

# Lexical Conservatism in Irish Prepositions

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## 1 Introduction

Irish has two different types of prepositions: one type has a single form for all situations, while the other type inflects for various morphological features. We will be investigating this second type of preposition, providing an analysis of the morphological distribution of the various inflections in Optimality Theory. We will then move on to a particular exception in the distribution of inflections. Our analysis will provide a phonological motivation for this exception, allowing us to give a principled reason for it.

## 2 Irish Prepositions

The prepositions below have a base form and various inflected forms. The table in (1) gives examples of five prepositions and their inflections.

(1) Preposition Inflections (from Brennan (2007))

	<i>le</i> 'with'	<i>ag</i> 'at'	<i>ar</i> 'on'	<i>faoi</i> 'under'	<i>thrí</i> 'through'
base	le	ag	ar	faoi	thrí
1sg	liom	agam	orm	fum	thrím
2sg	leat	agat	ort	fut	thít
3sg (m)	leis	aige	air	faoi	thíd
3sg (f)	léithi	aice	uirthi	fuithe	thríthi
1pl	linn	againn	orainn	fuinn	thín
2pl	libh	agaibh	oraibh	fuibh	thríbh
3pl	leofa	acu	orthu	futhu	thíothu

The base form is used when the argument of the preposition is overt. The inflected form cannot be used with an overt argument, even if it agrees in morphological features. This can be seen in (2).

- (2) a. le Máire  
with Mary  
b. \*léithi Máire  
with.3sgf Mary

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(examples from McCloskey & Hale (1984))

The inflected forms are only used when there is no overt argument. McCloskey & Hale (1984) argue that, in these situations, there is a covert argument of the preposition, *pro*.

- (3) a. leofa  
with.3pl  
b. \*leofa iad /siad  
with.3pl them /they  
(examples from McCloskey & Hale (1984))

The generalization we wish to make is that only one realization of the morphological features is allowed. That is, there is a constraint on spelling out the features multiple times, and another constraint that ensures the features are realized in some way. These constraints, stated in (4), work in tandem to provide the grammatical forms.

- (4) a. **\*Double Spell Out** or \*DSO:  
Do not realize morphological features on both the preposition and its argument.  
b. **Spell Out** or SO:  
Morphological features must be phonologically realized.

Explicitly, \*DSO prevents inflection with an overt DP, as in \**léithi Máire*. SO does the opposite, preventing the base form from being used alone, as in \**le*.

Next, we need a constraint to prevent the base + pronoun combination, as in \**le iad/siad*. This combination satisfies \*DSO and SO just as much as *leofa* does, but is still ungrammatical. We will utilize a general anti-structure constraint \*PRONOUN

- (5) \*PRONOUN:  
Pronouns must not be overt.

Other constraints might also be used for this purpose—perhaps a general \*STRUC or \*WORD constraint. The choice does not appear to be crucial, so we will support \*PRONOUN for its ease of use.<sup>1</sup>

The following tableaux show our three constraints in action. We assume a high-ranking MAX-WORD that prevents us from deleting the preposition or the DP *Máire*.

/'with' + [3] [plural]/			*DSO	SO	*PN
(6) a.	☞ infl:	leofa			
b.	base:	le		*	
c.	infl+pn:	leofa siad	*		*
d.	base+pn:	le siad			*

<sup>1</sup>Brennan (2007) cites Avery Andrews' 1990 NLLT article on a similar approach. His constraints relate to our \*DSO constraint and a general economy-of-words constraint. The most apparent difference between the approaches is that our constraints are violable, allowing for certain exceptions to the generalization presented.

/‘with’ + Máire/		*DSO	SO	*PN
(7) a.	base+M.: le Máire			
b.	infl+M.: léithi Máire	*		

The tableaux show the underlying representation of the preposition as its gloss. A more explicit underlying representation would be every form of ‘with’ listed in (1), with the appropriate morphological features connected to each. This is demonstrated in (8).

(8) The underlying representation of ‘with’:

- {*le*,
- liom* [1] [sg],
- leat* [2] [sg],
- leis* [3] [sg] [m],
- léithi* [3] [sg] [f],
- linn* [1] [pl],
- libh* [2] [pl],
- leofa* [3] [pl]}

Thus, the input to the tableau in (6) is (8) plus the morphological features [3rd person] and [plural]. The input to (7) is (8) plus *Máire*. For readability, it is abbreviated as the gloss ‘with’.

SO, in addition to ruling out the argument-less *\*le*, ensures that the correct inflection on the preposition is used. For instance, for tableau (6) the output form *linn* would violate spell out. This is because the feature [3rd person] would not be phonologically realized. Likewise, *leis* would fail to realize [plural], and *liom* would fail to realize either feature.

### 3 Lexical Conservatism

Now that we have a basic approach to the morphology of prepositional phrases, we must account for a particular exception: the prepositions *le* ‘with’ and *thré* ‘through’ inflect for the 3sg masculine when the argument is headed by the definite article *an*. This is the case regardless of the gender of the argument.

We propose that phonology is partially responsible for this irregular alternation. The base forms *le* /lə/ and *thré* /hri:/ both end in a vowel. The combination of a vowel-final base form and the article *an* /ən/ exhibits vowel hiatus.<sup>2</sup>

In order to prevent vowel hiatus, the preposition inflects. Note that inflecting for 3sg masculine *leis* /ləs/, *thréid* /hri:d/ gives us consonant-final forms, but inflecting for 3sg feminine *léithi* /le:hə/, *thréithi* /hri:hə/ fails to prevent vowel hiatus. This is why the inflection is masculine even when the noun is feminine.

The preposition *faoi* /fi:/ ‘under’, also ends in a vowel in the base form. However, it has the same form for the base and the 3sg masculine form. Therefore, we don’t know if it is inflecting or not.

We will need to bring in three more constraints to deal with this:

<sup>2</sup>Larry Hyman pointed this out at Jon Brennan’s 2007 WCCFL talk

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- (9) a. **\*Hiatus(an)**: The segment before *an* must be a consonant.  
 b. **Faith-Person**: Person features may not be added or deleted.  
 c. **Faith-Gender**: Gender features may not be added or deleted.

\*HIATUS(AN) is a very specific morpho-phonological constraint. Vowel hiatus is not generally avoided in Irish phonology (or even with prepositions), so the constraint must be formulated so that it is specific to the article *an*. For example, the preposition *le* does not change forms depending on whether a following proper name is vowel-initial or consonant-initial. If such an alternation were to take place, a more general constraint like \*HIATUS would be preferred.

FAITH-PERSON and FAITH-GENDER are blanket faithfulness constraints for person and gender features, respectively. Our underlying representations include the entire paradigm, with each form associated to a particular bundle of morpho-syntactic features (as shown in (8)). If a different form is chosen, then different features are expressed than what was in the input, and we incur violations of faithfulness. The point of these two constraints is to capture the fact that faithfulness to some morpho-syntactic features is more important than faithfulness to other features. This constraint ranking, in turn, can interact with the phonology, as we will see.

The tableau in (10) demonstrates the constraints for *leis an mbosca* ‘with the box’. The input is the entire paradigm of ‘with’, plus the article *an* and the singular masculine noun *mbosca*. The DP itself expresses the features [3rd person], [singular], and [masculine], so any inflection on the preposition will result in a violation of \*DSO.

	/‘with’ + an mbosca/	*HIATUS(AN)	*DSO	F-PERSON	F-GENDER
(10)	a.  leis an mbosca (3sgm)		*		
	b. le an mbosca (base)	*!			
	c. liom an mbosca (1sg)		*	*!	
	d. léithi an mbosca (3sgf)	*!	*		*

Candidates a and b demonstrate that \*HIATUS(AN) outranks \*DSO. We assume a high-ranking DEP and MAX for segments, so that a candidate like *le + C + an mbosca* is unavailable. This means that the only way to satisfy \*HIATUS(AN) is to use an inflected form of the preposition, incurring a violation of \*DSO.

The next tableau demonstrates that \*HIATUS(AN) must also outrank FAITH-GENDER. The noun is *mbean* ‘woman’, which is singular feminine.

	/‘with’ + an mbean/	*HIATUS(AN)	*DSO	F-PERSON	F-GENDER
(11)	a.  leis an mbean (3sgm)		*		*
	b. le an mbean (base)	*!			
	c. léithi an mbean (3sgf)	*!	*		

Finally, we have the issue of *faoi* ‘under’. We must prevent it from changing form, even though remaining as *faoi* results in a violation of \*HIATUS(AN). For *faoi* to stay as it is, FAITH-PERSON must outrank \*HIATUS(AN).

	/‘under’ + an mbosca/	F-PERSON	*HIATUS(AN)	*DSO	F-GENDER
(12) a.	faoi an mbosca (base)		*		
b.	faoi an mbosca (3sgm)		*	*!	
c.	fuithi an mbosca (3sgf)		*	*!	*!
d.	fum an mbosca (1sg)	*!		*	

This gives us the final constraint ranking in (13). The constraints \*PN and SO are unranked with respect to the four constraints we have been evaluating.

- (13) FAITH-PERSON >> \*HIATUS(AN) >> \*DSO, FAITH-GENDER  
 \*PRONOUN, SPELL OUT

\*HIATUS(AN) is sandwiched between the two morpho-syntactic faithfulness constraints. This correctly captures the intuition that, if *le* or *thrí* is in a situation of hiatus with *an*, then it will be faithful to person but not to gender. Faithfulness to person is more important than hiatus, and so a form like *faoi* will simply stay in the base form because it cannot avoid hiatus in any person-faithful way.

## 4 Other approaches to allomorphic exceptions

The present approach has much in common with Steriade (1999)’s Lexical Conservatism and Ito & Mester (2006)’s Lexical Allomorphy.

Steriade (1999) analyzes English stress and French liaison in a framework that combines phonology and the effect of morphological forms in the lexicon. For Steriade, though, the morphology of the word does not change. For instance, the adjective *nouveau* in the French phrase *nouvel ami* does not go from masculine *nouveau* to feminine *nouvel*. Instead, the phonological parts of the feminine form are added to the masculine form. Like our analysis, the availability of a related, consonant-final form influences hiatus resolution.

In our approach, the form of the preposition completely changes—there is no combining or sharing of phonological aspects of each form. The faithfulness constraints act on morphological features. The only way (within our delimited system) to make a change to the phonology of the preposition is to change the morphology. This is a crucial distinction, and the example of *faoi* provides evidence that this is the right approach for Irish prepositions.

If the preposition did not change morphology, then there would simply be the addition or removal of phonological segments or features. Thus *faoi* could pick **any** of the listed morphological forms. We could then expect *\*fum an mbosca*, with the 1sg inflection. Alternatively, it might just borrow the *m* of *fum*, resulting in *\*faoim an mbosca*. Either way, the predictions are wrong. *Faoi* does not inflect as *fum* before the article *an*, and the reason is faithfulness to the morpho-syntactic person features. We need reference to these features, and the present approach enables this reference. Steriade’s approach does not allow this, at least not in a straightforward manner.

Ito & Mester (2006)’s Lexical Allomorphy captures certain generalizations that are similar to the Irish prepositions. Like our system, they put multiple forms in the underlying representation. One example they give presents loanwords from English into Japanese. Two

baseball team names, the Dragons and the Tigers, borrow the plural suffix /z/ differently, as seen in (14).

- (14) a. /doragon/, /-zu, -su/ → [doragon zu]  
 b. /taigaa/, /-zu, -su/ → [taigaa su]

Phonological constraints decide which plural suffix should be used. For *doragonzu*, the constraint No-NC̥ prefers the suffix /-zu/, while No-VoiObs prefers /-su/ for *taigaasu*. Both suffixes presumably have the same morpho-syntactic features involved, and only phonotactics decides between them.

The case of Irish prepositions is more complex. Both phonological and morphological constraints do the work of deciding which form will be output. In effect, our case is an example of “Lexical Allomorphy Plus”, where we build morphological considerations into the same system as phonological considerations. The reason I call the current system “Lexical Conservatism” is because of the reuse of existing morphological forms to solve phonological problems.

## 5 Further work

Irish verb inflection follows a similar pattern as the prepositions. An inflected verb cannot appear with a pronoun, and base forms must be used with overt NPs. There is a difference, in that the paradigms of inflection are more incomplete for verbs—sometimes only certain inflections are found for certain tenses and moods. For instance, the conditional of *cuir* ‘put’ has inflectional forms for 1sg, 2sg, and 1pl, but the rest of the paradigm uses the base form and pronouns.

- (15) Verb paradigm for *chuirfeadh* ‘put:

1sg	chuirfinn	1pl	chuirfimis
2sg	chuirfeá	2pl	chuirfeadh sibh
3sgm	chuirfeadh sé		
3sgf	chuirfeadh sí	3pl	chuirfeadh siad

(from McCloskey & Hale (1984))

The orthographically independent words (*sé*, *sí*, *sibh*, and *siad*) are the pronouns that come after the base form. The morphological analysis given here for prepositions can be extended to verbs. \*DSO, SO, and \*PRONOUN can be used to account for this, assuming an underlying representation that includes only those inflectional forms found in the table above. In other words, given a UR with only three inflections, an extension of our analysis could account for why pronouns appear with the base form in all the other slots of the paradigm.

In terms of future work on prepositions, I hope to account for the distribution of all inflections of prepositions in Irish. For instance, *ó* ‘from’ and *an* combine to form *ón*. Likewise, *i* /ə/ ‘in’ combines with *an* to form *sa* /sə/ or *san* /sən/, depending on whether the noun begins with a consonant or vowel, even though it has an available consonant-final third-person singular inflection *ann* /a:n/. It seems reasonable that these alternations can be

integrated into the present approach, but it remains to be seen how much must be stipulated, and how much can be derived.

## References

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