DYNAMIC PHASE HEADS
THE CASE OF THE INVISIBLE DP IN SLAVIC.[*]

ADAM SZCZEGIELNIAK
Rutgers University

1 Is there a DP head?

Slavic languages such as Serbian, Croatian, Polish, Czech, and Slovak have been argued by Bošković (2014) to lack a DP layer. These languages are predicted not only to lack overt determiners, but also to differ in behavior from languages such as English, which have a DP layer. In this short paper I will present evidence that Polish, although it lacks overt determiners, behaves like English and not like Serbo-Croatian in crucial Binding constructions that test for the presence of DP structure. However, I will also show that Polish differs from English in cases where DP structure blocks extraction, as for example in Left Branch Extraction. Such conflicting behavior suggests that Polish nominals can be a DP phase, or an nP phase depending on what is required for convergence. Crucially, Polish constructions that would require simultaneously a DP phase for movement and an nP phase for Binding are shown to be ungrammatical.

Building on the idea that the size of a Spell-out Domain is not fixed (den Dikken 2007, Bošković 2014), I propose that a phase head is introduced above nP level, but its Spell-out domain can grow via tucking in (Richards 1997) until a full DP structure is obtained. Following proposals in Pesetsky (2015), I assume a phase head ω lacks a category label. Labeling ω requires head movement of the topmost head in the Spell-out Domain to ω. Head movement carried out early at the nP level freezes the phase as an nP, but when done late, at the DP level, the nominal phase is a DP. English is argued to label nominal phases late, as DPs. Serbo-Croatian only allows early labeling as nP. Polish is argued to allow either early or late labeling of ω, hence its dual nature.

1

1.1 Complement Extraction

Bošković (2014) shows that Serbo-Croatian does not allow extraction out of NP (1), whereas English does (2).

(1) a. * [$_{NP}$ Ovog studenta]$_i$ sam prona'la [$_{NP}$ sliku t$_i$].
       this student   am found   picture
     'Of this student I found the picture.'

  b. Prona'la sam [$_{NP}$ sliku   [$_{NP}$ ovog studenta]].
     found   am   picture   this student

  c. [$_{NP}$ Ovog studenta]$_i$ sam pronala [$_{NumP}$ mnogo / deset [$_{NP}$ slika t$_1$].
      this   student   am found   many/ ten   pictures
     'Of this student I found many / ten pictures.'

(2) a. [Of this student] I found [a picture t$_1$].
  b. *[Picture of this student]$_1$ I found [a t$_1$].

Bošković (2014) attributes the extraction asymmetries between (1a) and (2a) to Anti-Locality (Abels 2003) that prevents movement of a phase complement of a phase head into the specifier of that phase head. The conclusion is that NPs are phases in Serbo-Croatian, but not in English, where the closest phase is a DP. Extraction of an NP-phase complement is not possible in S-C (2a), and extraction of a DP-phase complement is not possible in English (2b). What is possible is extraction of an NP complement that is itself a complement of a DP-phase, as in (2a), and extraction of an NP complement if there are additional projections such as quantifiers or numerals (1c).

In Polish (3a), we see an NP complement construction, where we can wh-extract the NP complement (3b). Example (3c) provides a standard constituency test that the extracted phrase is actually a complement of the NP since the head noun cannot be separated from the complement by an adjunct. Example (3d) shows that two adjuncts exhibit freedom of order, as in standard textbook examples for English (I avoid labeling many of the nominal brackets since the nature of many of these labels is at issue here, other labels such as PP are omitted for space).

(3) a. On kupił   [[$_{NP}$ tomik [poezji angielskiej]] [w skórzanej okładce]].
     He purchased   volume poetry English   in leather   jacket
     'He purchased a volume of English poetry with a leather jacket.'

  b. [Jakiej poezji]$_1$ on kupił   [[$_{NP}$ tomik t$_1$][w skórzanej okładce]]?
     What poetry   he purchased   volume   in leather   cover
     'What poetry did he purchase a volume of with a leather jacket?'

  c. *On kupił   [[$_{NP}$ tomik] [w skórzanej okładce] [poezji angielskiej]].
     He purchased   volume in leather   jacket   poetry English
     *'He purchased a volume in a leather jacket of English poetry.'

  d On kupił [[$_{NP}$ tomik poezji] [z żółtymi kartkami] [w skórzanej okładce]].
     He purchased volume poetry   with yellow pages   in leather jacket
     'He purchased a volume of poetry with yellow pages in a leather jacket.'

The Polish examples show that either Polish has a DP layer, or Anti-Locality is somehow not applicable in Polish. Let me assume that Polish does have a DP layer, but that DP does not need to be a phase.

1.2 Binding

Languages lacking a DP layer are predicted to differ in behavior as far as binding within the nominal. The assumption is that in Serbo-Croatian the possessive is in a PossP adjoined to the NP lexical domain and can c-command out of it (Despić 2015).[1]

(4) a. [$_{NP}$ Kusturicin$_i$ [$_{NP}$ najnoviji film]]$_1$ ga$_{*i/j}$ je zaista razočarao.
      Kusturica's$_i$ latest movie   him$_{*i/j}$ is really disappointed
    'Kusturica's$_i$ latest movie really disappointed him$_{*i}$.'
  b. [$_{NP}$ Njegov$_{*i/j}$ [$_{NP}$ najnoviji film]] je zaista razočarao   Kusturicu$_i$.
        his   latest movie   is really disappointed Kusturica
    'His$_{*i/j}$ latest movie really disappointed Kusturica$_i$.'

In (4a) above, the possessive is not part of the NP phase complement. Assuming phases delineate Binding Domains (Safir 2014), the possessive c-commands the pronoun and is in the same minimal Binding Domain (vP) which prevents co-indexation via Condition B. In (4b), the possessive pronoun is again outside the NP Phase, it c-commands the proper name and is in the same minimal Binding Domain (vP), thus co-indexing leads to violation of Condition-C.

English possessives do not exhibit such behavior as can be seen in (5a,b). Crucially, a PossP in English is topped off by a DP that is a Phase (den Dikken 2007). This means that the Possessive is not in the same Binding Domain as the pronoun.

(5) a. [His$_i$ father] considers John$_i$ highly intelligent.
  b. [John$_i$'s father] considers him$_i$ highly intelligent

Polish patterns with English. Consider the parallel structures to (5) in (6) and to (4) in (7).

(6) a. [Jego$_i$ ojciec] uważa   Jana$_i$ za inteligentnego chłopaka.
    His$_i$ father   considers John$_i$ for intelligent   boy
    'His father considers John to be an intelligent boy.'
  b. [Jana$_i$ ojciec] uważa   go$_i$ za inteligentnego   chłopaka.
    John$_i$'s father considers him$_i$ for intelligent   boy
    'John's father considers him to be an intelligent boy.'

(7) a. Ja chciałem by [[Fibaka]$_i$ najnowszy wynik]$_1$ go$_{i/j}$ zupełnie rozczarował t$_1$
    I wanted   that Fibak's$_i$ newest   result   him$_{i/j}$ totally   disappoint
    'I wanted   Fibak's$_i$ newest result to totally disappoint him$_{i/j}$.'
  b. Jego$_i$ najnowszy wynik rozczarował Fibaka$_i$
    His$_i$ latest   result   disappointed Fibak
    'His$_i$ latest result disappointed Fibak$_i$.'[2]

---

[1]Despić (2015) proposes the following structure for Serbo-Croatian [NP Demonstr [NP Poss [NP AP [NP N]]]].
[2]Fibak is a well-known Polish tennis player of the 70's.

The data from Binding and Complement extraction indicates that we cannot maintain the correlation between presence of a D head and the presence of overt determiners. Instead, I assume that DP is a universal projection. The difference in behavior stems from what constitutes a Phase Head. In Polish and English, D is a Phase Head. In S-C it is the nominal below PossP.

(8) Difference between Polish/English and Serbo-Croatian Possessive constructions
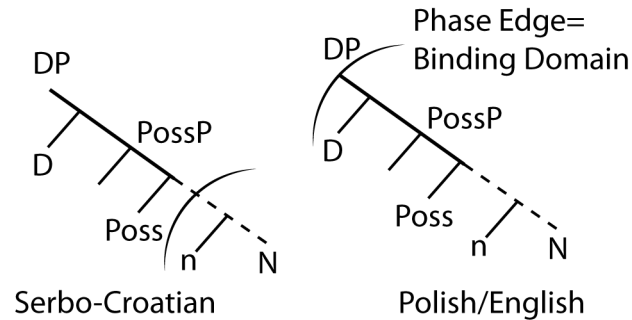
I do not assume that Polish PossP is a phase since we can extract a complement of a nominal that is modified by a possessor as in (9). If PossP were a phase, then material in its Spec should block extraction.

(9) [Jakiej poezji]$_1$ on zobaczył [Miłosza$_i$ tomik]   t$_1$ [w [jego$_i$ mieszkaniu]]?
     What poetry he saw   Miłosz(poss) volume   in   his$_i$ apartment
     'What poetry did he see Miłosz's$_i$ volume of in his apartment$_i$?'[3]

In example (9), we see that the possessor does not Bind the co-indexed pronoun, and extraction of the nominal complement is possible. If possessors occupy Spec-DP, then extraction of a nominal complement via Spec-Poss should be blocked, since the Spec is occupied. The above contrasts between Polish and Serbo-Croatian suggest that Polish is like English and has a silent DP layer. However, there are properties of Polish that differentiate it from English.

2 Is there no DP Head?

English does not allow Left Branch Extraction as seen in (10) (Ross' 1967 Left Branch Constraint):

(10)   a.   *Whose$_1$ did you see [t$_1$ movie]?
           b.   *Beautiful $_1$ I saw [t$_1$ houses].

The ungrammaticality of (10) has received numerous analyses. Corver (1992) assumes that D induces ECP type effects, where the trace of the extracted modifier cannot be properly governed because D intervenes. Languages like Polish (11), or Serbo-Croatian (12), lack a DP and hence have no ECP effects.

---

[3]Czesław Miłosz was a Polish poet and a Nobel Prize laureate.

(11) a. Czyjego$_1$ widziałeś [t$_1$ ojca]?   (Polish)
          whose   see   father
          'Whose father did you see?'
      b. Piękne$_1$ zobaczyłem [t$_1$ domy].
          Beautiful   saw   houses
          'Beautiful houses, I saw.'

(12) a. Čijeg$_1$ si   vidio [t$_1$ oca]?   (Serbo-Croatian)
          whose are seen   father
          'Whose father did you see?'
      b. Lijepe$_i$ je vidio [t$_i$ kuće].
          beautiful   is seen   houses
          'Beautiful houses, he saw.'

LBE has been argued to reduce to Anti-Locality (Despić 2015). Serbo-Croatian and Polish allow LBE, since the nominal projection taking an AP or PossP modifier is a phase. However, in English, only the DP is a phase, and movement of pre-nominal modifiers is too local.

(13)

Serbo-Croatian/Polish   English
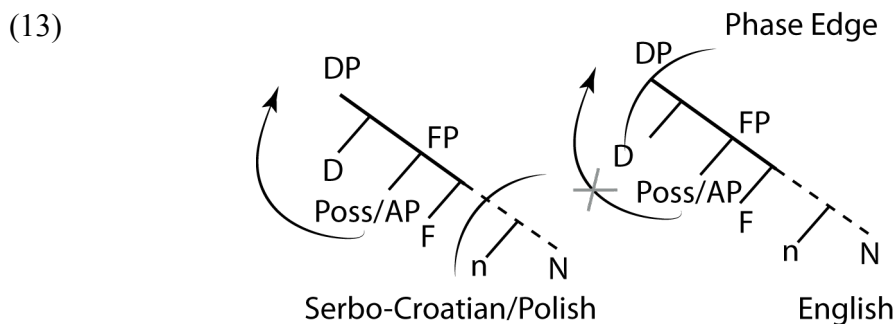
Bošković (2014) suggests that LBE implies lack of DP since for nP to be a phase it has to be the topmost element in the nominal projection. However, Polish, with respect to LBE, patterns with Serbo-Croatian and not English. The data leads to a contradiction. Binding and complement extraction suggest that Polish has a DP like English, whereas LBE suggests that Polish does not have a DP.

3 The Nature of Phase Heads

Within the generative framework, syntactic heads have been assumed to be bundles of features stored in the Lexicon. These bundles are interpreted in the syntax as heads. These heads can have lexical content, so called roots, or they can be more functional in nature and be part of a given lexical head's functional architecture, for example like the one proposed for nominals in Cinque (2010). In the advent of a Minimalist phase-based system (Chomsky 2001), certain syntactic heads have gained special status of Phase Heads. A Phase Head is assumed to be a special Functional head that triggers Spell-Out. The initial inventory of two phase heads that roughly correspond to the two main propositional domains—verbal and clausal—has been expanded to any head that is the highest projection of an extended domain (Bošković 2014).

    Let me outline a broad approach to phases. Some of the assumptions will not be motivated directly in this paper, but find support in the cited literature. Even though the proposal extends

beyond data discussed here, I believe such a move shows that the mechanism of phase freezing to be proposed in 3.1 is couched within broader possible framework. I suggest that Phase Heads are how syntax interprets interface features from the Sensory-Motor and Conceptual-Intensional interfaces, whereas Lexical Heads and their functional projections are how syntax interprets bundles of lexical features.

(14)   Typology of syntactic heads. Syntax can only interpret interface features as heads.
  a.   Lexical Heads: interpretation of Lexicon-based root features in the root of
         a given Lexical Item.
  b.   Functional Heads: interpretation of Lexicon-based non-root features of a
         given Lexical Item.
  c.   Phase Heads: interpretation of Sensory-Motor and Conceptual-Intensional
         features.

The distinction allows us to capture that Phase Heads are instrumental in establishing linear word order (Fox & Pesetsky 2005), prominence (Kratzer & Selkirk 2007), ellipsis (Gengel 2007, Rouveret 2012), Givenness computation (Kučerová 2012, Szczegielniak 2016). Let me suggest that a Phase Head ω is not associated with any lexical category, but only with semantic type. This extends the set of possible objects in the syntax from the set of categories in Baker (2003). The lack of any category label on ω will mean that at Spell-Out the topmost visible category will be the topmost Lexical Head, but the boundary of any given phase will always be ω.

(15)   A phase head ω has a Phase Complement (PC) that is predicational.

The trigger for the emergence of ω is predication since that is the first step in creating a proposition.[4] This means that ω is present before Merger completes the assembly of a verbal or nominal extended projection. Subsequent addition of functional heads and modifiers expands the phase complement, which means that its boundary also expands. This can be visualized in tree structure terms as the ω always floating on top of the complement structure under construction.

(16)   PC can expand via tucking-in (Richards 1997)
  a.   [ω [$_{PC}$ n N]]
  b.   [ω [$_{PC}$ ...Poss.....n...N]]
  c.   [ω [$_{PC}$ ...D...Poss...n...N]]

Once a Phase Head emerges, subsequent merger or movement within a given extended domain will proceed through tucking in (Richards 1997) until Full Projection is achieved:

(17)   Full Projection. PC can expand until it utilizes all the functional heads of a given
         Lexical Projection.

The above constraints derive the DP structure in English. A nominal starts projecting functional structure in its extended domain (Grimshaw 2000), ω emerges and a DP is built via tucking in. English data alone does not provide any motivation for such a system. However, when we

---

[4]Another possible trigger would be prosodic prominence. I presume there are also other possible triggers.

combine the facts in Polish and Serbo-Croatian with English data, we see the need to be able to 'freeze' the expansion of the Phase Complement at a level that is below DP.

3.1   Phase Freezing: Deriving the Differences Between Nominals

I assume that English and Polish, as well as Serbo-Croatian, have a DP layer. The difference is that in English the DP (or QP, if present) is a phase complement and in S-C the nP is a phase complement, whereas in Polish it can be either the DP or nP. Variation in the size of PC is a reflex of head movement to ω, which automatically assigns a category label.

(18)   In a configuration where ω selects XP as its PC, X^0 movement to ω assigns ω the
        category X and freezes the PC.

Crucially, in S-C there is obligatory movement of the highest n head to ω, whereas in Polish this movement is optional. In English only D can move to ω.

(19)   n raising to ω freezing the expansion of the complement of ω with subsequent
        addition of D
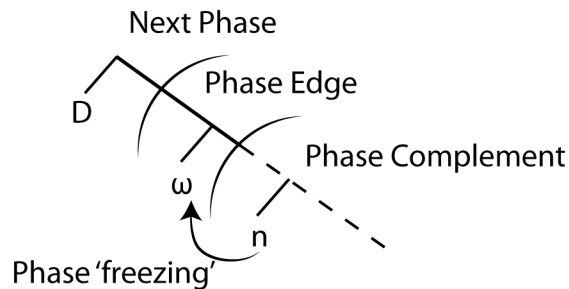
    The optionality in Polish of Phase Freezing captures the fact that Polish nominals can behave like DP and nP phases. It also predicts that if we impose contradictory requirements, for example LBE combined with NP argument extraction, the system will crash since LBE requires Phase Freezing (nP Phase), whereas NP complement extraction requires Full Projection (DP phase). This is exactly the case as shown in example (20) below.

(20)   a.   Czyje$_1$ zobaczyłem [t$_1$ tomiki   poezji angielskiej] w bibliotece?
            whose saw   volumes   poetry English   in library
            'Whose volumes of English poetry did I see in the library?'
        b.   ??Czyje$_1$ [poezji angielskiej]$_2$ zobaczyłem [t$_1$ tomiki t$_2$] w bibliotece?
            whose   poetry English   saw   volumes   in library
            'Whose volumes of English poetry did I see in the library?'

Example (20a) is grammatical since LBE is possible in Polish when there is Phase Freezing at highest n. However, when we add to the mix NP complement extraction, which is acceptable on its own as shown in (3b), the structure is ungrammatical. This is because NP complement extraction is only possible when the phase is a DP.

    Note, English does not allow Phase Freezing within the nominal domain. Otherwise, English should allow LBE. D movement to ω is for labeling of ω in order for the next phase to be built (Chomsky 2013). The operation of Phase Freezing gives us three possibilities: no phase freezing

as in English, optional Phase Freezing as in Polish, and obligatory Phase Freezing as in Serbo-Croatian.

However, that does not mean that Phase Freezing is not possible in other types of extended domains in English. I suggest that English vP ellipsis, understood as deletion of a vP that is a complement of a phase head (Rouveret 2012), shows that vP phases allow Phase Freezing. Thus, the paradigm below is generated via Phase Freezing at the vP level, where (21a) deletes too much structure and (21d) deletes too little. Examples are from Sag (1976:31-32).

(21)   Betsy must have been being hassled by the police, and Peter
   a.   *must [$_{\omega+v}$ ~~have been being hassled by the police~~] too.
   b.   must [$_{\omega+v}$ have [$_{vP}$~~been being hassled by the police~~]]too.
   c.   must have [$_{\omega+v}$ been [$_{vP}$ ~~being hassled by the police~~]] too.
   d.   *must have [$_{\omega}$ been [$_{vP}$being [$_{VP}$~~hassled by the police~~]]] too.

In example (21b), Phase Freezing is achieved by moving 'have' to ω, and in (21c) by moving 'been' to ω. In both cases, we have a phase head whose vP complement is deleted. I assume that there is no ω when 'being' is merged into the derivation in (21d), since the external argument has not been introduced yet. Because there is no ω when 'being' is merged, there can be no ellipsis that spares 'being'. Finally, I assume that in example (21a) full projection has taken place. The verbal Extended Domain is complete and it is too late for Phase Freezing. As a consequence, the v head 'have' has already moved to ω for labeling. Deleting 'have' would require deleting the phase head that licenses ellipsis, which Rouveret (2012) argues is impossible.

If such an approach is on the right track, Phase Freezing is not language specific but specific to the actual Lexical Domain of a given language. We can presume variation as to its application is also determined lexically.

4   Phase Extension and Phase Impenetrability

Den Dikken (2007) has proposed that phases can be extended via head movement. Phase extension is not pertinent for our analysis of nominal structures. However, I would like to show that den Dikken's proposal is compatible with the one here, and basically answers the question as to what happens when a given head moves through ω to an upper head.

(22)   Phase Extension. A Given Phase Complement headed by ω can be extended to
           other functional domains via head movement via ω.

Phase extension allows us to extend via head movement of v→ω→T the verbal phase from vP to TP. TP becomes complement of the verbal Phase Head. Such a structure allows the PP to raise to Spec-T, since both the PP inner argument and the DP external argument are equidistant now.

(23)   [$_{TP}$ on the President's desk lay this book]

Phase Freezing can be understood as an aborted attempt at Phase Extension.

(24) Head Movement in Phases. Let there be a Phase Head ω and a non-phase head X
    a. Head movement of X to ω freezes Phase headed by ω, labels it as X. Subsequent merger is above ωP = XP.
    b. Head movement of X via ω to an upper head Y extends the Phase headed by ω to YP. It does not label ω as X but as Y.

In this system, an extended phase will differ from the original ω. For one, T in (23) is not tucked in. Secondly, the extended phase has a category label. I speculate that its Spec is no longer a springboard/escape hatch for cyclic movement, as would be the case in a non-extended ω, as has been argued recently in Pesetsky (2015).[5]

The proposal put forward in this paper requires that a phase head receive a label via head movement. The requirement that ω can only receive a label via head movement of lower lexical head has the advantage of deriving the Phase Impenetrability Condition (PIC).

(25) PIC (Chomsky 2001): The domain of a head X of a phase XP is not accessible to operations outside XP; only X and its edge are accessible to such operations.

Head movement of a lower head to ω creates a structure that configurationally turns the Spell-Out Domain of ω into an adjunct. Consider the case of English DPs in (26) below.

(26) Phase complement as an adjunct
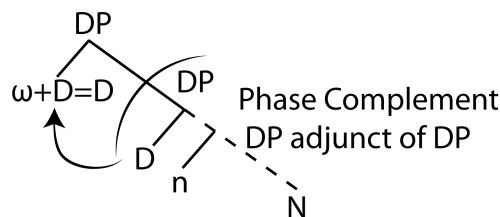
Such an approach forces a strict phase cycle. The moment ω is labeled its Spell out Domain is inaccessible. This implies that ω can only serve as an escape hatch for cyclic movement prior to it being labeled, which is in line with recent proposals in Pesetsky (2015).

The configuration above also eliminates one unusual and unmotivated property of the current Spell-out system where by default only incomplete categories of a Lexical extended domain were sent to the interfaces: TP instead of CP, nP instead of DP, or lower vP instead of highest vP. Now by default, it is the topmost category that is sent to the interfaces at Spell-out, and only via Phase Freezing, or via Phase Extension can we have a subset of a Lexical domain spelled out.

5 Conclusion

This paper has shown that Polish nominals can behave as DP or nP phases, depending on convergence requirements. I have proposed a mechanism whereby the size of the Spell-out Domain is a function of head movement within the Extended lexical domain. The proposal captures the contrasts in behavior of Polish, Serbo-Croatian and English nominals. If on the right

---

[5]The proposal in Pesetsky (2015) allows for feature movement to ω. This proposal assumes cyclic movement to Spec-ω prior to head movement to ω, but it does not say anything about feature movement that does not change the category of ω.

track, it also changes our understanding of what phase heads are, and how they interact with overt syntactic computations such as label assignment and movement.

References

Abels, Klaus. 2003. *Successive cyclicity, anti-locality, and adposition stranding*. Doctoral dissertation, University of Connecticut, Storrs, CT.

Baker, Mark C. 2003. *Lexical categories: Verbs, nouns and adjectives*. Vol. 102. Cambridge: Cambridge University Press.

Bošković, Željko. 2014. Now I'm a phase, now I'm not a phase: On the variability of phases with extraction and ellipsis. *Linguistic Inquiry*, 45(1):27–89.

Corver, Norbert. 1992. Left branch extraction. *In NELS 22*, ed. by Kimberley Broderick, 67–84. Amherst: University of Massachusetts, Graduate Linguistic Student Association.

Chomsky, Noam. 2001. Derivation by phase. In: *Ken Hale: A life in language*, ed. by Michael Kenstowicz, 1–52. Cambridge, MA: MIT Press.

Chomsky, Noam. 2013. Problems of projection. *Lingua*, 130:33–49.

Cinque, Guglielmo. 2010. *The syntax of adjectives: A comparative study*. Vol. 57. Cambridge, MA: MIT Press.

den Dikken, Marcel. 2007. Phase extension: Contours of a theory of the role of head movement in phrasal extraction. *Theoretical Linguistics*, 33:1–42.

Despić, Miloje. 2015. Phases, Reflexives, and Definiteness. *Syntax*, 18(3):201–234.

Gengel, Kirsten. 2009. Phases and ellipsis. *Linguistic Analysis*, 35:21–42.

Grimshaw, Jane. 2000. Locality and extended projection. *Amsterdam Studies in the Theory and History of Linguistic Science*, Series 4:115–134.

Fox, Danny & David Pesetsky. 2005. Cyclic linearization of syntactic structure. *Theoretical Linguistics*, 31(1–2):1–45.

Kratzer Angelika & Lisa Selkirk. 2007. Phase theory and prosodic spellout: The case of verbs. *The Linguistic Review*, 24(2–3):93–135.

Kučerová, Ivona. 2012. Grammatical marking of Givenness. *Natural Language Semantics*, 20(1):1–30.

Pesetsky, David. 2015. Islands in the modern world. Rutgers University invited talk.

Richards, Norvin. 1997. *What moves where when in which language?* Doctoral dissertation, MIT, Cambridge, MA.

Ross, John Robert.1967. *Constraints on variables in syntax*. Doctoral dissertation, MIT, Cambridge, MA.

Rouveret, Alain. 2012. VP ellipsis, phases and the syntax of morphology. *Natural Language and Linguistic Theory*, 30:897–963.

Safir, Ken. 2014. One true anaphor. *Linguistic Inquiry*, 45(1):91–124.

Sag, Ivan. 1976. *Deletion and Logical Form*. Doctoral dissertation, MIT, Cambridge, MA.

Szczegielniak, Adam. 2016. Phase-by-phase computation of prominence in ellipsis and PP stranding island alleviations. In: *FASL 24 Proceedings*. Michigan Slavic Publications.