and analysis *

The data collected in this survey will be used in a student project under the supervision of the institute of language and literature under the humanistic faculty at NTNU, Trondheim. The information gathered will be used in a study on language processing and language acquisition, to be written over the course of 2021 and 2022.

By clicking agree, you are giving your consent that the researcher can use the data collected in the survey in the project.

Click "disagree" to withdraw your participation from the survey.

In the box below you can find information about the data being collected and how your participation will be 100% anonymous.

What is your age? *

Write your age in numbers.

Please state your sex *

Language Background *

Please answer **truthfully** what best represents your language background.

In this survey, the term *bilingual* in option B and D is used when growing up speaking more than one language. If you for example are a native speaker of Norwegian who have learned English in school it is not the same as being *bilingual* in this context.

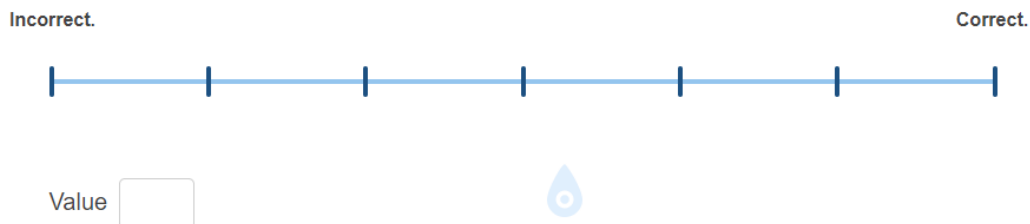
- A. Native speaker of English
- B. Native speaker of English speaking other languages at home (Bilingual)
- C. Native speaker of Norwegian
- D. Native speaker of Norwegian speaking other languages at home (Bilingual)

You will now be presented with a selection of 60 English sentences.

Your task is to rate how acceptable the sentences are on a scale from 1 (not acceptable) to 7 (acceptable). The score you give the sentence is displayed as "value" below the scale. We are interested in how acceptable you find this sentence, so please do not hesitate to state your opinion. You will not be graded or given a score after submitting.

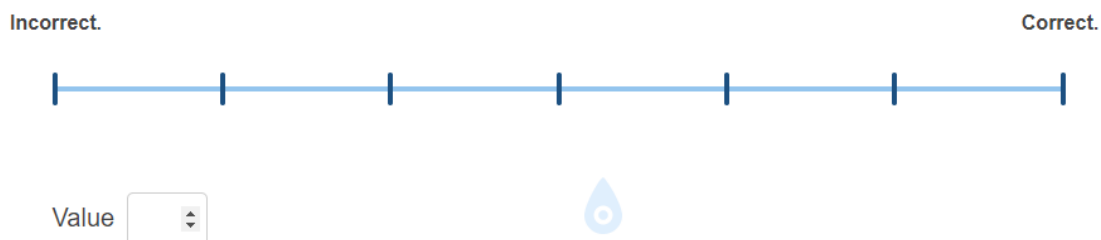
1. Is this an acceptable English sentence? Please rate this sentence on a scale from 1 (not acceptable) - 7 (acceptable). *

We chat a lot on Skype.



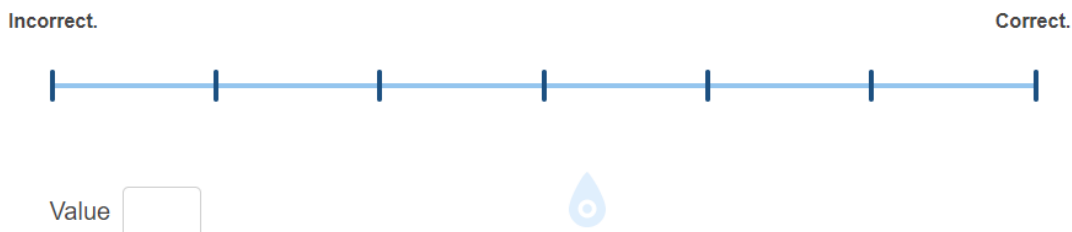
6. Is this an acceptable English sentence? Please rate this sentence on a scale from 1 (not acceptable) - 7 (acceptable). *

I enjoys bluegrass music.



2. Is this an acceptable English sentence? Please rate this sentence on a scale from 1 (not acceptable) - 7 (acceptable). *

Winston Churchill serve as prime minister during The War.



Appendix C results

Results: Average score for each sentence type for each of the 114 participants. This table was used as a basis for all statistical analysis in IBM SPSS.

| Obs | Subj | Group | Condition | Score |
|-----|------|-------|-----------|-------|
| 1 | S01 | G1 | EA | 2,20 |
| 2 | S01 | G1 | ET | 1,30 |
| 3 | S01 | G1 | EI | 4,00 |
| 4 | S01 | G1 | CA | 4,60 |
| 5 | S01 | G1 | CT | 5,50 |
| 6 | S01 | G1 | CI | 4,10 |
| 7 | S02 | G1 | EA | 2,00 |
| 8 | S02 | G1 | ET | 2,00 |
| 9 | S02 | G1 | EI | 3,40 |
| 10 | S02 | G1 | CA | 6,50 |
| 11 | S02 | G1 | CT | 6,50 |
| 12 | S02 | G1 | CI | 6,60 |
| 13 | S03 | G1 | EA | 1,40 |
| 14 | S03 | G1 | ET | 1,60 |
| 15 | S03 | G1 | EI | 1,30 |
| 16 | S03 | G1 | CA | 6,70 |
| 17 | S03 | G1 | CT | 6,30 |
| 18 | S03 | G1 | CI | 5,90 |
| 19 | S04 | G1 | EA | 1,60 |
| 20 | S04 | G1 | ET | 1,20 |
| 21 | S04 | G1 | EI | 3,10 |
| 22 | S04 | G1 | CA | 4,70 |
| 23 | S04 | G1 | CT | 4,80 |
| 24 | S04 | G1 | CI | 6,70 |
| 25 | S05 | G1 | EA | 3,20 |
| 26 | S05 | G1 | ET | 4,20 |
| 27 | S05 | G1 | EI | 5,30 |
| 28 | S05 | G1 | CA | 6,40 |
| 29 | S05 | G1 | CT | 6,80 |
| 30 | S05 | G1 | CI | 6,70 |
| 31 | S06 | G1 | EA | 3,50 |
| 32 | S06 | G1 | ET | 1,20 |
| 33 | S06 | G1 | EI | 1,10 |
| 34 | S06 | G1 | CA | 5,10 |
| 35 | S06 | G1 | CT | 6,00 |
| 36 | S06 | G1 | CI | 6,30 |
| 37 | S07 | G1 | EA | 2,10 |

Appendix C – Participant results

| | | | | |
|----|-----|----|----|------|
| 38 | S07 | G1 | ET | 1,00 |
| 39 | S07 | G1 | EI | 1,60 |
| 40 | S07 | G1 | CA | 6,90 |
| 41 | S07 | G1 | CT | 6,40 |
| 42 | S07 | G1 | CI | 6,40 |
| 43 | S08 | G1 | EA | 1,20 |
| 44 | S08 | G1 | ET | 1,90 |
| 45 | S08 | G1 | EI | 1,00 |
| 46 | S08 | G1 | CA | 5,00 |
| 47 | S08 | G1 | CT | 5,70 |
| 48 | S08 | G1 | CI | 5,80 |
| 49 | S09 | G1 | EA | 1,00 |
| 50 | S09 | G1 | ET | 1,00 |
| 51 | S09 | G1 | EI | 1,00 |
| 52 | S09 | G1 | CA | 7,00 |
| 53 | S09 | G1 | CT | 7,00 |
| 54 | S09 | G1 | CI | 7,00 |
| 55 | S10 | G1 | EA | 1,00 |
| 56 | S10 | G1 | ET | 1,00 |
| 57 | S10 | G1 | EI | 1,00 |
| 58 | S10 | G1 | CA | 5,60 |
| 59 | S10 | G1 | CT | 6,70 |
| 60 | S10 | G1 | CI | 6,30 |
| 61 | S11 | G1 | EA | 2,50 |
| 62 | S11 | G1 | ET | 2,20 |
| 63 | S11 | G1 | EI | 2,40 |
| 64 | S11 | G1 | CA | 5,50 |
| 65 | S11 | G1 | CT | 6,30 |
| 66 | S11 | G1 | CI | 6,20 |
| 67 | S12 | G1 | EA | 2,20 |
| 68 | S12 | G1 | ET | 2,10 |
| 69 | S12 | G1 | EI | 2,90 |
| 70 | S12 | G1 | CA | 5,90 |
| 71 | S12 | G1 | CT | 6,50 |
| 72 | S12 | G1 | CI | 6,90 |
| 73 | S13 | G1 | EA | 1,70 |
| 74 | S13 | G1 | ET | 2,40 |
| 75 | S13 | G1 | EI | 3,60 |
| 76 | S13 | G1 | CA | 5,70 |
| 77 | S13 | G1 | CT | 6,50 |
| 78 | S13 | G1 | CI | 5,50 |
| 79 | S14 | G1 | EA | 2,90 |
| 80 | S14 | G1 | ET | 3,00 |

| | | | | |
|-----|-----|----|----|------|
| 81 | S14 | G1 | EI | 2,70 |
| 82 | S14 | G1 | CA | 5,30 |
| 83 | S14 | G1 | CT | 4,90 |
| 84 | S14 | G1 | CI | 6,40 |
| 85 | S15 | G1 | EA | 1,60 |
| 86 | S15 | G1 | ET | 1,60 |
| 87 | S15 | G1 | EI | 1,90 |
| 88 | S15 | G1 | CA | 6,10 |
| 89 | S15 | G1 | CT | 5,90 |
| 90 | S15 | G1 | CI | 5,80 |
| 91 | S16 | G1 | EA | 1,30 |
| 92 | S16 | G1 | ET | 1,30 |
| 93 | S16 | G1 | EI | 1,20 |
| 94 | S16 | G1 | CA | 5,20 |
| 95 | S16 | G1 | CT | 5,80 |
| 96 | S16 | G1 | CI | 5,20 |
| 97 | S17 | G1 | EA | 2,30 |
| 98 | S17 | G1 | ET | 2,10 |
| 99 | S17 | G1 | EI | 3,10 |
| 100 | S17 | G1 | CA | 4,80 |
| 101 | S17 | G1 | CT | 4,70 |
| 102 | S17 | G1 | CI | 5,30 |
| 103 | S18 | G1 | EA | 1,60 |
| 104 | S18 | G1 | ET | 2,10 |
| 105 | S18 | G1 | EI | 3,90 |
| 106 | S18 | G1 | CA | 6,50 |
| 107 | S18 | G1 | CT | 7,00 |
| 108 | S18 | G1 | CI | 6,80 |
| 109 | S19 | G1 | EA | 1,40 |
| 110 | S19 | G1 | ET | 1,00 |
| 111 | S19 | G1 | EI | 1,00 |
| 112 | S19 | G1 | CA | 6,80 |
| 113 | S19 | G1 | CT | 6,80 |
| 114 | S19 | G1 | CI | 6,30 |
| 115 | S20 | G1 | EA | 1,70 |
| 116 | S20 | G1 | ET | 1,00 |
| 117 | S20 | G1 | EI | 1,60 |
| 118 | S20 | G1 | CA | 5,70 |
| 119 | S20 | G1 | CT | 6,90 |
| 120 | S20 | G1 | CI | 6,60 |
| 121 | S21 | G1 | EA | 1,60 |
| 122 | S21 | G1 | ET | 2,20 |
| 123 | S21 | G1 | EI | 1,00 |

| | | | | |
|-----|-----|----|----|------|
| 124 | S21 | G1 | CA | 7,00 |
| 125 | S21 | G1 | CT | 7,00 |
| 126 | S21 | G1 | CI | 7,00 |
| 127 | S22 | G1 | EA | 3,00 |
| 128 | S22 | G1 | ET | 4,20 |
| 129 | S22 | G1 | EI | 3,60 |
| 130 | S22 | G1 | CA | 6,60 |
| 131 | S22 | G1 | CT | 6,60 |
| 132 | S22 | G1 | CI | 6,80 |
| 133 | S23 | G1 | EA | 3,00 |
| 134 | S23 | G1 | ET | 2,90 |
| 135 | S23 | G1 | EI | 2,20 |
| 136 | S23 | G1 | CA | 7,00 |
| 137 | S23 | G1 | CT | 6,60 |
| 138 | S23 | G1 | CI | 6,60 |
| 139 | S24 | G1 | EA | 2,80 |
| 140 | S24 | G1 | ET | 2,00 |
| 141 | S24 | G1 | EI | 4,60 |
| 142 | S24 | G1 | CA | 6,90 |
| 143 | S24 | G1 | CT | 6,50 |
| 144 | S24 | G1 | CI | 6,20 |
| 145 | S25 | G1 | EA | 1,40 |
| 146 | S25 | G1 | ET | 1,20 |
| 147 | S25 | G1 | EI | 1,30 |
| 148 | S25 | G1 | CA | 6,10 |
| 149 | S25 | G1 | CT | 6,50 |
| 150 | S25 | G1 | CI | 6,30 |
| 151 | S26 | G1 | EA | 3,20 |
| 152 | S26 | G1 | ET | 1,10 |
| 153 | S26 | G1 | EI | 2,50 |
| 154 | S26 | G1 | CA | 5,70 |
| 155 | S26 | G1 | CT | 6,20 |
| 156 | S26 | G1 | CI | 6,80 |
| 157 | S27 | G1 | EA | 1,00 |
| 158 | S27 | G1 | ET | 2,50 |
| 159 | S27 | G1 | EI | 2,70 |
| 160 | S27 | G1 | CA | 5,10 |
| 161 | S27 | G1 | CT | 5,20 |
| 162 | S27 | G1 | CI | 5,40 |
| 163 | S28 | G1 | EA | 2,80 |
| 164 | S28 | G1 | ET | 1,60 |
| 165 | S28 | G1 | EI | 3,00 |
| 166 | S28 | G1 | CA | 6,80 |

Appendix C – Participant results

| | | | | |
|-----|-----|----|----|------|
| 167 | S28 | G1 | CT | 6,40 |
| 168 | S28 | G1 | CI | 7,00 |
| 169 | S29 | G1 | EA | 1,30 |
| 170 | S29 | G1 | ET | 2,20 |
| 171 | S29 | G1 | EI | 2,40 |
| 172 | S29 | G1 | CA | 5,30 |
| 173 | S29 | G1 | CT | 6,00 |
| 174 | S29 | G1 | CI | 5,00 |
| 175 | S30 | G1 | EA | 1,60 |
| 176 | S30 | G1 | ET | 1,60 |
| 177 | S30 | G1 | EI | 2,30 |
| 178 | S30 | G1 | CA | 6,90 |
| 179 | S30 | G1 | CT | 5,70 |
| 180 | S30 | G1 | CI | 4,90 |
| 181 | S31 | G1 | EA | 1,50 |
| 182 | S31 | G1 | ET | 2,00 |
| 183 | S31 | G1 | EI | 3,30 |
| 184 | S31 | G1 | CA | 4,50 |
| 185 | S31 | G1 | CT | 4,70 |
| 186 | S31 | G1 | CI | 5,70 |
| 187 | S32 | G1 | EA | 1,80 |
| 188 | S32 | G1 | ET | 2,50 |
| 189 | S32 | G1 | EI | 2,70 |
| 190 | S32 | G1 | CA | 6,50 |
| 191 | S32 | G1 | CT | 6,70 |
| 192 | S32 | G1 | CI | 6,20 |
| 193 | S33 | G1 | EA | 1,90 |
| 194 | S33 | G1 | ET | 3,30 |
| 195 | S33 | G1 | EI | 4,70 |
| 196 | S33 | G1 | CA | 5,10 |
| 197 | S33 | G1 | CT | 5,30 |
| 198 | S33 | G1 | CI | 5,60 |
| 199 | S34 | G1 | EA | 1,60 |
| 200 | S34 | G1 | ET | 1,80 |
| 201 | S34 | G1 | EI | 1,10 |
| 202 | S34 | G1 | CA | 4,70 |
| 203 | S34 | G1 | CT | 6,10 |
| 204 | S34 | G1 | CI | 5,50 |
| 205 | S35 | G1 | EA | 2,30 |
| 206 | S35 | G1 | ET | 2,40 |
| 207 | S35 | G1 | EI | 5,40 |
| 208 | S35 | G1 | CA | 5,60 |
| 209 | S35 | G1 | CT | 6,10 |

| | | | | |
|-----|-----|----|----|------|
| 210 | S35 | G1 | CI | 5,60 |
| 211 | S36 | G1 | EA | 1,10 |
| 212 | S36 | G1 | ET | 1,30 |
| 213 | S36 | G1 | EI | 2,30 |
| 214 | S36 | G1 | CA | 5,40 |
| 215 | S36 | G1 | CT | 5,50 |
| 216 | S36 | G1 | CI | 5,90 |
| 217 | S37 | G1 | EA | 1,80 |
| 218 | S37 | G1 | ET | 2,50 |
| 219 | S37 | G1 | EI | 4,50 |
| 220 | S37 | G1 | CA | 4,00 |
| 221 | S37 | G1 | CT | 5,00 |
| 222 | S37 | G1 | CI | 5,90 |
| 223 | S38 | G1 | EA | 3,40 |
| 224 | S38 | G1 | ET | 1,60 |
| 225 | S38 | G1 | EI | 2,20 |
| 226 | S38 | G1 | CA | 5,90 |
| 227 | S38 | G1 | CT | 6,10 |
| 228 | S38 | G1 | CI | 6,90 |
| 229 | S39 | G1 | EA | 1,60 |
| 230 | S39 | G1 | ET | 1,60 |
| 231 | S39 | G1 | EI | 1,00 |
| 232 | S39 | G1 | CA | 6,50 |
| 233 | S39 | G1 | CT | 6,30 |
| 234 | S39 | G1 | CI | 6,30 |
| 235 | S40 | G1 | EA | 3,40 |
| 236 | S40 | G1 | ET | 3,10 |
| 237 | S40 | G1 | EI | 3,90 |
| 238 | S40 | G1 | CA | 6,30 |
| 239 | S40 | G1 | CT | 6,50 |
| 240 | S40 | G1 | CI | 6,30 |
| 241 | S41 | G1 | EA | 1,90 |
| 242 | S41 | G1 | ET | 1,60 |
| 243 | S41 | G1 | EI | 1,00 |
| 244 | S41 | G1 | CA | 6,40 |
| 245 | S41 | G1 | CT | 6,00 |
| 246 | S41 | G1 | CI | 7,00 |
| 247 | S42 | G1 | EA | 1,70 |
| 248 | S42 | G1 | ET | 2,10 |
| 249 | S42 | G1 | EI | 2,20 |
| 250 | S42 | G1 | CA | 5,10 |
| 251 | S42 | G1 | CT | 5,30 |
| 252 | S42 | G1 | CI | 5,90 |

Appendix C – Participant results

| | | | | |
|-----|-----|----|----|------|
| 253 | S43 | G1 | EA | 2,60 |
| 254 | S43 | G1 | ET | 1,00 |
| 255 | S43 | G1 | EI | 1,00 |
| 256 | S43 | G1 | CA | 6,00 |
| 257 | S43 | G1 | CT | 6,40 |
| 258 | S43 | G1 | CI | 7,00 |
| 259 | S44 | G1 | EA | 3,60 |
| 260 | S44 | G1 | ET | 1,10 |
| 261 | S44 | G1 | EI | 2,60 |
| 262 | S44 | G1 | CA | 4,20 |
| 263 | S44 | G1 | CT | 4,70 |
| 264 | S44 | G1 | CI | 5,20 |
| 265 | S45 | G1 | EA | 1,30 |
| 266 | S45 | G1 | ET | 1,30 |
| 267 | S45 | G1 | EI | 1,70 |
| 268 | S45 | G1 | CA | 6,30 |
| 269 | S45 | G1 | CT | 5,70 |
| 270 | S45 | G1 | CI | 6,60 |
| 271 | S46 | G1 | EA | 2,30 |
| 272 | S46 | G1 | ET | 1,50 |
| 273 | S46 | G1 | EI | 4,40 |
| 274 | S46 | G1 | CA | 5,20 |
| 275 | S46 | G1 | CT | 5,40 |
| 276 | S46 | G1 | CI | 6,20 |
| 277 | S47 | G1 | EA | 2,60 |
| 278 | S47 | G1 | ET | 2,70 |
| 279 | S47 | G1 | EI | 3,30 |
| 280 | S47 | G1 | CA | 6,30 |
| 281 | S47 | G1 | CT | 6,20 |
| 282 | S47 | G1 | CI | 6,10 |
| 283 | S48 | G1 | EA | 4,50 |
| 284 | S48 | G1 | ET | 3,80 |
| 285 | S48 | G1 | EI | 4,00 |
| 286 | S48 | G1 | CA | 5,20 |
| 287 | S48 | G1 | CT | 5,40 |
| 288 | S48 | G1 | CI | 5,60 |
| 289 | S49 | G2 | EA | 1,00 |
| 290 | S49 | G2 | ET | 1,40 |
| 291 | S49 | G2 | EI | 2,70 |
| 292 | S49 | G2 | CA | 5,60 |
| 293 | S49 | G2 | CT | 6,20 |
| 294 | S49 | G2 | CI | 5,50 |
| 295 | S50 | G2 | EA | 1,10 |

| | | | | |
|-----|-----|----|----|------|
| 296 | S50 | G2 | ET | 1,00 |
| 297 | S50 | G2 | EI | 1,00 |
| 298 | S50 | G2 | CA | 6,90 |
| 299 | S50 | G2 | CT | 7,00 |
| 300 | S50 | G2 | CI | 6,90 |
| 301 | S51 | G2 | EA | 2,60 |
| 302 | S51 | G2 | ET | 1,20 |
| 303 | S51 | G2 | EI | 1,80 |
| 304 | S51 | G2 | CA | 5,70 |
| 305 | S51 | G2 | CT | 6,50 |
| 306 | S51 | G2 | CI | 6,10 |
| 307 | S52 | G2 | EA | 2,60 |
| 308 | S52 | G2 | ET | 2,40 |
| 309 | S52 | G2 | EI | 1,90 |
| 310 | S52 | G2 | CA | 5,90 |
| 311 | S52 | G2 | CT | 6,30 |
| 312 | S52 | G2 | CI | 6,20 |
| 313 | S53 | G2 | EA | 2,40 |
| 314 | S53 | G2 | ET | 3,40 |
| 315 | S53 | G2 | EI | 6,00 |
| 316 | S53 | G2 | CA | 7,00 |
| 317 | S53 | G2 | CT | 6,50 |
| 318 | S53 | G2 | CI | 6,60 |
| 319 | S54 | G2 | EA | 2,50 |
| 320 | S54 | G2 | ET | 1,40 |
| 321 | S54 | G2 | EI | 2,40 |
| 322 | S54 | G2 | CA | 6,20 |
| 323 | S54 | G2 | CT | 5,70 |
| 324 | S54 | G2 | CI | 5,70 |
| 325 | S55 | G2 | EA | 2,30 |
| 326 | S55 | G2 | ET | 1,00 |
| 327 | S55 | G2 | EI | 1,40 |
| 328 | S55 | G2 | CA | 5,90 |
| 329 | S55 | G2 | CT | 6,50 |
| 330 | S55 | G2 | CI | 6,60 |
| 331 | S56 | G2 | EA | 1,70 |
| 332 | S56 | G2 | ET | 1,50 |
| 333 | S56 | G2 | EI | 1,40 |
| 334 | S56 | G2 | CA | 5,70 |
| 335 | S56 | G2 | CT | 5,10 |
| 336 | S56 | G2 | CI | 5,60 |
| 337 | S57 | G2 | EA | 1,00 |
| 338 | S57 | G2 | ET | 1,10 |

Appendix C – Participant results

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|-----|-----|----|----|------|
| 339 | S57 | G2 | EI | 1,00 |
| 340 | S57 | G2 | CA | 6,80 |
| 341 | S57 | G2 | CT | 7,00 |
| 342 | S57 | G2 | CI | 7,00 |
| 343 | S58 | G2 | EA | 1,70 |
| 344 | S58 | G2 | ET | 1,00 |
| 345 | S58 | G2 | EI | 1,00 |
| 346 | S58 | G2 | CA | 6,90 |
| 347 | S58 | G2 | CT | 6,50 |
| 348 | S58 | G2 | CI | 6,90 |
| 349 | S59 | G2 | EA | 2,40 |
| 350 | S59 | G2 | ET | 2,00 |
| 351 | S59 | G2 | EI | 3,80 |
| 352 | S59 | G2 | CA | 7,00 |
| 353 | S59 | G2 | CT | 7,00 |
| 354 | S59 | G2 | CI | 7,00 |
| 355 | S60 | G2 | EA | 1,00 |
| 356 | S60 | G2 | ET | 1,00 |
| 357 | S60 | G2 | EI | 1,00 |
| 358 | S60 | G2 | CA | 7,00 |
| 359 | S60 | G2 | CT | 7,00 |
| 360 | S60 | G2 | CI | 7,00 |
| 361 | S61 | G2 | EA | 1,10 |
| 362 | S61 | G2 | ET | 1,00 |
| 363 | S61 | G2 | EI | 1,00 |
| 364 | S61 | G2 | CA | 4,60 |
| 365 | S61 | G2 | CT | 6,30 |
| 366 | S61 | G2 | CI | 6,30 |
| 367 | S62 | G2 | EA | 3,10 |
| 368 | S62 | G2 | ET | 3,00 |
| 369 | S62 | G2 | EI | 3,90 |
| 370 | S62 | G2 | CA | 7,00 |
| 371 | S62 | G2 | CT | 6,90 |
| 372 | S62 | G2 | CI | 6,30 |
| 373 | S63 | G2 | EA | 1,00 |
| 374 | S63 | G2 | ET | 2,20 |
| 375 | S63 | G2 | EI | 1,70 |
| 376 | S63 | G2 | CA | 5,40 |
| 377 | S63 | G2 | CT | 5,70 |
| 378 | S63 | G2 | CI | 6,80 |
| 379 | S64 | G2 | EA | 1,30 |
| 380 | S64 | G2 | ET | 1,20 |
| 381 | S64 | G2 | EI | 3,00 |

Appendix C – Participant results

| | | | | |
|-----|-----|----|----|------|
| 382 | S64 | G2 | CA | 6,10 |
| 383 | S64 | G2 | CT | 6,60 |
| 384 | S64 | G2 | CI | 6,30 |
| 385 | S65 | G2 | EA | 1,00 |
| 386 | S65 | G2 | ET | 1,00 |
| 387 | S65 | G2 | EI | 1,00 |
| 388 | S65 | G2 | CA | 7,00 |
| 389 | S65 | G2 | CT | 6,40 |
| 390 | S65 | G2 | CI | 5,80 |
| 391 | S66 | G2 | EA | 2,20 |
| 392 | S66 | G2 | ET | 2,00 |
| 393 | S66 | G2 | EI | 2,30 |
| 394 | S66 | G2 | CA | 5,70 |
| 395 | S66 | G2 | CT | 6,50 |
| 396 | S66 | G2 | CI | 6,60 |
| 397 | S67 | G2 | EA | 1,10 |
| 398 | S67 | G2 | ET | 1,20 |
| 399 | S67 | G2 | EI | 2,50 |
| 400 | S67 | G2 | CA | 5,20 |
| 401 | S67 | G2 | CT | 6,90 |
| 402 | S67 | G2 | CI | 6,80 |
| 403 | S68 | G2 | EA | 1,30 |
| 404 | S68 | G2 | ET | 1,20 |
| 405 | S68 | G2 | EI | 1,10 |
| 406 | S68 | G2 | CA | 6,30 |
| 407 | S68 | G2 | CT | 6,70 |
| 408 | S68 | G2 | CI | 6,70 |
| 409 | S69 | G2 | EA | 1,40 |
| 410 | S69 | G2 | ET | 1,70 |
| 411 | S69 | G2 | EI | 2,00 |
| 412 | S69 | G2 | CA | 5,90 |
| 413 | S69 | G2 | CT | 6,10 |
| 414 | S69 | G2 | CI | 6,30 |
| 415 | S70 | G2 | EA | 2,40 |
| 416 | S70 | G2 | ET | 1,00 |
| 417 | S70 | G2 | EI | 1,60 |
| 418 | S70 | G2 | CA | 6,50 |
| 419 | S70 | G2 | CT | 6,70 |
| 420 | S70 | G2 | CI | 7,00 |
| 421 | S71 | G2 | EA | 1,00 |
| 422 | S71 | G2 | ET | 1,00 |
| 423 | S71 | G2 | EI | 1,50 |
| 424 | S71 | G2 | CA | 6,40 |

| | | | | |
|-----|-----|----|----|-------|
| 425 | S71 | G2 | CT | 6,40 |
| 426 | S71 | G2 | CI | 6,10 |
| 427 | S72 | G2 | EA | 1,60 |
| 428 | S72 | G2 | ET | 1,00 |
| 429 | S72 | G2 | EI | 1,00 |
| 430 | S72 | G2 | CA | 6,00 |
| 431 | S72 | G2 | CT | 6,60 |
| 432 | S72 | G2 | CI | 6,00 |
| 433 | S73 | G2 | EA | 1,00 |
| 434 | S73 | G2 | ET | 1,30 |
| 435 | S73 | G2 | EI | 1,00 |
| 436 | S73 | G2 | CA | 5,50 |
| 437 | S73 | G2 | CT | 6,20 |
| 438 | S73 | G2 | CI | 6,30 |
| 439 | S74 | G2 | EA | 2,50 |
| 440 | S74 | G2 | ET | 1,80 |
| 441 | S74 | G2 | EI | 1,40 |
| 442 | S74 | G2 | CA | 6,40 |
| 443 | S74 | G2 | CT | 6,80 |
| 444 | S74 | G2 | CI | 6,90 |
| 445 | S75 | G2 | EA | 1,20 |
| 446 | S75 | G2 | ET | 1,10 |
| 447 | S75 | G2 | EI | 1,30 |
| 448 | S75 | G2 | CA | 6,30 |
| 449 | S75 | G2 | CT | 6,40 |
| 450 | S75 | G2 | CI | 6,30 |
| 451 | S76 | G2 | EA | 3,00 |
| 452 | S76 | G2 | ET | 2,10 |
| 453 | S76 | G2 | EI | 20,00 |
| 454 | S76 | G2 | CA | 6,20 |
| 455 | S76 | G2 | CT | 6,40 |
| 456 | S76 | G2 | CI | 6,50 |
| 457 | S77 | G2 | EA | 1,40 |
| 458 | S77 | G2 | ET | 1,00 |
| 459 | S77 | G2 | EI | 1,60 |
| 460 | S77 | G2 | CA | 5,10 |
| 461 | S77 | G2 | CT | 5,70 |
| 462 | S77 | G2 | CI | 6,30 |
| 463 | S78 | G2 | EA | 1,00 |
| 464 | S78 | G2 | ET | 1,00 |
| 465 | S78 | G2 | EI | 1,00 |
| 466 | S78 | G2 | CA | 5,20 |
| 467 | S78 | G2 | CT | 5,90 |

Appendix C – Participant results

| | | | | |
|-----|-----|----|----|------|
| 468 | S78 | G2 | CI | 6,80 |
| 469 | S79 | G2 | EA | 1,40 |
| 470 | S79 | G2 | ET | 1,60 |
| 471 | S79 | G2 | EI | 1,00 |
| 472 | S79 | G2 | CA | 5,00 |
| 473 | S79 | G2 | CT | 6,20 |
| 474 | S79 | G2 | CI | 6,70 |
| 475 | S80 | G2 | EA | 2,50 |
| 476 | S80 | G2 | ET | 2,10 |
| 477 | S80 | G2 | EI | 2,80 |
| 478 | S80 | G2 | CA | 5,90 |
| 479 | S80 | G2 | CT | 6,40 |
| 480 | S80 | G2 | CI | 6,00 |
| 481 | S81 | G3 | EA | 3,60 |
| 482 | S81 | G3 | ET | 4,00 |
| 483 | S81 | G3 | EI | 4,00 |
| 484 | S81 | G3 | CA | 6,50 |
| 485 | S81 | G3 | CT | 6,90 |
| 486 | S81 | G3 | CI | 6,90 |
| 487 | S82 | G3 | EA | 1,60 |
| 488 | S82 | G3 | ET | 1,60 |
| 489 | S82 | G3 | EI | 1,00 |
| 490 | S82 | G3 | CA | 6,40 |
| 491 | S82 | G3 | CT | 7,00 |
| 492 | S82 | G3 | CI | 7,00 |
| 493 | S83 | G3 | EA | 2,00 |
| 494 | S83 | G3 | ET | 2,40 |
| 495 | S83 | G3 | EI | 1,70 |
| 496 | S83 | G3 | CA | 6,70 |
| 497 | S83 | G3 | CT | 7,00 |
| 498 | S83 | G3 | CI | 6,60 |
| 499 | S84 | G3 | EA | 2,80 |
| 500 | S84 | G3 | ET | 4,30 |
| 501 | S84 | G3 | EI | 4,90 |
| 502 | S84 | G3 | CA | 6,80 |
| 503 | S84 | G3 | CT | 6,80 |
| 504 | S84 | G3 | CI | 7,00 |
| 505 | S85 | G3 | EA | 2,70 |
| 506 | S85 | G3 | ET | 1,20 |
| 507 | S85 | G3 | EI | 1,00 |
| 508 | S85 | G3 | CA | 6,90 |
| 509 | S85 | G3 | CT | 6,80 |
| 510 | S85 | G3 | CI | 6,60 |

Appendix C – Participant results

| | | | | |
|-----|-----|----|----|------|
| 511 | S86 | G3 | EA | 3,60 |
| 512 | S86 | G3 | ET | 4,20 |
| 513 | S86 | G3 | EI | 3,80 |
| 514 | S86 | G3 | CA | 6,90 |
| 515 | S86 | G3 | CT | 7,00 |
| 516 | S86 | G3 | CI | 7,00 |
| 517 | S87 | G3 | EA | 1,20 |
| 518 | S87 | G3 | ET | 1,00 |
| 519 | S87 | G3 | EI | 1,70 |
| 520 | S87 | G3 | CA | 7,00 |
| 521 | S87 | G3 | CT | 7,00 |
| 522 | S87 | G3 | CI | 7,00 |
| 523 | S88 | G3 | EA | 1,90 |
| 524 | S88 | G3 | ET | 1,60 |
| 525 | S88 | G3 | EI | 1,00 |
| 526 | S88 | G3 | CA | 6,10 |
| 527 | S88 | G3 | CT | 7,00 |
| 528 | S88 | G3 | CI | 6,00 |
| 529 | S89 | G3 | EA | 2,50 |
| 530 | S89 | G3 | ET | 1,60 |
| 531 | S89 | G3 | EI | 1,60 |
| 532 | S89 | G3 | CA | 6,90 |
| 533 | S89 | G3 | CT | 6,60 |
| 534 | S89 | G3 | CI | 6,80 |
| 535 | S90 | G3 | EA | 1,80 |
| 536 | S90 | G3 | ET | 1,00 |
| 537 | S90 | G3 | EI | 1,00 |
| 538 | S90 | G3 | CA | 6,90 |
| 539 | S90 | G3 | CT | 6,80 |
| 540 | S90 | G3 | CI | 6,00 |
| 541 | S91 | G3 | EA | 1,20 |
| 542 | S91 | G3 | ET | 1,00 |
| 543 | S91 | G3 | EI | 1,60 |
| 544 | S91 | G3 | CA | 6,90 |
| 545 | S91 | G3 | CT | 6,90 |
| 546 | S91 | G3 | CI | 7,00 |
| 547 | S92 | G3 | EA | 1,90 |
| 548 | S92 | G3 | ET | 1,60 |
| 549 | S92 | G3 | EI | 1,50 |
| 550 | S92 | G3 | CA | 6,50 |
| 551 | S92 | G3 | CT | 6,90 |
| 552 | S92 | G3 | CI | 6,10 |
| 553 | S93 | G3 | EA | 2,10 |

Appendix C – Participant results

| | | | | |
|-----|------|----|----|------|
| 554 | S93 | G3 | ET | 3,00 |
| 555 | S93 | G3 | EI | 2,50 |
| 556 | S93 | G3 | CA | 6,80 |
| 557 | S93 | G3 | CT | 6,90 |
| 558 | S93 | G3 | CI | 6,50 |
| 559 | S94 | G3 | EA | 1,90 |
| 560 | S94 | G3 | ET | 2,00 |
| 561 | S94 | G3 | EI | 1,90 |
| 562 | S94 | G3 | CA | 6,50 |
| 563 | S94 | G3 | CT | 6,50 |
| 564 | S94 | G3 | CI | 6,50 |
| 565 | S95 | G3 | EA | 2,00 |
| 566 | S95 | G3 | ET | 1,00 |
| 567 | S95 | G3 | EI | 1,00 |
| 568 | S95 | G3 | CA | 7,00 |
| 569 | S95 | G3 | CT | 7,00 |
| 570 | S95 | G3 | CI | 6,70 |
| 571 | S96 | G3 | EA | 1,60 |
| 572 | S96 | G3 | ET | 1,20 |
| 573 | S96 | G3 | EI | 1,00 |
| 574 | S96 | G3 | CA | 6,90 |
| 575 | S96 | G3 | CT | 6,00 |
| 576 | S96 | G3 | CI | 7,00 |
| 577 | S97 | G3 | EA | 4,40 |
| 578 | S97 | G3 | ET | 2,70 |
| 579 | S97 | G3 | EI | 2,00 |
| 580 | S97 | G3 | CA | 6,50 |
| 581 | S97 | G3 | CT | 6,60 |
| 582 | S97 | G3 | CI | 6,80 |
| 583 | S98 | G3 | EA | 2,80 |
| 584 | S98 | G3 | ET | 1,20 |
| 585 | S98 | G3 | EI | 1,20 |
| 586 | S98 | G3 | CA | 6,80 |
| 587 | S98 | G3 | CT | 6,90 |
| 588 | S98 | G3 | CI | 7,00 |
| 589 | S99 | G3 | EA | 3,70 |
| 590 | S99 | G3 | ET | 4,20 |
| 591 | S99 | G3 | EI | 5,00 |
| 592 | S99 | G3 | CA | 6,70 |
| 593 | S99 | G3 | CT | 7,00 |
| 594 | S99 | G3 | CI | 6,80 |
| 595 | S100 | G3 | EA | 4,00 |
| 596 | S100 | G3 | ET | 4,50 |

Appendix C – Participant results

| | | | | |
|-----|------|----|----|------|
| 597 | S100 | G3 | EI | 4,60 |
| 598 | S100 | G3 | CA | 6,80 |
| 599 | S100 | G3 | CT | 6,80 |
| 600 | S100 | G3 | CI | 6,90 |
| 601 | S101 | G3 | EA | 2,40 |
| 602 | S101 | G3 | ET | 2,50 |
| 603 | S101 | G3 | EI | 2,00 |
| 604 | S101 | G3 | CA | 6,90 |
| 605 | S101 | G3 | CT | 7,00 |
| 606 | S101 | G3 | CI | 6,80 |
| 607 | S102 | G3 | EA | 4,40 |
| 608 | S102 | G3 | ET | 3,70 |
| 609 | S102 | G3 | EI | 3,60 |
| 610 | S102 | G3 | CA | 6,50 |
| 611 | S102 | G3 | CT | 6,70 |
| 612 | S102 | G3 | CI | 6,40 |
| 613 | S103 | G3 | EA | 1,70 |
| 614 | S103 | G3 | ET | 1,00 |
| 615 | S103 | G3 | EI | 1,00 |
| 616 | S103 | G3 | CA | 6,90 |
| 617 | S103 | G3 | CT | 6,80 |
| 618 | S103 | G3 | CI | 6,30 |
| 619 | S104 | G3 | EA | 2,70 |
| 620 | S104 | G3 | ET | 2,50 |
| 621 | S104 | G3 | EI | 2,80 |
| 622 | S104 | G3 | CA | 6,80 |
| 623 | S104 | G3 | CT | 6,40 |
| 624 | S104 | G3 | CI | 7,00 |
| 625 | S105 | G3 | EA | 1,60 |
| 626 | S105 | G3 | ET | 1,80 |
| 627 | S105 | G3 | EI | 1,00 |
| 628 | S105 | G3 | CA | 6,80 |
| 629 | S105 | G3 | CT | 6,90 |
| 630 | S105 | G3 | CI | 7,00 |
| 631 | S106 | G3 | EA | 1,80 |
| 632 | S106 | G3 | ET | 1,60 |
| 633 | S106 | G3 | EI | 1,00 |
| 634 | S106 | G3 | CA | 6,80 |
| 635 | S106 | G3 | CT | 6,40 |
| 636 | S106 | G3 | CI | 7,00 |
| 637 | S107 | G3 | EA | 1,30 |
| 638 | S107 | G3 | ET | 1,00 |
| 639 | S107 | G3 | EI | 1,00 |

Appendix C – Participant results

| | | | | |
|-----|------|----|----|------|
| 640 | S107 | G3 | CA | 6,20 |
| 641 | S107 | G3 | CT | 7,00 |
| 642 | S107 | G3 | CI | 6,80 |
| 643 | S108 | G3 | EA | 2,60 |
| 644 | S108 | G3 | ET | 2,00 |
| 645 | S108 | G3 | EI | 2,90 |
| 646 | S108 | G3 | CA | 6,40 |
| 647 | S108 | G3 | CT | 7,00 |
| 648 | S108 | G3 | CI | 6,70 |
| 649 | S109 | G3 | EA | 1,30 |
| 650 | S109 | G3 | ET | 1,00 |
| 651 | S109 | G3 | EI | 1,50 |
| 652 | S109 | G3 | CA | 5,90 |
| 653 | S109 | G3 | CT | 6,44 |
| 654 | S109 | G3 | CI | 6,90 |
| 655 | S110 | G3 | EA | 1,60 |
| 656 | S110 | G3 | ET | 1,00 |
| 657 | S110 | G3 | EI | 1,00 |
| 658 | S110 | G3 | CA | 5,40 |
| 659 | S110 | G3 | CT | 7,00 |
| 660 | S110 | G3 | CI | 6,70 |
| 661 | S111 | G3 | EA | 2,80 |
| 662 | S111 | G3 | ET | 1,30 |
| 663 | S111 | G3 | EI | 1,50 |
| 664 | S111 | G3 | CA | 6,00 |
| 665 | S111 | G3 | CT | 6,44 |
| 666 | S111 | G3 | CI | 6,60 |
| 667 | S112 | G3 | EA | 1,60 |
| 668 | S112 | G3 | ET | 1,00 |
| 669 | S112 | G3 | EI | 1,00 |
| 670 | S112 | G3 | CA | 5,50 |
| 671 | S112 | G3 | CT | 7,00 |
| 672 | S112 | G3 | CI | 6,80 |
| 673 | S113 | G3 | EA | 1,20 |
| 674 | S113 | G3 | ET | 1,00 |
| 675 | S113 | G3 | EI | 1,00 |
| 676 | S113 | G3 | CA | 5,80 |
| 677 | S113 | G3 | CT | 6,89 |
| 678 | S113 | G3 | CI | 6,80 |
| 679 | S114 | G3 | EA | 3,00 |
| 680 | S114 | G3 | ET | 3,10 |
| 681 | S114 | G3 | EI | 1,90 |
| 682 | S114 | G3 | CA | 6,20 |

Appendix C – Participant results

| | | | | |
|-----|------|----|----|------|
| 683 | S114 | G3 | CT | 7,00 |
| 684 | S114 | G3 | CI | 6,70 |

Appendix D – Relevance for teaching profession

Understanding the processes behind language acquisition and the interplay between L1 and L2 is important for teaching in the second language classroom in order to provide students with instruction and feedback to help them become proficient L2 English users. It is helpful to be able to identify the most vulnerable domains of the L2 acquisition process, as extra attention can be given to the study, instruction, and assessment of this to help the students develop into proficient users of the language. Teaching in the ESL classroom usually entails working with lower proficiency users, and awareness of their sensitivity to specific error types can be valuable knowledge in the planning of formal instruction on the construction and use English language. This study identified syntax-morphology interface related errors in the form of subject verb agreement errors as a particularly vulnerable domain in the acquisition process in lower proficiency users. Another finding was related to a lower sensitivity to morphological errors in the form of tense inflection errors on regular verbs compared to irregular verbs. This might also be an important when providing instruction on tense inflection of the English language.

This study set out to explore sensitivity to errors that could be predicted by cross linguistic influence. It is difficult to determine whether cross linguistic influence actually cause specific, systematic errors, and this study supports this. Nevertheless, one can observe findings about the importance about proximity/distance between L1 and L2. English and Norwegian demonstrate proximity on many areas, but also indicate distance on some, such as the target errors discussed in this study. Is there a way for the teacher to lean on L1-L2 proximity to scaffold the students in instruction on the linguistic properties of the L2? Can older, more mature students be encouraged to use metalinguistic awareness and use distance to notice and process differences between L1 and L2? Furthermore, how can L1 interfere with L2? In what ways can negative transfer occur? Or avoidance of certain grammatical constructions be explained through L1-L2 interplay? This study provides several interesting discussions in this regard. Exposing students to the type of error might enable them to perceive the distance between L1 and L2 and then consciously reflect upon them to gain an understanding of the L2 grammar with their L1 as a point of departure.

