Towards a Syntactic Account of Literality in Preposition Stranding

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Contents

For William Tovell and William Tovell

This dissertation is the result of my own work and includes nothing which is the outcome of work done in collaboration except where specifically indicated in the text. It does not exceed the word limit of 20,000 words.

1 – Introduction

This essay attempts to give a syntactic explanation of "literality" phenomena in preposition stranding in English. That the effect seems to be driven by semantic considerations, and manifests as an asymmetry in extraction possibilities, is deeply problematic. Syntax has always been taken to "precede" semantics in one way or another, so should not be concerned with interpretation issues. It is thus highly desirable to explain the literality effect within syntax.

The particular explanation I propose marks ungrammatical P-stranding down as an anti-locality violation (Abels 2003). Grammatical P-stranding in English is allowed by "participant structure" (inspired by Davies and Dubinsky, 2003) within the prepositional phrase, manifesting as additional feature-assigning syntactic structure, thus circumventing anti-locality. I conclude by considering a separate purported case of semantics influencing syntactic operations (Truswell, 2007, 2009, 2011) and, in light of this, the general plausibility of a syntactic approach to the problem.

1.1 What this essay is about

The focus of this essay is a relatively simple observation about a pair of sentences:

(1) a. It was a helicopter he arrived in _.
    b. *It was the morning he arrived in _.

This pair exhibits what I have previously dubbed the "literality effect" (Tovell, 2013): observe that the difference between (1a) and (1b) is that, while *a helicopter* clearly constitutes a physical entity that contains the person in question, *the morning* cannot be said to be anything of the sort. The meaning of the preposition *in*, then, is strictly physical in the first case, and more metaphorical or conceptual in the second case. Now, when these prepositions are stranded by their respective complements in a cleft construction, there is a clear asymmetry in acceptability. While (1a) is a completely acceptable sentence, (1b) is totally ungrammatical. This is a very robust judgement across speakers of a variety of English dialects[1].

[1] I posted (1a-b) on Facebook. Seventeen of my friends, representing a variety of British and North American dialects, agreed with the judgement. Two of my friends found that (1b) could be forced with a heavily contrastive context, but then only marginally – the others seemed not to be able to access this at all.

1.1.1 Why the effect is interesting

While seemingly innocuous at first, this phenomenon is in fact unexpected and troublesome. Firstly, it directly contradicts the rough generalisation that English prepositions can be stranded. Admittedly, some English prepositions tend to resist stranding, but these tend to be polysyllabic and less frequently used – e.g. *inside, upon, underneath* – perhaps indicating that prosodic and familiarity factors are in play. *In* certainly does not fit this profile, along with many other prepositions that exhibit the effect, including *on* and *through*.

Secondly, it is a further twist to the tale of the islandhood of adjuncts. While adjuncts have been noted as islands since Ross (1967), preposition stranding in English has always constituted a bold counter example to this generalisation. Whatever the explanation for (1a-b), it would seemingly need to make some reference to these two conflicting issues.

Thirdly, (1a-b) seem, at first blush, to show that interpretation is a relevant factor to the grammaticality of extraction. This is theoretically rather troublesome. If we lived in the most elegant of worlds, we would expect syntactic operations to only care about syntax. The movement operation exemplified by (1a-b), however, seems to care about whether the moving constituent is conceptualised as a physical object or not. This is, whichever way one looks at it, a semantic consideration. The implication, then, is that we do not live in the most elegant of linguistic worlds. The way we model the human language faculty, then, will be influenced by whatever explanation we can give for this data. It would be seemingly most elegant to claim a syntactic explanation; this is what I attempt in this essay.

1.1.2 Structure of the essay

The general aim of the essay is, as mentioned above, to attempt to give the literality effect a syntactic explanation, and thus avoid the problem of us having to conceive of a syntax that, in some sense, "cares about" the semantics of the items it operates on. Firstly, this requires a general syntactic account of P-stranding.

Chapter 2 has a quite detailed look at the anti-locality condition, as proposed by Abels (2003), and its application as a ban on P-stranding. The detail I go into is necessary, since some background is required to follow what happens next; given that the anti-locality condition entails a strict ban on – among other things – P-stranding, the languages that do allow P-stranding – including English – need a plausible escape plan. Chapter 2 concludes with a review of possible escape strategies, settling on the most likely: an additional piece of syntactic structure, whose identity remains unclear.

Chapter 3 attempts to identify this piece of mystery structure in terms of the literality effect. The account is inspired by the notion of participant structure, and how Davies and Dubinsky (2003) use it to give an account of asymmetrical extraction possibilities from noun phrases. Given the spirit of the essay, I take the opportunity to reformulate their largely conceptual account as a formal syntactic one. This paves the way to the chief proposal I am making in this essay: the idea of participant structure, and its syntactic reflex in terms of optional feature-assigning structure, can be modified for prepositional phrases. This explains the literality effect as an anti-locality violation.

Chapter 4 is a critical examination of the work in the prior 2 chapters. It begins with a look at a case where semantics does truly seem to affect extraction: Truswell's (2007, 2009, 2011) work on extraction from Bare Phrase Participial Adjuncts (BPPAs). It is argued that there is most likely, with the tools available to us, no narrow syntactic way of explaining this phenomenon. Given that outcome, the motivation to find elegant syntactic explanations for syntactic effects – which formed the spirit of this essay – seems to be weakened. I go on to examine some of the theoretical and empirical advantages and shortcomings of the proposal from chapter 3.

Before all this, however, it is necessary to cover some background. The rest of this chapter forms a brief background to the literality effect. It is worth noting how some theories of extraction from adjuncts do not seem to account for the relevant data.

1.2 The Literality Effect

Example (1b) above comes from Hedberg and DeArmond (2009) in their proposal for an enriched ontology of verb-dependent prepositional phrases. Debunking this proposal was the focus of my final undergraduate essay (Tovell 2013). My argument involved observing that examples like (1b) were ruled out by a "literality" effect, while other PPs like *in the kitchen* were not. I described the effect as follows:

(2) <u>The Literality Effect</u>
Any preposition that is ambiguous between a locative and directional meaning as an adjunct carries only a literal interpretation (referring directly to physical location or direction) when
i. used as an adjunct, and
ii. stranded by its complement
iii. in a cleft construction.
"Figurative" or "metaphorical" uses (that do not refer to physical location or direction) are ungrammatical in this context. (Tovell 2013, p.11)

There are a few points that need rectifying here. Firstly, I will be arguing in Chapter 3 that it is the interpretation of the prepositional complement that is subject to the effect, not the preposition itself, as is implied by this formulation. Secondly, I now dispute that the effect is restricted to cleft constructions; as I will propose below, the effect applies to all A'-extractions that strand P, but is not necessarily always visible.

Before that, however, it is worth taking some time to consider the rigidity of the effect.

1.2.1 A brief introduction to literality

Sceptics will no doubt find unconvincing the assumption that literality is to blame for the asymmetry in (1a-b), so a few objections will need to be dealt with. First of all, the effect has little to do with the idiomaticity of the PP *in the morning*. Note that this PP cannot be considered – as idioms generally are – an "unanalysed chunk" in the lexicon, since it can be subject to adjectival modification.

(3) in the wet/sunny/lousy morning

Furthermore, any non-physical complement of *in* is, to some extent, subject to the effect.

(4) *It was a bad mood she went to the shop in _.
(5) *It was floods of tears he sat the exam in _.
(6) *It was the storm they ran in _.

Neither does the effect seem to be a particular peculiarity of *in*; as noted in (2), any preposition that has both a directional and a locative adjunctive interpretation, like *on, under* and *through*, seems to exhibit the effect. Other simple prepositions, like *at* and *with*, do not.

(7) a. It was thorns he cut his leg on _.
    b. *It was acid he saw the Flaming Lips on _.
(8) a. It is bridges that trolls live under _.
    b. *It is a lot of pressure he is working under _.
(9) a. It was the tunnel he walked through _.
    b. *It was the night he worked through _.

(10) a. It was friends he lived with _.
     b. It is great pleasure I do this with _.
(11) a. It was the cinema they met at _.
     b. It was 4 o'clock they met at _.

Nor is the effect much to do with the definiteness of the complement (which has long been noted to affect extraction, not least by Davies & Dubinsky (2003)). Consider how the definite alternative does not seem to degrade (1a), nor does the indefinite alternative to (6) seem to improve it:

(1a') It was the helicopter he arrived in _.
(6') *It was a storm they ran in _.

I must also note that (2)'s insistence that the PP must be an adjunct still stands. All the examples so far involve extraction from adjunct PPs, but P-stranding extraction from predicative and complement PPs seems to be largely fine (though for me, the contractions shown are obligatory):

(12) It's a bad mood she's in _.
(13) It's acid he's on _.
(14) It's a lot of pressure he's under _.

(15) It's a bad mood she's put me in _.
(16) It's acid they got him hooked on _.
(17) It's a lot of pressure we put him under _.

1.2.2 All A'-extractions respect literality

While (2) suggests that only clefts display the literality effect, I now think differently. The evidence is certainly shaky, but it is definitely more elegant to believe that literality is relevant to all A'-movement – otherwise, it seems like a mere idiosyncrasy of one construction. Relative clauses are, by my judgement, at least partially degraded by P-stranding:

(18) ?The bad mood Mary went to the shop in _ was not well appreciated.
(19) ?The acid he saw the Flaming Lips on _ turned out to be bad.
(20) ?The stress he is working under _ is fairly intense.

The relative acceptability of these is a loose end to be considered in part 4.2, as is the matter of wh-extraction. For the moment, it suffices to say that wh-movement is also subject to a particular idiosyncrasy: there seems to be no good wh-word to stand in for *the morning*, so the relevant examples to demonstrate literality are already out in the first place – hence the ungrammaticality of (22), without movement.

(21) A: What did he arrive in?
B: A helicopter / *The morning

(22) A: He arrived in the morning.
B: *He arrived in what!?

1.3 Background

Here I have a brief look at some existing explanations for adjunct island effects and P-stranding. No accounts that I am aware of (other than those of Truswell) seem to make any reference to semantic or interpretive considerations as a factor.

1.3.1 Adjunct Islands

Though often credited to Ross (1967), the discovery of adjunct islands, Truswell (2011) notes, should be attributed to Cattell (1976) who was the first to mention them explicitly. In this first account, and many to follow (including Chomsky (1973), Huang (1982), and even Johnson (2002) and related approaches) there is a general spirit of aiming for maximal theoretical coverage. By this I mean that Ross (1967) could fairly be said to have defined and catalogued the island phenomena, but gave little by way of explanation; the subsequent approaches to islands seem to try group them together and cover them all under one general rule.

While this is a useful approach with respect to theoretical elegance, it runs the risk of leaving large empirical holes. Consider the many approaches that unify adjunct and subject islands. Huang's (1982) Condition on Extraction Domain achieves this through the notion of government:

(23) Condition on Extraction Domain
A phrase A may be extracted out of a domain B only if B is properly governed.
(Huang 1982, via Truswell 2011)

Where proper government is government by a lexical category, this unifies subjects – which are governed by T – and adjuncts – which are ungoverned. Subsequent attempts have been made to reformulate the CED in a post-government framework. These include Nunes and Uriagereka (2000), and Johnson (2002), where a strict version of the LCA (Kayne 1994, Sheehan 2010) for the former, and a particular structure building algorithm for the latter, unify subjects and adjuncts by their shared property of being complex left branches. Theoretically, then, it seems that they will always be able to be unified, despite the claims of Stepanov (2007, via Sheehan 2010).

What these approaches fail to deal with, however, is empirical counter-examples. Preposition[2] stranding in languages that allow it constitutes one such case. Prepositional adjuncts in English constitute ungoverned complex left branches, so extraction from them is totally ruled out by both the CED and post-CED Multiple Spell-Out accounts. The problem is further compounded when one considers that subject islands do hold in English. Unification in aetiology is thus undesirable.

As an aside, further note the narrowly syntactic nature of these types of accounts. No reference is made to interpretation issues: whether dealing with single or multiple spell out, syntax does its work and submits its output(s) to LF.

[2] The use of the word "preposition" in this essay can be read as a cover term for both prepositions and postpositions. Since the chief phenomenon in question here appears only in English, the distinction will, for the most part, not become relevant.

1.3.2 Preposition stranding

For the scale at which I am working there is a double conundrum; not only is extraction from English prepositional adjuncts largely acceptable – contra the cross-linguistic norm – I am dealing with a class of ungrammatical counter-examples to that sub-generalisation. To my mind, the explanation for P-stranding that best suits my purposes is to regard its general ungrammaticality as a corollary of the anti-locality condition of Abels (2003). This is what forms the subject of chapter 2.

I defer to Abels (2003, chapter 4.5) in the discussion of other attempts to parameterise P-stranding. In short, the optionality of P-stranding is largely taken – by van Riemsdijk (1978), for example – to be a matter of the availability of "escape hatch" positions in PP. This mistakenly designates all PPs as islands, which Abels shows to be untrue – sub-extraction from PP in e.g. Russian is far more acceptable than P-stranding.

(24) a. Ot čego sleduet otkazat'sja?
of what follows give up-self
"What should one give up?"

b. *Čego sleduet otkazat'sja ot?
what follows give up-self of

c. ?Na čto sleduet otkazat'sja ot [vsjačeskih pretenzij _]
on what follows give up-self of whatsoever hopes
"What should one rid oneself of any kind of hope for?"

(Abels 2003, pp. 160-161)

Similarly, accounts that propose reanalysis of at least [V ... P] as a complex verb – such as Hornstein and Weinberg's (1981) – suffer problematic counter examples. Consider how in example (25), the aforementioned reanalysis account requires moved PP-complements to be objects of complex verbs, but this would require two separate overlapping strings – *talk-to* and *talk-to-_-about* – to form complex verbs.

(25) Which problems has Harry been talked to _ about _?

(Abels 2003, p. 251)

As will become clear in chapter 2, an anti-locality account of P-stranding can correctly derive the Russian example in (24) and, assuming a suitable escape mechanism for English, the example in (25) as well. Designing an escape mechanism that also gives literality effects forms part of the focus of the next two chapters.

1.4 Summary

In this introductory section I hope to have laid out my plans for the rest of the essay. The behaviour of the literality effect of English P-stranding should be apparent at this stage,

along with the bizarre implications it raises: why would syntax care about something so abstract and conceptual in interpretation? I also hope to have shown that whichever theory of adjunct islands we assume – whether it be CED-based or otherwise – it needs to at least make room for English P-stranding as a counter-example, and that whatever patch we use to do so must itself make room for the literality effect as a counter-counter-example.

Chapter 2 takes a look at anti-locality as a way of banning P-stranding, and some "escape plans" that English could make use of. I decide that additional PP-internal structure is the best option. Chapter 3 aims to identify this syntactic material in terms of a prepositional version of the NP-internal participant structure of Davies and Dubinsky (2003), which will hopefully allow limited P-stranding that respects both anti-locality and the literality effect.

Following the main proposal, Chapter 4 is a critical review of the account and some of the assumptions I have made. It may not be so clear that an entirely narrowly syntactic account is what we want, despite the theoretical implications that may otherwise arise. Chapter 5 is a summary and reflection.

2 – Anti-locality

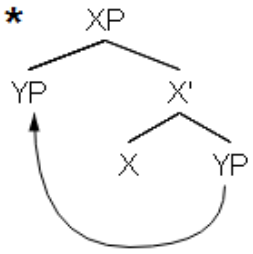
This section is devoted to the anti-locality condition, as formulated by Abels (2003). In short, anti-locality is exactly what it sounds like: if locality is concerned with movements that are illicit because they move too far, then anti-locality is concerned with movements that are illicit because they do not move far enough. For Abels, the anti-locality condition falls out from minimalist null assumptions. These are repeated here along with some simplified argumentation.

One of the major empirical upshots of proposing the anti-locality constraint is that the near-universal ban on preposition stranding becomes easily explicable. For my purposes, Abels' (2012) account of the non-P-stranding languages will be of particular interest. I will be adopting this as the mechanism that drives my account of P-stranding.

2.1 The Stranding Generalisation from Anti-locality

Anti-locality is essentially the following restriction:

(26) The Anti-locality Constraint



(Abels 2003)

In words: the complement of any X may not move to the specifier position of X. We will see that, as Abels argues, this movement is too short. It makes no sense given standard assumptions about how a Minimalist syntactic system should work.

The empirical work of anti-locality is due mainly to a specific instantiation of the constraint in (26), dubbed the Stranding Generalisation.

(27) The Stranding Generalisation

Given a phase head α^0 and a constituent X in α^0's c-command domain,
$\Diamond\checkmark[X...[\alpha^0[...t_x...]]\ ...\ ]$ and
$\neg\Diamond\checkmark[X...[\alpha^0\ t_x]\ ...\ ]$ (Abels 2003)

In words: it is possible for grammatical movement of X over α^0 if X originates *within* α^0's complement, but it is never possible for the complement of α^0 itself to move.

The Stranding Generalisation emerges from a combination of the anti-locality constraint and the widely-assumed impenetrability of phases. Let us see how. Consider first that any movement out of a phase must pass through the specifier of that phase; skipping this position would violate the Phase Impenetrability Condition (PIC) (Chomsky 1995), or any other notional variant one could adopt. But if we assume the anti-locality constraint, the complement of the phase head cannot move to its specifier. The complement of a phase head is thus completely immobile. Constituents within the complement are not subject to this restriction, because they are not subject to anti-locality with respect to that head.

For my purposes, it is now easy to explain preposition stranding in terms of anti-locality. We need only assume that P is a phase head. This would make a total universal ban on preposition stranding, so clearly not exactly what we are looking for. However, there are ways around it which I will explore in section 2.3. It is necessary to delve a little deeper in order to fully explain these "escape plans".

2.2 Anti-locality from null assumptions

2.2.1 A blind system

Chomsky (1995) gives us the Strong Minimalist Thesis (standardly "SMT"):

(28) The Strong Minimalist Thesis
Language is an optimal solution to legibility conditions.

This was never necessarily meant to be taken seriously as a position, rather a null hypothesis from which any deviations would constitute some advancement of the theory. In other words, we should assume that syntax is "perfect" (in terms of interpretability at the interfaces) until we see evidence to the contrary.

One of the pieces of technical machinery that has come with the Minimalist Programme is the use of features. It has been assumed since Chomsky (1995) that all lexical items are born (numerated) with an array of features – N, V, case, gender, etc. – and that these are "valued" or "checked" before a derivation reaches the interface with semantics, Logical Form (LF). Features cannot be left "unvalued" or "uninterpretable" at this stage, or the derivation will crash – that is, the derivation is not grammatical.

Now, given that feature-checking/valuation is what motivates structure-building, and that Minimalist concerns would have us stipulate as little machinery as possible in the name of simplicity and optimality (see the SMT), we can assume that feature-checking/valuation is indeed the *only* mechanism that drives syntax. In other words, syntax is "blind" to all else. Its sole purpose is interpretability at LF, which means checking all features.

But syntax is also "blind" in another sense. As a null assumption it must be the case that, for any given node in a tree, only those nodes it immediately dominates may be visible to it – a principle known as Accessibility[3]. Direct domination, then, is the only syntactic relationship in which nodes can "see" each other. Syntax must also be "blind" in the sense that it can only "see" its immediate surroundings in this way.

There is an analogy here with evolutionary biology[4]; giraffes have elongated recurrent laryngeal nerves that take a circuitous route from the brain to the larynx via the heart, a detour of over 4 metres. This would have made sense in giraffes' early ancestral history, when such a route would have been more direct. The forces of natural selection would not have been able to "see" that this configuration might be redundant for long-necked creatures further down the line – they operate on a "seems-like-a-good-idea-at-the-time" policy. This is precisely what our Minimalist syntactic system should look like, making the null Accessibility assumption. The structure building operation has no foresight, so cannot do anything for the benefit of structure that will come later; it can only do what is beneficial within the structure it can see.

2.2.2 Last Resort from a blind system

The two types of "blindness" explored above combine to give us what Abels dubs the "Last Resort" condition.

(29) Last Resort

A constituent α may only be merged, i.e. base-merged or re-merged, if that leads to the immediate satisfaction of a previously unsatisfiable feature.

(Abels 2003)

To elucidate how this falls out: following from the discussion of "blindness" above, we only have one mechanism driving syntax – feature checking/valuation. We want our system to work automatically and optimally towards this end. However, we also want to respect Accessibility. Features cannot, then, be checked in whatever configuration we feel like stipulating; the notion of direct domination should come into play somehow.

Now consider the structure-building operation, Merge. Merge combines two existing constituents and projects a single new node that directly dominates both. Each iteration of Merge must be an immediate positive contribution towards the total satisfaction of all features. Merge cannot "plan ahead" – just like the giraffe's recurrent laryngeal nerve, it must do whatever is "a good idea at the time". It cannot, for example, delay checking/valuing one feature so that it can check/value more features at the next node up. There can, therefore, be no iteration of Merge that contributes nothing to feature checking/valuing right away. In other words, the Last Resort condition follows from our assumptions about what a Minimalist syntactic system should look like.

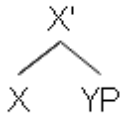
[3] A version of Accessibility is given in Chomsky (1981).

[4] Dawkins, Richard (2009) – *The Greatest Show on Earth*, New York: Free Press

2.2.3 Anti-locality from Last Resort

Consider now the first (relevant) case of Merge in the tree in (26). Two constituents X and YP are merged to form X', as below.

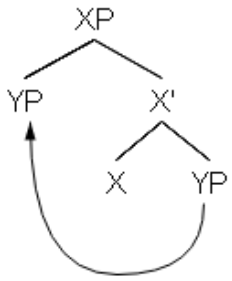
(30)



In this configuration, X and YP are in the closest possible relation of total mutual c-command. There is a single node, X', that directly dominates both of them. Following from the discussion above, in this configuration we can assume that X maximally satisfies whatever featural requirements that it can satisfy that YP may impose on it, and that the same is true of YP for X. Either X or YP may still have unchecked features of course, but each has crucially done everything it can in terms of checking at this stage.

Now consider the next iteration of merge in the tree in (26), repeated below.

(31)



YP has undergone movement (i.e. re-merged) to become a sister of X'. The featural requirements of X' are composed out of those of X and YP. The featural requirements of YP are presumably the same as they were previously, in (30). There is no new requirement of X' that YP can satisfy, and there is no new property of X' that can satisfy a previously unsatisfied requirement of YP.

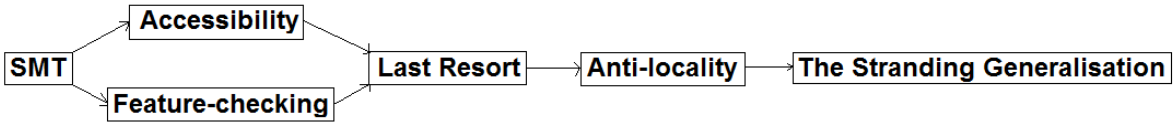
Whatever specific unchecked features remain, it seems clear that the new configuration in (31) will not be able to satisfy any requirements that could not have been met in (30). It thus violates Last Resort ((29)), i.e. in terms of features, this second step of Merge has contributed nothing. This is not what we expect of an automatic, "blind" system.

2.2.4 Summary: the Stranding Generalisation from null assumptions

To quickly recap, we have now derived the Anti-locality constraint from a few basic Minimalist tenets. Following the SMT in (28) we have supposed that the motivating mechanism driving syntax is feature checking/valuation, and also that Accessibility holds – both standardly assumed in the field. Taken together, these assumptions give us a picture of a "blind" system in which the Last Resort condition (in (29)) must hold. If Last Resort Holds then Anti-locality holds, and if Anti-locality holds then the Stranding Generalisation follows.

For those like me who prefer their convoluted argumentation in flow-chart summaries, I offer this:

(32)



2.3 A Not-Quite-Universal Ban on P-Stranding

It is a simple step from the anti-locality constraint (via the Stranding Generalisation) to a neat explanation of the rarity of preposition stranding. All is needed is to suppose that P is a phase head, and a universal ban on stranding P falls out as a corollary of the chain of argumentation in (32). The complement of P must move through SpecPP if it is to respect phase impenetrability, but movement to that position is unmotivated in light of the above discussion of anti-locality. Wherever P is a phase, then, its complement must be totally immobile.

For the purposes of this essay, however, a universal ban is no good. It is clearly a positive step forwards – after all, P-stranding is only present in a tiny handful of the world's languages[5] – but there must be some limited ways around it in order to account for the facts. Assuming that the anti-locality account is the true explanation for P-stranding, this section reviews some of the ways to escape it. I also look at the likelihood of each of these escape plans working for my purposes in this essay.

2.3.1 P is not always a phase

The Stranding Generalisation ((27)) holds only over complements of phase heads. Recall again why this is the case: any movement out of a phase must respect i) phase impenetrability, and ii) anti-locality. Any conceivable movement of the complement must either stop off in the specifier of the phase head, but it's damned if it does and damned if it doesn't; moving to the specifier would violate anti-locality, and skipping it would violate phase impenetrability.

But this is only relevant for phase heads. The Stranding Generalisation does not necessarily apply to non-phase heads. Movement out of a non-phase head is still subject to anti-locality, but not phase impenetrability. Movement of the complement – crucially skipping the specifier of its head – is, in principle, allowed. Therefore, if whether P is a phase or not is subject to cross-linguistic parametric variation, P-stranding could sometimes be allowed.

[5] The exact number is debatable, roughly a dozen. Abels' (2012) list numbers 13: Cape Verdean Creole, Danish, English, Faroese, Frisian, Gbadi, Icelandic, Papiamentu, Prince Edward Island French, Norwegian, São Tomense, Swedish, and Vata.

Abels' (2012) introduction to his discussion of P-stranding has this to say on the matter of parameterisation of the phasehood of P:

> "*Maybe in languages that allow adposition stranding, adpositions are simply not phases. However, giving up the idea that the inventory of phase heads is universal would represent a substantial weakening of the theory and should therefore be avoided.*"
> (Abels 2012, p.223)

For my purposes, the problem with this approach is even worse. Not only would P not always be a phase cross-linguistically, it would not even always be a phase within the same language. Consider again the data exemplifying the literality effect, repeated as (33):

(33) a. It was a helicopter he arrived in.
b. *It was the morning he arrived in.

The relevant distinction between (33a-b), on this analysis, would be the phasehood of the preposition. In (33b) "in" would occupy a phase head, and in (33a) the (presumably) same lexical item[6] would occupy a non-phase head. The question of how the "literalness" contrast in (33a-b) relates to the phasehood of P remains unexplained. Furthermore, this is very much, as Abels notes (same page as above), a "brute force" solution. We should attempt to avoid it as far as possible. It is only worth resorting to in the case that all other accounts should fail.

2.3.2 P-stranding is not movement

Abels supposes that perhaps P-stranding languages do not move the complement of P; the observed surface word order is illusory. The complement of P is instead occupied by a null resumptive pronoun that never moves. This pronoun can then receive the interpretation of the "moved" material via binding.

In support of this approach, we already know that resumptive pronouns are among the inventory of techniques that languages have been known to utilise in order to circumvent the ban on P-stranding. Consider Welsh as a prototypical case:

(34) y bobol naethon nhw roi 'r gwobrau iddyn **nhw**
the people do.PAST.3P they give the prizes to.3P **them**
"the people they gave the prizes to (them)" (King 2003, via Hirata 2012)

Hirata also suggests that phonologically null resumptive pronoun complements of P are possible in Welsh, when licensed by rich agreement morphology on the preposition[7]:

[6] The problem is weakened very slightly if we suppose that the prepositions in (33a-b) are not the same lexical item. The extraction possibilities dependent on the literality of the preposition would thus be traceable to the otherwise indistinguishable use of two distinct, but homophonous, prepositions. In my opinion, this amounts to begging the question, so I will not be pursuing it further.

[7] This data point is also entirely consistent with a P-stranding movement analysis, if one were inclined to see Welsh that way – I believe Willis (2000) argues for such a thing. For the purposes of this essay, though, the matter is moot.

(35) y dyn y soniais amdano ***pro***
the man C talk.PAST.1S about.MASC.3S
"the man who I talked about" (Hirata 2012)

This is precisely what we would be looking for in the English example (33a), but such an analysis would have to be ruled out in order for (33b) to be bad. In other words, we would need to demonstrate that (33a) involves binding of a null resumptive pronoun, but also that (33b) involves an illegitimate movement operation.

This is problematic for a few reasons. As Abels notes (2012, p.224), there is no evidence that English has these kinds of null pronouns in any other context. It would be a bold move to stipulate them in the face of no independent motivation. He goes on to give a number of further arguments against the analysis of English P-stranding as involving null resumptive pronouns. Some of these are repeated briefly in the following subsections. I offer the following additionally: when the stranded position in (33a) is placed in an island context, a violation results.

(33a') *It was a helicopter [the man who arrived in _] burped.
(33a'') *It was a helicopter the men arrived in [_ and a plane][8].

This is the expected result of movement, but not of the present null resumptive pronoun account, since there should be no movement involved.

2.3.2.1 Postal's antipronominal argument

Postal (1998) argues that some grammatical contexts are "antipronominal" – they will not tolerate substitution by a weak definite pronoun. A predicate nominal is one such example:

(36) *Context:* Who is this floor's fire safety officer?
a. John is the floor fire safety officer.
b. *John is it.

When a predicate nominal is the complement of a preposition, the same effect is apparent:

(37) a. Frank turned into a werewolf.
b. *Frank turned into it. (Postal 1998, via Abels 2012)

If P-stranding involved a null resumptive pronoun – which presumably would have the same distribution as the regular weak pronouns above – we would expect a stranded version of (37a) to be as bad as (37b)[9]. This is apparently not the case:

[8] Theresa Biberauer and Laura Aldridge (p.c.) independently point out that this is acceptable with a long pause, but this reading should be ignored as it is known to repair Coordinate Structure Constraint violations anyway for irrelevant prosodic reasons.

[9] It could be the case that the explanation for "antipronominal" contexts is to do with prosody, i.e. a weak pronoun like "it" must not bear stress, but in (36-37b) stress is obligatorily assigned to it. In this case, the argument falls apart because a null pronoun obviously cannot be subject to the same restriction.

(38) a. It was a werewolf Frank turned into.
b. What did Frank turn into?

2.3.2.2 Unexpected availability of de re *and* de dicto *readings*

Resumptive pronouns tend only to make *de re* interpretations available – there is a specific referent. Movement tends not to have this restriction. Abels offers Hebrew data from Doron (1982) that illustrates this claim:

(39) a. Dani yimca et haiSa Se hu mexapes
Dani find.FUT ACC the.woman that he seeks
b. Dani yimca et haiSa Se hu mexapes ota
Dani find.FUT ACC the.woman that he seeks her
"Dani will find the woman he seeks" (Doron 1982, p.26)

"The woman" in (39a) can refer to some non-specific woman (e.g. "someone with red hair"), or some woman in particular (e.g. "Jane"). The referent in (39b), though, must be specific.

Given this generalisation, if there were a silent pronoun complement of P in English, we should expect the relevant referents in sentences with stranded prepositions to be specific as well. In other words, P-stranding should rule out *de dicto* readings. This is not the case, as Abels concludes; (40a) involves P-stranding while (40b) uncontroversially involves movement, but both sentences have both *de re* and *de dicto* readings available.

(40) a. Dani will find the woman he is looking for.
b. Dani will find the woman he is seeking.

2.3.2.3 Unexpected unavailability in comparatives

For mysterious reasons[10], resumptive pronouns are banned in unequal comparative constructions (e.g. "more than", "less than"). There is no such restriction on movement. (41) shows that stranded prepositions in Hebrew must bear overt morphology licensing a null resumptive pronoun[11].

(41) a. eyze sfarim Dani kara (otam)
which books Dani read (them)
"Which books did Dani read?"
b. eyze sfarim Dani diber al*(-eyhem)
which books Dani talked on(-3PL)
"Which books did Dani talk about?" (Sharvit 1999, via Abels 2012)

But even the appropriate pro-licensing morphology cannot save a stranded preposition in a comparative context:

[10] Abels tentatively suggests some reasons on (pp. 226-229).
[11] Again, assuming there is one – see Abels (2012) ch. 6 footnote 2, and section 7.3.1 for discussion.

(42) a. Dani kara yoter sfarim me-aSer Yosi kara
Dani read more books than-that Yosi read
"Dani read more books than Yosi read."
b. *Dani diber al yoter sfarim me-aSer Yosi diber al(-eyhem)
Dani talked on more books than-that Yosi talked on(-3PL)
Intended: "Dani talked about more books than Yosi talked about"
(Sharvit 1999, via Abels 2012)

The English equivalent to (42b) should be ungrammatical too if stranded prepositions involved resumptive pronouns rather than movement, but it is not:

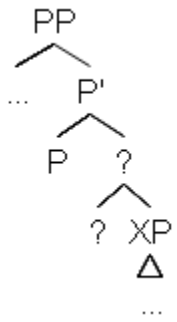
(43) Dani talked about more books than Yosi talked about

Thus, English P-stranding does not involve a null resumptive pronoun.

2.3.3 P-stranding does not strand P

This final strategy for escape from the anti-locality condition, Abels argues, is the most promising. If P is always a phase, and if P-stranding really is movement, then the only remaining option – short of dropping the anti-locality condition – is to suppose that P is not actually stranded in P-stranding languages. The constituent that moves in these cases is not the direct complement of P; there must be some additional syntactic material that intervenes, as in (44):

(44)



If (44) is the correct structure of the English PP, then XP (previously analysed as the direct complement of P) is no longer subject to the anti-locality condition with respect to P. It is free to move to the specifier position and escape the PP.

Abels (2012) argues that the intervening projection I have labelled "?" shows up overtly in some German, Dutch, and Afrikaans prepositions – in these cases as "R-words"[12] – and in some stranding contexts in Papiamentu and Cape Verdean Creole. Consider German, in which the additional morphology "*dr-*" is obligatory on the preposition "*in*" in an extraction context.

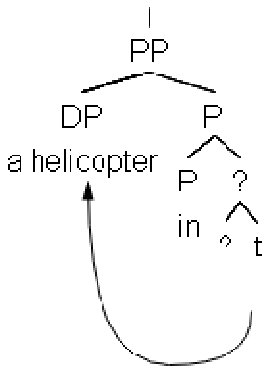
[12] Named as such for their near-ubiquitous use of the phoneme /r/ (van Riemsdijk, 1978)

(45) a. Du hast im Bett geschlafen
you have in.the bed slept
"You slept in the bed"
b. Wo hast du drin|*in geschlafen?
where have you DR.in|in slept
"What did you sleep in?"

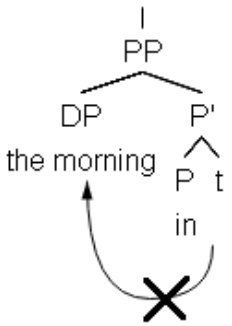
Similar alternations are observable on many German prepositions, including "*unter/drunter*", *"über/drüber"*, *"mit/damit"*, *"an/daran",* and *"nach/danach"*. I leave the argument for the exact structure of the Germanic intervening R-words to Abels; it will not be repeated here, as I have other plans for the English PP. For the purposes of this essay, it suffices to say that there are languages in which an overt item intervenes between P and its superficial complement. It is not, therefore, implausible that English P-stranding may involve a silent intervener.

More specifically, it should be the case that the intervener is only present in "literal" PPs, and absent in "figurative" PPs. The latter can then be ruled out as an anti-locality violation.

(46)



(47)

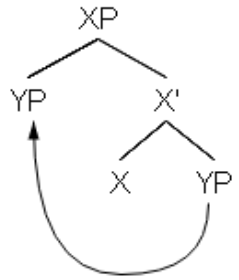


The exact nature of "?" is left unspecified for now. Determining its identity will be the main focus of the next chapter.

2.3.4 Aside: EPP features

There is, technically, a fourth method of escape from anti-locality[13]. Although a little more subtle, I argue that it is still undesirable. Recall first the reasons for the anti-locality condition, and the example tree given in (26) (repeated as 31):

(31)



At the point that X and YP are merged to form X', all possible feature checking/valuation takes place between them. Moving YP to the specifier of XP creates no new checking/valuation configuration and is thus unmotivated within the system. This explanation rests on an assumption that feature checking/valuation is the sole motivation for movement. In other words, it would not hold if it were demonstrable that movement could take place for any other reason.

One such candidate is an EPP feature. Suppose that X bears this feature, requiring its specifier to be filled. In the absence of anything else, YP could now move to SpecXP to satisfy this requirement. This is not movement for the purposes of feature-checking per se; it is not creating a new configuration, it is simply "following orders". X enters the structure with the requirement that its specifier must be filled, and YP is the nearest item to do it at the time. If EPP features can exist, then, they could potentially be responsible for grammatical P-stranding in the languages that allow it.

I suggest that this is not a fruitful path to follow because this escape plan is simply too powerful. Abels' formulation of anti-locality is backed by very strong empirical support[14], and it is theoretically inviolable and universal. The fact that a few languages exhibit mobile complements of P is a total mystery and requires very careful consideration; whatever escape plan we employ must be extremely weak, in that it must only apply in a tiny minority of languages. There are typological and acquisition issues: what is the trigger in language acquisition that tells a learner that certain prepositions can be stranded, and why does it occur so rarely?

EPP features do not fit this profile. They are employed in analyses of a variety of cases in a variety of languages. If escape from prepositional phrases were mediated by EPP features

[13] This issue was brought to my attention in a seminar by Ian Roberts (p.c.)
[14] Abels (2003) Chapter 3, which has subsections on "TP immobility under C^0" and "VP immobility under v^0"

then we would expect P-stranding languages to be ubiquitous. Furthermore, we would expect other anti-locality-powered phenomena to be subject to the same exceptions as P-stranding. As the facts stand, we know of no languages that move, for example, TP; this would be entirely possible with an EPP feature on C. For these reasons I would be reluctant to resort to EPP features as a method of circumventing anti-locality.

2.3.5 Aside: What if SpecPP is already filled?

There is an argument against the ?-projection account I outlined above in 2.3.3 which goes like this: legitimate movement out of PP must pass successive cyclically through SpecPP. If SpecPP is already filled, this step of movement should not be allowed. Let us assume that measure phrases – such as *"a mile beneath the Pentagon"* or *"two blocks past the light"* – are specifiers (see Fillmore (2002), via Coppock (2007)). We predict that extraction from under a preposition with a filled specifier should be illicit, but this is not the case:

(48) a. The secret base is a mile beneath the Pentagon.
b. What is the secret base a mile beneath?
c. What is the secret base beneath?

(49) a. The pub was supposed to be two blocks past the light.
b. ?What was the pub supposed to be two blocks past?
c. ?What was the pub supposed to be past?

There is no degradation in either (48b) – extraction without a specifier – or (48c) – extraction with one. Both (49b-c), by my judgement, are equally degraded. The presence of a specifier, then, does not seem to influence options for extraction. It must be the case, then, that extraction does not pass successive cyclically through SpecPP.

I suggest that, contrary to Coppock's analysis, these measure phrases are not specifiers. If this is correct, then the argument falls away. I believe that prepositional measure phrases do not fit the profile of specifiers, rather they behave more like modifying adjuncts, for the following reason: Laura Aldridge (p.c.) points out that measure phrases are "stackable":

(50) The light switch is [two feet] [diagonally] [up] from the door handle.

This is not a property of specifiers[15] (or arguments generally), but it is a property of adjuncts.

[15] Unless one were to propose a whole host of projections here. This seems unmotivated and redundant to me. Note that most orderings of these measure phrases are acceptable, suggesting that they do not occupy dedicated positions.

2.4 Summary

This chapter began by looking at the theoretical reasons that an anti-locality condition must exist. An understanding of the mechanics of anti-locality is necessary in order to propose ways of escaping it in a limited class of counter-examples. One such case is P-stranding. In proportional terms, the attested languages that exhibit P-stranding make up mere tenths of a percent of the world's languages. There is certainly plausibility in the idea of considering P-stranding to be "universally" banned, while a tiny minority of languages seem to have developed limited ways of circumventing this ban.

I argued that, of the possible anti-locality escape strategies, English P-stranding most likely employs a silent projection that intervenes between P and its apparent complement. If the head of this projection possesses a feature, then its complement – previously analysed as the direct complement of P – can move to the specifier of P and still respect anti-locality, while preserving the cross-linguistic generalisation that P is universally a phase.

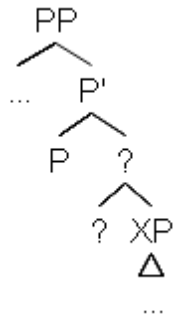
The identity of the mystery silent projection will be considered in chapter 3.

3 – Participant Structure

This section is devoted to the internal structure of PP. The account I will propose is based loosely on the internal structure of NP proposed by Davies & Dubinsky (2003) (henceforth D&D). It will be necessary to review this account in detail.

Bear in mind, given the previous chapter, the output I am expecting; I am proposing that P-stranding is generally impossible since movement of the complement of P violates antilocality. P-stranding becomes possible, however, whenever there is additional structure within PP, as in (44) (repeated here as (51)):

(51)



The aim of this chapter, then, is to discover the identity of the mystery projection "?". Its distribution should be accounted for too; why should *"in a helicopter"* have more internal structure than *"in the morning"*? The intuitions about "literalness" vs. "figurativeness" will be formalised here in terms of this additional feature-bearing syntactic structure.

3.1 Participant Structure in NP

3.1.1 A Typology of Nouns

D&D note that there is a variety of extraction possibilities for nominal complements. They describe an asymmetry between "concrete", "representational", and "process" nouns, which each dictate different rules for extraction. These three types of nouns seem to fall on a scale between physical and metaphysical; i.e., concrete nouns are literal physical objects, while process nouns are purely conceptual, with representational nouns occupying some kind of metaphysical halfway-house between the two extremes. This immediately forms an interesting parallel to the "literal" and "figurative" uses of prepositions that I have been considering.

3.1.1.1 Concrete nouns

Concrete nouns denote actual physical objects, like *table*, *chair*, *dog*, *cafe*, and *kraken*. D&D argue that these types of noun cannot be said to involve a "participant", and therefore have no internal argument structure. The notion of internal structure will be formalised in 3.2 and further sections. Extraction from a concrete noun is forbidden.

(52) *Which church did Ashley prefer/like/describe the cafe near _?[16]
(D&D, p3)

3.1.1.2 Process nouns

The other end of the metaphysical scale is inhabited by process nouns, which are generally deverbal and eventive, such as *coronation*, *examination*, *refusal*, *expression*, and *destruction*. D&D state that process nouns can have internal argument structure. Extraction from a process noun is always permitted.

(53) Who did Ashley participate in/watch/protest the coronation of _?
(D&D, p4)

3.1.1.3 Representational nouns

These are nouns that are not necessarily deverbal, but still seem to imply an event with participants, like *victory* or *essay*, and in some cases *book (about x)* and *picture (of x)*. These nouns are subject to more complicated conditions that govern their extraction options – in short, extraction is usually allowed if NP is not definite.

(54) What did John read a/some/Ø book(s) about _?
(55) *What did John read the/that/his book about _?

D&D argue that some nouns – like *book* – are ambiguous between two classes. The relevant class can be distinguished by context; for example, an *interesting book* could be representational, but a *heavy book* is concrete. They give examples to show that the extraction possibilities are affected just as expected – the representational *book* will allow extraction, but the concrete *book* will not.

[16] Note that in all of these examples, extraction only ever occurs *from* the complement of NP, and not *of* the complement. Consider (i), which is out (on the relevant reading):

i) *Near which church did Ashley prefer/like/describe the cafe _?

If N is a phase in English, this fact could be attributed to anti-locality.

(56) a. When writing papers, which presidents do children usually use books about _?
b. *When propping open their desks, which presidents do children usually use books about _? (D&D, p10)

A particular class can also be forced by choice of verb; consider that one would normally *throw* a *heavy book*, and *write* an *interesting book*, but not vice versa. This also affects extraction options as predicted:

(57) a. What did John read a book about?
b. *What did John throw a book about?

3.1.2 NP-internal argument structure – Grimshaw's nominal spectrum

D&D aim to explain this behaviour by appealing to Grimshaw's (1990) notion of argument structure within NP. The "scale" that process, representational, and concrete nouns seemed to fall on above is here given some formality, in the shape of a more refined spectrum of nominal types. Beware, however: there is not a straightforward mapping between the two spectra, and some technical terms become reused and overloaded.

3.1.2.1 Complex event nominals

At one end of Grimshaw's scale, concrete nouns have no internal structure – at the other, process nouns have obligatory internal structure. Grimshaw exemplifies the latter with gerunds, which may never appear without their complements:

(58) a. the felling *(of the trees)
b. the destroying *(of the city)[17] (Grimshaw 1990, p50, via D&D, p12)

These are "complex event nominals", a class which our process nouns can optionally inhabit. D&D argue that use of the modifier *frequent* forces a complex event interpretation, which in turn requires the presence of an argument, as the following data show:

(59) a. The examination was annoying.
b. *The frequent examination was annoying.
c. The frequent examination of the patients was annoying. (D&D, p13)

[17] These gerunds seem to bring their verbal argument structure with them. Their obligatory arguments here are what previously would have been obligatory arguments of the verb. This informs D&D's eventual formalism.

ii) *(The trees) fell
iii) The lumberjacks felled *(the trees)
iv) The Romans destroyed *(the city)

3.1.2.2 Result nominals

When *examination* appears without an overt argument, i.e. (59a), then it is a "result nominal", a class which inhabits the metaphysical middle ground of the nominal spectrum. These are nouns that tend to imply participants, but their participants are not arguments. Other result nominals include D&D's representational nouns from above, like *victory*. They argue that *victory* will not accept modification by *frequent*, though I am sceptical of this judgement – the star in (60) belongs to D&D, and the question mark is mine.

(60) The Yankees' (*/?frequent) victory over Seattle delighted their New York fans. (D&D, p14)

Our ambiguous nouns, like *book* from the previous section, can fall into this class on their representational reading. Their concrete reading falls into the following class.

3.1.2.3 Concrete nominals

At this end of the spectrum are "concrete nominals", which include our concrete nouns like *dog* and *kraken*. They do not tolerate arguments or participants of any kind. Note, too, that concrete nouns will never allow modification by *frequent*, as expected:

(61) *the frequent dog/cat/man/cafe/kraken/Toby jug

3.1.3 Interim Summary

We are now working with two non-trivially distinct notions: that of "argument", and that of "participant". D&D leave unexplained quite what the formal properties are of arguments and participants at this stage. They do make it clear, though, that all arguments are necessarily participants, i.e. arguments are a subset of participants. The array of nominals can be shown to form a continuum in how they involve participants and arguments, from complex event nominals like gerunds that may not appear without their arguments, to simple concrete nouns like *dog* that do not imply participants of any kind. Along this scale also lie result nominals like *victory*, which have non-argument participants. Some nouns, like *examination* and *book*, are ambiguous between classes. Using context and the modifier *frequent* can help force one reading over another to resolve an ambiguity.

3.2 Extraction from NP

3.2.1 Formalising intuitions

D&D's intuitions, based on the nominal continuum detailed above, is that only participants can be extracted. This seems to be a broadly true statement, as we saw in 3.1.1; the complements of simple concrete nouns like *cafe* seem to be opaque to extraction (recall (52)), but the complements of gerunds and other complex event nominals seem to be transparent.

(62) Who did doctors protest the (frequent) examining/examination of _ ?

Complements of result nominals, since they involve participants, are transparent in principle. It does seem, though, that they are additionally subject to a definiteness effect – recall (54-55).

The way D&D attempt to formalise these observations is a little simplistic, little more than restating the facts. Nouns and verbs are said to come with a lexical conceptual structure (LCS), which lists gives the item's category and lists its arguments as variables. The LCS of the verb *examine*, then, would look like this:

(63) examine V, (x(y))

D&D suggest, following Grimshaw (1990), that complex event nominals like gerunds and the process reading of *examination* come from embedding the arguments of *examine* in an event argument that comes from the nominal suffix, as here:

(64) examine V, (x(y)) + -ation N, (Ev) = examination N, (Ev(x(y)))[18]

Essentially, this is a way of stating that complex event nominals have arguments, just like verbs. Result nominals, by comparison, only imply participants. This is achieved by giving them an external argument, dubbed "R", which can be identified with an argument of a related verb. The LCS of the representational *examination*, then, looks like this:

(65) examination N, (R=x) *//such that y examines x*

[18] It is worth noting that either argument of *examine* is considered a participant in the noun *examination*, and is as such transparent for extraction in principle, but in cases like this the argument denoted by *y* is the subject of *examine*, so the Subject Condition becomes relevant – see chapter 5, "Why there is still a Subject Condition", of D&D.

In this way, *examination* and the other result nominals do not take argument structure, but they can use R to refer to the arguments of verbs, which they can take as participants.

I suggest that this is an inadequate explanation. The distinction D&D make here means that complex event nominals are derived from verbs, but result nominals are not. If they are not related to verbs, how can they know to select an argument from an appropriate verb as a participant? What, for example, prohibits *examination* from selecting the internal argument of *kill* as a participant? Even worse, what stops *dog* from doing the same thing? This is part of what was meant above when I mentioned that D&D's formalism seems only to restate the facts – it lacks explanatory power, and in this case, causes more problems than it solves.

However, let us continue. Concrete nominals, finally, trivially have the external argument "R", but have no related verb to refer to an argument of.

(66) dog N, (R)

It is not entirely clear to me how D&D evade the problem of non-deverbal result nominals described above. Consider *victory*; it has no obvious related verb, so R has no arguments to refer to. It does still, however, imply a participant which is subject to extraction:

(67) Who did the referees contest the victory of _?

One solution would be to have *victory* refer to arguments of a less obviously related verb, such as *win*. Perhaps, alternatively, participants of result nominals are not arguments of related verbs;

> *"If we understand result nominals to denote an entity or state that arises as the outcome of some event, then we can restrict participants of result nominals to the necessary participants of the related event."* (D&D p25-6)

On this view, *victory* can be assigned the following LCS:

(68) victory N, (R=x) *//such that x results from y winning over z*

D&D seem to prefer this latter approach over the former, despite the fact that it seems not to follow from any of their other suggestions.

3.2.2 Syntactic reflex

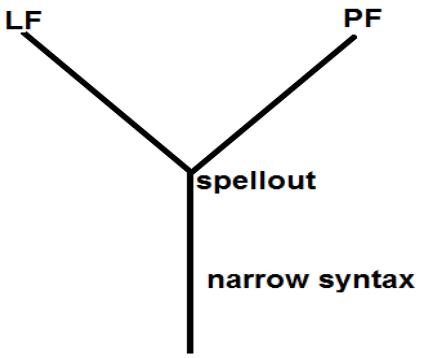
It is well and good to formalise the notion of participant of a nominal, but is unfortunately not enough. The observed fact – that only participants are transparent for

extraction – seems roughly intuitively correct, but explaining what it means to be a participant is only half the story. The majority of the rest of D&D's paper is devoted to a syntactic explanation of definiteness effects. What is left unexplained is how the notion of participants in NP relate to extraction possibilities.

What I mean by this is, it is usual and desirable to reduce or relate the problem that we are considering to a problem we already understand. We have reasons for believing we know why and how things move in many cases; movement is driven by featural requirements, and can occur successive-cyclically through various intermediate positions before the relevant requirements are satisfied at the landing site. Because of this, we know why movement might be blocked or fail to occur: unavailability of an intermediate or landing position, uncrossable boundaries such as phase edges, Relativized Minimality, failure to check/value features, and so on. It is important, then, to explain troublesome phenomena in these terms. In D&D's case, identifying the properties of participants is rightly the first step, but it is left unexplained quite what it is about participants that licenses movement. There needs to be some kind of theoretical reflex to their findings that helps explain what is happening.

I suggest that this reflex is most likely to be syntactic in nature, simply because the effect we observe – an asymmetry in extraction possibilities – is syntactic. That is not to say that this is the only possibility though. Consider the generally assumed Y-model of grammar:

(69)



In empirical terms, we know the following to be true: extraction from some NPs is allowed, and from others is not. The translation of these facts to theory is difficult. Regardless of whether D&D's participant structure account is the correct one, we can only make guesses – until we find conclusive evidence – as to where precisely in the model the relevant distinction between different NPs is made. We can immediately disregard the PF branch, since phonological facts do not seem to be relevant, but this still leaves us with a large amount of theoretical room between syntax and LF in which to locate the relevant constraint. In other words, we do not know if the facts indicate a

syntactic constraint, a semantic one, an interface issue, or possibly even a combination of these.

3.2.3 Participant structure in syntax

In light of the previous discussion, I will concede that there is little to no evidence to support a purely syntactic explanation of the NP-extraction facts over a more semantic one. Consider the approach outlined here a starting point, with the caveat that we may have to go back to the drawing board if we come across counter-evidence. The approach I take is an attempt to locate the relevant constraint in syntax, although it does make implicit reference to semantic concerns.

The first step will be to translate LCS into syntactic terms. I believe that it is desirable to have a mechanism of syntax – namely extraction – refer only to objects in syntax, rather than anything as conceptual as LCS (which may not even inhabit our Y-model grammar at all). I argued above that the notion of LCS that D&D pursue does not hold formal water. It should therefore be done away with, to be replaced by a more formal syntactic way of analysing participant structure.

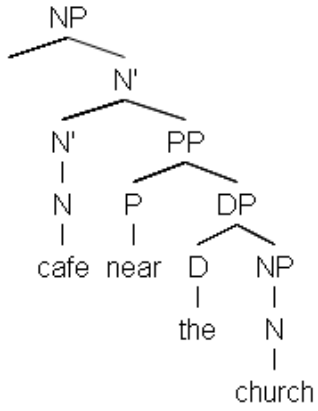
To quickly recap, D&D propose that the relevant distinction for their cases of extraction from NP is a three-way partition between NPs that select arguments (complex event nominals), those that imply participants (result nominals), and those that have neither (concrete nominals). For them, this three-way cut exists in each noun's LCS and is to do with the presence of the argument "R", and whether the noun is derived from, or otherwise related to, a similar verb. I will argue now that it is not LCS that matters, but similar facts that exist in the syntax of these nominals that affects their extraction possibilities.

If the following proposal is not necessarily convincing, I hope it is at least interesting to consider how conceptual concerns might translate into a formal system in this way.

3.2.3.1 Concrete nominal syntax

In D&D's LCS-based system, concrete nominals trivially had an "R" argument, but it played no role. These nominals were in no way related to a verb, and as such they had neither arguments nor participants. I suggest, then, that these nominals have minimal syntactic structure. Modifiers such as *cafe [near the church]* are adjuncts in the conventional sense.

(70)



Note first that extraction of the entire adjunct is never permitted (see footnote 16, example (i) (repeated here as (71)))

(71) *Near which church did Ashley prefer/like/describe the cafe _?

I suggest that, even though the PP is not a complement, the same structural configuration that is banned under anti-locality is present here. The specifier of NP is in principle an available landing site, but PP cannot move there because it does not create any new featural relation. I will have to additionally assume that N is a phase head in English; if it were not, an anti-locality violation would not follow.

Note second that definiteness of NP does not affect grammaticality of extraction from PP; it is always bad:

(72) *Which church did Ashley like the/a/some cafe near _?

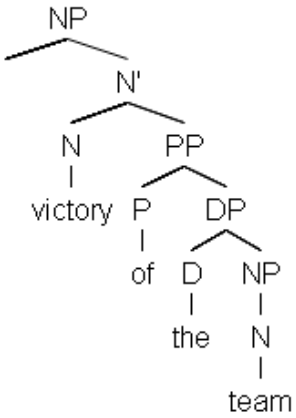
There is no syntactic reason, within the present proposal, why successive cyclic movement of *which church,* via the specifier of NP, should be forbidden. Rather, this position is blocked for semantic reasons which will become clear in the following subsection.

3.2.3.2 Result nominal syntax

In the LCS-based participant system endorsed by D&D, result nominals like *examination* and *victory* were formally identical to concrete nouns. They had no arguments, save for "R". The difference between them was that the R of result nominals could identify with an argument of a related verb, while the R of concrete nominals could not. I argued, as D&D noted, that this makes the wrong prediction about *victory*, which allows extraction of a participant yet has no related verb. The present proposal avoids this problem.

I propose that the syntax of result nominals is similar to that of concrete nominals: PP modifiers here could be adjuncts or complements of NP, but this makes little difference.

(73)



As with concrete nominals, the PP modifier – whether a complement or adjunct – is immobile under N'. I judge this to be correct in general[19], but other speakers may disagree on this very strong claim; this is to be rightly taken as a weakness of the present account.

In any case, the specifier of NP is available as an intermediate landing site for a sub-PP constituent, extraction of which is allowed in this case, as in (67) (repeated as (74)):

(74) Who did the referees contest the victory of _?

So why was a similar movement, using SpecNP as an intermediate landing site, disallowed in (72)? This is where participant structure comes in. I propose that N shares a feature, [participant], with its specifier, should it be filled. This feature signifies that whatever constituent bears it is a participant in the event denoted by N. Syntactically, then, there is no ill-formedness in either (72) or (74), but the fronted constituents must obligatorily bear this feature. This is fine in the case of (74), since *victory* denotes an event in which *who/the team* is involved as a participant. In the case of (72), however, a

[19] Examples of extraction of PP complements of N mostly involve genitive *of*-PPs, as in (v-vii):

(v) Of which city did you witness the destruction? (Huang 1982)
(vi) Of whom do government employees see pictures every day? (Bach and Horn 1976)
(vii) Of which cars were the hoods of damaged by the explosion? (Kuno 1987)

(all via Bošković 2013)

Firstly, there is clearly something odd going on with the repeated preposition in (vii), so this should not be said to be illustrative of movement of an entire nominal complement. In the case of (vi), the theory of extraposition and adverbial modifiers you assume will affect whether you believe this is truly movement of a nominal complement – what if, for example, the trace were at the end of the sentence? Note that removing *every day* from the sentence affects its grammaticality. Finally, I simply disagree with the judgement on (v), and can only appeal to lengthy introspection.

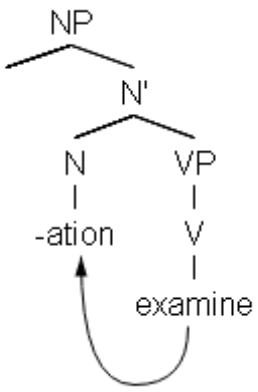
clash occurs at the semantic level. An English speaker's semantic knowledge tells them that *cafe* does not denote an event or imply a participant, but the [participant] feature assigned to the fronted constituent contrarily portrays it as such.

This account relies on all English nouns bearing and sharing a [participant] feature, even those that do not denote events or imply participants. Why should this be the case? Perhaps, when the English learner postulates the feature (for whatever reason it may arise), it is generalised to every noun in their lexicon. A slightly more detailed acquisition story is told in section 3.3.2.

3.2.3.3 Complex event nominal syntax

I share D&D's intuition that these nominals – a class including *examining* and *(frequent) examination* – are derived from verbs, by embedding a verbal LCS within a nominal one. In the spirit of the current endeavour, I differ from D&D by proposing that this occurs not at the level of LCS, but in the syntax. The suffix *-ation* bears the category N and takes the verb *examine* as an argument.

(75)



On this approach, nominal arguments (e.g. *examination of the patients*) could literally be verbal arguments. Anyhow, they are free to move to SpecNP and beyond. They will of course obligatorily pick up the [participant] feature there, but this cannot cause problems because, as arguments, they are already participants of the event denoted by the noun.

3.2.4 Interim summary

This section started by introducing D&D's explanation for the NP-extraction facts, an account based on participant structure within the nominal lexical conceptual structure. I argued against this approach, and suggested that, since the phenomenon in question – extraction – is syntactic, the explanation should have a syntactic root. Participant structure should, then, exist in the syntax of nominals, and not in the LCS. I believe that

this approach yielded mixed success. The next section aims to replicate this process with regard the internal structure of the English prepositional phrase.

3.3 Participant Structure in PP

The aim of this section is to finally provide an account of the "literality effect" in preposition stranding in English, exemplified by this now-familiar data:

(76) a. It was a helicopter he arrived in.
b. *It was the morning he arrived in.

The explanation proposed here will draw on the considerations that came into play in the previous sections in this chapter. In short, the same key intuition from NP-extraction applies here: only participants can be extracted. What must clearly be different, however, is the notion of what it must mean to be a "participant" of PP; we do not generally think of prepositions as denoting events, especially not in which one would take part. It will also become clear that not all prepositions will bear a [participant] (or similar) feature, as I proposed for nouns in the last section. Similarly, the feature will not originate directly from the head of the phrase, and will not be shared upwards with the specifier. Finally, and crucially, the proposal outlined here will only hold for English, and may possibly be extended to the other P-stranding languages. This is dangerous theoretical ground, as it seems to endow English with some privilege that no other language has. I will argue that this is a justified, reasonable position, given a particular universal learning mechanism and the primary linguistic data (PLD) of English.

3.3.1 Defining participation

Being a participant of a nominal is, compared to the present task, a relatively easy thing to explain in intuitive terms. D&D argued that some nouns – complex event and result nominals – are derived from or related to verbs, and as such seem to denote an event or state. A participant of a nominal, then, can be said to be an argument of a verb, something we already understand. All that remains is to explain the particular link between the noun and verb in question.

Prepositions do not enjoy this benefit, as they do not seem to be derived from or related to any particular lexical items of any other category. They could rather be thought of as a relation between their complement and their attachment site. Consider again an example like (76a): we can safely say that the complement of the preposition *in* in this sentence is *a helicopter*. There is a debate to be had about exactly where the PP might attach in this sentence though. There are reasons for supposing it might modify the VP,

in which case it would be the event denoted by *he arrived* that is located in the helicopter. Alternatively, there could be some controlled *pro* in an agent position of PP here, in which case it would simply be *he* who is located in the helicopter. I will leave this consideration aside for now[20], as it plays a less important role here than PP-internal concerns.

Either way, we can suppose that prepositions like *in* denote a relation, and that this is a relation between their apparent complement (e.g. *a helicopter*) and some other object or event that the PP attaches to. The nature of this relation in the case of (76a) is purely physical: *a helicopter* denotes an object that is regarded as a container. Consider that being a physical container is the only relevant property of the helicopter when judging the grammaticality of (76a). If the helicopter is broken down and being towed, or if it is just a toy – i.e. if the nature of the actual "arriving" is in question – (76a) is still true. If the helicopter is in pristine working order, but the person in question arrives clinging to the outside, then (76a) becomes false.

Consider now the grammatical, non-stranded non-cleft version of (76b):

(76b') He arrived in the morning.

This sentence does not seem to exhibit the same type of relation. While it is true that the sentence is only true if the event falls within a particular time frame, *the morning* is crucially not a physical container. While the distinction seems trivial, it does look like it really is the relevant distinguishing factor between (76a) and (76b), the first of which is grammatical and the second of which is not. With the discussion in section 3.2.3 in mind, I propose that this distinction is syntactically encoded as a feature. For the sake of clarity, this feature should not bear the same name as the nominal [participant] feature from the previous section – I will call it [Participant], where the capital "P" refers to the fact that it relates to prepositions and not nominals.

The [Participant] feature, then, is shared with the NP/DP complement of PP at the point that the head bearing it is merged. Its formal property is that, for whatever noun or determiner phrase it is assigned to, the denotation of that phrase is to be interpreted as

[20] Save for the following thought experiment. Consider the sentence *Mary shot John on the staircase*. Which of the following contexts are compatible with the sentence?

(viii) Mary is standing on the staircase and John is not
(ix) John is standing on the staircase and Mary is not
(x) Both Mary and John are on the staircase

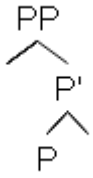
I judge that, at least in this case involving *on*, only (x) is compatible. This seems to indicate that it is the entire event of Mary shooting John that the PP must refer to. *In* seems to behave this way too. I will avoid more problematic cases, such as *Mary shot John from the staircase*.

a physical object. Thus, for whatever relation P specifies – *in, on, through*, etc – that relation is now strictly a physical, spatial relation, as it makes reference to the physical, spatial characteristics of the complement NP/DP.

3.3.2 A P-stranding learning mechanism

I assume that the innate, universal structure of PP is, familiarly, the following (ignoring the issue of head directionality):

(77)

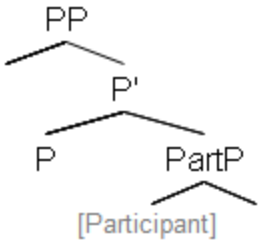


The complement of P is usually occupied by an NP or DP, such as *a helicopter* or *the morning*. Following the discussion in chapter 2, I additionally assume that P is universally a phase head. This means that any movement out of PP must respect phase impenetrability by passing through the specifier position. For the complement, however, such movement is banned by anti-locality. This renders the direct complement of P totally immobile. It must therefore be the case, considering (76a), that *a helicopter* is not directly a complement of P.

Suppose an L1 learner of English has the in-born PP-structure in (77). On encountering a stranded preposition in their PLD like that in (76a), I suggest that the learner may (indeed, on this account, must) decide that reanalysis of PP is necessary. This must take the form of postulating a projection that intervenes between P and its complement. Given that the structure in (77) is inborn, that P must remain phase head, and that there is no evidence to propose a null resumptive pronoun, the learner has a limited number of strategies available. I assume that postulating a new projection that circumvents anti-locality by intervening between P and the complement is the learner's best (indeed, only) way of reanalysing PP in the face of P-stranding in the PLD.

Additionally, I suggest that the feature [Participant] emerges in this position as a result of the learner's efforts to justify this new structure by giving it some sort of purpose. It must be the case that the head of the new projection bears at least some sort of feature. Consider why: anti-locality holds because no new feature-checking/valuing relationship is formed by the complement of a projection moving to its own specifier. If this new head is void of features, then the complement still gains nothing by moving to the specifier. It must therefore be the case that this new head bears at least one new feature; that it happens to be [Participant] on this account is simply conjecture on my part.

(78) [21]



The structure given in (77) must, however, still be available as an alternative. This assumption is necessary so that non-stranded, non-literal prepositional phrases such as (75b') may still have a valid derivation; if PPs such as *in the morning* had the structure in (77), then *in* and *the morning* would receive the [Participant] feature. This would be fine in the narrow syntax, but it would cause a problem in interpretation when *the morning* could not be construed as a physical object. In other words, when prepositional complements remain in situ there are two possible derivations: (77) or (78). If the complement moves, only (78) is available, obligatorily sharing [Participant].

Note, in addition, that idiolectal differences in how the literality effect manifests[22] could fall out from this account. For the speakers for whom (76b) is marginally acceptable, we can say that their syntax is operating in exactly the same way, assigning [Participant] to *the morning*. The difference is that, for whatever reason relating to their idiolect, they are capable of conceptualising *the morning* as a physical object. For the majority of speakers, their concept of tangibility is more rigid so this is not possible.

3.3.3 Summary

This section mirrored the proposal explored in sections 3.1 and 3.2. While there I looked at participant structure within nouns and how it supposedly originates from verbal argument structure, I suggested here that prepositional participants are the result of prepositions taken literally, i.e. physically and spatially. I also suggested that only English, and perhaps other P-stranding languages, have prepositional participants, since their existence is the result of additional PP-internal structure posited by English learners as a reaction to P-stranding in the PLD.

The silent head that bears [Participant] intervenes between P and its apparent complement. This allows the complement to move to SpecPP without violating the anti-locality condition, which in turn allows it to escape PP without violating phase impenetrability. In short, what we call "P-stranding" does not actually strand P in

[21] In order for this structure to be viable, I must also assume that P can optionally subcategorise for PartP, the projection of the head that [Participant] comes from, and that the argument DP can still somehow receive case. I assume that this is unproblematic.
[22] See footnote 1 in chapter 1.

English. This allows us to preserve the generalisation that P-stranding is universally banned, as a corollary of the anti-locality condition.

4 – Further Ground

To briefly summarise the essay so far: in chapter 2 I argued that P-stranding is in fact universally banned as part of Abels' (2003) Stranding Generalisation. What looks like stranding in English must instead involve a silent projection that intervenes between P and its apparent complement. In chapter 3 I reviewed the notion of participant structure within NP – as proposed by Davies and Dubinsky (2003) – and proposed a way that it might mediate extraction from NP. I then developed an account of English P-stranding inspired by this investigation, which also identified the silent intervening projection within PP: it bears the [Participant] feature. This explains the errant asymmetry in (1a-b) (repeated as (79a-b)):

(79) a. It was a helicopter he arrived in.
b. *It was the morning he arrived in.

In this chapter I look at some of the ways that this account – or at least a similar one based in anti-locality – might extend to other extraction phenomena. I also take the opportunity to look at some of the shortcomings and some of the predictions that the current account makes; some of them are undesirable, indicating that the proposal may need rectifying, though this is unfortunately beyond the scope of this essay.

4.1 Extraction from Bare Present Participial Adjuncts

When originally considering what might be driving the asymmetry in (79a-b) in my undergraduate essay (Tovell, 2013), I wondered if Truswell's (2007, 2009, 2011) event semantics account of extraction from Bare Present Participial Adjuncts (BPPAs) (as exemplified in (80)) might extend to PPs.

(80) a. John arrived [whistling a polka].
b. What did John arrive [whistling _]?

It turns out that it does not – I will briefly explain why below. However, neither did the literality account, proposed to account for (79a-b), seem to extend to Truswell's data. I wonder now if a syntactic account rooted in anti-locality, similar to that proposed for P-stranding in this essay, might be a useful way of extending Truswell's purely semantic condition.

4.1.1 BPPAs do not extend to PPs

This subsection will look at why Truswell's account of extraction from BPPAs does not extend to account for the asymmetry in (79a-b). The first part will briefly outline Truswell's proposal, and the second part will show how it does not apply to the data in question.

4.1.1.1 Truswell (2007)

The key motivation behind Truswell's account is the following observation:

(81) a. *What did John drive Mary crazy fixing?
b. What did John drive Mary crazy trying to fix? (Truswell 2007, p.2)

For Truswell, (81a-b) seem to indicate that the condition on extraction from BPPAs is non-syntactic in nature. It seems apparent that (81b) contains more syntactic structure between the wh-word and its base position than in (81a) – there are more words, after all – so this should, if anything, act as a barrier to movement. It is a total mystery then, holding this assumption, why (81b) should be better than (81a). The extra material should make it either the same or worse.

Truswell concludes that it is not bad syntax that is responsible for ruling out (81a) – it is bad semantics. The condition he proposes is the following (for "Adjunct Secondary Predicates" read "BPPAs"):

(82) Extraction from Adjunct Secondary Predicates[23]
Extraction of a complement from a secondary predicate is permitted only if the event denoted by the secondary predicate is identified with an event position in the matrix predicate. (Truswell, 2007, p.8)

Let us unpack this a little for clarity. Truswell assumes a decompositional account of Vendler's (1957) verb classes (States, Activities, Accomplishments, and Achievements). In event semantic terms, States and Activities consist of a single event. Since the nature of this event is already fully specified by the matrix predicate, it is unavailable for modification with BPPA. Hence, given (82), a State or Activity predicate will only ever support an opaque BPPA, as shown here with the activity *work*:

(83) a. John works building igloos.
b. *What does John work building?[24] (Truswell 2007, p.14)

[23] This is stated more broadly in Truswell (2011) as the Single Event Condition. I stick with this condition because it is, for my purposes, functionally the same and more self-explanatory.

In order to become transparent for extraction, a BPPA must modify an event that the matrix predicate leaves unspecified. Truswell argues that the other Vendler classes – Accomplishments and Achievements – are good candidates. These classes, he suggests (following Dowty (1979) and Higginbotham (1999)), consist of two semantic events. In the case of Accomplishments there is an (unspecified) causing event followed by a result, and in the case of Achievements there is an (unspecified) event that immediately precedes the result temporally, but need not necessarily cause it. If a BPPA can be identified as one of these unspecified events in an Accomplishment or Achievement matrix predicate, Truswell states in (82), then extraction from that BPPA will be allowed. As evidence of this consider again (81b), in which "trying to fix x" is the cause of the Accomplishment of Mary becoming crazy, and (80b), in which "whistling x" immediately temporally precedes the Achievement of John arriving.

4.1.1.2 Truswell and literality effect PPs

We can assume relatively uncontroversially that PP verbal adjuncts, like the ones this essay has been dealing with so far, modify an event in a similar fashion to BPPAs. If *John arrived in a helicopter*, then he was in a helicopter immediately before the event of his arrival (if not during and after). It would not be unthinkable, then, to imagine that this event semantic account of extraction from BPPAs could apply to PPs too, and perhaps adjuncts more generally. Unfortunately, it seems not to be as simple as that. Consider (84) and (85), in which standard PPs modifying the typical Accomplishment *go to the shop,* and the typical Achievement *arrive*, are still subject to a literality effect.

(84) a. Mary went to the shop in a bad mood.
b. *It was a bad mood Mary went to the shop in.
c. It was a duffel coat Mary went to the shop in.

(85) a. John arrived in the evening.
b. *It was the evening John arrived in.
c. It was a limousine John arrived in. (Tovell 2013, p.9)

Truswell's account predicts all these sentences to be fine in principle. It could be the case that (82) holds, though, and (84-85b) are ruled out by a separate restriction. To show that Truswell's condition on BPPAs bears no relation to PPs, we need grammatical examples that (82) predicts to be bad. I offer the following as plausible candidates, although I must admit I am not totally convinced – these PPs could well be arguments, not adjuncts.

[24] This is Truswell's judgement, not mine. I find (83b) totally acceptable, but I will ignore this misgiving for now.

(86) a. John is worried about UKIP.
b. What is John worried about?

(87) a. Hobbits live in underground homes in hillsides.
b. What do hobbits live in?

I must remain agnostic, then, as to whether Truswell's account of BPPAs holds over adjuncts in general. However, it cannot be the whole story – we still need an additional explanation of the literality effect.

4.1.2 Could anti-locality explain extraction from BPPAs?

Consider again (81a-b), repeated below for convenience, and Truswell's argument that I summarised in subsection 4.1.1.1. So as to avoid the danger of misrepresenting him, I quote the relevant paragraph in full.

(81) a. *What did John drive Mary crazy fixing?
b. What did John drive Mary crazy trying to fix?

> "*It seems as if there is a requirement such that extraction from a secondary predicate containing a form of the verb* fix *is only grammatical if that secondary predicate also contains some extra structure, as in* [(81b)]. *This is, in itself, perplexing on a syntactic account. Disregarding anti-locality effects, as discussed in Grohmann (2003) and Abels (2003), which are irrelevant to the present case, the rule of thumb of syntactic locality theories is that intervening material can only make extraction harder, not easier, as intervening material can only provide further barriers to extraction. This is the exact opposite of what we find here, where an adjunct allows extraction only in the presence of some such extra structure.*"
> (Truswell 2007, p.7)

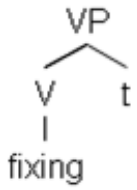
Truswell's viewpoint is clear: anti-locality is "irrelevant", and syntax more generally has nothing to say about the asymmetry in (81a-b). I suggest that this is not a conclusion that one should jump to too hastily. Bear in mind that anti-locality is an exception to the "rule of thumb" about intervening material, and thus makes the correct first-blush prediction about the data in question.

I also suggest, as I did in chapter 3 regarding Davies and Dubinsky's (2003) proposal, that it would be preferable if Truswell's condition in (82) had some syntactic reflex. (82) is a generalisation, not an explanation. As such, it remains to be said why exactly the syntax of extraction "cares about" semantics. If a partially syntactic account is at all possible it should be preferred, since – as I mentioned in section 3.2.2 – we already know the syntactic factors that would allow or forbid movement. In short, since the effect we observe (namely extraction asymmetries) is syntactic, the explanation should at least make reference to syntax too.

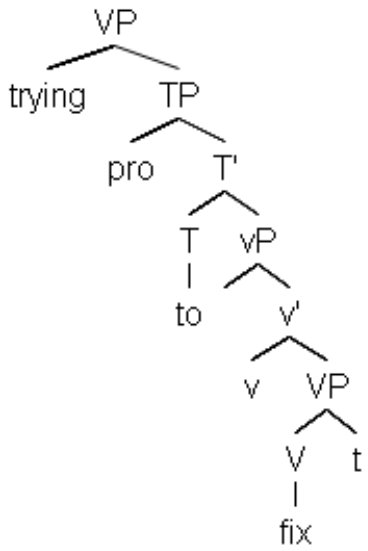
4.1.2.1 Why is anti-locality irrelevant?

Let us first consider (81a-b). Truswell was adamant that these examples did not involve anti-locality as a factor – let us examine quickly, for clarity's sake, why this should be the case. Regarding the precise structure of BPPAs, Truswell is relatively noncommittal: he claims only that they are "very small (say, VP with no additional functional structure)" (Truswell 2011, p. 147), or in other words, (88a-b) for (81a-b):

(88) a.



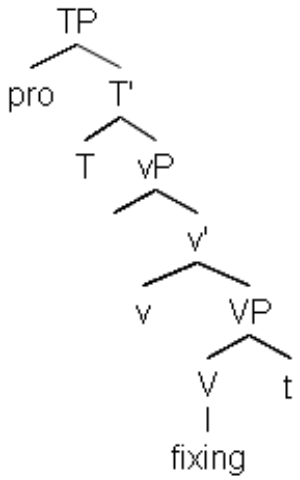
b.



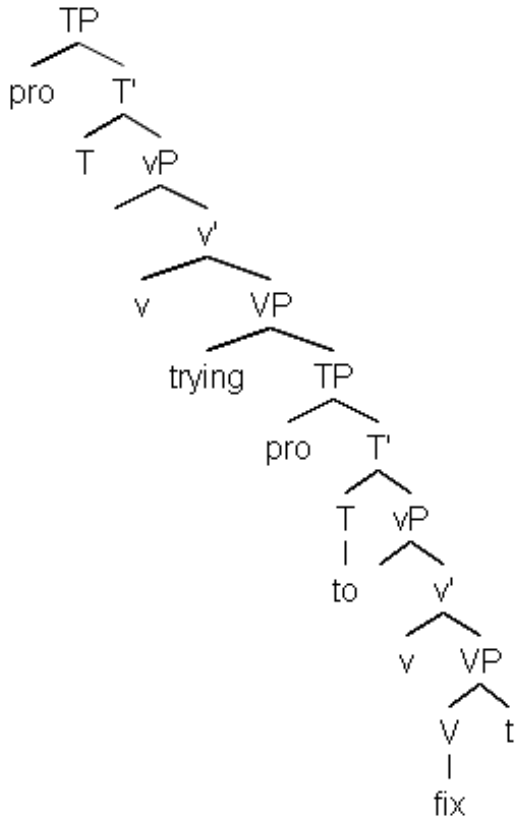
I have an immediate issue with this kind of structure: how is agentivity associated with these BPPAs? Since John is obligatorily the agent of both the matrix clause and the BPPA in both (81a-b), the BPPA should involve a controlled *pro* subject, or at least – following Kratzer (1996) – a vP[25] or VoiceP, which is taken to be associated with the agent role. These concerns require the following structure:

[25] I am non-trivially conflating vP and Kratzer's (1996) VoiceP. Note too that, in Kratzer's terms, these BPPAs must have VoiceP because their objects bear accusative case, for which Voice is responsible.

(89) a.



b.



But even with representations like these, one would be hard pushed to find an anti-locality violation since only the object of VP is moving. Short of declaring V a phase head – a suggestion with serious and wrong empirical repercussions – it seems there is nothing we can do to force anti-locality to become relevant at this scale. Consider also that creating additional functional structure within VP will not work either; the two sentences use the same root verb *fix*, so their lowest VPs will be identical. Again, one would be hard pushed to postulate extra VP-internal structure in (89a) without also generating it in (89b) – the discrepancy would be purely stipulative.

4.1.2.2 Implications

What I hope to have shown above is that, despite seeming to brush syntax aside, Truswell is right when he claims that it cannot bear on the question in hand[26]. Our only options for making anti-locality relevant, either above or below VP, yield undesirable outcomes. Another possible option is to claim a locality effect by positing extra structure in (81a) that is not present in (81b), but that is not what we want either; the syntax should reflect the semantics, but there is already an easily identifiable syntactic difference with a semantic effect – namely the presence of *trying to*, which turns the Achievement *fix (x)* into an Activity. Adding more syntax to (81a) would be seemingly redundant given this already obvious difference.

In summary, Truswell's work constitutes clear counter-evidence to the ideal that I have been pursuing in this essay: that syntactic effects require a syntactic explanation. Although I acknowledged the possibility of non-syntactic considerations becoming relevant (in section 3.2.2), the existence of such a phenomenon as this is still puzzling. It seems reasonable to conceive of a semantics that would want matrix and secondary predicates to form a single conceptual event, but normally there is no such restriction – it only arises along with A'-movement from the BPPA.

The implication for this essay is troubling: clearly semantics cares about extraction. Perhaps, in the case of literality effect P-stranding, there are no syntactic factors at work at all.

4.2 Clefts

4.2.1 Another way to look at literality

It is unfortunate that the literality effect should be most apparent in clefts. As I have argued in chapter 1, the effect is manifest in all A'-extractions, but is less visible because it is confounded by other factors. Consider wh-movement and relative clause constructions:

(90) What did he arrive in _? *the morning / a helicopter

(91) a. *The morning that he arrived in _ was wet.
b. ?The bad mood Mary went to the shop in _ was not well appreciated.

[26] Although Sheehan (2010) claims that the Single Event Condition can be incorporated into a Multiple Spell-Out account. To my mind, this still requires the narrow syntax to be able to, in some sense, "see" a detailed event structure. The extent to which events must inhabit the narrow syntax, then, is an open question.

In the case of wh-movement, the confounding factor is the unnaturalness of the phrase *in what*. It is totally out in the first place, even if the wh-word never moves:

(92) A: He arrived in the morning.
B: *He arrived in what!?

Given this particular oddity, I suppose that there is no way of getting the literality effect to manifest convincingly in a wh-extraction example.

As for the A'-movement in the relative clause, the evidence for a literality effect is mixed. While (91a) is totally out, as expected, I find (91b) marginally acceptable. That I find it more acceptable than the equivalent cleft ((93)) is unexpected if the literality effect is said to hold over all A'-movements.

(93) *It was a bad mood Mary went to the shop in _.

Suppose we take the marginal acceptability of (91b) seriously. This data point could be indicative that P-stranding is not the key component of literality that is of most interest: perhaps it is less to do with P-stranding and more to do with clefts. There is certainly richer ground on this approach to tell a semantic story, since there is almost definitely more to the semantics of clefts than there is to the semantics of P-stranding.

4.2.2 Why literality is not (just) to do with clefts

One problem with this approach is that, if the relevant factors for literality were only clefting and P-stranding, we would expect complement PPs and predicative PPs to be subject to literality effects as well. As we have seen, this is not the case.

(94) It was a bad mood that John put Mary in _.
(95) It was a bad mood that Mary was in _.

The cleft approach also has the disadvantage of having little to say about P-stranding. The anti-locality-driven approach that this essay has taken, if correct, has the advantage of telling us something about literality and something about why P-stranding is allowed in English. A cleft-driven approach would most likely not be able to give this kind of dual account, couching one phenomenon in the context of another.

4.3 Acquisition

In section 3.3 I gave a very simplistic account for how the silent structure I am proposing for English could be acquired. In short, when the learner observes P-stranding in their PLD they hypothesise extra PP-internal structure that intervenes between P and its complement. This allows the complement to move to SpecPP without violating anti-locality. I also suggested that this new head must bear some feature: recall Abels' (2003) Last Resort, the condition that any iteration of Merge must create a new feature satisfaction configuration. Without a previously unchecked/valued feature on the newly postulated head, remerging the complement at SpecPP will not satisfy this condition. That the new head must bear some feature is thus apparent; that the particular feature it bears should be [Participant] is unfortunately conjectural.

This account of the acquisition process raises some serious questions. I believe that it is largely concurrent with general assumptions about acquisition; namely that the simplest structure is assumed until errant data leads to reanalysis, and that reanalysis is subject to UG, the PLD, and domain-general learning mechanisms. The particulars of my proposal, however, have a few strong and troublesome implications.

4.3.1 P-stranding in the PLD leads to reanalysis

The claim that P-stranding is acquired by observing P-stranding seems relatively innocuous, but it may not be correct. When one considers that the overwhelming majority of the world's languages do not exhibit P-stranding, it does seem odd to suggest that a language could innovate it so simply. Whatever the process is for a language to innovate P-stranding, it ought to be incredibly difficult – languages generally seem to resist it. Consider the case of Québécois French "P-orphaning", which is demonstrated in Poplack, Zentz and Dion (2012) to be unrelated to English P-stranding despite constant contact exposure to it. Granted, this is not an L1 acquisition case, but it does suggest that exposure to P-stranding is not enough to acquire it.

A related issue is the problem of why, given the relative easiness of acquiring P-stranding on this account, all other complements of phase categories seem to respect anti-locality. If it is possible for the L1 learner to postulate extra structure that, on the surface, seems to violate anti-locality, why does no language seem to have C-stranding, or v-stranding? In other words, there is clearly something special about prepositions that the current proposal fails to capture beyond stipulation.

4.3.2 P-stranding leads to postulating a new head

I suggested that, upon encountering P-stranding in the PLD, English learners immediately postulate the new head bearing [Participant]. For my account to make sense, this must be the universal response. Why it should be the only response is a problematic assumption when taking the discussion above (in 4.3.1) into consideration, and also considering the range of options available. Why do English learners seem not to hypothesise that P is not a phase, for example, or that there is not a silent resumptive pronoun in play? While it is arguable that P's phasehood may be universal and inviolable, the latter proposal of resumptive pronouns is clearly attested, so must be possible in principle. This is a significant problem for my proposal in its current form.

4.3.3 A and A'-movement

Among the few languages that allow P-stranding – all of which allow it under A'-movement – there is a yet smaller sub-group that disallow it under A-movement. The present account offers no explanation for this, or even a plausible explanation for any of the P-stranding languages other than English.

4.4 Classes of Prepositions

As I noted in Tovell (2013), and chapter 1 of this essay, the class of prepositions that exhibit the literality effect is limited. The following data show at least that *under* and *through* convincingly exhibit the effect, but not *with* or *at*:

(96) a. It is bridges that trolls live under
b. *It is a lot of pressure that John is working under

(97) a. It was the tunnel he walked through
b. *It was the night he worked through

(98) a. It was friends he lived with
b. It is pleasure I do this with

(99) a. It was the cinema they met at
b. It was 4 o'clock they met at (Tovell 2013, p10)

I concluded that the class of prepositions that were subject to the effect constituted of those that were ambiguous between a locative and directional interpretation as adjuncts[27].

This is a generalisation, not an explanation. The account of literality in P-stranding that I have proposed in this essay has nothing to say about the particular class of prepositions that is affected – in fact, if the acquisition story I have told were correct, it would seem to treat all prepositions equally. I am unfortunately forced to leave this question unresolved.

4.5 Summary

What we have seen in this chapter is an example of a phenomenon – extraction from BPPAs – that seems to go against the spirit of the account in this essay: the assumption that syntax should not "care about" or "see" semantics. I hope to have shown that the tools I am using – anti-locality and participant structure – do not offer a plausible way of reducing Truswell's account to a narrowly syntactic one. If we were to admit limited semantic information into narrow syntax in order to account for extraction from BPPAs, then the original motivation for a purely syntactic account of the literality effect is lost.

We have also seen some good and bad implications of the present account. The main advantage of the current approach is that, by couching literality in the context of P-stranding, it becomes explicable as an (almost) purely syntactic phenomenon. The only reference syntax need make to semantics is the [Participant] feature. The disadvantages, however, are non-trivial. The core mechanics – that is, the acquisition of a null feature-bearing head – predicts plentiful P-stranding that treats all prepositions equally. This is clearly not desirable.

[27] Note that *at* conforms to this generalisation, since it is only directional when it is a complement, as in *throw x at y*.

5 – Conclusion

This aim of this essay was to provide a syntactic account of the literality effect under preposition stranding in English. I observed that the effect had strong implications for the interaction between syntax and semantics. In particular, it seems that extraction – a syntactic operation – seems to depend on a conceptual notion of literal physicality. Our existing models of grammar all assume that syntax precedes semantics. This kind of phenomenon should therefore be impossible.

The way I chose to resolve this paradox was to account for the literality effect in terms of feature sharing in the narrow syntax. The anti-locality condition ensured that PP-internal arguments could only be subject to extraction if extra feature-bearing structure were present to separate P from its complement. The presence of the [Participant] feature invests syntax with some limited power over interpretation, enough to explain the effect without completely re-ordering syntax and semantics in the grammar – an undesirable course of action, given there seem to be no other phenomena that seem to require it[28].

In chapter 1 I introduced the literality effect and argued that it was a robust phenomenon with difficult implications for the structure of the grammar. Since general theories of locality, adjunct islands, and preposition stranding fail to predict the effect, it was necessary to construct a novel account. In order to dispel the paradox outlined above, such an account should aim to explain the extraction asymmetries within narrow syntax.

I argued in chapter 2 for the anti-locality condition as formulated by Abels (2003, 2012). It followed from this condition that, assuming P to universally be a phase head, P-stranding could be universally banned. It was necessary to detail the motivations and mechanics of the anti-locality condition, so that an appropriate "escape plan" from the universal ban could be formulated for the tiny minority of languages in which P-stranding is allowed. I argued that, of the options available, the best strategy for English would be to propose an additional piece of silent PP-internal syntactic structure. This structure would separate phase-head P from its complement and thus circumvent anti-locality in a limited way.

Adopting this approach meant identifying the properties of the silent structure. I proposed in chapter 3 that there were parallels to be drawn between literality effect P-stranding and Davies and Dubinsky's (2003) work on extraction from NPs. Their approach, however, yielded a conceptual generalisation based on participant structure that made no explicit reference to syntactic mechanisms. It became necessary, then, to attempt to formalise the notion of participant structure within syntax. I proposed that this should be achieved by postulating a feature, [participant], on N. Returning to the case of PP, however, I suggested

[28] Save for extraction from NPs and BPPAs, of course, as we have seen.

that the feature [Participant] should be attributed to the silent head from chapter 2. This allowed movement out of PP on the condition that the moved material receive the [Participant] feature. This, I claimed, explained the literality effect.

Chapter 4 took a critical approach to the work in the previous chapters. Firstly, I looked back at Truswell's (2007, 2009, 2011) work on extraction from BPPAs. I argued that the semantic condition Truswell formulated could not be extended to cover the literality effect in P-stranding, and also that the anti-locality and participant structure account proposed here could not be extended to cover extraction from BPPAs. Truswell's data, then, seems to constitute a case in which syntax can be influenced by semantic considerations. The chapter concluded by noting a number of loose ends. It is unclear, despite my assertion that the literality effect is present in all A'-movement, what role the cleft construction plays in particular. The account pursued here also seems to make the wrong predictions regarding, for example, the particular class of English prepositions that exhibit the effect, and the rarity of P-stranding cross-linguistically. Further work is required to rectify this.

It seems, then, that the explanation pursued here is not without fault. The price for explaining an effect apparent in one language in terms of coarse universals like the anti-locality condition is large-scale cross-linguistic predictions that do not bear out. There is promise in explaining the effect within P-stranding, but in order to gain credence the syntactic story told here must be somehow reduced to only apply to the limited class of English prepositions in which the effect is apparent. Doing this in a principled way is a challenge beyond the scope of this essay.

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