

L2 PERFORMANCE IN IRISH: EXPECT A MUTATION SO ACCEPT ANY MUTATION

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Abstract

This paper looks at variability in the acceptance of mutations (lenition and nasalization). Twenty-five adult L2 speakers of Irish in Ireland performed a series of three acceptability judgment tasks in order to identify the correct mutation form for subject and direct object relative clauses. Results suggest that the variability in the responses appears to be the result of a mapping problem between different parts of the grammar indicating that the role of the mutation has not been clearly identified.

The task of learning a second language (L2) requires the learner to build a new grammar, a new system of rules for the new language. This system will include rules for how the sentences are structured—the syntax of the language—and the different types of grammatical endings that are required—the morphology of the language—to name but two. The rules for morphology and syntax are linked in the underlying blueprint of the meaning of any

sentence in any language. L2 researchers have asked whether the L2 acquisition of morphology facilitates the learning of syntactic structures (Vainikka and Young-Scholten 1994, 1996a and 1996b; Hawkins 2001) or whether the L2 syntactic structures develop independently of the morphology (Schwartz and Sprouse, 1996; and Epstein, Flynn and Martohardjono 1996). From an intuitive point of view, the morphology, free and bound morphemes marking tense, case, gender and number, should contribute to the development of agreement relationships such as the one that exists between a subject and its verb for instance, and contribute to the opportunities for feature checking, i.e. use the third person -s on the present tense verb. This process triggers the development of the relevant underlying syntactic structure.

Anyone who has spent time with a second language learner will have noticed a degree of variability in L2 production. In some cases, for example, learners will use the third person singular -s morpheme on the verb, and other times they won't use it. On the one hand, it is argued that this variability is the result of an impaired grammatical link between the morphology and the syntax in this emerging L2 grammar of the learner grammar (Beck 1998). On the other hand, the variability is deemed to be the result of a mapping problem between different parts of the grammar, where the role of the morpheme is not clearly identified and so it is not always mapped or applied to the correct syntactic structure (Haznadar and Schwartz 1997; Haznadar 2001; Prévost and White 2000a, 2000b; Lardière 1998a, 1998b).

This paper looks at such a case: the morphology/syntax interface which exists in the L2 acquisition of Irish relative clauses by adult L1 speakers of English. Irish is morphologically richer than English. Grammatical case assignment, gender and possessive forms are marked by morphemes both at the end and at the beginning of words. This is also true for verbs. Subject-verb agreement is marked at the end of the verb form, as are verb tenses; however past tense and conditional mood have an additional mark at the beginning

of the word. These word-initial mutations, lenition and nasalization/eclipsis¹, are pervasive (see Christian Brothers 1997; and Ó Siadhail 1988 for a thorough grammatical description). The choice of mutation on the verb in a relative clause reflects the morpho-syntactic relationship between the form of the complementizer (the relative clause particle) and the type of syntactic binding relationship (the morphology-syntax connection which exists depending on whether there is a gap or a resumptive pronoun in the clause). A more detailed explanation with examples follows.

In Irish, there are two types of word initial mutations: lenition and nasalization/eclipsis. Lenition is the weakening or spirantization of voiced obstruents of the word-initial consonant of a lexical item where stops become fricatives (ex. /p/ → /f/) and labio-dental fricatives are deleted (ex. /f/ → ∅). It is marked orthographically by inserting 'h' after the word-initial consonant. Lenition is an overt morphological indicator of subject and direct object relative clauses which contain a gap in the relativised site. Nasalization/eclipsis is the voicing of voiceless stops and fricatives (ex. /p/ → /b/ and /f/ → /v/) or the nasalization of voiced stops (ex. /p/ → /m/) and insertion of /n/ preceding words which begin with a vowel. It is marked orthographically by inserting the voiced or nasalized consonant before the word-initial consonant. Nasalization/eclipsis is the overt morphological indicator that a resumptive pronoun is required in the relativised site. Resumptive pronouns are found in indirect object relatives² (the pronoun *é* in 1a) in Irish and in oblique relatives (the inflected preposition *leis* in 1b).

- 1.a. Sin é an fear a bhfeiceann Seán go minic é sa bhus.
 this-is-MASC the man, aN sees Sean always him_i on-the bus
 'This is the man that Sean always sees (him) on the bus.'

1 As per McCloskey (2010). Thank you to an anonymous reviewer for this suggestion and the reference to an authoritative source.

2 These constructions are very rare.

- b. *Sin é an fear a mbuailim leis ar an mbus gach maidin.*
 this-is-MASC the man_i aN hit-I with-him_i on the bus every morning

'This is the man that I meet (him) on the bus every morning.'

The study of the acquisition of Irish relative clauses lends itself well to an examination of whether the mutation on the verb guides the learners in the development of L2 gap and resumptive pronoun constructions, or whether the learners ignore the morphological cues on the verb and focus simply on the structural analysis. This paper explores whether adult L2 learners of Modern Irish are aware of this morphosyntactic association or whether the learners are aware of the L2 syntax of the clauses independently of the morphology.

This paper is based on a portion of my doctoral work on the acquisition of Irish relative clauses in which I set out to evaluate the ability of L2 learners of Irish to anticipate the syntactic structure of relative clauses in Irish, using morphological cues, lenition and nasalization/eclipsis. The research was motivated by a desire to develop second language teaching strategies capable of transmitting native morpho-syntactic structures in the face of current pressures towards Anglicization. To this end, acceptability judgment tests were designed to assess whether the distinct Irish clausal morphology drives the acquisition of the syntax of the different types of relative clauses, or whether the syntax is acquired independently of the morphology. The original experiment examined nine different clause types, subject relative clauses, direct and indirect relative clauses as mentioned above in (1a & b), and sentences containing two clauses, one embedded within the other. All of the sentences for the full experiment are available in Appendix A. It also contained four separate components: i) a cloze test to evaluate overall linguistic competence in Irish, ii) a Listening test, iii) a Written test; and iv) a Paired Comparison test.

The aim of this paper is to look at the ability of the second language learner of Irish to distinguish between correct and incorrect usage of mutation

(lenition or nasalization/eclipsis) in subject and direct object relative clauses only. I will report on the results obtained for the Listening and Written tests for these two kinds of relative clauses. The Listening and Written tests were identical in content; in other words, the students heard and read the same sentences, presented in the same (randomly chosen) order on both tests. The Listening test preceded the Written test. All students were tested on all the sentences.

Before describing the tested structures in more detail, a brief explanation of the syntactic terminology used throughout this paper is required. The term 'gap' refers to a position in a sentence from which a word has moved to another position in the sentence. If we look at the sentence in (2), the subject of the sentence is 'the driver'. In sentence (3), we have inserted sentence (2) into a relative clause and moved the word 'driver' to the front of the sentence, leaving a gap in the original subject position.

- 2) This driver always breaks the rule.
 3) This is the driver that ____ always breaks the rule.

In order to track which word has moved from this position, we use a trace, indicated by the letter 't' to mark the spot as in (4).

- (4) This is the driver that *t* always breaks the rule.

In order to link the trace and the word in the sentence together, we use indices to link them as in (5) below.

- (5) This is the driver_{*i*} that *t_i* always breaks the rule.

Another term that will be used is the word complementizer, which refers

to the word in the sentence that introduces the relative clause. In English, this is the word ‘that’, and in Irish it is the word ‘a’. In some relative clauses, the verb needs to be lenited and in others the verb needs to be nasalized/eclipsed. The short hand for these distinctions will be aL for clauses where the verb should be lenited and aN for clauses where the verb should be nasalized.

The last item which needs to be clarified is in the use of the asterisk. The asterisk is the convention used in linguistics to indicate an ungrammatical structure. All ungrammatical sentences will be identified by an asterisk.

Two additional linguistic concepts need to be explained here. The first is the Interlanguage (IL), a concept first proposed by Adjémian (1976), Corder (1967), and Selinker (1972). Anyone who has learned a second language can attest to the fact that proficiency in the new language does not happen instantaneously. Current researchers use the term Interlanguage (IL) to refer to the intermediary state on the continuum between the point of not having any knowledge of the second language to a point where learners have become reasonably competent in the second language (White 2003). It is a series of interim grammars, each reflecting the evolving level of proficiency in the second language. Hesitations and inconsistencies in usage of a particular structure or morphology are examples which reflect the learner’s progress toward the L2 within his or her IL. How does this work? The following is a description of the process learners could use to integrate new information about the L2 into their IL. By way of context, we recognize that morphology is not equally prominent in all spoken languages. What some languages express morphologically, through inflection or other bound forms, other languages might express by a separate word, or even leave implicit. Hawkins and Chan (1997) argue that in adult L2 learning situations, where the rule for agreement between an overt morphological inflection and a particular syntactic structure exists in the L2 but does not exist in the L1, the learner will construct in his IL a template for a rule for these L2 features which is distinct from the template for the rule typically associated with it in the language

where it typically found. In other words a learner of Irish could have a different template for the aL rule than would a fluent speaker of Irish. The application of this distinct or impaired rule template causes the learner to misuse the feature in particular morphosyntactic contexts.

In the following section, I will describe the subject and direct object relative clauses under discussion in this paper. Both of these structures contain a gap and both use the aL complementizer meaning the verb in the clause is lenited. Each of these structures will be paired with its equivalent but ungrammatical form, in which the aN complementizer is used, meaning the verb in the clause is nasalized/eclipsed.

Subject Relative Clauses

There is only one possible grammatical construction for subject relatives in Irish. It contains a gap in the subject position of the clause and the aL complementizer is present.

(6) a. SaLgap: contain an *aL* complementizer and a gap in the relativised position

Sin é an tiománaí a bhriseann an rial i gcónaí.

that-is cl.-MASC the driver_i aL breaks t_i the rule always

‘That is the driver that always breaks the rule.’

b. *SaNgap: contain an *aN complementizer and a gap in the relativised position

*Sin é an cailín a mbreathnaíonn ar an teilifís gach oíche.

that-is cl.-MASC the girl_i aN watches t_i on the television every night

‘That is the girl that watches television every night.’

An acceptance of SaLgap sentences and a rejection of the SaNgap sentences would suggest that the learners were able to distinguish between the two complementizer forms and recognize that nasalization of the verb in the SaNgap is ungrammatical. An acceptance of both the SaLgap and

*SaNgap structures indicates an insensitivity to the distinct forms of the complementizer.

Direct Object Clauses

There are two types of direct object clauses in Irish, one which contains a gap in the relativised site and one which contains a resumptive pronoun in the relativised site. This paper will examine only the direct object clauses DOaLgap (7a) which contain a gap as these are more common and are syntactically more similar to the L1 of the learner. The learner is not therefore required to process a structure that does not exist in the L1; she is simply required to focus on the choice of complementizer.

(7) a. DOaLgap: contain an aL complementizer and a gap in the relativised position

Sin é an t-ambrán a chanann Clannad.

that-is cl-FEM the song_i- aL sings Clannad t_i

'That is the song that Clannad sings.'

b. *DOaNgap: contain an *aN complementizer and a gap in the relativised position

**Sin é an páipéar nuachta a gceannatonn mo dheirfiúr t_i gach tráthnóna.*

that-is cl.-MASC the paper news_i aN buys my sister t_i every evening

'That is the newspaper that my sister buys every evening.'

The direct object clause which contains a gap was presented to the students in two forms: one with the correct complementizer aL, (7a), signalling a gap; and one with the incorrect complementizer aN, (7b) which should not occur in gap constructions.

Acceptance of DOaLgap and a rejection of DOaNgap would suggest that the learners were able to distinguish between the complementizers, and reject the nasalization/eclipsis of the verb. Acceptance of both DOaLgap

and *DOaNgap suggests that morphology, the mutation on the verb, is not playing a role in the development of the syntax.

Method Subjects

Thirty-five subjects participated in the experiment. These included adult native speakers of Irish and adult learners of the language. The adult learners were divided into two groups: young adult learners who were enrolled in Irish language training at the Police Academy in Templemore, Co. Tipperary, Ireland; and older adult learners attending a conversational Irish evening class in Baile Gibb, Co. Meath, Ireland.

All participants completed a profile sheet in which they were asked to indicate the age when they began learning Irish, their daily use of the language, and the dialect which they were learning or spoke.

There were twenty learners from the Police Academy in Templemore. Irish language training is an obligatory component of the training the cadets receive, since they may be posted to Irish-speaking areas in the country. All were second-year cadets. Eight cadets indicated that they began learning Irish between the ages of five and ten years of age and are referred to in the results section as subjects 'T5-10'. Ten cadets indicated that they began learning Irish between ten and fifteen years of age and are referred to in the results section as subjects 'T10-15'³. Two cadets indicated that they were native speakers and so their results were included with the control group.

The other group of adult learners attended an adult evening conversational Irish class. This group indicated that they had taken Irish as an obligatory subject, not a medium of instruction, in primary school, and through

³ Because Irish was a compulsory subject at the time these cadets were in primary school, it is strange that these cadets would have indicated that they began to learn the language years later than their peers. I can only go by what the cadets indicated on the profile sheets. These were filled in anonymously and so I could not go back and verify this information.

to the age of 13 years.⁴ They had not used Irish since leaving school. They indicated that they had decided to return to learn the language either because they had retired or because they now needed to be able to converse in the language as part of their responsibilities at work. All indicated on the profile sheet that they had begun learning the language this second time after the age of 30. All were considerably older than the cadets at the Police Academy, ranging in age between 35 and 50 years.

A control group of native speakers also completed the test. Seven of the ten subjects in this group are residents of the Baile Gibb Gaeltacht⁵ in Navan, County Meath. Five of the seven are members of one family, the father aged 82, a native speaker originally from Dingle, Co. Kerry, and four of his adult children who still live in Baile Gibb. The other two from this group of seven, who were tested together, were adult friends of the family, also from the same Gaeltacht. The three remaining native speakers were the two cadets at the Police Academy who identified themselves as being native speakers, as mentioned above. A language teacher who was present at the beginning of the test and who knew the cadets confirmed this. The other was the teacher of the adult language class who indicated that she was a native speaker. In a conversation with the senior native speaker mentioned above, it was indicated to me that this teacher was not a native speaker, but a fluent speaker. This subject was, therefore, neither a native speaker nor a learner. The test results for this individual were not included in the analysis.

All four groups, T5-10, T10-15, the adult learners and the native speakers, the latter to be referred to as the control group in the reporting of the data, completed the same experiment.

⁴ Fluency was not the objective of the course, rather the ability to translate short stories. Rules of Irish grammar were not taught in these classes. Teachers who had a poor command of the language sometimes taught these classes.

⁵ According to Údaras na Gaeltachta, the term *Gaeltacht* refers to those areas in which the Irish language is still spoken as a community language and its culture and traditions are very much alive and thriving.

Experiment Design

According to White (2003), data obtained from various methodologies can be classified into three categories: “production data, including spontaneous and elicited production; comprehension data, including data obtained from act-out and picture identification tasks; and intuitional data, including data from grammatical judgments and truth-value judgments...as well as more recently, a number of on-line techniques such as picture matching”(White 2003:17). Each of these tests has advantages and disadvantages, and the appropriateness in choice of tests depends on the research objective. I will discuss the first two briefly and talk about the third at greater length as it is this last method which was used in the experiment.

Production tasks can provide useful information concerning the actual use of certain structures by L2 learners. However, if learners fail to produce a particular structure, it cannot be construed that their IL grammar does not allow them. Also, subjects sometimes provide very few tokens of the target structure given the lack of constraints placed on the data collection.

Comprehension data is a more constrained form of production data in the sense that the picture and act-out tasks are designed to encourage the test subject to use a particular structure. However, similar difficulties arise in the event the subject does not understand the instructions or avoids the use of the target structure entirely. It is therefore not possible to conclude that a structure that is not produced is not part of their IL grammar.

Acceptability Judgment Tasks

Acceptability judgment tasks involve asking native speakers and L2 learners to listen to or to read grammatical and ungrammatical sentences, and judge whether they are well-formed, somewhat well-formed or ill-formed. Native speakers draw on their subconscious knowledge of the grammar of their L1. L2 learners draw upon their IL grammar. This method is favoured

among L2 researchers for two reasons. It allows researchers to strictly control the structures being presented to the learner, and it allows them to test many learners at once and in a relatively short period of time compared to the one-on-one interview formats described above. Grammatical/acceptable and ungrammatical/unacceptable structures are presented to learners to establish whether or not they can identify the ungrammatical ones.

Researchers have raised concerns regarding judgement tasks. Birdsong (1992) is concerned with the theoretical difference between grammaticality judgements and acceptability judgements. He argues the former are judgements to determine if the sentence is generated by the grammar while the latter is a determination of well-formedness. Birdsong argues that grammaticality judgements are not directly accessible and can only be inferred from the results provided in an acceptability test. Ellis (1994) raises concerns about the reliability of the results obtained from grammatical judgement tests and the inference made that these results reflect linguistic competence. Inconsistencies can be an artefact of the experiment due to poor design or the inherent indeterminacy of the grammatical structure under investigation. He suggests that secondary acceptability judgements sessions should be conducted to identify the inconsistencies in the responses.

In addressing the issue of indeterminacy, Sorace (1996) points out that the pervasiveness of indeterminacy is a key factor in distinguishing an IL grammar from a native grammar yet it is present in both native judgements, near-native judgements, and in L2 judgements. Native speakers can be indeterminate when asked to judge highly marked forms. Their knowledge of their grammar, lack of exposure to the form and intuition are contributing factors and so “native judgements may therefore provide a point of reference only in the most uncontroversial cases.” (Sorace 1996:385).

In the testing of L2 learners, constructions can be indeterminate because the learners have no knowledge of them. The constructions can become

indeterminate when the L2 grammar of the learner reaches a new level of complexity. This happens because the IL is in constant flux, evolving with continued exposure to the L2 input. Indeterminacy appears to be present in all IL grammars. Rules are changing over time. Rules which the L2 learners may have acquired for a particular construction may need to be expanded or modified to accommodate other areas of the grammars. It is possible, therefore, that the old and the new rules can co-exist for a time in the IL grammar. This is manifested in the inconsistency perceived in their judgments (Sorace 1996). The use of data based on judgment to infer something about either L1 or L2 competence has been debated in the literature. The reader is referred to Ellis (1994) for a review.

In this paper, I will report on the results of the Listening, Written and Paired Comparison tests⁶. The Listening and the Written Tests were identical in content and in order of presentation. The Paired Comparison Test used some of the same sentences as the Listening and Written Tests, but the order varied since each grammatical sentence was paired with an ungrammatical one which differed on the basis of a single feature. Control measures recommended by Cowan and Hatasa (1994) were incorporated into the design of the experiments. These included a minimum of three tokens of each structure; a high number of sentences; pilot testing the sentences with native speakers; and, inclusion of native speaker controls. A 6-point scale was used to increase statistical reliability. Another advantage of the 6-point scale is that it pre-empts the tendency to completely reject a structure when uncertain of its acceptability; participants were instructed to use the full range of the scale, rather than simply the extremities ‘acceptable’ vs ‘unacceptable’ (Bley-Vroman 1988).

⁶ The experiment included four separate components: i) a Cloze Test to evaluate overall linguistic competence in Irish, ii) a Listening Test, iii) a Written Test, and iv) a Paired Comparison Test. Nineteen different structures were tested in the Listening and Written Tests. An additional item was included in the Paired Comparison Test in order to have a contrastive element for each of the 19 original items.

The Listening and the Written tests were absolute judgement tasks in the sense that they required the learner to rate isolated grammatical and ungrammatical sentences, presented in random order, using the 6-point scale. The Paired Comparison test was a ranking-type task. It was a judgment-by-contrast task, where learners were asked to rank a pair of sentences which differed on the type of mutation. This ranking was done using the same 6-point scale for both sentences. Care was taken to include sentences containing highly plausible images and real situations, as opposed to images which were implausible or abstract. It has been shown by Levelt, Hans and Meijers (1977) that faster and more positive judgements were awarded to the former.

Time limits were imposed on the Listening test as the input was pre-recorded onto a CD using Sound Forge version 7.0a Build 262. Sound Forge is produced by Sony Digital Pictures Inc. The recording was made by a speaker of Irish with native-like competence. He completed his education through Irish at University College Galway and is currently living in Canada, and teaching Irish in Kingston, Ontario. The CD was played through only once. A 3-second time lapse separated each sentence. Subjects were however allowed to take as long as they felt necessary to complete the Written and Paired Comparison tests, but were instructed that once they had turned a page, they could not go back. Subjects did the Paired Comparison test after they had completed the Written test.

Statistical analysis of the data was done using SPSS (Statistical Package for the Social Sciences), one of the most widely used programs for statistical analysis in the social sciences. Analysis of variance (ANOVA) is a statistical test which determines whether or not two groups are equal. In examining the data for this experiment F tests were performed. F tests compare standard deviations, in other words, they test whether two groups could be considered to represent a single population. The closer the F is to 1.0, the more likely the two groups represent a single distribution, are behaving the same way.

Listening Test Results

Subject Relative Clauses (ref.: (6a & b))

The results for SaLgap vs *SaNgap relative clauses are given in Table 1.

Table 1

Subject Relatives: Mean Rates of Acceptability (Listening test)

	L1	L2		
	Control	T 5-10	T 10-15	Adult
SaLgap	4.8 ± 0.4	4.2 ± 0.75	4.0 ± 0.7	4.4 ± 0.3
*SaNgap	3.2 ± 1.7	3.3 ± 0.7	3.4 ± 0.6	4.3 ± 0.6

An ANOVA revealed a significant effect of condition in the rate of acceptability of SaLgap vs SaNgap for both the control and the learner groups. A barely significant effect of group among the learners was also revealed. The adult learners are again the group demonstrating the least sensitivity to the mutations. All subjects, except the adult learner group, distinguished between *aL* and *aN* effects on the clausal verbs.

The SaLgap structure was consistently rated more acceptable than *SaNgap, yet the latter was very often rated as being acceptable. The sensitivity to the mutation appears to be weak among the control group and the learner groups. None of the learner groups distinguish between the *aL* and *aN*. The error margin obtained for the native speakers' responses is surprising. It would have been expected that this group would distinguish between the mutations in a more consistent fashion.

Direct Object Relative Clauses (ref.: (7a & b))

These sentences differ from the subject relatives in that the gap is located in the direct object position. The only grammatical choice is the use of lenition on the verb, the *aL* structure.

The objective was to determine the degree to which learners were sensitive to the need for *aL* mutation as a result of movement from the direct object position in the clause. The results are given in Table 2.

TABLE 2

Direct Object Gap Clauses: Mean Rates of Acceptability (Listening test)				
	L1	L2		
	Control	T 5-10	T 10-15	adult
DOaLgap	3.9 ± 1.3	2.7 ± 1.1	3.8 ± 1.0	4.2 ± 0.4
*DOaNgap	3.1 ± 1.3	3.0 ± 1.3	4.0 ± 0.7	3.8 ± 0.7

An ANOVA between DOaLgap *vs* *DOaNgap revealed no main effect of condition for either the control group or the learner groups. There was a highly significant effect of group among the learners. There was no condition by group interaction. These results indicate that there was no significant distinction made between DOaLgap and *DOaNgap. While the assigned levels of acceptability were lower among the T5-10 learners, the sensitivity to the *aL/aN* distinction is weak for gap clauses for all groups. All subjects, even the control group, do not link movement with the need for the *aL* complementizer.

Discussion (Listening test)

The results reveal that none of the learner groups is distinguishing between *aL* and *aN* complementizers for either direct clause type. In other words, they accept both *aL* and *aN* for gap, where *aL* is required in formal, standard grammar. With respect to the native speakers, there is no distinction being between the *aL* and *aN* complementizers in either condition. This lack of sensitivity by the native speakers is surprising. Among the learner groups, it is clear that they are not making an association between the presence or absence of the resumptive pronoun in the relativised site and the form of the complementizer.

Written Test Results

The sentences used in the Written test were the same sentences used in the Listening test. Subjects were given as long as they needed to complete this section of the test as they were invited to make changes to the sentences to make them more acceptable. The main difference between the Listening and Written test is therefore that the subjects had the benefit of time to read and to take note of the orthographic cues to indicate which type of mutation has occurred on the verb. For this reason, it was expected that the ability to perceive the mutations would be easier in the Written test and that subjects would be able to make the changes to the sentences which reflect their knowledge of the binding principles at work in the language. The subjects were also invited to make changes to the sentences they felt were ungrammatical in order to make the sentence grammatical.

Subject Relatives (Written test)

The results for SaLgap and *SaNgap are given in Table 3.

Table 3
Subject Relatives with Gap: Mean Rates of Acceptability (Written Test)

	L1	L2		
	Control	T 5-10	T 10-15	Adult
SaLgap	4.8 ± 0.3	4.5 ± 0.7	4.5 ± 0.7	5.0 ± 0.03
*SaNgap	3.1 ± 1.7	3.4 ± 1.3	3.2 ± 1.7	4.2 ± 0.7

The SaLgap structure was consistently rated more acceptable than the *SaNgap structure. This is supported by an ANOVA comparing the rate of acceptability for SaLgap vs *SaNgap which revealed highly significant effects of condition among the control group and the learner groups. Among the learners, there was no effect of group or any group by condition interaction. The sensitivity to the mutation is weak.

Of the 35 comments received, 29 were to correct the mutation on the verb. The scores for the corrected verb forms range from '4' to '0' indicating an inconsistency in the perceived gravity of the error. The 3 native speakers among the control group always scored these errors as '0'. There is little uniformity among all the groups regarding the correcting of all three tokens as only 3 subjects did this.

The fact that the *aN* mutation in the subject relatives was given rates of acceptability at the high end of the 'works for me' (average for all groups: 3.5) is indicative of the fact that the mutation "error" is not perceived as being very grievous. The erroneous use of the *aN* complementizer in *SaNgap does not appear to affect the interpretation of the sentence for the subjects. Consequently, this error appears to be easily forgiven by the learner groups and surprisingly also by many within the control group.

Direct Object Relative Clauses (Written test)

The results for direct object relatives containing a gap, one with the correct mutation (lenition) and one with the incorrect mutation (nasalization/eclipsis) are given in Table 4.

Table 4
Direct Object Clauses with Gap: Mean Rates of Acceptability (Written Test)

	L1	L2		
	Control	T 5-10	T 10-15	Adult
DO aLgap	4.1 ± 0.7	4.1 ± 0.9	3.6 ± 0.9	4.6 ± 0.3
*DO aNgap	3.1 ± 1.6	3.5 ± 1.1	4.2 ± 0.8	3.9 ± 1.0

The sensitivity to the mutation is weak for these gap structures. There is no effect of condition for either the control or the learner groups. There is no effect of group among the learners. There is borderline significant condition by group interaction among the learners reflecting the consistency in the high acceptability rating awarded to DOaLgap by the adult learners. The error margins for the native speakers are unusually wide, especially for the *DOaNgap structure.

With respect to the 9 comments received for the DOaLgap constructions, four suggested the ungrammatical eclipsed form of the verb, *i.e.* *DOaNgap; two suggested including a definite article; one mistook a noun to be in its plural form and suggested the plural determiner; and the other suggested a different prepositional pronoun. This alternative prepositional pronoun would also have been correct in this sentence. All of these sentences for which these 'corrections' were made, were awarded very low scores ranging from '0' to '3'. The *DOaNgap pattern with the incorrect mutations, was usually awarded a score of '3', suggesting that the mutation error does not appear to greatly disturb the subjects.

Out of 35 comments received for the *DOaNgap, 31 were to correctly change the mutation on the verb to lenition. This suggests sensitivity to the mutations is present. The scores awarded however, continue to reflect a range in perceived gravity of the mutation error ranging from ‘4’ to ‘0’. The other errors were an incorrect assumption concerning the gender of a noun and the need for lenition; an incorrect accusative form when the correct genitive form was provided was the correct form; suggested a change in determiner, from definite article to possessive adjective; and finally, the suggestion to insert an accusative pronoun in the relativised site. This subject appears to have made the link between nasalization/eclipsis and the binding of a pronoun as it was this same subject who did not reject the intrusive pronoun and even suggested nasalization/eclipsis the verb to obtain *SaNpro.

The orthographic cues provided seemed to have assisted the learners in identifying the ungrammatical eclipsed verbs. This would seem to support the fact that the learners are sensitive to the mutated form when there is a gap in the sentence. It is interesting to note also that the eclipsed vowel in, *n-ithe-ann*, ‘eat’ was rejected more often than the other two verbs *gceannaíonn* ‘buy’ and *ndéanfáidh*, ‘will do’ which were only changed 9 times each, (*i.e.* total of 18 corrections for verbs with a consonant in initial position *vs* 13 for the verb with a vowel in initial position). It is suggested that the presence of the letter ‘n’ and the hyphen at the left edge of the word, are more salient to the learners than the single consonants in the other two examples and thus trigger a closer inspection on the part of the learner.

Discussion (Written test)

Subjects appeared to be as insensitive to the *aL / aN* distinction in the Written test as they were in the Listening test. This is interesting for two reasons. The first is that we cannot conclude that the lack of sensitivity to the *aL / aN* distinction was due to the fact that students did not perceive, or hear,

the distinctions and were therefore unable to indicate that there was a difference between the sentences. The second is that the orthographic cue available to the subjects in the Written test indicating which mutation was used in the sentence did not appear to assist the subjects in distinguishing the grammatical *aL* structures from the ungrammatical *aN* structures.

Paired Comparison Test Results

The results for subject relative clauses SaLgap *vs* *SaNgap and the direct object relative clauses DOaLgap *vs* DOaNgap are provided together in Table 5 below.

Table 5
Subject and Direct Object Clauses with Gap: Mean Rates of Acceptability (Paired Comparison Test)

	L1	L2		
	Control	T 5-10	T 10-15	Adult
SaLgap	4.7 ± 0.6	3.3 ± 1.8	3.4 ± 1.2	3.2 ± 1.6
*SaNgap	1.3 ± 1.2	2.5 ± 1.8	2.1 ± 0.9	2.5 ± 1.9
DO aLgap	4.7 ± 0.6	3.9 ± 1.0	3.2 ± 1.1	4.3 ± 0.9
*DO aNgap	1.3 ± 1.3	2.3 ± 2.0	2.8 ± 1.3	1.6 ± 1.2

An ANOVA for subject relative contrast in the Paired Comparison test, revealed a highly significant effect of condition among the control group, (F(1,8) = 51.306 p.<0.000). Sensitivity to the distinct complementizers is present among the native speakers. This distinction is not present among the learner groups. The standard deviations in the results obtained for the learners are greater in these results than for the Listening and Witten tests. The ANOVA revealed no significant effect of condition or of group. There was no

condition by group interaction among the learners.

An ANOVA for the direct object relative contrast in the Paired Comparison test revealed that there was a highly significant main effect of condition for both the control and the learner groups, ($F(1,8) = 42.504$ $p < 0.000$ and ($F(2,18) = 9.864$ $p = .005$) respectively. There was no condition by group interaction among the learners.

Discussion (Paired Comparison test)

With the juxtaposition of the two sentences, where the mutation is the only difference between the two sentences, the saliency of the orthographic cue indicating which mutation was used in the sentence does not appear to assist the younger learner groups in distinguishing the grammatical *aL* structures from the ungrammatical *aN* structures. The older learners are able to correctly identify the grammatically correct *aL* complementizer in both the subject and object relative clauses. This appears to indicate that the younger learners accept either mutation, not recognising at all the grammaticality of *aL* complementizer. Only the older learners appeared to clearly make the distinction between the mutated forms once they were presented side by side. They correctly accept the grammatical *aL* form and clearly reject the *aN* complementizer. This suggests that they are familiar with the rule, but can only apply it, map it to the correct structure, in a context where a clear choice based only on mutation is provided.

Conclusions

The experiment set out to evaluate the ability of the L2 learners of Irish to anticipate the syntactic structure of relative clauses in Irish by using the morphological cues, lenition and nasalization/eclipsis. The research was motivated by a desire to develop second language teaching strategies capable of transmitting native morphosyntactic structures in the face of current

pressures towards Anglicization. To this end, acceptability judgements tests were designed to assess whether the distinct Irish clausal morphology drives the acquisition of the syntax of the relative clauses, or whether the syntax is acquired independently of the morphology. Subjects were asked to judge the acceptability of sentences containing simple relative clauses constructions which differed on the basis of the kind of mutation on the verb, lenition or nasalization/eclipsis, represented syntactically by the form of the complementizers, *aL* and *aN*.

The use of various modalities, *i.e.* aural and written material, together with the use of both rating and ranking-type tasks provided a more complete picture of the L2 learner's internal grammar. The Listening test verified the learners' ability to perceive the aural manifestation of the distinct *aL* and *aN* complementizers, *i.e.* the mutation on the verb. The written comments provided by the subjects provided insights into the types of errors they perceived. It also provided insight into understanding how egregious complementizer errors *vs* structural errors were perceived. It was shown that all the learners as well as the younger native speakers did not perceive the errors concerning the form of the complementizers to be as serious as the older native speakers did. The Paired Comparison test provided the learners with pairs of sentences differing only on the basis of the *aL* or *aN* complementizer. This ranking task provided us with information concerning the level of acceptance of these structures where contrasting visual cues were available.

The ability to distinguish between the complementizers *via* the mutation on the verb was not noticeable in the Listening and Written tests and among the younger learners in the Paired Comparison test. This lack of ability to distinguish between the *aL* and *aN* complementizers would suggest that these learners do not distinguish between the complementizers, in other words they appear to accept either mutation on the verb. The lack of acquisition of the correct mutation cannot be attributed to dialectal variation. Lenition is the

only option in both of these relative clause constructions yet these learners in this experiment accept both lenition and eclipsis in this construction in the Listening, Written and Paired Comparison tests.

This variability appears to be the result of a mapping problem between different parts of the grammar. Learners at this level are quite aware that mutations in Irish are pervasive. They are also aware that certain dialects use mutation differently, although not in these constructions. The results here appear to indicate that the role of mutation has not been clearly identified. This would suggest an impaired template for the rule governing the use of mutations similar to Hawkins and Chan (1997). As a result, with respect to subject and direct object relative clauses, the *aL* and *aN* complementizers are not always mapped or applied to correct syntactic structure. This finding supports the position held by Haznadar and Schwartz, Prévost and White, and Lardière.

Variability can be looked at from yet another angle: language contact: in this case, the contact between the different dialects of Irish. Speakers and learners of the language are exposed to a range of Irish dialects now through the media and contact in the schools, at cultural events and in the workplace. All speakers of Irish have at least one other language. The language is changing, being influenced by English, but also by contact between the dialects (Mac Mathúna: 2008). The picture resembles the state of L2 learner described above. Ó Giollagáin and Mac Donnach (2008) refer to the incomplete acquisition of Irish from a sociolinguistic point of view, and John Harris (2008) laments the decline in proficiency among Irish language speakers and learners over the last 20 years. The Garda College cadets were a product of the education system where they were taught Irish at the primary, secondary and professional levels. These years of exposure have not succeeded in allowing these learners to build native-like templates for the mutation rules for the relative clauses. Based on these results, we can suggest that these

learners of Irish appear to be operating with a system that reflects the following approach: expect a mutation so accept any mutation.

Appendix A

Sentences used in the listening and written tests

FILLERS

VSO

1 *Ceannaíonn mamaí bainne sa siopa*
buys mom milk in-the shop

‘Mom buys milk in the shop.’

2 *Téann Mam go dtí an siopa gach maidin.*
goes Mom to the shop every morning

‘Mom goes to the shop every morning.’

3 *Osclaíonn an mbonarcha ar a hocht a chlog.*
opens the factory at eight o'clock

‘The factory opens at eight o'clock.’

*SVO

4 *Na buachaillí imríonn peil.*
the boys play soccer

‘The boys play soccer.’

5 *An freastalaí cuireann an cupán tae ar an mbord.*
 the waitress puts the cup tea on the table
 ‘The waitress puts the teacup on the table.’

6 *Pádraig piocann bláthanna lena stór.*
 Patrick picks flowers for-his love
 ‘Patrick picks flowers for his love.’

NPaL
 7 *Is maith liom an válsa a dhéanamh le mo bhean chéile.*
 is good with-me the waltz aL do-VN with my woman together
 ‘I like to dance the waltz with my wife.’

8 *Is feidir leis an imreoir an liathróid a bhualadh.*
 is able with-him the player the ball aL hit-VN
 ‘The player is able to hit the ball.’

9 *Táim anseo leis an phictiúr sin a fheiceáil.*
 am-I here with-it the picture this aL see-VN
 ‘I am here to see this movie.’

*NPaN
 10 *Níor mhaith liom fear bocht a bpósadh.*
 is-not good with-me man poor aN marry-VN
 ‘I do not want to marry a poor man.’

11 *Táim anseo chun an pictiúr a mbreathnú.*
 am-I here to the picture aN watch-VN
 ‘I am here to watch the movie.’

12 *Ba mhaith liom fiche toitín a bhfáil.*
 is-COND good with-me twenty cigarette aN get-VN
 ‘I would like to get twenty cigarettes.’

*aLNP
 13 *Ní maith liom a bhriseadh nóta céad punt.*
 is-NEG good with-me aL break-VN note hundred pound
 ‘I don’t like to break a £100 note.’

14 *Ba mhaith liom a phiocadh bláthanna.*
 is-COND good with-me aL pick-VN flowers
 ‘I would like to pick flowers.’

15 *Ba mhaith liom a cheannach teach níos mó.*
 is-COND good with-me aL buy-VN house more big
 ‘I would like to buy a bigger house.’

SaLgap
 16 *Sin é an fear a imríonn sa chúl do Chiarraí.*
 this-is-MASC the man_i aL plays t_i goal for Kerry
 ‘This is the man that plays goal for Kerry.’

17 *Sin í an cailín a théann abhaile ar a naoi a chlog.*
 this-is-FEM the girl_i aL goes t_i home at nine o’clock
 ‘This is the girl that goes home at nine o’clock.’

18 *Sin é an banna ceoil a sheinneann gach oíche sa phub.*
 this-is-MASC the band_i music-GEN aL plays t_i every night at-the pub
 ‘This is the band that plays at the pub every night.’

* SaNgap

19 *Sin é an seanchaí a n-insíonn na seanscéalta.*
 this-is-MASC the story-teller_i aN tells t_i the old-stories
 ‘This is the story teller that tells the old stories.’

20 *Sin é an cailín a mbreathnaíonn ar an teilifís gach oíche.*
 this-is-MASC the girl_i aN watches t_i on the television every night
 ‘This is the girl that watches television every night.’

21 *Sin é an buachaill a dtéann ar an mbus gach maidin.*
 this-is-MASC the boy_i aN goes t_i on the bus every maidin
 ‘This is the boy that goes on the bus every morning.’

*SaLpro

22 *Sin é an buachaill a théann sé ar scoil gach maidin.*
 this-is-MASC the boy_i aL goes he_i to school every maidin
 ‘This is the boy that he goes to school every morning.’

23 *Sin é an fear a labhrann sé Spáinnis.*
 this-is-MASC the man_i aL speaks he_i Spanish
 ‘This is the man that (he) speaks Spanish.’

24 *Sin é an fear a éiríonn sé ar a cúig a chlog gach maidin.*
 this-is-MASC the man_i aL rises he_i at five o'clock every morning
 ‘This is the man that (he) rises at five o'clock every morning.’

DOaLgap

25 *Sin iad na bláthanna a phíocann gach cailín lena máthair.*
 this-is-PLUR the flowers_i aL picks every girl t_i for-her mother.
 ‘These are the flowers that every girl picks for her mother.’

26 *Sin í rial a bhriseann an tiománaí i gcónaí*
 this-is-FEM rule_i aL breaks the driver t_i always
 ‘This is a rule that the driver always breaks.’

27 *Sin iad na calógáí a itheann m'athair gach maidin.*
 this-is-PLUR the cereals_i- PLUR aL eats my father t_i every morning.
 ‘This is the cereal that my father eats every morning.’

*DOaNgap

28 *Sin é an páipéar nuachta a gceanníonn mo dheirfiúr t_i gach tráthnóna.*
 this-is-MASC the paper news_i aN buys my sister t_i every evening
 ‘This is the newspaper that my sister buys every evening.’

29 *Sin é an scrúdú a ndéanfaidh mé an tseachtain seo chugainn.*
 this-is-MASC the test_i aN do-FUT I the week this to-us
 ‘This is the test that I will write next week.’

30 *Sin é an t-úll a n-itheann an buachaill gach am loin*
 this-is-MASC the apple_i aN eats the boy every time lunch-
 GEN

‘This the apple that the boy eats every lunchtime.’

DOaNpro

31 *Sin é an fear a bhfeiceann Seán go minic é sa bhus.*
 this-is-MASC the man_i aN sees Sean always him_i on-the bus

‘This is the man that Sean always sees (him) on the bus.’

32 *Sin é an amhrán[sic] a gcanann Clannad é.*
 this-is-MASC the song_i aN sings Clannad it_i

‘This is the song that Clannad sings (it).’

33 *Sin é an t-úll a n-itheann an leanbh é.*
 this-is-MASC the apple_i aN eats the child it_i

‘This is the apple that the child eats (it).’

*DOaLpro

34 *Sin í an mhóin a ghearrann an fear í.*
 this-is-FEM the turf_i aL cuts the man it_i

‘This is the turf that the man cuts (it).’

35 *Sin é an dlúth dhiosca a cheannaíonn na daoine óga é.*
 this-is-MASC the compact disc_i aL buy the people young it_i

‘This is the CD that the young people buy (it).’

36 *Sin é an leabhar a cheannaíonn gach scoláire nua é.*
 this-is-MASC the book_i aL buys every student new it_i

‘This is the book that every new student buys (it).’

IOaNprep

37 *Sin é an stáisiún raidió a n-eisteann na daoine óga leis i gcónaí.*
 this-is-MASC the station radio_i aN listens the people young with-it_i always

‘This is the radio station that the young people always listen to (it).’

38 *Sin é an fear a mbuailim leis ar an mbus gach maidin.*
 this-is-MASC the man_i aN hit-I with-him_i on the bus every morning

‘This is the man that I meet (him) on the bus every morning.’

39 *Sin é an dochtúir a bhfanann an t-othar leis.*
 this-is-MASC the doctor_i aN waits the patient with-him_i

‘This is the doctor that the patient waits for.’

*IOaLprep

40 *Sin é an stáitiún[sic] raidió a éisteann na daoine óga leis.*
 this-is-MASC the station radio_i aL listens the people young with-it_i

‘This is the radio station that the young people listen to (it).’

41 *Sin í an bhean a chuirim an t-airgead chuici.*
 this-is-FEM the woman_i aL put-I the money to-her_i

‘This is the woman that I give the money to (her).’

42 *Sin é an fíaclóir a fhanann Úna leis.*
 this-is-MASC the dentist_i aL waits Una with-him_i
 ‘This is the dentist that Una waits for (him).’

Mixed Chains

aLaLgap
 43 *Sin é an madra a cheapann tú a bhuaileann an fear gach lá.*
 this-is-MASC the dog_i aL believe you aL hits the man _{t_i} every day
 ‘This is the dog that you believe that the man hits every day.’

44 *Sin é an leabhar a creideann tú a cheannóidh na páiste.*
 this-is-MASC the book_i aL believe you aL buy-FUT the children _{t_i}
 ‘This is the book that you believe that the children will buy.’

45 *Sin í an luch a cheapann tú a mharóidh an cat.*
 this-is-FEM the mouse_i aL think you aL kill-FUT the cat _{t_i}
 ‘This is the mouse that you believe that the cat will kill.’

aNaLgap
 46 *Sin é an t-airgead a gceapann tú a ghoideann an cuntasóir mí mhocánta.*
 this-is-MASC the money_i aN think you aL steals the accountant dishonest _{t_i}
 ‘This is the money that you believe that the dishonest accountant steals.’

47 *Sin é an bréagán a gcreideann tú a cheannóidh na tuismitheoirí.*
 this-is-MASC the toy_i aN believe you aL buy-FUT the parents _{t_i}
 ‘This is the toy that you believe that the parents will buy.’

48 *Sin é an bréagán a gcreideann tú a bhrisfidh na páistí.*
 this-is-MASC the toy_i aN believe you aL break-FUT the children _{t_i}
 ‘This is the toy that you believe that the children will break.’

aNaNpro
 49 *Sin é an cód a gceapann tú a mbrisfidh James Bond é.*
 this-is-MASC the code_i aN think you aN break-FUT James Bond _{t_i}
 ‘This is the code that you believe that James Bond will break.’

50 *Sin é an scéal a measann tú a gcreideann na polaiteoirí é.*
 this-is-MASC the story_i aN think you aN believe the politicians _{t_i}
 ‘This is the story that you think that the politicians believe (it).’

51 *Sin é an bóthar a gcreideann tú a dtófaidh an tiománaí é.*
 this-is-MASC the road_i aN believe you aN take-FUT the drivers _{t_i}
 ‘This is the road that you believe that the drivers will take (it).’

aNgopro
 52 *Sin iad na drugaí a gcreideann na póilíní go ndíolann an fear sin leo.*
 this-is-PLUR the drugs_i aN believe the police go sells the man this with-them_i
 ‘These are the drugs that the police believe that this man sells (them).’

53 *Sin é an gealltanais a gceapann tú go mbrisfidh an buachaill é.*
 this-is-MASC the gift_i aN believe you go break-FUT the boy _{t_i}
 ‘This is the gift that you believe that the boy will break (it).’

- 54 *Sin é an teach a gcreideann tú go gceannóidh an fear é.*
 this-is-MASC the house_i aN believe you go buy-FUT the man it_i
 ‘This is the house that you believe that the man will buy (it).’
- aLgopro
 55 *Sin í an táille a cheapann tú go n-iocann na ceoltóirí í.*
 this-is-FEM the fee_i aL think you go charge the musicians it_i
 ‘This is the fee that you think that the musicians charge (it).’
- 56 *Sin é an bia a cheapann tú go ndéanfaidh mo mháthair é.*
 this-is-MASC the food_i aL think you go make-FUT my mother it_i
 ‘The is the food that you think that my mother will make (it).’
- 57 *Sin é an teach a cheapann tú go dtógann an fear é.*
 this-is-MASC the house_i aL think you go build the man it_i
 ‘This is the house that you think the man builds (it).’

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