

EXAMINING THE ‘QUIRKY’, ‘BIZARRE’ AND ‘IRREGULAR’: A STUDY OF INITIAL CONSONANT MUTATION ACQUISITION IN IRISH

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Abstract

To date, the investigation of Irish Initial Consonant Mutation has largely focussed on description of the processes involved or the environments in which the mutations occur. The aim of this study is to examine the acquisition of the Irish Initial Consonant Mutations in learners of Irish as a second language in order to determine whether this acquisition is governed by syntactic factors (relating to the triggering environments of the mutations) or by phonological factors pertaining to the mutated consonants. The results have demonstrated that both syntactic and phonological factors exert an influence over the acquisition and realisation of the Irish Initial Consonant Mutations. Also, verbal mutations were more frequently correctly mutated, and nominal mutations (triggered by nominal gender) were more frequently omitted or incorrectly mutated. This upholds the findings of literature in the area, which argues that the acquisition of grammatical gender distinction in L2 can prove difficult. Furthermore, there was no significant difference observed between the performance of children from Irish and English medium schools, respectively. This supports the view that an increased level of instruction in L2 is not reflected in an increased proficiency in L2.

1. Introduction

Through the elicitation of data from school children learning Irish as a second language I hope to determine:

- (i) which mutations are acquired and realized
- (ii) whether this acquisition is phonologically or syntactically governed
- (iii) the extent to which L1 interferes with the acquisition of mutations in L2

The results of this study may prove interesting from both a pedagogical and a theoretical point of view. Firstly, to determine how the acquisition of mutations progresses in L2 learners of Irish would be useful, particularly in terms of the application of this data in a pedagogical sense. Irish is a compulsory subject in the Republic of Ireland, and such information could have many practical applications. In addition, in determining whether the acquisition of mutations in Irish is syntactically or phonologically governed, the results of the study may contribute to existing literature on child language acquisition.

Studies of the initial consonant mutations of Irish (hereafter *ICM*) have largely been focused on two areas, i.e. attempted characterisation of the triggering environments (e.g. Duffield's 1995 syntactic account) or examination of the phonological processes involved in the mutations themselves (e.g. Grijzenhout 1995, Gnanadesikan's 1997 chain shifts). My study attempts to account for the acquisition of ICM in L2 learners of Irish in Irish and English medium schools, i.e. to determine whether this acquisition is governed by phonology (of the mutated consonant itself) or by the syntax/morphology of the triggering environment. There are two potential outcomes, and these are the hypotheses for my study:

- (i) The phonology influences acquisition (i.e., the acquisition and realisation of the mutation is dependent on its phonological features)
- (ii) The morpho-syntax influences the acquisition (i.e., the grammatical environment in which the mutation occurs is the primary factor)

It is important to note that Irish consonants occur in pairs, broad and slender. This is a phonemic distinction, as is illustrated below:

(1)

- | | | | | |
|-----|------|--------|---------|-------------------|
| (a) | lón | /lon/ | ‘lunch’ | (broad/regular) |
| (b) | leon | /l'on/ | ‘lion’ | (slender/palatal) |

In much of the literature, the palatal nature of slender consonants is represented by an apostrophe after the consonant thus: /C'/. The broad/slender distinction is reflected in the orthography:

- (i) Broad consonants are preceded or followed by ‘a’, ‘o’ or ‘u’ (the ‘broad’ vowels)

- (ii) Slender consonants are preceded or followed by ‘i’ or ‘e’ (the ‘slender’ vowels).

The consonant inventory of Modern Irish is illustrated in the table below (adapted from Ní Chiosáin 1991).

(2)

	Labial		Coronal		Dorsal		Laryngeal	
(a)	p	p'	t	t'	k	k'		
(b)	b	b'	d	d'	g	g'		
(c)	f	f'	s	s'	x	x'	h	h'
(d)	v	v'			ɣ	ɣ'		
(e)	m	m'	n	n'	ŋ	ŋ'		
(f)			l	l'				
(g)			r	r'				
(h)	w				j			

Those consonants printed in bold occur in restricted/partially restricted distribution. The table below illustrates those consonants which may occur in any word position but which occur word initially only in mutation (derived) environments:

(3)

w	
v	v'
j	
ŋ	ŋ'
x	x'

The dorsal continuants /ɣ/ and /ɣ'/ occur only in derived environments.

According to Ball and Fife (1993) the incidence of initial consonant mutations in Irish is unique among Indo-European languages. The process of mutation in Modern Irish occurs only in morpheme initial or morpheme final position and is morpho-syntactically triggered (Lieber, 1987; Ball, 1993; Swingle, 1993). However this was not always the case, phonological triggers for the mutations did at one point exist, but by the end of the Old Irish period these phonological triggers had been lost and the consonant mutations of Irish have taken on a morphological role (Scott 2002), becoming markers for case, tense, aspect, number and gender.

The absence of the phonological triggers for these mutations has rendered the formulation of a general rule for the use of the mutations extremely difficult. In the Christian Brothers (1993), for example, there are two chapters dedicated to the descriptions of the environments in which lenition and eclipsis occur, but many rules are tempered with caveats such as '[t]he article (an) aspirates the initial consonant of nouns (except those beginning with d, s, t,) ...after *ag*... (unless we choose to eclipse)' (1997: 12)

The lack of general rules for the application of consonant mutations has presented difficulties for learners (Scott, 2002). Similarly, the 'spectacular' (Rotenberg, 1978 cit. op Grijzenhout 1995), 'quirky' 'bizarre' 'irregular' (Lieber 1987 cit. op Grijzenhout 1995) Irish consonant mutations have posed problems for linguists attempting to account for their distribution.

Duffield (1995) points out that most analyses of Irish consonant mutation examine the process as 'an arbitrary lexical property of individual proclitic elements', assuming that no syntactic account is possible. His own account of Irish consonant mutation puts forward a 'Mutation Hypothesis'.

Some approaches to the lenition process (such Massam, 1983 and Lieber, 1987), have attempted to account for this process by positing the existence of a feature-sized affix. For example, Massam has suggested that lenition of the initial segment is derived via the linking of a floating autosegment [+cont] affix.

2. Lenition

Lenition, also known as *spirantisation* or *aspiration* (in older literature), is a softening of the initial consonant which is represented in the orthography by the insertion of an 'h' after the initial consonant thus:

(4)

- (a) cearc 'hen'
- (b) an chearc 'the hen'

In terms of phonology, in the presence of the mutation trigger, lenition causes non-coronal stop consonants to mutate into fricatives with the same place of articulation and mode of phonation. Where the initial *radical* (un-mutated) consonant is a fricative or a coronal, it is deleted, or replaced by /h/, a voiceless laryngeal fricative.

For example, the voiceless velar stop, /k/ when it occurs in word initial position in the presence of the trigger, mutates to become /x/, a voiceless velar fricative. That is to say, the manner of articulation of the word initial segment mutates:

(5)

- (a) Cearc /k'ark/ 'hen'
- (b) An chearc /x'ark/ 'the hen'

With regard to the triggering environment, Scott (2002) points out that in Old Irish, there were strong and weak articulations for each consonant. This distinction evolved into the phonological mutation process of lenition. The context in which lenition occurred in old Irish is specified thus: 'It is between vowels and sonorant sounds (vowels or *y, w, r, l, m, n*) or of course, at the end of a word (#) after a vowel that this lenition occurs' (O'Fiannachta 1974: 73, cf. Scott, 2002).

The following table adapted from Ní Chiosáin (1991) illustrates the effects of lenition:

(6)

(a)	Non-Lenited (Radical)	p	p'	b	b'	k	k'	g	g'
	Lenited	f	f'	v	v'	x	x'	ɣ	ɣ'-j
(b)	Non-Lenited (Radical)	m	m'						
	Lenited	w-v	v'						
(c)	Non-Lenited (Radical)	t	t'	d	d'	s	s'		
	Lenited	h	h'	ɣ	ɣ'-j	h	h'		
(d)	Non-Lenited (Radical)	f	f'						
	Lenited	Ø	Ø						

3. Eclipsis

Eclipsis, sometimes referred to as *nasalisation*, is represented in the orthography by writing the eclipsing consonant before the eclipsed one thus:

(7)

- (a) an geata 'the gate'
- (b) ar an ngeata 'on the gate'

The features of the environment that trigger eclipsis are transferred to the consonant that undergoes the mutation. The trigger for eclipsis was, historically, a preceding

nasal consonant (or more precisely eclipsis occurred only at word junctures with a preceding determiner, preposition or verbal or clausal particle which ended in a nasal consonant) (O’Fiannachta, 1981; Scott, 2002).

Nasals in Irish are voiced; this resulted in voiceless consonants taking on the voiced quality of the preceding nasals and voiced consonants taking on the nasal quality of the preceding consonant. Although the phonological environment no longer remains, the mutation has remained. (It should be noted that vowels may also be eclipsed, in orthography, a ‘n’ is inserted before the vowel which is realized as a voice alveolar nasal).

The following table adapted from Ni Chiosain (1991) illustrates the effects of eclipsis:

(8)

(a)	Non-Eclipsed (Radical)	p	p’	t	t’	k	k’	f	f’
	Eclipsed	b	b’	d	d’	g	g’	v	v’
(b)	Non-Eclipsed (Radical)	b	b’	d	d’	g	g’		
	Eclipsed	m	m’	n	n’	ɲ	ɲ’		

4. Expected Findings

4.1 Phonology

Historically, the tendency has been for the unmarked option to be favored. In terms of phonology, insertion of a feature is marked and is more likely not to happen. This is demonstrated in the following example:

(9)

- (a) Cearc /k’ark/ ‘hen’
 (b) An chearc /x’ark/ ‘the hen’

(10)

FEATURE	x	k
Consonantal	+	+
Sonorant	-	-
Approximant	-	-
Strident	-	-
Nasal	-	-
Lateral	-	-
Voice	-	-
Continuant	+	-
Dorsal	✓	✓

The process of lenition has resulted in the insertion of the feature [+continuant]. This being the marked option, it is likely that the speaker will opt for the unmarked option, i.e. un-lenited (radical) form. This would affect both verbal and nominal mutations alike. Following this line of thought, the consonants illustrated in the table below may pose a problem to the subjects:

(11)

	Mutation	Feature
(a)	/p/→/f/	[-cont]→[+cont]
	/p'/→/f'/	[-cont]→[+cont]
	/b/→/v/	[-cont]→[+cont]
	/b'/→/v'/	[-cont]→[+cont]
	/k/→/x/	[-cont]→[+cont]
	/k'/→/x'/	[-cont]→[+cont]
	/g/→/ɣ/	[-cont]→[+cont]
	/g'/→/ɣ'/-/j/	[-cont]→[+cont]
	/m/→/v/	[-cont]→[+cont]
	/m'/→/v'/	[-cont]→[+cont]
	/t/→/h/	[-cont]→[+cont]
	/t'/→/h'/	[-cont]→[+cont]
	/d/→/ɣ/	[-cont]→[+cont]
	/d'/→/ɣ'/-/j/	[-cont]→[+cont]

- | | | |
|-----|-----------|---------------|
| (b) | /s/→/h/ | [coronal]→[] |
| | /s'/→/h'/ | [coronal]→[] |
| (c) | /f/→∅ | [labial]→[] |
| | /f'/→∅ | [labial]→[] |

The only lenition process not affected by this is /f/→∅ and /f'/→∅.

In addition, it would be expected that those consonants that do not occur in the English language would pose a problem to learners of Irish whose first language was English.

(12)

- | | | |
|-----|---------------|--------------------------------------|
| (a) | /k/→/x/ | /x/ word finally in Scottish English |
| | /k'/→/x'/ | |
| (b) | /g/→/ɣ/ | /ɣ/ does not occur in English |
| | /g'/→/ɣ'/-/j/ | |
| (c) | /d'/→/ɣ'/-/j/ | /ɣ/ does not occur in English |
| | /d/→/ɣ/ | |

Such problems would equally affect nominal and verbal mutations.

4.2 Morpho-Syntax

Scott (2002) points out that her work in the area of ICM has demonstrated that verbal mutations are more frequently correctly realised than nominal mutations. This suggests that the realisation of ICM should be higher for verbal than nominal mutations in this study.

Work in the area of gender classification in SLA indicates that for speakers whose first language is English (a language where there is no gender classification) the acquisition of gender in L2 is difficult. In her 2000 dissertation, Sabourin (2000) cites Franceschina's 2000 study involving native English and Italian speakers' attempts at a Spanish elicitation task designed to test gender classification in support of this claim. This further supports the hypothesis that the realisation of ICM should be higher for verbal than nominal mutations in this study.

5. Data Collection Techniques

As the purpose of this pilot is primarily to test my methodology I chose to examine the case nominal and verbal lenition. Lenition is triggered in many environments, one

such environment is related to the gender of the noun: feminine nouns preceded by the definite article ‘*an*’ lenite. Studies have shown that L2 learners of a language had trouble acquiring aspects of L2 that do not exist in their own language, e.g. English language does not have gender distinction for nouns, Irish does have a gender distinction. I chose to examine the acquisition of lenition in this triggering environment.


Verbs in the *aimsir caite* (past tense) also lenite, and the acquisition of lenition in this environment was also examined. In addition looking at verbs inflected for the past tense is useful in examining the issue of phonological difficulties as students are familiar with the past tense as we have it in English and so this task would not/should not proven difficult morpho-syntactically.

In terms of selection of subjects, I chose native English speakers learning Irish as a second language. The subjects were chosen from two primary schools: one Irish medium and one English medium school in the Republic of Ireland. For the purposes of the pilot study I attempted to examine any evidence of difficulty in producing Irish consonants not present in English.

5.1 Elicitation Techniques

For the purposes of this study, cloze tests were used by means of elicitation task. Presenting the subject with a flash card on which a simple sentence was printed tested nominal mutations. In each case the noun was replaced by a picture representing the noun. Thus in order to test for lenition of the initial consonant /k’/ in the feminine noun *cearc* (hen), the sentence devised and the flash card used are illustrated below:

(13)

	Sentence	Radical	Lenited
(a)	Feiceann se an chearc ag ol uisce.	/k’/	/x’/
(b)	<div style="border: 1px solid black; padding: 10px; display: inline-block;">  </div>		
	Feiceann sé an ag ól uisce.		

To test verbal mutations, cloze tests were used again. The subjects were presented with a sentence in which the verb to be lenited was left in the infinitive and the subject was asked to inflect the verb for the *aimsir caite*:

(14)

	Sentence	Radical	Lenited
(a)	Cheangail sé an rópa	/k'/'	/x'/'
(b)	(Ceangail) sé an rópa.		

Filler sentences were used in both sets of tasks. The total number of sentences making up Task 1, testing nominal mutation, was 40 (of which 24 were fillers). The total number of sentences in Task 2 testing verbal mutations was 20 (of which 4 were fillers).

5.2 Subjects

Subjects were chosen from two primary schools in the Republic of Ireland. Five pupils were chosen from an Irish medium school (hereafter *IMS*) where all lessons took place through the medium of Irish. Five pupils were chosen from the second school, an English medium primary (hereafter *EMS*) school where all lessons took place through the medium of English, with the exception of Irish classes. Students were chosen from 3rd, 4th, 5th and 6th classes and were aged between 9 and 12.

6. Results

The results of the pilot study demonstrated evidence of significant syntactic interference from L1. The students from both schools correctly realized verbal mutations more frequently than they did nominal mutations:

(15)

		% Correct IMS	% Correct EMS
(a)	Verbs	50	50
(b)	Nouns	5	3

Given the existing literature regarding the difficulty with which learners of a second language acquire grammatical categories that do not exist in L1, the very low rate of correctly realized nominal mutations was to be expected.

This also supports Scott's claim that verbal mutations are more frequently realized than nominal (2002).

The results also demonstrated phonological interference from L1:

(16)

		/x/ & /x'/'	/ɣ/ & /ɣ'/'
(a)	Unrecognised	45	40
(b)	Radical	35	46
(c)	Correctly Mutated	8	14

The table above illustrates the rate at which the velar fricatives /x/, /x'/', /ɣ/, /ɣ'/' are correctly realized by all subjects. The lower rate of correct realization is highlighted when these figures are viewed in comparison to the average rate of correct realization:

(17) Verbs & Nouns overall: 27%

In addition, the subjects realized plain (non-palatal) consonants correctly more frequently than palatal consonants as illustrated below:

(18)

	Overall %	% correct IMS	% correct EMS
(a) Palatal consonants	26.5	32	21
(b) Plain consonants	27.5	23	32

Although the difference is perhaps insignificant, it warrants further study.

Phonologically, it was expected that labial mutations would be more frequently mutated than dorsals as the mutated consonants produced are present in English. This expectation was confirmed as shown by the figures in (19).

(19)

	% Unrecognized	% Radical	% Correctly Mutated
(a) Labials	7	41	52
(b) Dorsals	5	62.5	32.5
(c) Coronals	10	30	60

The results indicate that students had most difficulty with the dorsal mutations. This was to be expected as the resulting mutated consonants are not present in the English language. Surprisingly, students performed most strongly with coronal mutations.

Mutation of the labial and the coronal fricative also showed a deviation from the average performance.

(20)

	% Unrecognized	% Radical	% Correctly Mutated
(a) Labial fricative (verbs only)	70	10	20
(b) Coronal fricative (verbs only)	25	20	55
(c) Others	7	44	49

As pointed out earlier, labial fricatives undergoing the process of lenition are deleted. It was expected that this unmarked option be favored, but this was not the case. The subjects correctly mutated labial fricatives (on verbs) only 20% of the time. This contrasts sharply with the overall rate for correct realization of other verbal mutations (excluding labial fricatives) of 49%.

The subjects correctly mutated coronal fricatives 55% of the time, which is 6% higher than the rate at which they correctly realized other verbal mutations.

Finally, there was no significant difference in performance between the Irish medium school and the English medium school:

(21)

	% Correct IMS	% Correct EMS
(a) Verbs	50	50
(b) Nouns	5	3

McAllister (2001) suggests that the amount of input of L2 does not necessarily impact positively upon the performance of L2. This result appears to confirm this hypothesis.

7. Conclusions

The relatively high success rate with verbal ICM (illustrated above), coupled with examples of over-regularization suggests that the acquisition of ICM may be morpho-syntactically governed. The subjects, all of whom were native English speakers did not need to contend with a new tense (past tense is common both to Irish and English). This may be responsible for the higher success rate in the realization of

verbal mutations. Furthermore, as all the instances of nominal lenition were triggered by gender and the success rate in the realization of nominal mutations is so low, it may be the case that as L1, i.e. English, does not have a gender classification the subjects found this problematic.

The phonology of the consonant mutations also plays a role in determining their realization. The results demonstrate that students have difficulty producing mutations where the mutated consonant does not exist in their native language. The surprising results regarding the mutation labial fricatives and coronals warrants further research and will be addressed in my next set of data collection.

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