NEW THOUGHTS ON OLD QUESTIONS – RESUMPTION IN IRISH *

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This paper is concerned with the apparent fact that natural languages build Ā-dependencies either by way of a filler-gap dependency or by way of a resumptive dependency. Its principal empirical goal is to clarify the circumstances under which a choice is made between gaps and resumptive pronouns in Ā-binding constructions in Irish. It is shown that when in competition with gaps pronouns are disfavored to an overwhelming degree and that they are tolerated only in positions where heightened parsing pressures come to bear. The implications of this finding for the theory and typology of resumption are considered. It is argued that, for Irish and English at least, the relevant parameter makes no reference to pronouns but only to properties of the functional head C.

1. A Choice

On the face of things, the syntax of natural language seems to make available two options at least for the construction of binding-relations between a clause-peripheral position α (higher) and a clause-internal position β (lower):

- The creation of a filler-gap dependency between position α and position β, β empty.[1]
- The binding of a pronoun in position β from position α. Pronouns so bound are known as 'resumptive' pronouns.

These options are exemplified in (1), the first illustrating the filler-gap dependency, the second the resumptive dependency – an option deployed fairly frequently, it seems, at least in informal registers (see, for instance, Bennett (2008)).

(1) a. the guy that I was talking to
b. the kind of guy that you never know if he'll be on time or not

Much of the discussion around this pair of options has drawn a distinction between two kinds of language – in one group, the grammar defines both options as well-formed (varieties of Arabic, Hebrew, Irish), while in the other only the filler-gap dependency is well-formed (this class includes English, German, and Greek on most accounts). On this view, (1b) is not a well-formed expression of English but is rather an instance of 'intrusive' resumption (Chao and Sells (1983)). On this

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[1] The syntactic operation which links filler and gap is often taken to be movement (or Internal Merge in recent work); for my purposes here, however, it will mostly not matter how the syntax of that relationship is understood.

view, the use of the resumptive pronoun in (1b) reflects the use of an extragrammatical 'last resort' mechanism under various sorts of performance pressures (for discussion, see Asudeh (2004, 2012), Alexopoulou (2006, 2010), Alexopoulou and Keller (2007), Heestand et al. (2009), Ackerman et al. (2014), Beltrama and Xiang (2016) among many others). For that reason, discussions of resumption often raise difficult and useful questions about the relation between formal grammars and the mechanisms of production.

Irish has been regarded as one of the exemplary members of the 'true resumption' club of languages. And it is indeed very clear why one might conclude that resumption is a grammatically licensed option in that language. Clauses which host filler-gap dependencies are introduced by the 'direct relative' complementizer, while those which host resumption dependencies are introduced by the 'indirect relative' complementizer. The ramifications of THAT choice in turn spread through the morphosyntactic system of the language – determining how verbs are inflected, what verb-stems are used when, what form is taken by certain functional elements (the copula, certain aspectual particles) and so forth (Duffield (1995: chap. 3), McCloskey (2001), Oda (2012), Acquaviva (2014), Ostrove (2015, 2016)). Since the morphological alternations are determined by complementizer choice and since complementizer choice is in turn determined by the choice between a filler-gap dependency and a resumptive dependency, that option in turn, it seems, must be represented in the grammar of the language.[2]

The availability of both options to speakers of Irish is vividly illustrated by the two examples in (2), which were used within minutes of one another by the same radio reporter to describe the same situation (an emergency at sea):

(2) a. an bheirt a bhí siad ag iarraidh a shábháil
the two C-FG be.PAST they PROG try save.NON-FIN
'the two that they were trying to save' RADIO REPORT

b. an bheirt a raibh siad ag iarraidh iad a shábháil
the two C-RP be.PAST they PROG try them save.NON-FIN
'the two that they were trying to save them' RADIO REPORT

(2a) involves a filler-gap dependency; (2b) involves a resumptive dependency. In this case, the difference between the two complementizers is reflected primarily in the different suppletive allomorphs triggered on the finite verb – the 'independent' form *bhí* in (2a) triggered by C-FG, the 'dependent' form *raibh* in (2b) triggered by C-RP (on the mechanisms involved here, see Duffield (1995: chap. 3), McCloskey (1996a, 2001), Oda (2012), Acquaviva (2014) and especially Ostrove (2015, 2016)).

The examples of (2) were spontaneous oral productions; the same pattern of optionality is illustrated in the written medium by the two examples of (3), which were used in the same text by the same author within a page of one another. In this case the syntactic position which hosts either a gap (in (3a)) or a resumptive pronoun (in (3b)) is the subject position of a nonfinite clause, itself a complement to the modal expression *ní mór (do x)* ('must (to x)').

[2] Because the contrast between these two complementizers in Irish will be important for what follows, I will use 'C-FG' to gloss the complementizer which heads clauses which host filler-gap dependencies and 'C-RP' to gloss the complementizer which heads clauses into which a relation of resumptive binding reaches.

(3) a. na tréithe nár mhór a bheith ann
the traits that+must be.NON-FIN in-him
'the traits that it is necessary for him to have' CTP 153

b. na tréithe eile nár mhór don mhúinteoir iad a bheith aige
the traits other that+must to-the teacher them be.NON-FIN at-him
'the other traits that it is necessary for a teacher to have them' CTP 154

The kind of optionality seen in (2) and (3) is available for a fairly broad range of syntactic positions, including at least the following (see McCloskey (1990/2011) for documentation and details):

- direct object position in a matrix clause,
- subject and object positions in complement clauses (finite and nonfinite),
- object of a verb in progressive aspect (see (2) above),
- subject position of finite verbless clauses – so-called 'copula' clauses.

Many of these patterns of optionality (the first and second in particular) will be illustrated in some detail as the discussion proceeds.

Optionality breaks down under two circumstances. There is, in the first place, one position (and only one as far as is currently known) from which resumptive pronouns are excluded – in the highest subject position of a verbal clause (reflecting the so-called Highest Subject Restriction):

(4) *an fear a raibh sé breoite
the man C-RP be.PAST he sick
'the man that (he) was sick'

On the other side of the coin, resumption is the only option for positions out of which movement is impossible: prepositional object position, possessor position, positions within islands, or positions within coordinate structures. See McCloskey (1985, 1990/2011, 2002), Maki and Ó Baoill (2011) for documentation and details; the repertoire of island effects observed is remarkably familiar from theoretical discussion and from discussions of other languages and language-families and the general patterns of obligatoriness, impossibility and optionality for the resumptive are also fairly familiar (see for instance Doron (1982), Borer (1984), Shlonsky (1992), Sichel (2014) on Hebrew).

My focus in this paper will be on this interesting fact – that two distinct mechanisms for establishing Ā-binding relations seem to coexist, in general and within particular languages. My first goal is empirical – to provide a better understanding than has been available to date of the distributional patterns found within one language (Irish), when options like those in (2) and (3) are in play. The second goal will be to use the answers that emerge from that investigation to engage in some more speculative discussion of what linguistic theory should have to say about resumption and the typology of resumption. In pursuing these questions, I will use a data-base of naturally-occurring examples that I have built up over several decades of observation.[3]

[3] Sources for examples are not given here (because of length restrictions). I will gladly supply them on request.

2. A Question

Say one took the view (naive perhaps, but not irrational) that natural language has been so shaped as to allow people to express what they feel they need to express as efficiently as possible – with minimal effort and with a minimum of troublesome ambiguity. Considered in that light, it is very puzzling why the filler-gap option (the movement option) should exist at all as a way of forming Ā-dependencies, given the obvious advantages enjoyed by resumption-based dependencies over filler-gap dependencies.

ONE: EFFABILITY Resumptive-binding, at least of the kind found in Irish, is not island-sensitive. This means that examples like those in (5) are unremarkable and are relatively common.

(5) a. caisleán a mbéifidhe i ndiaidh na scafaill a bhí ag baint an mhaise de
castle C-RP be.COND.IMPERS after the scaffolding C was PROG take the beauty of-it
a chaitheamh anuas
cast.NON-FIN down
'a castle that the scaffolding that was depriving it of its beauty would have recently been taken down ' MRE 253

b. chun an ghoirt úd a mbraithim pé díth sláinte a bhíonn orm ag dul
to the field DEMON C-RP I-feel whatever lack health.GEN C is on-me PROG go
ann dom ag scaradh liom le linn é a fhágaint dom
into-it to-me PROG separate from-me as it leave.NON-FIN to-me
'to that field which I feel whatever ill-health I suffer from as I enter it falling away from me as I leave it' AI 238

c. hata go ligfeadh bligeard sráide fead dá siúlódh bean thairis síos sráid
hat C-RP let.COND blackguard street.GEN whistle if walk.COND woman by-him down street
mhór an Daingin ag caitheamh a leithéid ar a ceann
main the Dingle PROG wear it's like on her head
'a hat that a street-tough would whistle if a woman should walk by him down the main street of Dingle wearing the like of it on her head' PI 54

Attested island-violating structures like those in (5) are often very complex syntactically; in (5b), for example, the resumptive binding relation reaches into an adjunct island which is in turn contained within a relative clause island; in (5c) the binding relation reaches into a possessor position within a nominal, which is in turn within an adjunct island, that island itself then contained within a larger adjunct island (a conditional clause).

Nevertheless, such examples are well-attested in the corpus just described – 165 examples in all. As a point of comparison, there are 439 examples in which an Ā-dependency of one kind or the other reaches into an embedded clause which is not an island – as in the three illustrative examples of (6). The first has a subject gap, the second an object gap, and the third a resumptive pronoun.

(6) a. na fir a d'inis Fionnbhráid damh a tháinig an bealach seo
the men C-FG tell.PAST to-me C-FG come.PAST the way this
'the men that Fionnbhráid told me had come this way' SRNF 51

b. Rúitín a cheap sé a ghortaigh sé.
ankle C-FG think.PAST he C-FG hurt.PAST he
'It was an ankle that he thought he had injured.' RNG 260616

c. an té a gceapann siad go bhfuil airgead aige
the one C-RP think.PRES they C be.PRES money at-him
'the one that they think has money' DGD 216

The relative frequency of such complex structures in our corpus presumably means that speakers find it useful to be able to express the complex properties that they encode. And if relative frequency can stand as a rough proxy for relative usefulness, we can say that the probability that an island example will be pressed into service is 37% of the probability that a biclausal dependency like (6) will be. And it is striking that the island examples are in turn enormously more frequent than examples like (7), which incorporate a dependency which reaches across two clausal boundaries. Of these exactly three examples turn up, by comparison with the 165 island examples:

(7) an rud is dóigh leat ba mhian léi a dhéanfá
the thing C-FG likely with-you C-FG desire with-her C-FG do.COND.S2
'the thing that you think that she would like for you to do' DPB 12

That is, island examples are 55 times more likely to be deployed than are structures like (7).

And indeed there is no reason that I know of to imagine that our cognitive apparatus has any particular difficulty in creating, grasping or manipulating complex properties like those expressed in (5) – the property, say, of being an x such that unspecified people had just removed the scaffolding that was marring the beauty of x (see (5a) above). And such complex properties are easily expressible by way of resumptive binding. They are not so easily expressible using a filler-gap dependency, a fact which becomes immediately clear when one tries to render such examples in grammatical English (as I have many times) without reaching for an intrusive resumptive pronoun. Filler-gap dependencies are hobbled by an array of locality and other kinds of restrictions and constraints which have been one of the major foci of work in theoretical syntax since Ross (1967). Such restrictions considerably reduce the expressive capacity of syntactic systems which rely exclusively on the filler-gap mechanism for negotiating Ā-binding relationships. Resumptive dependencies are not similarly restricted.

TWO: TROUBLESOME AMBIGUITIES: Use of the filler-gap mechanism frequently results (in a VSO language) in ambiguity of a supposedly debilitating kind, one in which it is impossible to tell whether the relativization site is the subject or object of a transitive verb. These ambiguities emerge for Irish because it makes no case distinction between non-pronominal subjects and objects. Given then a relative clause consisting of a transitive verb and a single audible nominal, it is often impossible to tell whether the gap is a subject-gap or an object-gap (see McCloskey (1985), Hoyne (2016)). The examples in (8) illustrate the ambiguity with verbs that select two animate arguments:

(8) a. i ndiaidh bhás an tiománaidhe a mharbh an taoiseach
after death the driver C-FG killed the chieftain
'after the death of the driver who killed the chieftain'

‘after the death of the driver whom the chieftain killed’ IFDT 171

b. na daoine a dhíbir Cromail ó thalamh na hÉireann
the people C-FG expelled Cromwell from land the .GEN Ireland .GEN
‘the people that expelled Cromwell from the land of Ireland’
‘the people that Cromwell expelled from the land of Ireland’ AT 18

This troubling and common-place ambiguity has its source in the awkward fact that, by definition, filler-gap dependencies terminate in phonologically empty positions. The corresponding examples involving resumption are of course unambiguous:

(9) na daoine ar dhíbir Cromail ó thalamh na hÉireann iad
the people C-RP expelled Cromwell from land the .GEN Ireland .GEN them
‘the people whom Cromwell expelled from the land of Ireland’

A language which exclusively used resumptive dependencies in its Ā-binding constructions would not be burdened with potentially troublesome ambiguities like those illustrated in (8). Now of course such subject-object ambiguities are hardly unknown – they are pervasive in the Germanic V2 languages for example (see Kaan (1996), Bader and Meng (1999) for overviews and references). But that literature has revealed widespread garden-path effects in the event that the expected parse (subject precedes object) turns out not to be the parse actually required. There is a strong processing cost entailed by such confounded expectations – one that would not be paid in the present case if all Ā-dependencies were resumptive dependencies and therefore gave rise to no ambiguity. It has in fact often been claimed that object resumption in Irish serves principally to avoid the kind of ambiguities seen in (8), a claim we return to shortly.

THREE: PROCESSING LOAD: There is an old intuition (one which appears in many versions and in many different theoretical frameworks and contexts) that the processing costs associated with resolving resumptive dependencies are less than, or are in some sense preferable to, the processing costs associated with the resolution of filler-gap dependencies (Givón (1975), Keenan and Comrie (1977), Wanner and Maratsos (1978), Maling and Zaenen (1982), Erteschik-Shir (1992), Hawkins (1994, 1999), Ariel (1999), Alexopoulou and Keller (2007)). One of the most important developments in this area in recent years has been that the questions that arise in assessing these ideas have been greatly sharpened in the exciting explosion of work on resumption that the last twenty years or so has seen – in the emerging frameworks of experimental syntax and experimental psycholinguistics in particular.

Most of this work (until very recently at any rate) has been concerned with languages in which resumption is taken to be intrusive in the sense already discussed – not part of the competence grammar *sensu strictu*. A result that has emerged with particular clarity for such languages is that use of a resumptive pronoun does not result in full acceptability for the relevant structures, or even in a measurable increase in acceptability by comparison with identical structures involving a gap (Alexopoulou (2006, 2010), Alexopoulou and Keller (2007), Heestand et al. (2009), Clemens et al. (2012), Han et al. (2012)). This finding has sometimes been presented as being surprising or unexpected, though why this is so is unclear to me. To say that resumption is ‘intrusive’ in a given language is exactly to say that the syntax of that language makes no provision for Ā-binding

relations which terminate in pronouns. That being the case, we should expect that resumptive structures will be judged unacceptable just like any other class of expressions defined as not fully well-formed by the syntactic system of the language. And this is precisely what is observed.

But what is genuinely striking, of course, is that such expressions, though flawed, are produced and used. That they are usable (and used) is evident from both production studies and corpus studies – Prince (1990), Ariel (1999), Ferreira and Swets (2005), Cann et al. (2005), Bennett (2008), Ackerman et al. (2014), Morgan and Wagers (2015). Now it is in no sense paradoxical *per se* that expressions which are ill-formed to some degree should be used by native speakers. Or at least it is not paradoxical if we adopt the kind of framework for investigation urged by Chomsky since at least the middle 1980's – one in which the distinction between E-language (a set of productions) and I-language (an internal symbolic system) has a central place(Chomsky (1986)). Within such a conception, our expectation will be that certain expressions which are defined as fully well-formed will be in practice unusable (maybe they involve many degrees of center-embedding or 35 levels of clausal subordination), and equally that certain expressions defined as not fully well-formed will be interpretable and will, for whatever reason, turn out to be useful and usable. This seems to be exactly the situation that we observe in English or Greek or German with regard to resumptive structures.

But such flawed structures would presumably not be pressed into service if they did not provide some value, despite their ill-formedness, either for those who produce them or for those who must comprehend them. There have been various proposals over the years about what that added value might be in the case of resumptive dependencies. Tony Kroch (1981) suggests that resumption emerges in English in response to poor initial planning on the part of producers; Ash Asudeh suggests (2004; 2012) that they are useful because they express the intended meaning and guarantee local (if not global) well-formedness; Beltrama and Xiang (2016) present evidence that resumptive structures, while they do not improve acceptability, increase comprehensibility by comparison with similar structures containing gaps. And Philip Hofmeister and Elizabeth Norcliffe (2013) argue for a very particular kind of processing advantage linked with resumption. They use the self-paced reading methodology to argue that resumptive pronouns show a measurable processing advantage over gaps – but only in high difficulty contexts. That is, reading times in the region of a resumptive pronoun in English are faster than those measured in the context of a gap – but only if the relevant region is already a region of high difficulty. In this circumstance, resumption is clearly facilitative. Furthermore, resumptive pronouns in such high-difficulty contexts are judged more acceptable than those which occupy less challenging positions. Neither effect, however, is detected in regions where the processing load is low.[4] In such contexts the only measurable consequence of using a resumptive element rather than a gap is lowered acceptability. We will return to this finding in the following section and present some additional evidence in its favor.

For now, though, the general conclusion is that there does seem be evidence of an interesting kind for a processing advantage pertaining to resumptive, as opposed to filler-gap, dependencies. So our naive question remains – why isn't every language a resumption-only language?[5]

[4] For the purposes of their study, what determines heightened difficulty is length of the dependency – cases in which the dependency must cross a complement clause boundary are difficult; monoclausal dependencies are not.

[5] The only case known to me which might qualify as a 'resumption only language' is Palauan, as described by the

There has been a note of embarrassment in this discussion – it could well be that it is fruitless, or worse, given our current level of understanding, to even entertain such naive design questions. But the asking perhaps helps to fend off complacency and may encourage us to be appropriately puzzled by the commonplace (in this case the ubiquity of filler-gap dependencies). And, as it turns out, the concerns and observations that have been to the fore here will help frame the discussion of the more tractable questions that follow – how the choice between the two dependency-types works itself out in the production of Irish sentences.

3. Inside Irish

If it is strange that resumption is not more widespread crosslinguistically as a means of building Ā-dependencies, it is all the more strange that, in a language such as Irish which offers its users a choice in the matter, resumption is massively disfavored in usage, when it is in competition with the gap option. I want to document here the extent to which this is true and to consider what the factors are which push producers of Irish utterances towards one choice or the other. In doing this, I will in part be making good on a trail of promissory notes scattered through my own earlier work on these topics (McCloskey (1985: 64–65), McCloskey (1990/2011: fn. 41, p. 116) for instance). I have claimed that the grammar of Irish makes available a free choice between resumption and filler-gap dependencies and that the choices actually made reflect performance factors. That is probably correct, but I have to confess that I have been shocked to discover, in looking more closely at the facts, how extreme the prejudice against resumption is.

Consider, to begin with, cases like (10), in which a resumptive pronoun appears in the highest object position of a relative clause.

(10) a. jab a-r fhág an oiread sin oibrithe é
job C-RP.PAST leave.PAST so many workers it
'a job that so many workers left (it)' AT 138

b. na tithe seo nár fhág aon duine fós iad
the houses DEMON C-NEG-PAST leave.PAST any person yet them
'those houses that no-one had yet abandoned (them)' LAN 141

66 examples of this type have appeared in my data-base[6] in the course of the three decades or more during which I have been keeping track. This is barely a third of the number of island-violating cases like (5) detected in the same period. I have not kept a count of the corresponding set of examples involving gaps in direct object positions. Given their frequency, recording every such example would have been an enormous task. However it is possible to estimate their frequency – by choosing 100 pages at random from among the texts out of which the data-base was constructed, counting the number of unembedded object gaps found in those pages, and then scaling up to the estimated total page-size of the corpus. That process yields a conservative estimate of around 64,000 examples for the filler-gap strategy in the case of unembedded direct objects. Given the

late Carol Georgopoulos (1991).

[6] Excluding cases in which appearance of the object resumptive is forced by a weak crossover configuration. See below.

uncertainties involved in its calculation, that number is very unlikely to be accurate; but the exercise gives a sense of how enormous the disparity in frequency is between the two patterns.

For more deeply embedded positions, the overall numbers are smaller (the relevant structures being more complex and rarer), but there is also more reason to be confident in the count, since from the start my goal has been to record every example of the various types we'll consider. This effort has yielded 353 examples in which a filler-gap dependency crosses a clause-boundary and terminates in embedded subject or object position (see (6) above). These are positions in which there is again a choice – either a gap or a resumptive pronoun can in principle be used. In fact, there are just 34 examples of the type in (11), in which the pronoun appears:

(11) a. na caiple sin a n-abrann sealgairí go mbíonn siad ag léimnigh agus
the horses DEMON C-RP say.PRES hunters C be.PRES-HABIT they PROG leap and
ag damhsa
PROG dance
'those horses that hunters say leap and dance' SS 238

b. Chonnaic mé iongantais nach gcreidfeadh fear ar bith go bhfeiceadh sé iad.
see.PAST i wonders NEG-C believe.COND man any C see.COND he them
'i have seen wonders that no man would believe that he would see them' UMI 216

That is, gaps are favored over pronouns in this context by a margin of of 91.2% to 8.8%. Why are these patterns as they are? In addressing that question, I will begin with unembedded object resumptives like those of (10) and with a negative conclusion, arguing that a factor which has been claimed to be central is of marginal importance at most. We have seen (at (8) above) that use of the filler-gap syntax can give rise to ambiguity – it is sometimes unknowable from the form of the relative clause itself whether one is encountering a subject gap or an object gap. (12a) is an additional example, one which could have been disambiguated, but was not, by the addition of a single unaccented syllable, an object pronoun.

(12) an t-oifigeach sgannruighthe a tharrtháil mé an oidhche roimhe sin
the officer frightened C-FG save.PAST I/me the night before that
'the frightened officer that I had saved the night before'
'the frightened officer that had saved me the night before' FFF 180

It is claimed in some contemporary pedagogical grammars that the principal function served by the object resumptive pattern is that of avoiding ambiguities like that in (12) (Anonymous (1960: §664, p. 336), Mac Giolla Phádraig (1963: 121), Ó Dónaill (2008: 148–149)). But this seems to be incorrect. There are almost as many attested ambiguous examples of this type (there are 51) as there are cases of object resumption itself. Furthermore, of the 66 attested cases of high object resumption, only 10 would be ambiguous if rendered as a filler-gap dependency. And even if we were to grant that a strategy of ambiguity avoidance is at work in these 10 potentially ambiguous cases, it would remain true that five times as many examples of the same type in the same corpus remain 'un-repaired'. And it would also remain true that the hypothesis of ambiguity-avoidance can account for at most 15% of our observations (10 out of 66 cases). Overall then, ambiguity-

avoidance seems to play at most a very minor role in shaping speaker choices – a conclusion reached independently in a careful recent discussion by Mícheál Hoyne (2016: 65–67).

It turns out moreover that for the ten cases in which ambiguity-avoidance might be thought to play a role, there is another factor which equally well predicts use of the resumptive dependency. Furthermore that factor extends in a natural way to a much larger proportion of the attested examples – 50 out of 66. The factor in question is animacy. Object resumptive pronouns are most frequently attested in the context of an animate head for the relative clause.

The relevant observations are summarized in the table of (13), which provides a breakdown of all examples of unembedded object resumptives attested in the data-base, with respect to three characteristics – animacy of the head, animacy of the object resumptive (these two linked of course), and animacy of the subject of the relative clause. It distinguishes four types of clause by these criteria, all of which are exemplified in the example blocks that follow ((14)–(17)).

(13)

	HEAD	RC-SUBJECT	OBJ-RESUM	
TYPE ONE	-Animate	-Animate	-Animate	7 exs.
TYPE TWO	-Animate	+Animate	-Animate	9 exs.
TYPE THREE	+Animate	+Animate	+Animate	21 exs.
TYPE FOUR	+Animate	-Animate	+Animate	29 exs.

(14) TYPE ONE (7 examples)

Trí rud ná leanfadh aon rath iad
three thing NEG-C follow.COND any good-fortune them
'three things that no good fortune would come of (them)' PF 188

(15) TYPE TWO (9 examples)

bíonn siad ag gearán faoi rud go dtuigeann tú é
be.PRES-HABIT they PROG complain about thing C-RP understand.PRES you it
'they complain about something that you understand (it)' RNG 100914

(16) TYPE THREE (21 examples)

daoine sa cheantar ar mharuigh an t-IRA iad
people in-the district C-RP.PAST kill.PAST the IRA them
'people in the district that the IRA had killed (them)' RNG 120813

(17) TYPE FOUR (29 examples)

an té nach gcorródh gol Phádraig é an oíche sin
the one NEG-C move.COND weeping Patrick him the night DEMON
'the one that Patrick's weeping would not move (him) that night' PI 211

The verb-type which most favors object resumption is the fourth – the class of verbs which take an inanimate external argument and an animate internal argument – a marked alignment pattern. One sub-class of this type is the class of object experiencer verbs (*satisfy*, *shock*, *frighten* and so

on) and these verbs are indeed well-represented in our sample.[7] However other verb-types which exhibit the crucial alignment-pattern (certain causatives for instance) are also well-represented:

(18) a. páiste a ndúiseodh drochbhrionglóid as a shuan é
child C-RP wake.COND bad-dream out-of his sleep him
'a child that a bad dream would waken (him) from his sleep' SG 116

b. an bhean go rúnóch an bhróg a bhí aige í
the woman C-RP fit.COND the shoe C-FG be.PAST at-him her
'the woman that the shoe that he had would fit (her)' SMB 14

But the most striking result here is that 50 out of 66 attested cases of unembedded object resumption – 76% of cases – involve animate heads. This pattern reverses the normal distribution, since in general, in the same corpus, just 30.5% of relative clauses have animate heads. It seems, then, that animacy of the head favors deployment of resumptive pronouns in cases of object relativization. Why should this be so?

Given the results reported in Hofmeister and Norcliffe (2013), our expectation will be that resumptive pronouns will be strongly disfavored in positions which are not loci of high processing difficulty, but will be favored (or less dis-favored) in regions of heightened processing difficulty. The crucial observation now is that there is in fact a large and rich literature in experimental psycholinguistics which shows that the combination of animate subject with object relativization is problematic for processing and, crucially, rare in production. The effect is plain for the English equivalent of our Type Four verbs (inanimate external arguments and animate internal arguments) and is palpable in the discomfort one feels on encountering English examples like those in (19):

(19) a. People that these claims shock should get a life.
b. I haven't met many linguists who this claim surprises.
c. I've worked with many children who this video has disturbed.

The reality of the effect suggested intuitively by (19) has been demonstrated in many studies and by way of an impressively broad range of methodologies – see, among others, Traxler et al. (2002), Mak et al. (2002, 2006), Gennari and MacDonald (2008, 2009), Lowder and Gordon (2014) and Wagers and Pendleton (2015). Gennari and MacDonald (2008, 2009) in particular present the results of two production studies, two corpus studies and two comprehension studies, all of which demonstrate in various ways that examples like (19) are at low probability in terms of production (in the lab and in the wild) and are difficult to comprehend. Roland et al. (2007) and Wagers and Pendleton (2015) provide additional corpus-based evidence establishing similar conclusions. Lowder and Gordon (2014) confirm the core finding with two studies involving eye-tracking while reading and Wagers and Pendleton (2015) add a new kind of evidence. Focusing on English relative clauses, they show, by way of two self-paced reading experiments using the filled-gap paradigm

[7] It is striking in this context that Sichel (2014: 666) reports that object experiencer verbs in Modern Hebrew forbid object gaps and require resumption under object relativization. In Hebrew this is a hard grammatical constraint, it seems, whereas in Irish, as we will see shortly, we are dealing with tendencies and preferences. As she notes, however, (fn. 7, p. 666)) given the proposals of Landau (2009), such apparent direct objects will in fact be objects of a null preposition, in which case the facts more clearly fall into place.

(Crain and Fodor (1985), Stowe (1986), Lee (2004), Wagers and Phillips (2014)), that animate relative clause heads (but not inanimate relative clause heads) lead the comprehender to expect a gap in subject position – an expectation necessarily confounded in the case of object relatives, with the ultimate result of increased reading times at the relative clause subject.

This finding is fairly well understood as far as parsing is concerned. If processing is in general active, probabilistic and predictive (Frazier (1987), Omaki et al. (2015) among many others), then when a comprehender encounters an animate relative clause head an implicit expectation is induced that a subject gap will be encountered and that it will complete the dependency. This is a reasonable expectation, since to a first approximation, subjects will be animate and inanimates will be non-subjects (see for instance Hopper and Thompson (1980), Aissen (1999) among many others). However reasonable such an expectation may be in general, though, it is bound to fail in the cases we care about here – animate heads in the context of object relativization. When the expectation founders and recalibration is called for, the processor struggles. Therefore an object gap in a relative clause headed by an animate nominal is inevitably a position of heightened processing pressure. Given the results of Hofmeister and Norcliffe (2013) then, we should expect that position to be relatively hospitable to resumptive pronouns and the observations summarized in table (13) are understandable.[8]

Or at least we expect them if certain structures which are hard to process are also rarely used. It is hardly obvious why processing and production should be linked in this way, but the fact that they are so linked is well established for the effect we are concerned with (Roland et al. (2007), Gennari and MacDonald (2009), Wagers and Pendleton (2015)). This is why the discussion about animacy and object relativization has been at the heart of recent debates about the mechanisms which connect processing and production (see, for one example, Macdonald (2013) and the various commentaries on that article).

This feels like progress, but the account is not yet complete. Our discussion links patterns in the distribution of resumptives in Irish with a certain class of processing difficulties. As far as I know, however, the same processing issues in English do not result in increased use of resumptive pronouns. The typical response to the difficulties of (19) is that the relative clauses are rendered instead as passives, so that the content expressible as (19) is in fact expressed by (20):

(20) a. People who are shocked by these claims should get a life.
b. I haven't met many linguists who are surprised by this claim.
c. I've worked with many children who have been disturbed by this video.

In the passive structures of (20), animate heads are paired with subject gaps and the problematic pairings are eliminated. It is for this reason that discussions of animacy and object relativization

[8] A question I must sadly leave open is the question of whether or not the animacy of the relative clause subject is a significant factor here. At the level of intuition, it seems to me that the English examples involving inanimate subjects pose more severe difficulties than those with animate subjects; but this is only an intuition. Similarly, in Irish there are more cases involving resumption in the context of an inanimate subject than in the context of an animate subject – this is the difference between TYPE THREE and TYPE FOUR in table (13). However it's not clear that the numerical difference between the two types is significant, especially in the absence of a baseline (on which see below). A similar uncertainty runs through much of the discussion of the English data.

in English have been almost exclusively concerned with issues of voice and argument alignment. And of course it is unsurprising that English speakers would respond as in (20) to the difficulties represented by (19) – in English, resumption is not fully well-formed but passivization is.

But the equivalent of (20) is not available to speakers of Irish, because the language lacks a promotional passive of the English type. The functions served by passive in English are for the most part served in Irish by an impersonal inflection on the finite verb (known as the 'autonomous' form), which licenses a null impersonal subject but triggers no realignment of grammatical relations (Stenson (1989), Nolan (2006), McCloskey (2007, 2010)):[9]

(21) a. Gortaíodh anuraidh é.
hurt.IMPERS.PAST last-year him
'He was hurt last year.'

b. Cuirfear amárach sa reilg áitiúil í.
bury.IMPERS.FUT tomorrow in-the graveyard local her
'She will be buried tomorrow in the local graveyard.'

It follows that the standard English 'repair' is not available to speakers of Irish and in the face of the processing pressure described earlier the prejudice against resumptive pronouns is overcome.

The logic used here extends to other cases of optional resumption. Dependencies terminating in embedded subject and object positions also tolerate resumptive pronouns (see the discussion around (6) above). Such long dependencies are well known to give rise to heightened processing difficulty and so we would expect a degree of tolerance in this context too for the resumptive option. For high objects also, among the 16 (out of 66) attested examples that do not fall under the animacy generalization, five appear either in coordinated relative clauses ((22a), for instance) or in a stacked relative clause ((22b)). In such cases the resumptive pronoun is separated from its binder by a substantial linear distance. But it is well established that increasing the linear distance between filler and gap strains short-term memory resources and leads to processing pressures.

(22) a. scamall dorchadais a d'imigh ar an dtoirt agus ar lean fuarallas é
cloud darkness.GEN C-FG leave.PAST on the moment and C-RP follow.PAST cold-sweat it
'a cloud of darkness that dissipated immediately and which was followed by a cold sweat' CPCC 113

b. ní raibh an t-athrach ba lugha a tháinig ar ghnúis a chomrádaidhe
NEG-PAST be.PAST the change smallest C-FG come.PAST on face his comrade
nach dtug sé fá dear é
NEG-C take.PAST he under-notice it
'there wasn't the smallest change that came over the face of his comrade that he didn't notice' AM 63

If all of this can be maintained, we are left with a residue of 11 (out of 66) examples in which

[9] There are two constructions which show the formal, but not the functional, properties of passive structures and which do involve promotion of the direct object to subject. However these constructions involve the expression of aspect – perfective or progressive – and are in no way semantically equivalent to their non-passive counterparts. See McCloskey (1996a) for discussion of the Perfective Passive and Nolan (2006) for more general discussion.

tolerance of the pronoun cannot be attributed to any processing pressure so far identified.[10]

The patterns observed so far can be summarized in the following terms: when the grammar of Irish seems to offer a choice between using a gap and using a resumptive pronoun, speakers decline the option of using a pronoun by overwhelmingly large margins. The extreme prejudice against pronouns is, however, overcome under the kinds of conditions identified by Hofmeister and Norcliffe (2013) for resumptive pronouns in English – hardly at all under light processing loads, with greater frequency at points of heightened processing pressure. Even in this circumstance, however, if the embedded subject/object condition is representative, pronouns are used only in about 9% of cases in which they might in principle be used.

At this point the supposed distinction between 'intrusive resumption' languages and 'true resumption' languages begins to look suspect. If the grammar of Irish simply makes available a free choice between the two options (and this is how the distinction is usually characterized), it is very puzzling that there should be such a dramatic disparity in frequencies of use between the two options. And the ideas I have been relying on here to describe the Irish facts are exactly those used by Hofmeister and Norcliffe (2013) to describe 'intrusive' resumption in English. In fact the description of the Irish facts in (22) could well have been (apart from the first bullet point) a description of what it means to be an 'intrusive resumption' language.

But there is undeniably SOME difference with respect to resumption which distinguishes the grammar of Irish from the grammar of English. I return to the question of what that difference might be in the next (and final) section. In anticipation of that discussion, though, there are certain other facts which should be highlighted.

The calculations concerning optionality and relative frequency that we have principally been concerned with here so far are simply irrelevant in certain configurations. The list of such configurations is very unsurprising – in positions from which movement (on standard assumptions) is impossible, gaps never appear. So there are, as already reported, 165 examples in our corpus in which an Ā-dependency reaches into an island. In none of those does a filler-gap dependency cross an island-boundary (see (5) above). The same observations hold for what would in the absence of resumption be violations of the coordinate structure constraint. Here too there are no instances of filler-gap dependencies and resumption is the only option. Our corpus yields 20 examples of this type. Even for an effect as apparently delicate as the weak crossover effect (Wasow (1972)) – of which there are 15 examples in our corpus – all show resumption and none show the filler-gap syntax:

(23) fear … ar fhág a bhean é
man C-RP.PAST leave.PAST his wife him
'a man that his wife left him' TC 164

None of this is very surprising – as long as the relevant constraints (island constraints, the coordinate structure constraint, the weak crossover constraint) are part of the grammar of Irish rather than reflections of parsing pressures. For all such cases, resumption is the only option offered by the grammar and the anti-pronominal prejudice cannot be awakened. It should be kept in mind

[10] Inanimacy (or perhaps non-agentivity) of the relative clause subject seems to play a role in some of these cases, both in Irish and in English. See footnote 8 above.

that these apparently categorical effects contrast starkly with the preferences we have mostly been concerned with in the discussion so far. When the grammar allows resumptive pronouns to be in competition with gaps, the anti-pronominal prejudice ensures that pronouns appear only in about 9% or 10% of cases. Even when animate heads are paired with object relativization, for instance, it is easy to find examples in which the facilitative pronoun is not used, as seen in (24).

(24) a. Fear farraige ná scanródh faic
man sea.GEN NEG-C frighten.COND anything
'a seaman that wouldn't be frightened by anything' GLL 9

b. an sagart a mharaigh na Dúchrónaigh ina dhiaidh sin
the priest C-FG kill.PAST the Black and Tans after that
'the priest that the Black and Tans subsequently killed' M 231

4. The Theoretical and Typological Landscape

We are left with the conclusion, then, that the facts are richer and more subtle than a clear-cut distinction between 'true' resumption and 'intrusive' resumption would lead us to expect them to be. The 'true' resumptive pronouns of Irish are disfavored to the same degree and for the same reasons as the 'intrusive' resumptive pronouns of English, and the factors which counter-weigh the anti-pronominal prejudice seem to be parallel in the two languages.

Similarly complex patterns seem to hold for at least some of the other 'true resumption' languages. Ariel (1999) presents a corpus-based study of direct object resumption in Hebrew whose results seem to be very close to those reported here for Irish (10% resumption, 90% gaps in high direct object position). Farby et al. (2010), furthermore, report the results of an acceptability study in Hebrew which mirror the frequency results reported here for Irish in the sense that, outside islands, resumptive pronouns are judged less acceptable (by a small but measurable and reproducible margin) than gaps in the same position, particularly for unembedded direct objects. Meltzer-Asscher et al. (2015) confirm and refine the finding.[11] More recently Tucker et al. (2016) report a very complex set of facts for Modern Standard Arabic (based on two acceptability studies); among their clear conclusions however (p. 36) is 'that resumption is dis-preferred in certain long-distance dependencies,' and that 'in certain grammatical corners, a grammaticalized resumption language can behave like an intrusive resumption language in penalizing the presence of a pronoun'.

There are of course relevant differences between the grammars of Irish and English. But those differences seem to have nothing to do (directly) with pronouns, but rather to center exclusively on the category C. C-RP forces verbs which appear to its immediate right into the 'dependent' form, while C-FG does not. C-FG (but not C-RP) optionally triggers the appearance of WH-forms of verbs to its immediate right (see the brief review at page 80 above):

(25) an luach a shíleas tú a gheobhfas tú
the price C-FG think.PRES-WH you C-FG get.FUT-WH you
'the price that you think you'll get'

[11] Inside islands, both studies found that resumptive pronouns were judged more acceptable than gaps, consistent with what has been reported for Irish over many years and consistent with our corpus-based findings here.

Such morphological effects must be linked with whatever properties give rise to the syntax of filler-gap dependencies (successive-cyclicity, island-effects, across the board effects), all of which are characteristic of clauses headed by C-FG, but not of clauses headed by C-RP. The needed linkages can be made if we take it that C-FG is defined by its finiteness in combination with whatever features drive the syntax of filler-gap dependencies and that those same features are what determine the morphological effects in (25).

On this view, the connection between choice of C-RP and use of a resumptive pronoun is indirect and in an important sense accidental (see also Duffield (1995)). The complementizer which we have called here C-RP appears characteristically, but not exclusively, in C-positions which are implicated in Ā-binding relations but in which no movement is triggered (for reasons of space, I will not here go in to the mechanisms which ensure this outcome; see McCloskey (2002)). It will therefore characteristically appear in contexts which require a binding relation for semantic well-formedness. The variable needed will often be supplied by a pronoun which happens to be within the clause headed by C-RP, since pronouns make good semantic variables. But there is, on this view, no essential relation between C-RP and the pronoun which supplies the variable.

If that variable can be supplied from some other source, then, we expect to observe clauses headed by C-RP which contain no pronoun. There are in fact, many such cases. Among the possibilities allowed is the one illustrated in the examples of (26), in which the variable which is critical for semantic well-formedness is supplied not by a pronoun but rather by the implicit argument of a relational noun (or a noun which can be coerced relatively easily into a relational interpretation):

(26) a. Chuir sé an cheist uirthi a raibh faitíos air roimh an bhfreagra.
put he the question on-her C-RP was fear on-him before the answer
'He put the question to her that he was afraid of the answer.' NGTTS 32

b. obair sheasta aige anois a raibh sé ag déanamh pá mhaith
work steady at-him now C-RP was he make PROG pay good
'and he now had steady work that he was making good pay' IM 123

c. Seo é an fadcheirnín a-r hiarradh ormsa focla na n-amhrán
this it the LP record C-RP.PAST ask.IMPERS.PAST on-me words the.GEN songs.GEN
a scríobh.
write.NON-FIN
'this is the LP that I was asked to write out the words of the songs' SOH 263

Crucially, in such cases the relation between the relative clause head and the variable it binds is not island-sensitive. In (27), the implicit variable associated with the noun *crann* (tree) and bound by the relative clause head *úll* (apples), is contained within a *Wh*-island (a cleft clause):

(27) faoi anam a raghadh ag priocadh úll nach ina ghairdín féin a
about soul C-FG go.COND PROG pick apples NEG-C-COP-PRES in-his garden self C-FG
d'fhás an crann
grow.PAST the tree
'about a spirit that would go picking apples that it wasn't in his own garden that the tree grew' NBN 162

For our purposes here, the most important consequence that should be highlighted is that we now expect no difference in status between the resumptive pronouns of English, say, and the resumptive pronouns of Irish. Neither language has in its grammar a dedicated resumption paragraph.

Their grammars do, of course, differ: in the inventory of C-elements that they possess. In English, all of the complementizers which appear in Ā-binding configurations are elements which force movement into their specifier positions. It follows that for a relative clause which includes a relativization site within an island (or in any position from which movement is impossible) there are no good outcomes. Derivations can either violate the selectional properties of the crucial complementizer, or they can include derivational steps which violate conditions on movement. All outcomes will be ill-formed to one degree or another, depending on the exact calculus by which degrees of ill-formedness for island violations are determined.

Irish will be different. If in a given structure the complementizer C-RP is deployed, movement will be impossible. But basic principles of semantic composition will require that there be a variable within the clause headed by C-RP. That variable may come in the syntactic guise of a pronoun, or it may be found in the implicit variable associated with relational or quasi-relational nouns, as in (26) and (27). On this view, there is no reason to expect any difference in status between English resumptive pronouns and Irish resumptive pronouns. Both should be subject to the prejudice which discriminates against Ā-bound pronouns and both should feel the small amelioration effects identified by Hofmeister and Norcliffe (2013) when they appear in positions or regions associated with heightened processing difficulty. The structures which contain those pronouns, however, will be crucially different in the two languages. An example of high object resumption in Irish (like (28), for instance, repeated from (10) above):

(28) jab a-r fhág an oiread sin oibrithe é
job C-RP.PAST leave.PAST so many workers it
'a job that so many workers left it' AT 138

will be assessed in the following way: it is syntactically and semantically fully well-formed, but in reacting to it, speakers will be aware that because of the anti-pronominal prejudice it should be infrequent (an awareness that their experience of the language will amply bear out), its rarity in this case un-modulated by the kinds of processing effects discussed earlier. The anti-pronominal prejudice, on this view, is a bias influencing the work done by the system of production, one that is finely tuned by the nuances of linguistic experience and finely sensitive to issues of processing pressure. The corresponding English example (the translation of (28)) will be syntactically ill-formed (because it fails to respect the requirements of the complementizer, which demands a movement) and will in addition be subject to the same anti-pronominal prejudice as the Irish example.

The distinctions drawn here are subtle, but they seem to make reasonable sense of the complex of observations so far accumulated. My own experience with native speaker consultants has been that they will respond to examples like (28) by saying something like: 'Well you COULD say it that way, but you probably wouldn't.' It's not clear to me how that reaction would be transduced into a number on a 7-point acceptability scale, but it may be that the reaction described here is the source of the small but significant effect detected for Hebrew by Meltzer-Asscher et al. (2015) and described in the following terms (p. 71):

> gapped versions of the sentences ... received higher ratings than the RP versions even when items were auditorily presented. Although the difference in ratings was small (∼0.5 points on a 7-point scale) it was consistent and reliable. This suggests that in general gaps and RP's are both acceptable, but that nonetheless the alternation between gaps and RP's is not completely free in Hebrew, as there is a slight preference for gaps.

Morgan and Wagers (2015), by contrast, replicate earlier studies in finding English structures containing resumptive pronouns, as we would now expect, 'highly unacceptable and nearly uniformly so across varying syntactic contexts'.

5. Conclusion

The principal empirical goal of this paper has been to clarify the status of Irish with respect to the supposed contrast between 'intrusive resumption' languages and 'true resumption' languages. The main conclusion that emerges is that, as far as the pronouns themselves are concerned, there is no difference between Irish and English. The relevant differences lie elsewhere, as we would expect – in the C-system. In making sense of the empirical landscape, issues about the interactions among grammaticality, frequency, production, and processing quickly come to the fore – in subtle and useful ways. The deepest mystery in all of this, though, it seems to me, is why there should be an anti-pronominal prejudice and why it should have such force. This is the question of section 2 and it remains un-answered.

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UNSELECTED OBJECTS AND THE ARGUMENT/ADJUNCT DISTINCTION*

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This paper examines locative elements in Thetagovela Moro, a Kordofanian language from Sudan's Nuba Mountains. We argue for a three-way typology of Moro locatives: selected arguments of basic predicates, locative applicative arguments, and unselected locative objects. In Moro these three classes of locatives exhibit identical syntactic behaviors; we argue that they are all syntactic objects. Hence, Moro instantiates a category of unselected objects. This system challenges the traditional argument/adjunct distinction, but fits nicely into a typology predicted by lexicalist proposals.

Introduction

Linguistic theories, in one manner or another, identify at least three independent statuses for syntactic elements: predicator valence slots, semantic roles, and syntactic roles. This is illustrated in (1):

(1)	Predicate valence	X	Y	Z
	Semantic roles	Sem_1	Sem_2	Sem_3
	Syntactic roles	Syn_1	Syn_2	Syn_3

In addition to the elements in (1), which are keyed to lexically selected elements, there is another distinction that has been both instructive and problematic in syntactic theory: the contrast between ARGUMENTS and ADJUNCTS.

The basic divisions are exemplified for the simple Hungarian sentence in (2), where it is conventionally assumed that *ad* 'give' is a three place predicate with agent, theme and beneficiary semantic roles that are associated with the syntactic roles SUBJ, OBJ, INDIRECT OBJ respectively. These are specified as arguments of the predicate. In contrast, various criteria have been utilized to suggest that the two locative arguments in (2), *the yard* and *the house*, have a different status in clause, specifically, these are adjuncts.

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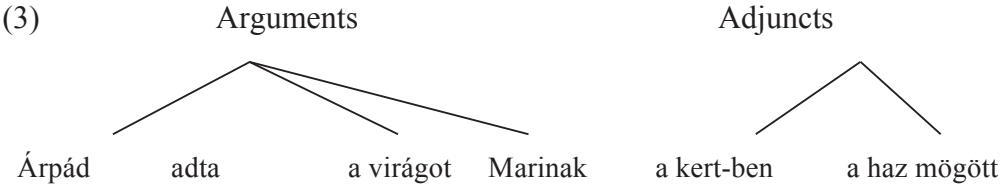
(1) Árpád adta a virágot Marinak a kert-ben a haz mögött
Arpad-nom give-past-3sgOBJ the flower-acc Mary-dat the yard-inessive the house behind
'Arpad gave the flower to Mary in the yard behind the house.'

Thus, one can conventionally partition co-occurring elements into a set of arguments and a set of adjuncts as in (3), where the complements are SELECTED arguments of the predicate and where the adjuncts are UNSELECTED, but simply co-occur.

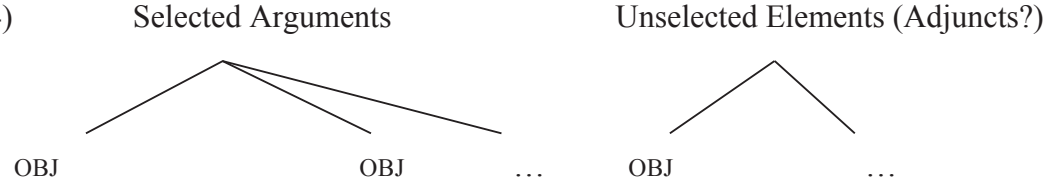
(3)



What is interesting to note is that arguments are assumed to bear core syntactic relations such as SUBJ, OBJ, and OBL(iques),[1] while adjuncts are not. For some languages, such as Hungarian, conventional criteria guiding such partitions often produce straightforward assignments, while the syntactic behaviors in other languages produce problems for such a sharp division.

In the present paper we build on previous work concerning multiple objects in Thetagovela Moro, a Kordofanian language from Sudan's Nuba Mountains. This language allows for several symmetrical selected objects in a single clause. Here we show that unselected elements – that is, constituents one might expect to be adjuncts, also exhibit the relevant object properties; hence, we argue that Moro exhibits UNSELECTED OBJECT phenomena:

(4)



We begin in section 2 by briefly reviewing some of the theoretical issues surrounding the argument/adjunct distinction and presenting a relevant typology of syntactic dependents. In section 3 we introduce relevant basic characteristics of Moro morphosyntax and empirically based arguments for the need to posit unselected objects. Section 5 revisits the typology from section 2 and discusses some of the theoretical implications.

2. The Argument/Adjunct Distinction

Culicover and Jackendoff's (2005: 173) articulation of the notion of ARGUMENT includes the following criteria:

[1] Such relations obtain irrespective of whether they assumed to be grammatical primitives or analogues associated configurational positions.

(5) a. Specified semantic roles, "intrinsically involved in the situation the verb denotes".
b. Expressed in the syntax (either obligatorily or optionally)
c. Aspects of the syntactic category, position, or morphological form potentially stipulated by the verb.

In other words, arguments are closely tied to aspects of a predicate's lexical semantics and may involve idiosyncratic syntactic specification. In contrast, adjuncts, which often denote general time, place, or manner aspects of an event are largely independent of lexically specific details. Another way to characterize this distinction is that arguments are SELECTED, while adjuncts are UNSELECTED.

Nevertheless, when considering the distinction between arguments and adjuncts it is important to keep in mind Dowty's cautionary observations:

> The distinction between complements and adjuncts has a long tradition in grammatical theory, and it is also included in some way or another in most current formal linguistic theories. But it is a highly vexed distinction for several reasons, one of which is that no diagnostic criteria have emerged that will reliably distinguish adjuncts from complements in all cases - too many examples seem to fall into the crack between the two categories, no matter how theorists wrestle with them. (Dowty 2003:34)

The more languages that have been examined over the years, the more evident it has become that a categorical distinction between arguments and adjuncts needs to be theoretically reconceptualized.[2] The essential insight in several lexicalist reconceptualizations is to assimilate argument and adjuncts into an integrative class, i.e., DEPENDENTS, and to permit dependents of both types to appear in the lexical representations of predicates. For example, Bouma, Malouf, and Sag 2001 propose, within an HPSG framework, an ARGUMENT STRUCTURE EXTENSION rule that combines selected elements (ARG-ST) with unselected ones ('adverbials') into a list of DEPENDENTS. While there is a lexical distinction between the two types of dependents, they are undistinguished syntactically. This ARGUMENT STRUCTURE EXTENSION rule is illustrated in (6):

(6) Argument Structure Extension:

$$verb \Rightarrow \begin{bmatrix} \text{ARG} - \text{ST} & \boxed{1} \\ \text{DEPS} & \boxed{1} \oplus list('adverbial') \end{bmatrix}$$

(Bouma, Malouf, and Sag 2001:12)

Somewhat intermediate between selected arguments and unselected adjuncts are applicative arguments. These often involve semantics normally associated with adjuncts, e.g. locatives, instrumentals, and beneficiaries, but behave as (often obligatory) selected arguments. Common

[2] See Przepiórkowski 2016, which provides a detailed summary of the most salient problems identified by other researchers and offers a solution within Lexical Functional Grammar based on the insights of Bouma, Sag, Malouf 2001 and Kathol, Przepiórkowski, and Tseng 2011.

in Bantu and other African languages, they are often encoded as objects. There is a large literature on applicatives in a variety of frameworks: e.g., Relational Grammar (Kimenyi 1980, Dryer 1983), LFG (Bresnan and Moshi 1990, Alsina and Mchombo 1993, Alsina 2001), and Principles and Parameters/Minimalism (Baker 1988, Pylkkänen 2008, McGinnis 2008, Citko 2011). A standard lexicalist approach to applicatives is to posit a valence-increasing MORPHOSEMANTIC rule that adds the applicative element to the predicate's argument structure.[3] Hence, applicative arguments are, in some sense, derived arguments. While these constructions have not been widely discussed in the HPSG literature, Ackerman, Malouf, and Moore 2017 proposes a benefactive applicative lexeme-to-lexeme rule that adds a new argument to the predicate's semantics:

(7) Benefactive Applicative Rule

$$\left[\text{SEM}\ \left[\begin{matrix}\text{INDEX} & e_1\\ \text{RESTR} & \boxed{1}\end{matrix}\right]\right] \Rightarrow \left[\text{SEM}\ \left[\begin{matrix}\text{INDEX} & e_1\\ \text{RESTR} & \left\{\left[\begin{matrix}ben\_rel & \\ \text{INST} & e_1\\ \text{BENEFCT} & b\end{matrix}\right]\right\} \cup\ \boxed{1}\end{matrix}\right]\right]$$

(Ackerman, Malouf, and Moore 2017:39)

Note that this lexeme-to-lexeme rule is distinct from the argument structure extension rule in (6); the rule in (7) has an effect on the semantically selected elements that eventually feed into the ARG-ST, while the rule (6) determines the dependents.

Putting this together, we end up with the following typology of dependents:

(8)a. Selected dependents (arguments)
  i. from the ARG-ST of basic predicates
  ii. added by lexeme-to-lexeme rules
b. Unselected dependents (adjuncts)

While the theory does not make a syntactic distinction between these elements, there may be factors such the grammatical hierarchy and idiosyncratic case that result in different behaviors among dependents (Maling 1993). In the remainder of this paper we present evidence for the typology in (8). In particular, we focus on locatives, as a useful test case; cross-linguistically, we find locatives as arguments of basic predicates, applicatives, and unselected adjuncts. We find locatives in each of these categories exhibiting identical syntactic behaviors in Moro.

[3] Sadler and Spencer 1998 distinguishes between MORPHOSYNTACTIC and MORPHOSEMANTIC lexical rules, where the latter involve a change in semantics, including valence changes. This distinction, under a variety of nomenclatures, has been discussed widely elsewhere, including Ackerman 1992.

3. Moro Morphosyntax and Unselected Objects

The syntax of the Kordofanian language Thetagovela Moro provides empirical challenges to a categorical division between complements and adjuncts. In addition to selected objects, both from basic predicates and applicatives, we argue for a third construct: unselected objects. Unlike traditional adjuncts, these exhibit syntactic characteristics of objects. However, we also will see how these object contrast with objects that are the result of morphosemantic operations. These objects are true objects that fall outside the lexical domain of the predicator – hence, they are unselected objects.

In recent research on Moro morphosyntax Ackerman, Malouf and Moore 2017 demonstrates that this language displays the characteristic properties associated with a multiple object language, i.e., simultaneous object behaviors for multiple co-occurring arguments in a single clause. In addition, as attested in several languages where neither morphological marking nor linear order has designated associated with either syntactic roles or semantic roles, there is pervasive ambiguity of semantic role for all object arguments. The symmetrical behaviors Moro objects poses a challenge for various theoretical proposals that entail asymmetrical syntactic representations among co-arguments (e.g. Stratal Uniqueness, Functional Uniqueness, and UTAH/binary branching; see Ackerman, Malouf, and Moore 2017, section 3 for discussion). The data in the following subsections are taken from Ackerman and Moore 2013 and Ackerman, Malouf, and Moore 2017.

3.1. Moro Objects

We begin by reviewing two basic characteristics of Moro objects: the ability to be referenced by object markers and the ability to passivize. Example (9) illustrates a simple transitive clause; in (10a-b) we see that *ɲogopájá* 'cups' can be referenced by an object marker and can passivize.[4]

(9) kúku g-a-ləvətʃ-ó ɲogopájá
CLg.Kuku CLg.SM-MAIN-hide-PFV CLɲ.cup
'Kuku hid the cups.'

(10) a. kúku g-a-ləvətʃ-ə́-**lo**
CLg.Kuku CLg..SM-MAIN-hide-PFV-**3PL.OM**
'Kuku hid them.'

b. ɲo ɲogopájá ɲ-ʌ-ləvətʃ-**ən**-ú
CLɲ.cup CLɲ.SM-main-hide-**PASS**-PFV
'The cups were hid.

[4] We use the following inter-linear glosses and conventions: SM 'subject marker', CL 'noun class', MAIN 'main clause verb', APL_{BEN} 'beneficiary applicative', APL_{LOC} 'locative applicative', PASS 'passive', PFV 'prefective', IMPFV 'imperfective', ITER 'iterative', LOC 'locative', and OM 'object marker' (1sg, 3sg, 3pl, etc.). High tone is marked with an acute accent; low tone is unmarked.

The example in (11) illustrate a ditransitive predicate. Note that (11) shows two bare noun objects (*óráŋ* 'man' and *ŋerá* 'girl') and the sentence is ambiguous; either object can serve as the theme or the goal.

(11) é-g-a-natʃ-ó óráŋ ŋerá
1SG.SM-CLg -MAIN-give-PFV CLg.man CLŋ.girl
'I gave the girl to the man.' / 'I gave the man to the girl.'

The examples in (12) provide evidence that the two internal arguments of *natʃ* 'give' are, indeed, objects; as indicated by the ambiguity, we see that either the theme or the goal may be referenced by an object marker and either can passivize. In other words, neither object markers nor passivization favor one argument over the other and, therefore, do not serve as a means of disambiguation.

(12) a. é-g-a-natʃ-ə́-**lo** ŋerá
1SG.SM-CLG-MAIN-give-PFV-**3PL.OM** CLŋ.girl
'I gave them to the girl' / 'I gave the girl to them.'
b. óráŋ g-ʌ-nʌtʃ-**ən**-ú ów:á
CLg.man CLg.SM-MAIN-give-**PASS**-PFV CLg.woman
'The man was given a woman.' / 'The man was given to a woman.'

Finally, (13) shows that both internal arguments can show simultaneous object properties; that is, one can passivize while the other is referenced by an object marker.[5] Again, note the ambiguity:

(13) óráŋ g-ʌ-nʌtʃ-**ən**-ə́-**ŋó** *object marking* cum *passivization*
CLg.man CLg.SM-MAIN-give-**PASS**-PFV-**3SG.OM**
'The man was given to her.' / 'She was given to the man.'

3.2. Beneficiary Applicatives

Applicative constructions represent a morphosemantic mechanism by which a predicate may increase its valence by promoting what might otherwise be represented as an adjunct to argument status. Typically, the valence increase is indicated with special verbal morphology. Moro has a beneficiary applicative construction, where a beneficiary argument is encoded as an object, with concurrent verbal morphology. In (14a) we see a beneficiary added to an intransitive predicate, resulting in a transitive construction; in (14b) the addition of a beneficiary to a transitive predicate yields a ditransitive construction (which, again, is ambiguous):

[5] By exhibiting simultaneous object properties as in (11), Moro would be classified as a true SYMMETRIC language, according to the typology discussed in Harford 1991 and Alsina 1996 and 2001. This contrasts with their ALTERNATING ASYMMETRIC languages, where either argument may exhibit object properties, but the two may not do so simultaneously.

(14) a. í-g-ʌləŋ-**ə̱ṯ-**ú ów:á
1SG.SM-CLg-sing-**APL$_{BEN}$**-PFV CLg.woman
'I sang for the woman.'

b. k-ʌ-w:ʌð-i̱ṯ-ú ŋerá um:iə
CLg.SM-MAIN-find-**APL$_{BEN}$**-PFV CLg.girl CLg.boy
'He found the boy for the girl.' / 'He found the girl for the boy.'

(14b) behaves just like other ditransitives – the two internal arguments show all the relevant object properties, including the symmetric simultaneous object properties:

(15) í-g-ʌ-w:ʌð-**itʃ-ən**-ə́-**lo**
1SG.SM-CLg-MAIN-found-**APL$_{BEN}$-PASS**-PFV-**3PL.OM**
'I was found for them.' / 'They were found for me.'

Because beneficiary applicatives result from a valence increasing operation, they do not involve unselected objects. The beneficiary objects are made part of the argument structure by the applicative morphosemantic mechanism. In other words, semantic roles that might otherwise be represented as adjuncts are promoted to argument status.

3.3. Locative Objects

This section will discuss two types of locative objects in Moro and argue that one of these represents an unselected object; that is, an element that is a syntactic object argument, but not part of the predicator's lexical semantics.

We first consider a selected locative argument—one that corresponds to a semantic argument. In (16) we see the three-place verb *ʌ́kk* 'put' that requires both theme and locative arguments, where the latter bears the locative prefix *i-*:

(16) a. k-ʌ-v-ʌ́kk-ʌg-iə eða **í-ðə́dí**
CLg.SM-MAIN-ʔ-ITER-cut-IMPFV CLj.meat **LOC-CLð.hole**
'He is putting the meat in the hole.'

b. *k-ʌ-v-ʌ́kk-ʌg-iə eða
CLg.SM-MAIN-ʔ-ITER-cut-IMPFV CLj.meat
'He is putting the meat.'

Locative arguments behave as objects—they can be referenced by object markers and can passivize:[6]

(17) a. k-ʌ-v-ʌ́kk-ʌg-iə-**Ø-u** eða
CLg.SM-MAIN-ʔ-ITER-cut-IMPFV-**3SG.OM-LOC** CLj.meat
'He is putting the meat in it.'

[6] Note that the third singular object marker is zero.

b. **ðə́diə́** ð-ʌ-v-ʌ́kk-əg-**ən**-iə́-**u** eða
CLð.hole CLð.SM-MAIN-ʔ-ITER-put-**PASS**-IMPFV-**LOC** CLj.meat
'The hole is being put the meat into.'

In both examples in (17), the verb bears the locative *-u* suffix. It is clear that this is not a locative applicative morpheme, as the lexical semantics of the verb is unchanged; the locative argument is already entailed by the predicate. Rather, this seems to be necessary when the syntactic environment—either object markers or passivization—result in the loss of the locative prefix on the locative argument. In other words, this suffix indicates that there is a locative element that is not independently marked as such. Notice also that none of the examples in (16-16) is ambiguous. In (16a) the locative argument is marked with a locative prefix; in (17a-b) the verbal locative suffix indicates that either the object marker (17a) or the passivized subject (17b) is locative.

The example in (18) illustrates an optional locative element that is not related to the predicate's lexical semantics. As it is not part of the predicator's argument structure, it is UNSELECTED. As (18) shows, the locative is optional.

(18) k-a-kə́l-á oʇeá (í-lúgi)
CLg.SM-MAIN-cut-IMPFV CLg.branch LOC-CLl_{PL}.tree
'He is cutting the branches (from the tree).'

The following examples show that the locative exhibits the familiar object properties:

(19) a. k-a-kə́l-á-**l-u** oʇeá
CLg.SM-MAIN-cut-IMPFV-**3PL.OM-LOC** CLg.branch
'He is cutting the branches from them.'
b. **lugi** l-ʌ-kʌ́l-**n**-iə́-**u** oʇeá
CLl_{PL}-tree CLl_{PL}.SM-MAIN-cut-**PASS**-IMPFV-**LOC** branches
'The trees are being cut branches from.'

Thus, there is evidence that these unselected elements are, indeed, objects. Again, we see the *-u* locative suffix registering an otherwise unmarked locative element. The addition of this morphological material might suggest the following applicative analysis:

(20) Locative Applicative Hypothesis
- Locative elements, marked with the *í-* locative prefix are adjuncts.
- In order to show object properties (object markers or passivization), the verb first undergoes a LOCATIVE APPLICATIVE morphosemantic rule that incorporates a locative into the verb's argument structure, and marks the verb with the *–u* suffix.

There are several arguments against this hypothesis. First, we don't find the *-u* suffix unless the locative is an object marker or undergoes passivization. This contrasts with the beneficiary applicative we saw above, where the applicative morphology obligatorily co-occurs with a

beneficiary argument. Secondly, as noted above, the *-u* suffix attaches to *ʌ́kk* 'put' in (15) under exactly the same circumstances. Since this predicate already selects for a locative argument, its argument structure is not augmented by a morphosemantic operation. A third argument comes from the fact that Moro does have a locative applicative construction that crucially contrasts with the unselected object examples discussed here.

3.4. Locative Applicatives

Moro has a locative applicative construction, illustrated in (21), that behaves in a manner that is similar to the beneficiary applicative; the characteristics are summarized in (22).

(21) k-a-kə́l-**ą́ṯ**-a eða **í-k-úgi**
CLg.SM-MAIN-cut-**APL$_{LOC}$**-IMPFV CLj.meat **LOC-CLg.tree**
'He is cutting the meat in the tree.'

(22) Locative Applicatives
a. Add the verbal extension *-ą́ṯ*
b. Increase the valence of the predicate to include a locative argument
c. Have an effect on the aspectual semantics of the predicate (as described below)

These are, of course, characteristics of a morphosemantic rule: additional morphology corresponds to both argument structure augmentation and other semantic modification. Notice that unlike, the *-u* suffix, the locative morphology co-occurs with the locative element. In fact, (23) shows that if there is locative applicative morphology, the locative is obligatory, providing strong evidence for its argument status. Recall that the unselected locative in (18) is optional.

(23) *k-a-kə́l-**ą́ṯ**-a eða
CLg.SM-MAIN-cut-**APL$_{LOC}$**-IMPFV CLj.meat

Locative applicatives behave as objects; e.g. (24) shows they can undergo passivization:

(24) **ugi** k-ʌ-kəl-**ʌtʃ-in**-ú-**u** eða
CLg.tree CLg.SM-MAIN-cut-**APL$_{LOC}$-PASS**-IMPFV-**LOC** CLj.meat
'The tree was cut meat in.'

Notice that as the locative passivizes, and does not bear the locative prefix, the *-u* suffix is added to register an unmarked locative. The fact that this suffix co-occurs with the locative applicative morphology shows that they have distinct functions.

Finally, there are aspectual differences between locative applicatives and unselected locative objects. As we have seen, the addition of an unselected locative does not change the aspectual properties of the predicate. This is also true in (25), where a new locative prefix, *n-* 'on', is used:

(25) k-abə́tw-a n-alé̱ta
CLg.SM-climb-IMPFV LOC_{on}-CLj.wall
'He is climbing on the wall.' (He is simply climbing on the wall)

However, the corresponding example with a locative applicative results in an aspectual change; the activity described in (25) now becomes an achievement in (26):

(26) k-abə́dw-a̱t-a n-alé̱ta
CLg.SM-climb-APL_{LOC}-IMPFV LOC_{on}-CLj.wall
'He is about to climb the wall.'
(e.g., he will clamber over up the wall, e.g. to avoid danger)

Again, the sematic change in (26) is typical of a morphosemantic operation, while the lack of any aspectual change is consistent with an unselected locative in (25).

4. Conclusion

In the previous section we have found three distinct types of locative objects:

(27) a. Locative arguments – selected by the predicate
b. Locative applicative arguments – selected by the predicate as a consequence of an applicative morphosemantic operation
c. Unselected locative objects

Note that none of these fit the usual conception of an adjunct – even in the last case (27c) the locative exhibits the same syntactic behaviors as the locative arguments. The typology in (27) parallels exactly the theoretical paradigm in (8), repeated here:

(28) a. Selected dependents (arguments)
i. from the ARG-ST of basic predicates
ii. added by lexeme-to-lexeme rules
b. Unselected dependents (adjuncts)

The framework that derives (28) involves lexical ARG-ST, ARG-ST modifications that result from morphosemantic lexeme-to-lexeme rules, and, an argument structure extension mechanism that creates a list of syntactically undifferentiated dependents from both the ARG-ST and, at least some, adjuncts. This last mechanism is crucial for accounting for the object behaviors of unselected objects in Moro.
Following previous proposals, Kathol, Przepiórkowski, and Tseng 2011 note that the traditional differences between arguments and adjuncts may be accounted for by a grammatical hierarchy and idiosyncratic marking mechanisms. We clearly need some of this in Moro, as unless passivized or referenced by an object marker, Moro locatives bear a locative prefix, but, again, note this is true of both selected and unselected locatives. Furthermore, again following this

work, it is worth asking whether all unselected, adjunct-like elements become verbal dependents, or whether only some of them do. Moro, in addition to allowing unselected locative objects, allows for unselected instrumental objects (Ackerman and Moore 2013:99-101). Thus, following , Bouma, Malouf, and Sag 2001, we tentatively propose the following rule that adds locatives and instrumentals to a verb's dependents' list:

(29) Moro Argument Structure Extension:

$$verb \Rightarrow \begin{bmatrix} \text{ARG} - \text{ST} & \boxed{1} \\ \text{DEPS} & \boxed{1} \oplus list('locative/instrumental') \end{bmatrix}$$

In this light, we note that applicative constructions generally involve locative, instrumental, or benefactive elements. In (29), we see both unselected locative and instrumental objects. However, we have found no evidence of unselected benefactives, nor does Moro appear to have an instrumental applicative construction. Perhaps unselected objects are limited, cross-linguistically, to semantic elements that can, sometimes, be selected. We leave these and related questions to further inquiry.

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