1. Is there a DP head?

Slavic languages like 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 like English, which have a DP layer. In this short paper I will present evidence that Polish, although it lacks overt determiners, behaves in crucial constructions that test for the presence of DP structure like English and not like Serbo-Croatian. However, I will also show that Polish differs from English in cases where DP structure blocks extraction, as in Left Branch Extraction. This suggests that Polish allows DP structure when it is required for convergence. I propose a new way of thinking about the phase-hood of nominals by extending recent proposals in Pesetsky (2015) that suggest that phase heads are not part of the inventory of category-licensed heads C, v, D or N, but rather projections triggered by predication that can encode a predicate or proposition.
1.1 Complement extraction

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

(1)  
* a. Ovog studentai sam prona'la [NP sliku ti].
   this student am found picture
   ‘Of this student I found the picture.’
 b. Prona'la sam sliku ovog studenta.
   found am picture this student
 c Ovog studentai sam pronala mnogo / deset slika
   this student am found many/ten pictures
   ‘Of this student I found many / ten pictures.’

(2)  
  a. Of this student I did find a picture.
  *b Picture of this student I did find a

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 NP’s 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 it is in standard textbook examples for English.

(3)  
  a. On kupił 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], on kupił tomik t i 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 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 tomik poezji z brakującymi kartkami w skórzanej okładce
     He purchased volume of poetry with missing pages in leather jacket
     ‘He purchased a volume of poetry with missing 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.

1.1 Binding
Languages lacking a DP layer are predicted to differ in behavior as far as binding within the nominal. The assumption is that in languages like Serbo-Croatian the possessive is in a PossP taking the NP lexical domain as its complement (Despić 2015).

\begin{enumerate}
\item [4] a. \([\text{NP Kusturicin, [NP najnoviji film]]}_{g_{ij}} \text{ je zaista razočarao Kusturica’s latest movie him}_{ij} \text{ is really disappointed} \]
   \[\text{‘Kusturica’s latest movie really disappointed him.’}\]
\item [4] b. \([\text{NP Njegov, [NP najnoviji film]]}_{g_{ij}} \text{ je zaista razočarao Kusturicu.} \]
   \[\text{‘His latest movie really disappointed Kusturica.’} \]
\end{enumerate}

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.

\begin{enumerate}
\item [5] a. His, father considers John, highly intelligent.
\item [5] b. John,‘s father considers him, highly intelligent
\end{enumerate}

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

\begin{enumerate}
\item [6] a. Jego, ojciec uważa Jana, za inteligentnego chłopaka
   \[\text{His father considers John, for intelligent boy} \]
   \[\text{‘His father considers John to be an intelligent boy’} \]
\item [6] b. Jana, ojciec uważa go, za inteligentnego chłopaka
   \[\text{John’s father considers him, for intelligent boy} \]
   \[\text{‘John’s father considers him to be an intelligent boy’} \]
\end{enumerate}

\begin{enumerate}
\item [7] a. Ja chciałem by [[[Fibaka], najnowszy wynik], go_{ij} zupełnie rozczarował t1
   \[\text{I wanted that Fibak’s newest result him}_{ij} \text{ totally disappoint} \]
   \[\text{‘I wanted Fibak’s newest result to totally disappoint him}_{ij}.’ \]
\end{enumerate}
b. Jego, najnowszy wynik rozczarował Fibaka;
   His, latest result disappointed Fibak
   ‘His latest result disappointed Fibak’

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] on zobaczył Miłosza tomik w jego mieszkaniu
   What poetry did he see Miłosz’s volume in his apartment
   ‘What poetry did he see Miłosz’s volume of in his apartment.’

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’s 1967 Left Branch Constraint)

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2 Fibak is a well-known Polish tennis player of the 70’s.
3 Czesław Miłosz was a Polish poet.
LBE has been argued to be reduced to Anti-Locality (Despić 2015). In Serbo-Croatian and Polish, the nominal projection taking the AP, or PossP as a modifier is a phase. In English, the DP is a phase, movement of pre-nominal modifiers is too local.

13.

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, as far as 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 heads 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).

I propose 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. Following Pesetsky (2015), I will denote Phase Heads as $\omega$.

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

The distinction allows me 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 2015). Let me suggest that a Phase Head 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 categorial label on PH 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 $\omega$.

(15) A phase head $\omega$ has a Phase Complement (PC) that is predicational.

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

(16) PC can expand via tucking-in
Dynamic Phase Heads

Once a Phase Head emerges, subsequent merger or movement within a given extended domain will proceed through tucking in 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), \( \omega \) emerges and a DP is built via tucking in. However, to derive Polish and Serbo-Croatian, we need to be able to freeze the expansion of the Phase Complement.

### 3.1 Phase Freezing

I assume that English, Polish, as well as Serbo-Croatian, have a DP layer. The difference is that in English the DP 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 \( \omega \), which automatically assigns a category label.

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

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

(19) n raising to \( \omega \) freezing the expansion of the complement of \( \omega \) 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.

(20) a. Czyjeż; zobaczyłem [t₁ tomiki poezji angielskiej] w bibliotece whose saw volumes poetry English in library ‘Whose volumes of English poetry did I see in the library ’

??b Czyję [poezji angielskiej] zobaczyłem [t₁ tomiki t2] 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 have Phase Freezing at all, D movement to ω is for labeling (Chomsky 2013). Otherwise, English should allow LBE. The operation Phase Freezing gives us three possibilities: No phase freezing as in English, Optional Phase Freezing as in Polish, Obligatory Phase Freezing as in Serbo-Croatian. However, that does not mean that Phase Freezing is not possible in English. In English vP phases we see Phase Freezing. On the assumption that vP ellipsis is deletion of a verbal phase complement (Rouveret 2012), we can assume that the paradigm below is generated via Phase Freezing at the vP level. Examples from Sag (1976:31-32):

(21) Betsy must have been being hassled by the police, and Peter
   *a. must too.
   b. must have too.
   c. must have been too.
   *d. must have been being too.

In the above, we can allow Phase Freezing by moving ‘have’ to ω (21b), or by moving ‘been’ to ω, as in (21c). I assume that there is no ω when ‘being’ is merged into the derivation (21d), since the external argument has not been introduced. I assume that full projection has taken place in (21a) and, since the verbal Extended domain is complete, it is too late for Phase Freezing.

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.

3.1 Phase Extension

Den Dikken (2007) has proposed that phases can be extended via head movement. His 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.
Phase Extension. A Given Phase Complement headed by $\omega$ can be extended to other functional domains via head movement via $\omega$.

Phase extension allows us to generate via head movement of $v \rightarrow \omega \rightarrow T$ that extends the verbal phase to TP. TP becomes complement of the verbal PH. 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.

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

Head Movement in Phases. Let there be a Phase Head $\omega$ and a non-phase head $X$.

a. Head movement of $X$ to $\omega$ freezes Phase headed by $\omega$. Subsequent merger is above $\omega P$

b. Head movement of $X$ via $\omega$ to an upper head Y extends the Phase headed by $\omega$ to above $YP$.

However, in this system an extended phase will differ from the original $\omega$. For one, T in (20) is not tucked in. Secondly, an extended phase has a category label. Finally, I speculate that its Spec is no longer a springboard/escape hatch for cyclic movement, as would be the case in a non extended $\omega$ that has been argued recently in Pesetsky (2015).^4

Finally, it has to be mentioned that the nature of the Spelled-out constituent is different. If we assume that there is always in the end some type of head movement to $\omega$, then we have a situation where the Phase complement is now configurationally an Adjunct. This would explain why Phase Complements are inaccessible after Spell-out.

Phase complement as an adjunct

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 where sent to the interfaces: TP instead of CP, nP instead of DP, or lower vP instead of highest

^4 The proposal in Pesetsky (2015) allows for feature movement to $\omega$. This proposal assumes cyclic movement to Spec-$\omega$ prior to head movement to $\omega$, but it does not say anything about feature movement that does not change the category of $\omega$. 
vP. Not by default it is the topmost category that is sent to the interfaces at Spell-Out, and only via Phase Freezing can we have a subset of a Lexical domain spelled out.

References


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