Left-Branch Extraction and Remnant Movement

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1 Theories of Left-Branch Extraction

Since Ross (1967), the nature of so-called Left-Branch Extraction (LBE) has been the subject of much debate. While English does not allow extraction of ‘left-branches’ such as demonstratives, adjectives and possessors, some Slavic languages, e.g. Russian (1a), Polish (1b) and Serbo-Croatian (1c), do.

(1) a. Čju, on kupil [NP _ , mašinu ] ?
   whose he bought car
   'Whose car did he buy?' (Russian; Grebenyova 2012:83)

   b. Czyjego, widziałeś [NP _ , brata ] ?
      whose 2sg saw brother
      'Whose brother did you see?' (Polish; Borsley 1983:340)

   c. Čijeg, si vidio [NP _ , oca ] ?
      whose are seen father
      'Whose father did you see?' (Serbo-Croatian; Bošković 2005:2)

So far, three main analyses of LBE have been pursued in the literature. The traditional sub-extraction analysis assumes that LBE involves direct movement of the left-branch out of the NP (2a) (Ross 1967; Uriagereka 1988; Borsley & Jaworska 1988; Corver 1990, 1992; Bošković 2005; Stjepanović 2010). The remnant movement approach holds that what is moved is actually a larger constituent containing a trace of the head noun that was scrambled out in an earlier step (2b) (Franks & Progovac 1994; Abels 2003, 2012; Bašić 2004, 2008, 2009). Finally, the distributed deletion assumes that LBE is the effect of scattered deletion applying to different sub-parts of the NP in its higher and lower occurrences (2c) (Fanselow & Čavar 2002; Pereltsvaig 2008; Fanselow & Féry 2013; Bondarenko & Davis 2019).

(2) a. Sub-extraction:
   Čju, on kupil [NP t , mašinu ] ?
   whose he bought car

   b. Remnant movement:
   [NP Čju t , ] on kupil mašinu , t ?
      whose he bought car
c. Distributed deletion:

\[
\text{NP } \text{čju mašinu} \] on kupil \[\text{NP } \text{čju mašinu} ] ?
whom he bought car

In this squib, I will focus on the remnant movement analysis in (2b) and show that it does not share some well-known properties of other remnant movement derivations.

The main empirical argument that has been put forward in favour of the remnant movement analysis comes from what Bošković (2005:30) calls extraordinary LBE. These are cases in which it seems that LBE targets a non-constituent, namely a preposition and an adjective or demonstrative to the exclusion of the noun phrase.

Extraordinary LBE in Polish (Borsley & Jaworska 1988:688)

a. Jan rozmawiał [PP z [NP tym studentem]]
   Jan talked with this.student

b. Z tym Jan rozmawiał [PP ___ studentem]
   with this.student Jan talked student
   'Jan talked with this student.'

Proponents of remnant movement point out that such examples of apparent non-constituent extraction follow naturally under their approach (e.g. Abels 2003, 2012; Bašić 2004). Going back to Borsley & Jaworska (1988), advocates of sub-extraction analyses have instead proposed that the preposition somehow ‘fuses’ with the left-branch prior to movement. There have been various implementations of this idea, e.g. as a reanalysis rule (Borsley & Jaworska 1988), head adjunction (Corver 1992), (syntactic) lowering (Martinović 2019) and cliticization (Talić 2019). Radkevich (2010) argues that such an approach correctly predicts that only phonologically light, enclitic prepositions are compatible with extraordinary LBE. Furthermore, Talić (2019) provides phonological arguments that such cases involve cliticization in the syntax. For the reason, the status of extraordinary LBE as an argument for remnant movement remains inconclusive.

In deciding between competing theories of extraction, it is useful to consider what properties the proposed movement types have. While remnant movement has been proposed for both LBE and other putative cases of subextraction, e.g. combien-splits in French (Starke 2001; Kayne 2002), DP-splits in Greek (Androutsopoulou 1998), was für-split in German (Abels 2003; Leu 2008), it is very often not shown that these constructions actually share the relevant properties associated with remnant movement. The following sections will argue that LBE does not conform to some well-known generalizations about remnant movement, thereby casting doubt on the remnant movement analysis.

2 Barss’ Generalization

A well-known property of remnant movement derivations is an anti-reconstruction effect known as Barss’ Generalization (4) (see van de Koot 2004; Sauerland & Elbourne 2002; Neeleman & van de Koot 2010; Heck & Assmann 2014). Barss’ Generalization can be stated as is in (4) (see Sauerland 1999b:587 and Heck & Assmann 2014:529 for similar formulations).
(4)  **Barss’ Generalization (BG)** (Barss 1986):
Reconstruction of a phrase α to its trace t_α is only possible if α c-commands t_α overtly.

$$[[[β \ldots t_α \ldots ] \ldots [ \ldots α \ldots [ \ldots t_β \ldots ]]] \rightarrow \text{No reconstruction of } α!]$$

Since remnant movement leads to the only configuration in which a trace will not be c-commanded by its antecedent (assuming that movement is always upward), BG can be used as a diagnostic for remnant movement. To see the motivation for this generalization, first consider the observation by Barss (1986:531) that the example in (5) allows for an inverse scope interpretation below *likely*.

(5)  **Some politician, is likely** [TP t_1 to address every rally ]  \( (likely > \forall > \exists) \)

This interpretation requires that the existential quantifier *some politician* is interpreted below *likely*, whereas the universal quantifier *every rally* must be interpreted above the existential, but still below *likely*. In order to derive this reading at LF, *some politician* must first reconstruct to its base position (6a), with subsequent QR of the universal quantifier within the embedded clause (6b).

(6)  **Some politician is likely** [TP t_1 to address every rally ]

   a.  ____ is likely [TP *some politician* to address every rally ]

   b.  ____ is likely [TP *every rally* *some politician* to address ____ ]

Importantly, Barss (1986) noticed that this reading becomes unavailable if the embedded clause is pied-piped under wh-movement (see Baltin 1982:15), as the example in (7) shows.

(7)  **Scope reconstruction blocked by BG** (Barss 1986:531):

   [DegP How likely t_1 to address every rally ]_2 is *some politician*, t_2 ?  \( (*likely > \forall > \exists) \)

This follows from Barss’ Generalization in (4) because the step in (8b) requires reconstruction of the subject to a position that is not overtly c-commanded due to remnant movement (8b).

(8)  [DegP How likely t_1 to address every rally ]_2 is *some politician*, t_2 ?

   a.  ____ is *some politician*, [DegP how likely t_1 to address every rally ]

   b.  *____ is ___ [DegP how likely *some politician* to address every rally ]

   c.  ____ is ___ [DegP how likely *every rally* *some politician* to address ___ ]

Sauerland & Elbourne (2002) argue that Barss’ Generalization is about more than just scope, it is in fact a more general ban on reconstruction. They demonstrate that we find the same effect with licensing of NPIs and binomial *each*. The examples in (9a,b) show that a moved NPI must reconstruct below negation. Similarly, examples (10a,b) show that binomial *each* must be interpreted within the scope of a plural phrase. Sauerland & Elbourne (2002) point out that licensing of both
NPIs (9c) and binomial each (10c) is blocked by BG in remnant movement configurations.

9) NPI reconstruction blocked by BG (Sauerland & Elbourne 2002:287, 298):
   a. [A doctor with any reputation], is likely not to be t₁ available.
   b. *[A doctor with any reputation], is tᵩ anxious for John not to be available.
   c. *[ᵩP Certain not to be tᵩ, available], though [a doctor with any reputation], is tₜ, patients were waiting.

10) Reconstruction of binomial each blocked by BG (Sauerland & Elbourne 2002:287, 298):
   a. [One translator each], is likely to t₁ be [ᵩP assigned t₁ to the athletes]
   b. *[One translator each], is likely to tᵩ [ᵩP give a speech to the athletes]
   c. *[How likely to be assigned tᵩ to the athletes], is [one translator each], t₂ ?

In addition to this, Barss’ Generalization has been used to try to diagnose remnant movement in a variety of languages and phenomena: e.g. with complex prefields in German (Müller 2018), idioms in German (Heck & Assmann 2014), rightward movement in Hindi (Bhatt & Dayal 2007), expletive-associate constructions (Preminger 2009) and ECM-constructions in English (Neeleman & Payne 2020). I will do the same for Left-Branch Extraction on the basis of inverse linking.

3 Inverse linking

Inverse scope with two NP-internal quantifiers is known as inverse linking (Gabbay & Moravcsik 1974; May 1985; Larson 1985; Kobele 2010; May & Bale 2017). As the examples in (11) show, the preferred reading involves wide scope of the universal quantifier.

11) a. I have met [DP someone [PP from every city in America]]
    b. The students have to read [DP two books [PP by every author (on the reading list)]]

Following May (1985), the standard approach to inverse linking involves Quantifier Raising of the universal (12) (also see Heim & Kratzer 1998).

12)
Furthermore, I follow May (1985) in assuming that QR for inverse linking does not leave the noun phrase. The evidence for this comes from the observation by Larson (1985) that the inversely-linked universal quantifier cannot outscope a quantificational subject (13). This follows if QR must target a DP-internal position, rather than a position above the subject such as TP, for example.

(13) Two politicians spy on $[_{DP} \text{someone } [_{PP} \text{from every city }]]$  
(*$\forall > 2 > \exists$)

The same restriction has also been reported for Russian (Antonyuk 2019:8) and Polish (Tomaszewicz 2015:225), suggesting that NP also counts as a scope island in these languages.

3.1 Inverse Linking and LBE

Inverse linking has been shown to exist in Slavic languages too (Godjevac 2003; Antonyuk 2015, 2019), as the following examples from Polish and Russian illustrate.

(14) Hania spotkała [_{NP} dwójch profesorów [_{PP} z każdego uniwersytetu ]  
Hania met two professors from every university  
‘Hania met two professors from every university’  
($\forall > 2; \text{Polish}$)

(14) Ivan vstřelil [_{NP} dvouh studentov [_{PP} iz každoho goroda ]  
Ivan met two students from every city  
‘Ivan met two students from every city’  
($\forall > 2; \text{Russian}$)

A clear prediction that emerges from the remnant movement analysis is that inverse linking should not be possible if the higher scope-bearing element undergoes LBE. For example, LBE of the numeral ‘two’ in (14) would be analyzed as in (15) under the remnant movement approach.

(15) 

Given Barss’ Generalization, NP$_2$ should not be able to reconstruct to its trace position since it is not c-commanded by NP$_1$. However, this step of reconstruction is required in (16b) to allow the universal to QR within the NP in subsequent step (16c).

(16) $[[_{NP} \text{two } t_i ]_2 \ldots [[_{NP} \text{students from every city }], t_2$

   a. $\ldots [[_{NP} \text{students from every city }], [_{NP} \text{two } t_i ]$

reconstruction
Consequently, a unique prediction that emerges from the remnant movement analysis (and is not shared by other approaches) is that inverse linking readings should disappear under LBE. As (17) shows, this does not seem to be the case in Polish (17a) or Russian (17b). While these examples are reportedly most acceptable with contrastive focus on the extracted numeral, the inverse linking reading is clearly still present.

(17) a. [NP Dwóch t₁] Hania spotkała [NP profesorów z každého uniwersytetu], t₂
     two Hania met professors from every university
     'Hania met two professors from every university.'

     (∀ > 2; Polish)

b. [NP Dvuhk t₁] Ivan vstrelil [NP studentov iz každaja goroda], t₂
     two Ivan met students from every city
     'Ivan met two students from every city'

     (∀ > 2; Russian)

One might wonder whether this can still be accounted for in a hybrid analysis where there are multiple routes to LBE (Franks & Progovac 1994). On this view, remnant movement might only be employed for cases of exceptional LBE. The following examples involve exceptional LBE still allow for inverse linking, however, suggesting that this approach is insufficient.

(18) a. [PP Do dwóch t₁], weszła [NP pokoi w každym budynku], t₂
     to two entered.f.sg rooms in every building
     'She entered (into) two rooms in every building.'

     (∀ > 2; Polish)

b. [PP S dvumya t₁], pogovorila [NP professorami iz každaja universiteta], t₂
     with two talked professors from every university
     'She talked to two professors from every university.'

     (∀ > 2; Russian)

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1I am not discussing inverse linking in South Slavic languages such as Serbo-Croatian, since they seem to differ from Polish and Russian in obligatorily requiring the distributive particle po for inverse scope interpretations, as the example in (ia) from Godjevac (2003:115) shows. The exact nature of po and how it interacts with scope is still poorly understood at present (but see Filip & Carlson 2001). Nevertheless, Franks (1994, 1995) shows that, syntactically, po is a preposition. Thus, an example such as (ib) would involve a case of extraordinary LBE with the inversely-linked interpretation retained.

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Depending on our assumptions about how inverse scope is derived with po, Barss' Generalization might still be relevant if it still requires QR (as assumed by Godjevac 2003). Furthermore, Antonyuk (2015:51) demonstrates that inversely-linked quantifiers in po-marked phrases in Bulgarian can bind a pronoun outside their containing NP, suggesting that they do undergo QR.
This shows that the anti-reconstruction effect normally associated with remnant movement is not found with LBE. That said, the necessity for the head noun to reconstruct into the remnant depends to a large extent on the aforementioned assumption that NP is a scope island. While (13) and its grammatical counterparts in Slavic support this assumption, Sauerland (2005) has argued that there is evidence that DP is not always a scope island in English (but see Charlow 2010 for critical discussion). If we were to allow the universal quantifier to simply QR from the surface position of the head noun (without it reconstructing), then Barss’ Generalization would not be relevant.

We can force reconstruction by adding a third scope-bearing element (similar to likely in Barss’ original example), namely intensional want. In (19), the context requires a de dicto interpretation of the quantifiers, i.e. that meeting two people from every country is Hania’s explicit desire.\(^2\) Crucially, the head noun (containing the universal quantifier) has been scrambled to the matrix clause, an option that has been discussed for Polish by Wiland (2010).

(19) **Context:** Paweł mistakenly thinks that Hania’s new life ambition is to have met three people from every country in the world.

Nie, [NP 

\[\text{two t}_1\] \text{Hania [NP osoby z každago kraju ], chce [VP poznać t}_2\], nie no two Hania people from every country wants meet not trzy three

‘No, Hania wants to meet two people from every country, not three.’ \hspace{1cm} (want > \forall > 2)

In order to derive the reading in (19), the head noun containing the universal quantifier must be interpreted in a position below intensional want. Here, we can be sure that the BG-violating step in (20b) is necessary to derive the correct scope relations.

(20) \[\text{NP two t}_1 \text{... [NP people from every country], want ... t}_2, \text{want ... [NP two t}_1\]

\hspace{1cm} a. \hspace{1cm} \hspace{1cm} \hspace{1cm} \hspace{1cm} \hspace{1cm} \hspace{1cm} \hspace{1cm} \hspace{1cm} \hspace{1cm} \hspace{1cm} \hspace{1cm} \hspace{1cm} \hspace{1cm} \hspace{1cm} \hspace{1cm} \hspace{1cm} \hspace{1cm}

\hspace{1cm} b. *\hspace{1cm} ... \hspace{1cm} \text{want ... [NP two [NP people from every country]]}

\hspace{1cm} c. \hspace{1cm} ... \hspace{1cm} \hspace{1cm} \hspace{1cm} \hspace{1cm} \hspace{1cm} \hspace{1cm} \hspace{1cm} \hspace{1cm} \hspace{1cm} \hspace{1cm} \hspace{1cm} \hspace{1cm} \hspace{1cm} \hspace{1cm} \hspace{1cm} \hspace{1cm} \hspace{1cm} \hspace{1cm} \hspace{1cm} \hspace{1cm} \hspace{1cm} \hspace{1cm} \hspace{1cm} \hspace{1cm} \hspace{1cm} \hspace{1cm}

Thus, the argument against remnant movement developed can still be maintained even if NP were not a scope island.

4 **Idioms**

Another way of testing for anti-reconstruction effects with LBE is with idioms, if we assume that moved idiom parts must be reconstructed to yield a special interpretation (e.g. Koopman & Sportiche 1991:224; Chomsky 1993:36f.). Heck & Assmann (2014) observe that idioms seem to be subject to

\(^2\)A possible context for the alternative de re reading would be the following: ‘Hania has made a list of all the people she wants to meet for various reasons. It just so happens that for all relevant countries, there are two people from each of them, but she doesn’t know this.’
Barss’ Generalization. In English, idiomatic readings are lost in the same configuration that Barss (1986) discussed (21b), as observed by Kroch & Joshi (1985) and Lasnik & Saito (1992).

(21) a. Advantage, is likely \([TP \ t, \ to \ be \ [VP \ taken \ t, \ of \ John ]]\)
b. *\([How \ likely \ to \ be \ taken \ t, \ of \ John ]\), is advantage, \(t, \) ?

Furthermore, Heck & Assmann (2014:538) show the same effect holds with remnant VP topicalization in German. While the idiom \(jdm. \ einen \ Korb \ geben\) (‘give so. a basket’) is preserved under movement (22a), the idiomatic reading of is lost under predicate fronting (22b), which is generally assumed to involve remnant movement (e.g. Müller 1998).

(22) a. \([DP \ Einen \ Korb ] \ hat \ ihr \ niemand \ [VP \ tDP \ gegeben ]\)
   a basket has her nobody given
   ‘Nobody gave her a basket/nobody rejected her.’
b. \([VP \ tDP \ Gegeben ] \ hat \ ihr \ niemand \ [DP \ einen \ Korb ] \ tVP\)
   given has she him a basket
   ‘Nobody gave her a basket/#nobody rejected her.’

With this in place, the remnant movement analysis predicts that LBE of an idiom part should lead to the loss of idiomatic meaning. Consider the following two idioms in Polish that contain adjectives, \(dać \ czarną \ polewkę\) (‘to reject someone’; lit. ‘to give so. black soup’) and \(myśleć \ o \ niebieskich \ migdalach\) (‘to day-dream’, lit. ‘to think about blue almonds’). On the remnant movement analysis, the idiomatic head noun would have to reconstruct to a non-commanded position (unlike on the subextraction or distributed deletion accounts). For the idioms mentioned above, the speakers I consulted could still access the idiomatic reading under LBE (23). Furthermore, notice that (23b) is even an example of exceptional LBE.

(23) a. \([NP \ Czarną \ t, ]_{2} \ (to) \ mu \ dała [NP \ polewkę ], \ t_{2}\)
   black.FEM (TOP) him gave.3SG.F soup
   ‘She rejected him.’
b. \([PP \ O \ niebieskich \ t, ] \ myślał [NP \ migdalach ], \ tPP\)
   about blue.PL thought.3SG.M almonds
   ‘He was day-dreaming.’

5 Müller-Takano Generalization

Finally, let us consider another well-known generalization about remnant movement, what is often referred to as the Müller-Takano Generalization (24) (Sauerland 1999a; Pesetsky 2013:148).

   \(*[[β \ … \ t, \ … \ ]] \ … \ [\ … \ α \ … \ [\ … \ tβ \ … \ ]]]\), if \(α\) and \(β\) are movements of the same type.

This generalization describes a constraint on movement types in remnant movement derivations, namely that the remnant-creating step cannot be the same kind of movement as the remnant movement step. This is motivated by the impossibility of local scrambling of remnant categories in German (Müller 1996:357f.; also see Takano 1994 for similar observations about Japanese). In the gram-
matical (25) with remnant topicalization, the remnant is created by scrambling of *das Buch* (25a), followed by topicalization of the remnant VP (25b). Since these steps involve different types of movement, it does not violate the constraint in (24).

(25) a. \[ vP [DP das Buch], [vP keiner [VP t, zu lesen] versucht]] 
   the book nobody to read tried
   \[scrambling\]

   b. \[CP [VP t, zu lesen], [C’ hat [keiner [vP [DP das Buch], [vP t, versucht]]]]] 
   to read has nobody the book tried
   \[topicalization\]

   'Nobody tried to read the book.'

This contrasts with the example in (26), which involves scrambling of the remnant VP, the remnant movement step in (26b) involves the same type of movement as the evacuating step (26a), i.e. local scrambling, and is therefore ruled out by (24).

(26) a. \[vP [DP das Buch], [vP keiner [VP t, zu lesen] versucht]] 
   the book nobody to read tried
   \[scrambling\]

   b. *\[C dass [VP t, zu lesen], [keiner [vP [DP das Buch], [vP t, versucht]]] hat] 
   that to read has nobody the book tried has
   \[scrambling\]

   'That nobody tried to read the book.'

The Müller-Takano Generalization makes another clear prediction for the remnant movement analysis of LBE. Since a step of short scrambling is required to create the remnant category, another step of local scrambling of the remnant itself, i.e. the ‘left-branch,’ should not be possible. This means that we should not find cases of LBE that involve clause-bound scrambling. Such cases can be found, however, as the following examples from the National Corpus of Polish (NKJP) show (27).

In (27a), the left-branch adjective *wielką* (‘great’), analyzed here as a remnant NP, has undergone a short step of scrambling out of the verb phrase. Furthermore, the example in (27b) shows a case of local scrambling with extraordinary LBE.

(27) a. Dowiadywał się Derkacz o Francji dalekiej, która u siebie [NP was.finding.out refl Derkacz about France.loc far.away.loc which by itself wielką t₁, t₂ [vP zrobiła rewolucję, t₂] great.acc made revolution.acc] ‘Derkacz was finding out about faraway France, which had made a great revolution.’

   b. Widziało się po twarzach, że im plan nauczyciela [PP w into powszechną t₁, t₂ [vP seen refl po faces that 3pl.dat plan teacher.gen into common u-trafił [NP wole, t₁, t₂] PRF-hit willingness] ‘It could be seen in their faces that the teacher’s plan met their common willingness.’

Pereltsvaig (2008:11) provides the following Russian example, which also seems to involve a local step of extraordinary LBE (28).
Again, this apparently incorrect prediction is unique to the remnant movement analysis of LBE, since it necessarily assumes that LBE consists of two movement steps. Alternative approaches such as subextraction or distributed deletion do not predict LBE-scrambling to be ungrammatical.

6 Conclusion

In this squib, I have argued that LBE does not show some key characteristics of remnant movement, i.e. those captured by Barss’ Generalization and the Müller-Takano Generalization. In order to argue that apparent subextraction actually involves a more complex remnant movement derivation, it is important to show that it shares well-known properties with other putative remnant movement constructions. This squib has shown that this is not the case for LBE, therefore casting doubt on the validity of the remnant-based analysis more generally.

References


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