Antisymmetry and Heavy NP Shift Across Germanic

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Introduction: Towards a Unified Theory of Heavy NP Shift

This paper will be somewhat unusual among modern syntax articles in that it very precisely identifies an analytical problem and describes a clear empirical result, but will not attempt to give a full solution to the problem.[1] Instead, I would like to make the problem as clear as possible and spell out a number of elements that the correct solution must incorporate, even though the correct solution is difficult to state under current theoretical assumptions. In the first section below I introduce a number of theoretical approaches to "Heavy NP Shift" (HNPS) across Germanic, and argue in favor of a particular antisymmetric approach. Section 2 discusses the information structure of HNPS, and the antisymmetric approach correctly predicts HNPS to be a focus construction. In section 3 I show a surprising diachronic result which challenges the antisymmetric account, and then section 4 discusses this conclusion further in the light of synchronic data. Finally, I offer some conclusions concerning the different possible analyses.

1 Towards a Unified Theory of Heavy NP Shift

In Modern English "heavy" DPs (i.e. long and/or accented in the prosody of the intonational phrase), can be displaced to the right of the clause, as in the now famous (with minor variations in the literature) example below.

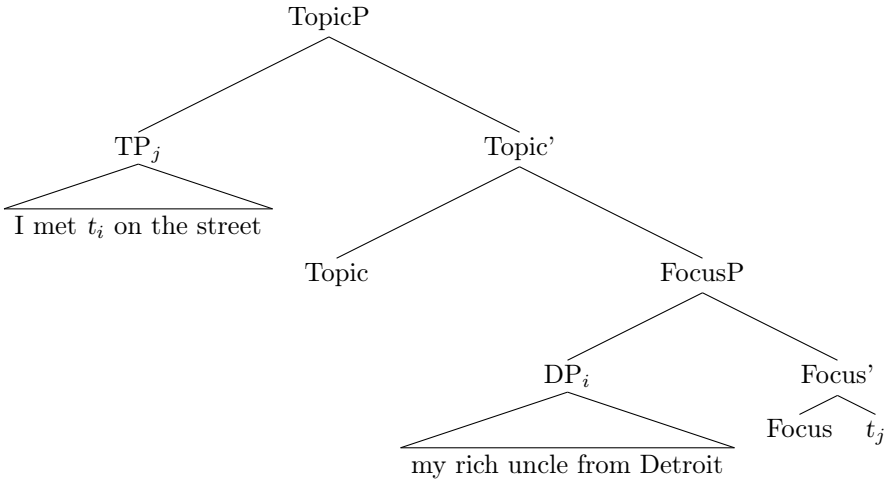
(1) a. I met my rich uncle from Detroit on the street.
b. I met on the street my rich uncle from Detroit.

Going back nearly to Ross (1967), HNPS examples like 1 above have been frequently analyzed as involving rightward movement of the DP (e.g. "my rich uncle from Detroit") to right-adjoin to either vP/VP or TP/IP, resulting in the order where the object follows the adjoined modifier (see rightward movement approaches like Baltin 1982, *inter alia*). I will refer to the rightward movement approach as the "classical" analysis

throughout this paper, and contrast it with an "antisymmetric" analysis to HNPS, under an approach to phrase structure that does not admit rightward movement (Kayne 1994).

The analysis of HNPS which I will ultimately argue to be the best of the antisymmetric class of analyses depends on the "Split-C" left periphery of Rizzi (1997, and much subsequent work), and following the work in Roberts (2005). This antisymmetric account involves movement of the "shifted" DP to the specifier of a FocusP projection in an articulated CP domain, followed by remnant movement of the TP to a higher specifier, Spec(TopicP), as shown below.

Fig. 1



I argue that the structure above leads to a more productive line of work on both the syntax and information structure of HNPS, and also allows for a unified analysis of object extraposition constructions across Germanic. This is the structure that I argued for in Wallenberg (2009), and its mechanics bear some similarity to proposals in Kayne (1998), Kayne (2005). Unfortunately, it suffers from certain empirical problems as I will show later in the article, but it seems to be the most plausible of the antisymmetric approaches.

There are two other main candidates for the type of analysis that must be applied to HNPS under an antisymmetric phrase structure. The first potential analysis of HNPS without rightward movement is the one outlined in Kayne (1994, 74), in which the shifted object is not actually moved at all; rather, it is stranded by the movement of some other constituent (this is the style of analysis that Kayne suggests for all of the constructions that are classically derived with some type of rightward movement). In example 1 above,

the object is stranded at the right of the clause by leftward movement of the PP, as shown below.

(2) I met [on the street]$_i$ my rich uncle from Detroit t_i.

The Kayne (1994) approach suffers from two drawbacks: first, it cannot explain why HNPS licenses parasitic gaps, which indicates the the object itself is moved (by A'-movement), as in the sentence below.

(3) I met t_i on the street, without recognizing <pg$_i$> immediately, [my rich uncle from Detroit]$_i$.

Secondly, this analysis only applies to HNPS in modern English. It cannot provide a unified analysis for object extraposition constructions across Germanic, particularly in OV and Tense-final varieties. The following are examples of HNPS to the right of the finite verb in Tense-final West Germanic varieties (see also 7 below).

(4) **Old English**

Ða æfter þam þe hi gewyld hæfdon eall
Then after that-DAT that they controlled have all
heora feonda land
their enemies' land

"After that time when they conquered all of their enemies' land" (*Saint Eustace and his Companions*, date: c. 11th century, from Taylor et al. 2003)

(5) **Early Yiddish**

in dem kll iz oykh vas an bilngn iz zeyn hndl
in the community is also what concern is his trade

"In public, [it]'s also what concerns one's business" (Isaac ben Eliakum's *Preface to Lev Tov*, date: 1620, from Santorini 1997/2008)

(6) **Pennsylvania German**

Benjamen Y. Lapp ist gestorben ten 14 den May 1915
Benjamen Y. Lapp is died the 14th the May 1915

ist alt worden 9 Jahr 1 Mo und 12 tag.
is old become 9 years 1 month and 12 days

"Benjamen Y. Lapp died May 14th, 1915. He was nine years, one month, and twelve days old." (Amish gravestone in Lancaster County, PA)

Only the postposed object appears to the right of the verb in these examples. There are no adjuncts between the last verb and the postposed object, and there is no constituent that can be moved leftward to strand the object in final position. In this way, the stranding analysis of Kayne (1994) cannot account for this data at the same time as modern English HNPS. And since HNPS has existed throughout the history of English from Old English through Middle English (Pintzuk 1991; Pintzuk and Taylor 2006) and into modern English, with no apparent change even in its characteristic prosody (Kroch and Pintzuk 1989), a unified analysis of these constructions seems to be preferable. In fact, the diachronic data I show later in this article could represent a further indirect argument in favor of a unified approach.

The second potential type of antisymmetric analysis is the one proposed for various extraposition constructions in Hinterhölzl (2006). This style of analysis generates OV Tense-final structures from underlying left-headed structures by individually "evacuating" the constituents of the TP and vP leftward to the specifiers of various functional projections. HNPS in sentences like the ones in 4-6 can easily be generated under this approach, by stranding the object in situ and moving all of the other elements leftward individually. This approach could potentially apply to VO varieties as well, yielding a unified account of HNPS. Unfortunately, the analysis comes at the cost of proliferating as many unmotivated functional projections as there are possible constituents of the vP and TP. It also suffers from the same inability to account for HNPS's licensing of parasitic gaps, as in the Kayne (1994) stranding account. And finally, the vP-evacuation account would place the adjunct in modern English sentences like 1 in the wrong place: Hinterhölzl proposes that evacuated constituents land to the left of the finite verb's position, not to the right of v, where the PP actually surfaces in modern English.

The classical analysis of HNPS, on the other hand, poses considerable empirical and theoretical problems. First, a system with both left- and right-adjunction is straightforwardly incompatible with the antisymmetric view of phrase structure in Kayne (1994) or Chomsky (1995), and to the extent that these theories are interesting and useful, it is worth exploring other analyses of HNPS. Secondly, if HNPS is an optional rightward movement of an object to adjoin to vP or TP, then it is hierarchically very similar to scrambling. Under an analysis in which leftward scrambling is adjunction

(e.g. Saito 1985; Webelhuth 1989), scrambling and HNPS become distinguishable only in terms of the direction of the movement. The idea that two syntactic operations are distinguished solely on the basis of their directionality rankles with the growing consensus in the literature that the narrow syntax operates on hierarchical structure and that linearization is a product of the syntax-PF interface. However, this is precisely the line taken in Saito and Fukui (1998), who explicitly claim that scrambling in Japanese and HNPS in English are the same operation (modulo language-specific linearization conditions, which apply at PF).

The Saito and Fukui (1998) of HNPS as hierarchically nondistinct from scrambling suffers from (at least) two empirical problems: first, since scrambling is potentially unbounded, as shown by Comp-final languages like Japanese and Korean, there is no explanation for the Right Roof Constraint on HNPS (Ross 1967; Baltin 1982, and references therein). Secondly, they argue that left-headed languages have HNPS and right-headed languages have scrambling, so that the difference between the two operations is derivable from the head-parameter. This very clear hypothesis is falsified by any language that can scramble leftward and HNPS rightward simultaneously in the same clause. This is true of the Tense-final Germanic varieties mentioned above, as well as Early New High German as shown below.

(7) ir welt Sewald Furzagel von mir ausreichtten III
you will Sewald Furzagel from me pay three
haundert und XXX guldn.
hundred and thirty guilders
"...I ask you to pay Sewald Furzagel three hundred and thirty guilders from me" (from Bies 1996, 7)

In 7, the indirect object is scrambled leftward across the PP while the direct object appears to the right of the nonfinite verb by HNPS.

The only analysis which does suffer from the various problems I have discussed is the one in Fig.1. Because that analysis does not depend on the internal structure of the TP, it extends straightforwardly to Tense-final, Tense-initial, OV, and VO varieties. HNPS is clearly different from scrambling under this analysis, and since the shifted object moved to an A'-position, the fact that it licenses parasitic gaps is entirely expected. Finally, Roberts (2005) places Germanic complementizers in Force in an articulated CP domain, above TopicP, which correctly predicts that HNPS should be

available in subordinate clauses in Germanic (even in non-embedded-root contexts, as in 9 and 10 below).

2 The Fine-Grained Information Structure of HNPS

The analysis in which the HNPS object moves to Spec(FocusP) makes sense in light of the findings of Bies (1996) and Sapp (2009) that object extraposition in Early New High German and Middle High German is used when there is narrow focus on the shifted object. The following ENHG example from Bies (1996, 8) is particularly clear:

(8) Ob er auch das wort Gots predig.
Whether he (the prior) also the word of God preached

Ja, prior hab predicirt [F festivus diebus].
Yes, Prior has preached [F festivus diebus]

The above example clearly has focus on the shifted object because the rest of the clause is given in context and the shifted object provides the answer to the indirect question; the answer to an explicit question is always the focus of the sentence in which it appears.

Similarly, it is clear from naturally occurring examples of modern English HNPS that the shifted object must be accented, as focus typically is Germanic (Ladd 1996), and it is typically clear that the HNPS object is focused in context. The following two examples illustrate narrow focus on the HNPS object:

(9) The letter of the former is somewhat imprudent, upon which I will communicate to him a piece of my mind;
(*Selections from the dispatches and general orders of Field Marshal the Duke of Wellington*, date: 1815, in Kroch et al. 2010)

(10) Nothing changes tragedy into comedy like gayness. It's what we call in the entertainment world the GAY EX MACHINA.
(from the "That's Gay" feature on the TV program *infoMania*)[2]

In 9, the previous clause mentions a letter from a particular person, so communication with the person in question is assumed to be common ground between the speaker and hearer for the relative clause containing the HNPS. The purpose of the relative clause is only to convey the information of what the Duke will communicate his correspondent, namely "a piece

of his mind." Sentence 10 has clear focus on the shifted object not only because "gay ex machina" is the punchline to the joke, but also because the verb "call" generally has its third argument focused: "call" renames some known entity with a new (focused) name.

The intuition that the preceding naturally occurring sentences represent a general pattern is confirmed by the following quantitative study. Tables N.1 and N.2 below show data from two sets of personal letters in the York-Helsinki Corpus of Early English Correspondence (PCEEC, Taylor et al. 2006). Since the PCEEC contains samples of several personal letters by a number of individuals, it is possible to compare get some sense of the individual systems of some of the letter writers. For the purposes of this study, I took the letters of two individuals, Nathaniel Bacon (born c. 1546) and Anne Conway (born c.1619), who had letters of a sufficient length and containing enough clauses with the relevant syntactic context to make a quantitative study of HNPS possible.

For each author, I extracted all clauses which contained a non-pronominal direct object, an auxiliary (to control for the effect of any V-to-T movement of main verbs), and a two-word (or longer) AdvP or PP.[3]. Then for each example, I coded whether the focus was on the DP object, or elsewhere in the sentence. As the results below show, the HNPS order of PP/AdvP preceding the object is more likely to show focus on the object than the unshifted order, Object > AdvP/PP ("In Situ" in the table).

Both Nathaniel Bacon and Anne Conway are more likely to use HNPS when the object is focused, with 60% or more of the HNPS cases involving object focus for both speakers. However, HNPS seems to be more strongly associated with focus for Bacon than for Conway. The sample odds ratios show that Bacon is 4.6 times as likely to use the HNPS when there is focus on the object rather than on some other constituent, with chi-square = 8.3 on 1df, p = 0.004. Conway, on the other hand, is 4.2 times as likely to HNPS when there is focus on the object, and chi-square tests are just above the 0.05 Type I Error level (Pearson's chi-square = 3.3 on 1df, p = 0.069; Fisher exact test p = 0.060).

These results make it clear that HNPS is associated with object focus for these speakers, though there are two questions which merit further research: first, how significant are these individual differences in the use of HNPS? And secondly, why is HNPS used at all in some cases where there is not object focus? I hope that the first question can eventually be

addressed with more samples (and larger samples) from a number of different speakers. The second issue may indicate that while object focus is a sufficient condition for HNPS, it may not be the only context in which HNPS is used. Thus, the labeling of the landing site for HNPS as the specifier of *Focus*P may be something of an oversimplification, and I will return to this issue in the final section of the paper.

3 Diachronic Predictions

The classical approach to HNPS and the antisymmetric approach described above make two clear predictions about the diachrony of the construction in English. It is well established that English began changing from a head-initial TP to a head-final TP during the Old English period (Pintzuk 1991, 2005), with the change going to completion sometime during the Middle English period (Kroch and Taylor 2000b; Biberauer and Roberts 2005). Overlapping with that change was the change in the structure of vP/VP, in which head-initial (VO) vPs entered the language in late OE (Pintzuk and Taylor 2006) and eventually became the dominant pattern by Late Middle English (see references above, *inter alia*).

The antisymmetric FocusP/TopicP approach makes the simplest prediction: diachronic stability. If HNPS is always movement of the object to Spec(FocusP) and movement of the remnant TP to Spec(TopicP), then none of the changes that are internal to the TP or the vP should have any effect on the frequency of HNPS. All other things being equal, the frequency of HNPS should be stable over time. The rightward movement account, on the other hand, makes a much more complex prediction: the observed frequency of HNPS should be the same in Tense-final, OV Old English as it is in Tense-initial, VO modern English. However, the frequency of HNPS should rise from the end of the Old English period into the Early Middle English period when OV vPs and Tense-initial TPs overlap, and then fall again as OV vPs commence to leave the language at the end of the ME period. As we will see below, the surprising result is that this second prediction is borne out, providing strong evidence in favor of the classical account.

According to the rightward movement account under a classical phrase structure, HNPS causes objects to right-adjoin freely to either vP or TP, regardless of the headedness of vP and TP. However, in OV Tense-final languages, interruption of the verb-cluster by adjoining any element between final v and T is disallowed (in cases where there is a finite auxiliary). (The

unavailability of *SVOI orders in Old English, and generally in Germanic, is discussed in Pintzuk 1991; Kiparsky 1997; Biberauer et al. 2007, and in the subsequent literature on the "Final-Over-Final Constraint"). Under a Kaynian phrase structure, the rightward adjunction analysis for HNPS is simply not available, and so this question does not arise. But for classical phrase structures admitting rightward adjunction, the absence of SVOI orders derived by HNPS cannot be due to the HNPS operation itself, and must rather be some kind of stipulated constraint, which I will take to be a PF-filter (*SVOI) for the sake of argument. Thus, while HNPS targets 2 adjunction sites, only 1 adjunction site ever actually surfaces in Tense-final OV Old English. All measurable HNPS in Tense-final Old English, in which the object is shifted to the right of the finite verb, is HNPS to TP-adjoined position.

Once Tense-final phrase structures are mostly gone from the language by early Middle English (Kroch and Taylor 2000b), the *SVOI filter no longer applies, because tensed verbs now come initially in the TP. At this point, HNPS is free to right-adjoin objects to either vP or TP. However, there is still a large number of head-final (OV) vPs in the language in Early Middle English (see references above), and every time HNPS applies in a clause with an OV vP, it creates a VO-string from an underlying OV structure regardless of whether the landing site is vP-adjoined or TP-adjoined. Thus, in Tense-initial OV clauses, HNPS has an observable effect every time it applies. If it were possible to measure the frequency of HNPS application in this type of clause, then the frequency of HNPS should appear higher than the measurable frequency for Old English Tense-final clauses, because now both landing sites have measurable effects on the string (rather than just the TP-adjoined one, in OE).

Finally, when English vPs become uniformly head-initial in Late Middle English and Early Modern English, HNPS can no longer be observed unless the object has been shifted past a PP or an adverbial at the right edge of the clause. If there HNPS to vP-adjoined position is present, it could only be observed when an object lands to the right of a specifically vP-adjoined adverb (e.g. a manner adverb) or a PP inside of the vP. Assuming that most clause-final adverbials and PPs will not be of this very restricted class of elements, most examples of HNPS from Early Modern English onward will be of the TP-adjoined type.[4] Thus, observed HNPS will overwhelmingly reflect a single landing site, as in the Old English case, and so the measured frequency of HNPS should drop back down to

the frequency measured for Tense-final Old English.

Table N.3 below shows the frequency of HNPS in Tense-final Old English estimated by Pintzuk (2002) and my estimate for the frequency of HNPS in Early Modern English from the Penn Parsed Corpus of Early Modern English (Kroch et al. 2005)[5]. As in the previous section, my estimate is based on nominal DP objects shifted past 2-word (or longer) AdvPs or PPs. In order for the results to be comparable to the Old English sample, I also restricted the count to subordinate clauses.[6] The data show that the frequency of HNPS in Old English is nearly identical with the frequency in Early Modern English, a result that is compatible with either the antisymmetric or the classical analysis.

Testing the prediction concerning the frequency of HNPS in Early Middle English is more difficult, since every text contains a mixture of OV and VO vPs, and it is not possible to tell what the underlying structure of the vP is for most clauses that show a surface VO string. It is also not possible to independently estimate the frequency of OV in Early Middle English using the position of pronominal objects in finite clauses, even though they do not participate in HNPS, due to a clitic construction that moves pronominal objects to a Tense-adjacent position (Pintzuk 1996; Kroch and Taylor 2000b) from either a VO or an OV vP (Wallenberg 2009).

Instead, I estimated the frequency of OV for a number of Early Middle English texts using purpose infinitives in the Penn Parsed Corpus of Middle English (PPCME2, Kroch and Taylor 2000a), under the following assumptions: that purpose infinitives are adjunct-islands to extraction,[7] and that infinitival clauses do not have a Tense node that attracts clitic pronouns.[8] The estimates for OV are shown in Table N.4 below, for two Early ME Southeastern texts (*Vices and Virtues*, date: 1225 and *Trinity Homilies*, date: 1225) and for Early ME West Midlands texts (*Ancrene Riwle*, date: 1230 and the *Katherine* group of texts, date: 1225).

I collected a corresponding sample of purpose infinitives containing (positive) nominal objects for these texts in order to measure the surface rates of OV and VO, shown in Table N.5 below. I could then used the estimates of underlying OV and VO from the pronominal objects in order to estimate the frequency of HNPS in Early ME, shown in the last column in Table N.5. A nominal object preceding the infinitive represents an underlying OV clause in this sample, whereas the surface order Infinitive > Object represents a mixture of underlying VO clauses and some underlying OV clauses in which HNPS

has applied to move the object to the right of the verb (see Kroch and Taylor 2000b, for a full discussion of this reasoning and methodology). This state of affairs can be represented in the probability equation below.[9]

$$P(SurfaceVO) = P(UnderVO \cap (UnderOV \cup HNPS)) \quad (1)$$

This equation expands in the following way, according to basic probability theory:

$$P(SurfVO) = P(UnderVO + (UnderOV \cup HNPS)) \quad (2)$$

$$P(SurfVO) = P(UnderVO + (P(UnderOV)P(HNPS)) \quad (3)$$

$$P(HNPS) = \frac{P(SurfaceVO) - P(UnderlyingVO)}{P(UnderlyingOV)} \quad (4)$$

Applying the equation above to the estimates of underlying OV and VO from the pronominal objects and the estimates of surface OV and VO from the nominal objects, it is possible to arrive at an estimate for the rate of HNPS for each text, as shown in Table N.5.

Although there is likely to be some noise due to the small sample sizes, all of the texts show a similar estimated frequency of HNPS, between 45%-65%, and they all show a much higher frequency of HNPS than the roughly 14% in Old English and Early Modern English. This striking increase in the rate of HNPS specifically in the texts that show the most OV vPs combining with Tense-initial TPs (Kroch and Taylor 2000b) follows naturally from the classical account of HNPS, under which the two adjunction sites for HNPS are only both observable in this combination of phrase structures. Whether or not the rightward movement account is correct in detail, the clear effect of phrase structure change on the frequency of HNPS suggests that there must be two landing sites for HNPS, one at the vP level and another at the clausal level.

4 The Problem of vP-internal HNPS

The quantitative effect in the previous section shows that the HNPS operation has always targeted two positions in the

phrase structure throughout the history of English, one in the CP domain and one lower position. In this section, I show that it is possible to construct sentences of modern English which confirm the presence of a low, vP-internal position for HNPS, strengthening the conclusion that HNPS targets two different positions. This causes a theoretical problem for the antisymmetric account of HNPS, and I present one possibility for how to resolve it.

As I mentioned in section 1, HNPS licenses parasitic gaps. The examples below show that this is still possible even when the shifted DP originates inside a complex DP, which should be an island to extraction under any analysis of islandhood. Example 11 shows HNPS from within a nonfinite clause complement of N, and example 12 shows HNPS from within a mixed nominalization.

(11) John hated his friend's tendency to borrow, without returning, his new books on syntax.

(12) John hated Mary's praising, without reading, the new book on German.

Given the strong islandhood of the complex DPs in which the shifted DP originates, these sentences are not easily amenable to the antisymmetric analysis above, where the object must be moved out of the DP to a high left-periphery position. Rather, it looks like the shifted object has moved to a position within its governing vP, which is itself contained inside the complex DP. Since the shifted object can license a parasitic gap in these sentences, the low vP-internal landing site for HNPS must be an A'-position. So far, these effects are only predicted under the classical rightward movement account.

It is also possible to have a reflexive inside the parastic-gap-PP which is bound by an antecedent within the complex DP. In this case, the parasitic gap must be within the complex DP, not somewhere higher. Example 13 shows that the PP with the parasitic gap may be attached low, at the level of the vP inside of the complex DP, as the reflexive is bound by "Mary." The sentences in 14 and 15 show that the PP containing the parasitic gap *must* be attached low, because the reflexive cannot be bound by the matrix subject.

(13) John hated Mary's praising, without reading herself, the new book on German.

(14) * John hated Mary's praising, without reading himself, the new book on German.

(15) * John hated Mary's praising, before reading himself, the new book on German.

In 13, "Mary" binds the PRO subject of "reading", which in turn binds the reflexive "herself." In examples 14 and 15, the masculine reflexive inside of the PP with the parasitic gap can only be bound by the matrix subject, "John". The PP must attach higher in these sentences, outside of the complex DP, so that "John" binds the PRO rather than "Mary" intervening and binding PRO, which would prevent the binding of "himself." This situation forces the landing site of the HNPS to be outside of the complex DP, since it can only attain that position in the string by moving past the high PP. This configuration results in ungrammaticality, presumably because of the island violation. Note that if we construct an analogous example with a nonfinite clause complement in place of the complex DP, there is no island violation, and so the sentence is grammatical:

(16) Prof. Smith ordered Mary to review, before reading himself, the new book on German syntax.

I take this set of constructed examples to be clear evidence that HNPS can target an A'-landing site inside of vP, as well as a higher landing site.

Given the data in this section and in the previous section, an antisymmetric account of HNPS is only tenable if it can allow for two targets of the HNPS movement, one low at the vP level and one higher in the CP domain. One approach that could make sense of vP-internal HNPS while still maintaining the theoretical attractiveness of antisymmetry is the idea of "low left periphery" with a FocusP and TopicP, along the lines of Belletti (2004). If the sequence of movements I suggested for high TopicP and FocusP could be replicated and motivated within the vP, then the vP-internal HNPS could be derived in much the same way as the CP-level HNPS. However, Belletti's proposals suggest that the low left periphery is inside the IP but above the vP/VP, which probably places the potential landing sites too high to resolve this problem, even if the sequence of movements that derive HNPS could be independently motivated. The judgment data in this section clearly show that HNPS can take place within the vP, even within mixed nominalizations. If it could be shown that such nominalizations have a TP layer, then the Belletti-style approach could be salvaged. Aside from this problem, as long as the landing site for HNPS is below Tense in the TP (which

it is under Belletti's proposals) the diachronic data in the previous section can be accommodated.

The main argument against the Belletti-style low periphery account of HNPS is that HNPS requires two movements, the second of which is unmotivated: the object would move to a low Spec(FocusP) and then the remnant vP would move to a low Spec(TopicP). The latter movement must take place every time the prior movement takes place, or otherwise modern English would show surface OV orders when objects are focused. One possible solution to this problem is to assume that TP and vP must always move to the next highest Spec(TopicP), high and low respectively, whether or not something else has been extracted from them. The proposal would be that every time the TP and vP form part of the topical material (or "Ground" in Vallduví 1992), this must be marked syntactically. Then true topicalization would always be the further movement of a constituent even higher to Spec(ForceP). I leave the details of such a solution for later work.

5 Conclusions and Directions for Future Research

This article has shown both synchronic and quantitative diachronic data which argues strongly that HNPS involves A'-movement of the object, and that it may move either to the edge of vP or to a higher position in the CP domain. Currently, only the classical rightward-movement approach captures all of these facts, though it suffers from a number of theoretical drawbacks. The FocusP/TopicP antisymmetric account does not suffer from the same concerns, but it cannot straightforwardly accommodate a vP-internal HNPS position.

This paper has also shown that diachronic quantitative data and synchronic judgment data can converge elegantly on a single conclusion. This case study is particularly striking in light of how specific the quantitative diachronic hypotheses were. The particular fact that HNPS is observable at a higher frequency in Tense-initial OV phrase structures may also help to solve the problem of why there are so many postverbal objects in modern Yiddish, which has been argued to be OV (see references and discussion in Wallenberg 2009).

This study has clarified the analytical problem of HNPS, but has not solved it. More research necessary on both the empirical and theoretical fronts, and hopefully the results here can serve as a good foundation for further work.

Table N.1 Heavy NP Shift and Focus for Nathaniel Bacon

	HNPS	**In Situ**	**Total**	**Freq. HNPS**
Obj Focus	13	33	46	0.283
Other Focus	7	81	88	0.0796
Total	20	114	134	0.149
Freq. Obj F.	0.650	0.289	0.343	

Table N.2 Heavy NP Shift and Focus for Anne Conway

	HNPS	**In Situ**	**Total**	**Freq. HNPS**
Obj Focus	6	20	26	0.231
Other Focus	4	56	60	0.067
Total	10	76	86	0.116
Freq. Obj F.	0.600	0.263	0.302	

Table N.3 HNPS in Old English and Early Modern English

	HNPS	**In Situ**	**Total**	**Freq. HNPS**
Old English	123	754	877	0.140
EME	354	2120	2465	0.139

Table N.4 OV and VO, Pronomial Objects, in Purpose Infinitives in Early Middle English

	OV	**VO**	**Total**	**Freq. OV**
Vices	13	1	14	0.929
Trinity	3	9	12	0.250
Ancrene Riwle	5	39	44	0.114
Katherine Group	4	21	25	0.160

Table N.5 OV and VO, Positive Nominal Objects in Purpose Infinitives, and Estimate of HNPS

	OV	**Total**	**Freq. OV**	**Estimate HNPS**
Vices	8	20	0.400	0.569
Trinity	6	63	0.095	0.619
Ancr.	5	84	0.059	0.476
Kath.	2	35	0.057	0.643

Notes

[1]I would like to thank the attendees of DIGS 12 for much helpful discussion of these issues, as well as the attendees of the Comparative Germanic Syntax Workshop 25 in Tromsø, where a portion of this work appeared previously. I would also like to especially thank Anthony Kroch, Caitlin Light, and Liliane Haegeman for important comments and discussion at various stages of this work. I would also like to acknowledge that this work was funded by NSF grant OISE-0853114. All errors are, of course, my own.

[2]Thank you to Josef Fruewald and Caitlin Light for this example.

[3]The condition on the length of the adverbial or PP was intended to exclude any elements that might be syntactic particles, in the sense of "up" in "John picked the book up." With the exception of Kayne (1985), there is a general consensus in the literature that the object-particle alternation in English is not the same phenomenon as HNPS (cf. Dikken 1995, and references therein for an overview)

[4]In the future I intend to confirm this assumption by estimating the frequency of HNPS past clause-final vP-adjoined adverbials separately from other adverbials. However, this will take a considerable amount of work, as the available corpora do not make this distinction in their annotation.

[5]Elizabeth I's translation of Boethius was excluded, due to possible translation effects on the syntax from the Latin original (Anthony Kroch, p.c.)

[6]Note that while the Old English sample did not include negative or quantified objects, because these are known to not extrapose in Old English (Pintzuk and Taylor 2006), I have included them in the EME sample because they do extrapose/HNPS in Early Modern English. If I remove them from the sample, there are 264 clauses with HNPS and 2448 in situ, which lowers the HNPS rate to 0.097 for EME. I am not sure why negative/quantified objects actually seem to shift more often than positive objects in EME, but it is possible that they are more often focused. In any case, this effect should be explored further, and while it is not predicted under any hypothesis in this section, I do not believe that it necessarily counts against any particular analysis.

[7]While purpose clauses are generally weak islands, I have found no examples in the PPCME2 of an object that was extracted out of a purpose infinitive by clitic movement.

[8]While a full discussion of this topic is beyond the scope of

this paper, a comparison between the estimated frequencies of OV below and the frequencies of clitic movement for the same texts in Wallenberg (2009) shows that the OV frequencies are too low to be due to a combination of OV plus clitic movement in these texts.

[9]This treatment assumes that the choice of OV or VO vP phrase structure and the application of HNPS are independent events. It is a standard assumption throughout the historical syntax literature cited in this paper that grammatically independent events are statistically independent, unless proven otherwise. I also assume that the occurrence of OV or VO are mutually exclusive events for a given clause.

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