

Münchhausen-Style Projecting Movement in Raising Relative Clauses

Mariia Privizentseva

Abstract

This paper presents a novel implementation of the raising derivation. It starts by showing that the standard landing site in the specifier position produces an incorrect structure of the head DP and is problematic for nominal inflection and antipronominal contexts. The problem is resolved by projecting movement: The head NP originates in the relative CP, moves to the main clause, and projects in the landing site. Projecting movement follows if Merge is feature-driven, projection is determined by selection, and Minimal Search applies upwards as well as downwards. Finally, the paper provides novel empirical evidence for the necessity of projecting movement in raising derivations. This evidence is based on relatives with inverse case attraction in Moksha Mordvin.

1. The Problem

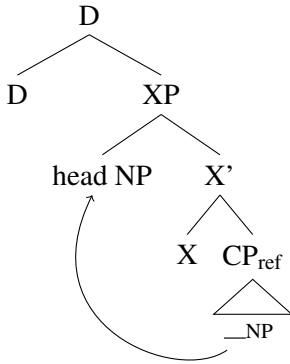
Under the raising derivation of relative clauses, the head of the relative clause originates in the relative CP and moves to its surface position later (Vergnaud 1974, Kayne 1994, Sauerland 1998, Bhatt 2002, Donati and Cecchetto 2011, Sportiche 2017):

- (1) Raising relative clauses

[DP head [CP C_{rel} ... head]]

In Minimalist syntax, phrasal movement typically targets specifier positions. This means that the head of the relative clause must also land in a specifier of some functional projection, as shown in (2). Analyses differ with respect to the identity of this functional projection: It can be an extended C projection (Bianchi 1999, 2000) or some nominal head (Bhatt 2002, Deal 2016).

(2) Final position of the head



Independently of the exact nature of XP in (2), this additional projection breaks down the spine of nominal projections, so that the NP is not the complement of the external D, but the specifier of D's complement. This makes incorrect empirical predictions.

The first problem comes from nominal concord and inflection. Inflection of nominal modifiers in German makes a distinction between 'strong' and 'weak' exponents and the choice between them depends on whether there is a preceding inflection-bearing determiner in the noun phrase. In (3-a), the adjective is preceded by an article that realizes nominal inflection and has therefore weak exponents. In (3-b), the adjective is the first modifier in the noun phrase and it shows strong inflection.

- (3) a. mit dem gut-**en** Wein
with the good-WEEK wine
- b. mit gut-**em** Wein
with good-STRONG wine

As shown by Heck (2005), inflection on adjectives modifying the head of the relative clause is also determined by the presence or absence of a determiner:

- (4) a. mit dem gut-**en** Wein, den sie gekauft hat
with the good-WEEK wine that she bought has
- b. mit gut-**em** Wein, den sie gekauft hat
with good-STRONG wine that she bought has
'with good wine that she bought'

Identity between inflectional exponents in simple noun phrases in (3) and noun phrases modified by a relative clause in (4) is puzzling if they have radically different structures. In particular, if the head noun of relative clauses is in the specifier position (as in (2)), the article that determines the shape of inflection on the following modifier is not a part of the same projection line with this modifier.

The second problem comes from so-called antipronominal contexts and was pointed out by Pankau (2018). Antipronominal contexts are positions that must be occupied by full noun phrases, not by pronouns; see (5) from German.

- (5) Er kommt [**aus diesem Land**] / *aus ihm.
he comes out this country out it
'He comes/descends from that country / *from it.' (Pankau 2018: 194)

Pankau suggests that antipronominal contexts are derived by a formal requirement to fill relevant positions by DPs with lexical content. He further shows that heads of relative clauses in German can appear in antipronominal contexts:

- (6) Er kommt [**aus einem Land**], das in der belgischen Gruppe
he comes out a country which in the Belgian group
gespielt hat.
played has
'He comes from a country that was part of the Belgian group.'
(Pankau 2018: 200)

Example (7-b) further shows that the presence of a noun phrase in the specifier of the lower projection does not satisfy the requirement.

- (7) a. Ich werde [**die nächste Station**] / *sie aussteigen.
I will the next station she depart
'I will depart the next station (/ *it).'
- b. *Ich werde aussteigen, [[**welche Station**] du auch immer
I will depart which station you also ever
aussteigen wirst].
depart will
'I will depart whichever station you will depart.' (Pankau 2018:
216)

The fact that heads of relative clauses are grammatical in antipronominal

contexts shows that head nouns are complements of external D heads and argues against structures that place the head noun in specifiers of lower nominal or clausal projections.¹

To sum up, existing research on the syntax of relative clauses accumulated a substantial amount of evidence in favor of the raising derivation, but at the same time implementations of raising produce an incorrect structure for the head noun phrase in the main clause.

One exception is the implementation of raising developed by Donati and Cecchetto (2011). According to this analysis, it is only the terminal N node that moves from the relative clause to the main clause. It is then suggested that being an atomic computational item, the N head projects in its landing position (cf. the approach to labeling by Chomsky (2013, 2015)). While producing the correct DP structure, this approach does not capture the full set of evidence for the origin of the head inside the relative CP: Such evidence often relies on nominal modifiers being interpreted within the relative CP; see, for instance, example (8) with anaphor binding in German. This cannot be accounted for if only the terminal N head originates inside the relative CP.²

- (8) Der Wesenszug von **sich**_i, [den **Peter**_i noch nicht ___
 the.NOM trait of self which.ACC Peter still not
 kannte], störte niemanden.
 knew annoyed no.one.ACC
 ‘No one was annoyed by the side of himself_i that Peter_i did not know yet.’
 (Salzmann 2006: 99)

2. Proposal

I would like to suggest that the raising derivation involves projection of the head NP in its landing site and that projection in the landing site straightforwardly follows from the projection by selection approach to labeling (Chomsky 1995,

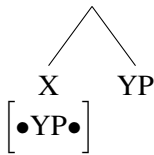
¹Pankau (2018) uses this to argue against a raising derivation in general, but the implementation suggested below resolves the problem.

²Henderson (2007) suggests an approach to raising that is based on sideward movement. This analysis produces the correct DP structure but this comes at the cost of enriching the model with cross-derivational probing and movement: The head noun phrase is first merged inside the relative clause, then moves sideways to another tree structure and merges with the external D head there. After this, the relative clause is late-adjoined to the head noun phrase.

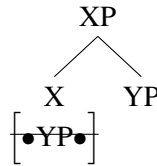
Adger 2003 as well as Stabler 1997) combined with upward search (Baker 2008, Himmelreich 2017, Bjorkman and Zeijlstra 2019).

Under the projection by selection model, it is assumed that Merge is feature-driven, and a syntactic item that has a syntactic selection feature also provides a label for a newly created constituent, as shown in (9)-(10).

(9) Merge

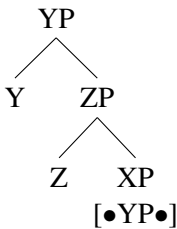


(10) Labeling

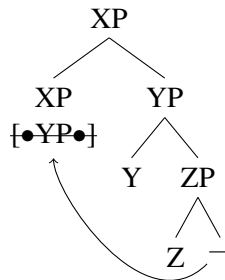


Assuming that merge features (similarly to agreement probes; see Baker 2008, Himmelreich 2017, Bjorkman and Zeijlstra 2019) can search upwards, the projection by selection model automatically predicts projecting movement. The sample derivation is sketched in (11)-(12). Here, XP has a merge feature [•YP•], and this feature is unchecked at the point when XP is itself selected.³ [•YP•] probes upwards, finds its goal, and triggers movement of its host.

(11) Base position



(12) Movement and projection



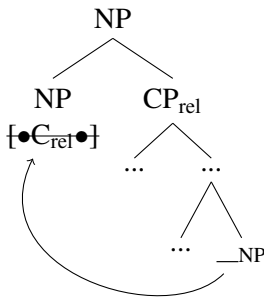
The concept of projecting movement for branching constituents is not new in generative syntax (Hornstein and Uriagereka 2002, Bury 2003, Georgi

³Selecting a syntactic object before all of its merge features are satisfied violates the Projection Principle (Chomsky 1981, 1986). There is however another well-known case in syntactic theory, where merge features must remain unchecked until later in the derivation: late merge (Lebeaux 1988, 1990, Takahashi and Hulsey 2009).

and Müller 2010, Sato 2010). The implementation pursued here relies on the work by Fanselow (2003). He proposes that the movement is triggered by features on a displaced syntactic object, and this allows projection in the landing site. Fanselow calls such movement *Münchhausen-style movement*, after the German literary character Baron Münchhausen who saved himself from drowning by pulling himself up by his own hair. The current analysis of projecting movement recruits this idea: Movement is triggered by the features on the moved syntactic object.

This allows for the new implementation of the raising derivation shown in (13). I suggest that the numeration contains two heads (the head N and the relative C) that by transitivity ultimately select each other and thereby require one of them to be merged before its own selection features are checked. In (13), it is the N head that enters the derivation with an unchecked merge feature. It is merged inside the relative CP, probes upwards, finds the relative CP once it is built, merges with it, and projects in the final landing site. In the next step, the structure is selected by the external D head, giving rise to the usual noun phrase structure for the relative clause head.

(13) Projecting movement in raising relative clauses



Note that no additional principle is required to ensure that it is the NP, not the relative C head, that enters the derivation with the unchecked merge feature, because alternative scenarios do not lead to convergence. For instance, if NP selects the relative CP while the latter has an unchecked selection feature [$\bullet TP \bullet$], after all CP-internal material is merged the resulting structure will be a CP, so that it will not be able to be selected by the external D head.

3. Further Empirical Evidence

In this final section, I will present further empirical evidence showing that a regular DP structure is required for raising relative clauses, and that the syntactic object moving from within the relative CP under the raising derivation must be phrasal. This evidence comes from relative clauses with inverse case attraction (ICA). This is a type of relative clauses under which the head of a relative clause bears case assigned inside the relative CP (Bianchi 1999, Kholodilova 2013, Deal 2016, Abramovitz 2021). Moksha Mordvin (Finno-Ugric) is one of the languages where relatives with ICA are attested:

- (14) Internal case – DAT, external case – GEN
 Jalga-z'ə-**n'd'i** [kona-**n'd'i** t'ašn'ə-n'] mon
 friend-1SG.SG-DAT which-DAT write-PST.1SG I
 n'ej-sa kurək.
 see-NPST.3SG.O.1SG.S soon
 'I will soon see my friend to whom I have been writing.'

Relatives with ICA in Moksha can have appositive and restrictive readings. This sets them apart from correlatives that have only maximilizing interpretation (Grosu 2002, Lipták 2009) as well as from regular internally-headed relatives that are cross-linguistically maximalizing or restrictive, but not appositive (Lehmann 1984: 278, De Vries 2002: 29, Grosu 2012). The availability of the appositive interpretation illustrated in (15) therefore provides an argument that relatives with ICA in Moksha are externally-headed.

- (15) Internal case – GEN, external case – NOM
 Rovnaj kaftə **pr'istupn'ik-n'ə-n'** [kona-t'n'ə-n' meždu
 straight two criminal-DEF.PL-GEN which-DEF.PL-GEN between
 pročim kunda-z'ən' Pet'ε] vor'gəd'kšn'ə-s'-t'.
 others catch-PST.3PL.O.3SG.S Petja run.away-PST.3-PL
 'Exactly two criminals, who Petja, by the way, caught, were running away.'

Heads of relatives with ICA show regular nominal inflection. I will now argue that this requires the correct DP structure. Nouns in Moksha are morphologically marked for definiteness:

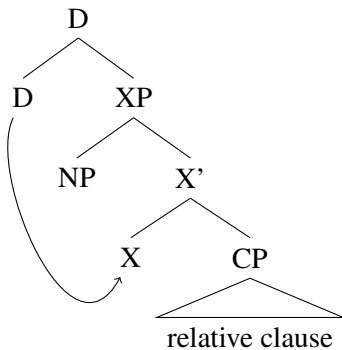
- (16) kodamə bd'ə pin'ə-n'd'i (17) t'ε pin'ə-t'i
 how INDEF dog-DAT this dog-DEF.SG.DAT
 'to some dog' 'to this dog'

Heads of a relative clause also bear a regular definiteness inflection.

- (18) a. Internal case – DAT, external case – NOM
 T'ε pin'ə-t'i [kona-n'd'i maks-ən' jarca-ma]
 this dog-DEF.SG.DAT which-DAT give-PST.1SG eat-NZR
 ašč-i dvor-sə.
 be-NPST.3[SG] yard-IN
 'This dog that I gave food is in the yard.'
- b. Internal case – DAT, external case – NOM
 Kodamə bd'ə pin'ə-n'd'i [kona-n'd'i maks-ən'
 how INDEF dog-DAT which-DAT give-PST.1SG
 jarca-ma] ašč-i dvor-sə.
 eat-NZR be-NPST.3[SG] yard-IN
 'Some dog that I gave food is in the yard.'

Definiteness is often associated with the D head and can appear on the noun via Lowering or head movement. Both these operations target heads of one projection line (Travis 1984, Baker 1988, Embick and Noyer 2001). This means that if the head of the relative clause appears in the specifier of some functional projection, definiteness is predicted to appear on the X head, not on the noun (cf. (19) with Lowering).

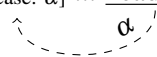

- (19) Lowering to head of Compl



The data in (20) further show that definiteness in Moksha is not realized in the structural position occupied by the noun in (19); i.e., on (NP) specifiers of the main projection line. In this example the noun is modified by another NP (*s'en'əm sel'mə* 'blue eye'), and inflection always appears on the head of the noun phrase, not on its modifier (*s't'ər'-n'ε-t'* 'girl').

- (20) Son n'εj-əz'ə [**s'en'əm sel'mə**] s't'ər'-n'ε-t'.
 she see-PST.3SG.O.3SG.S blue eye girl-DIM-DEF.SG.GEN
 'She saw the girl with these blue eyes.'
 a. *[**t'ε** s'en'əm sel'mə] s't'ər'-n'ε-t'
 this blue eye girl-DIM-DEF.SG.GEN
 b. [s'en'əm sel'mə(-*s'/*t'n'ə)] s't'ər'-n'ε-t'
 blue eye-DEF.SG/DEF.PL girl-DIM-DEF.SG.GEN

To sum up, relatives clauses with ICA are externally-headed and the head noun must have the regular DP structure to ensure correct definiteness marking. It thus remains to show that relatives with ICA are derived by raising. As argued by Bianchi (1999, 2000), case marking from within the relative CP on the head is a clear indication that the head must originate inside the relative CP:

- (21) Inverse case attraction derived by raising
- a. Case assignment in the relative CP:
 [X_[case: α] ... head NP ...]

- b. Movement of the head NP:
 [DP head NP-α [CP C_{rel} ... X_[case: α] ... head NP ...]]


This conclusion is further supported by connectivity effects. Example (22) shows that a head with an internal case can contain anaphors that are bound within the relative CP.

- (22) Internal case – DAT, external case – NOM

Es'_i luv-ij-ənzə-**n'd'i/*∅** [kona-t'n'ə-n'd'i t'ɛ
 self read-PTCP.ACT-3SG.PL-DAT/*NOM which-DEF.PL-DAT this
kn'iga-s'_i maks-i nad'əja-ma] uč-ij-t' pɛ.
 book-DEF.SG give-NPST.3[SG] hope-NZR wait-NPST.3-PL end
 'Its_i readers whom this book_i gave hope are waiting for the continuation.'

Data in (23) illustrate that internal case marking on the head noun forces reconstruction of the head for Condition C.

- (23) Internal case – GEN, external case – NOM

Puškin-ən'_j kn'iga-nc [kona-n' **son**_{i/*j}
 Pushkin-GEN book-3SG.SG.GEN which-GEN PRON.3SG
 t'ɛšt'-əz'ə — Pavləfskɛj-sə] ašč-i
 write-PST.3SG.O.3SG.S pavlosk-IN be-NPST.3[SG]
 bibl'iat'eka-sə-nək.
 library-IN-1PL
 'Pushkin's book that he wrote in Pavlovsk is in our library.'

4. Summary

In this paper, I have argued that the raising derivation of relative clauses requires projecting movement. Projecting movement follows if the head noun phrase undergoes Münchhausen-style movement. The noun carries the merge feature that probes upwards and ensures movement of the noun phrase.

References

- Abramovitz, Rafael (2021): *Deconstructing Inverse Case Attraction*. Ms., Massachusetts Institute of Technology.
- Adger, David (2003): *Core Syntax: A Minimalist Approach*. Oxford University Press, Oxford.
- Baker, Mark (1988): *Incorporation: A Theory of Grammatical Function Changing*. The University of Chicago Press, Chicago, London.
- Baker, Mark (2008): *The Syntax of Agreement and Concord*. Cambridge University Press, New York.
- Bhatt, Rajesh (2002): 'The Raising Analysis of Relative Clauses: Evidence from Adjectival Modification', *Natural Language Semantics* **10**, 43–90.
- Bianchi, Valentina (1999): *Consequences of Antisymmetry. Headed Relative Clauses*. Vol. 46 of *Studies in generative grammar*, Mouton de Gruyter, Berlin.

- Bianchi, Valentina (2000): Some Issues in the Syntax of Relative Determiners. In: A. Alexiadou, P. Law, A. Meinunger and C. Wilder, eds., *The syntax of relative clauses*. Vol. 32 of *Linguistik aktuell / Linguistics today*, John Benjamins, Amsterdam, Philadelphia, pp. 53–83.
- Bjorkman, Bronwyn M. and Hedde Zeijlstra (2019): ‘Checking Up on (ϕ -)Agree’, *Linguistic Inquiry* **50**(3), 527–569.
- Bury, Dirk (2003): *Phrase structure and derived heads*. Doctoral thesis, University College London, London.
- Chomsky, Noam (1981): *Lectures on Government and Binding*. Foris, Dordrecht.
- Chomsky, Noam (1986): *Knowledge of Language*. Foris, Dordrecht.
- Chomsky, Noam (1995): *The Minimalist Program*. MIT Press, Cambridge.
- Chomsky, Noam (2013): ‘Problems of projection’, *Lingua* **130**, 33–49.
- Chomsky, Noam (2015): Problems of projection: Extensions. In: E. Domenico, C. Hamann and S. Matteini, eds., *Structures, strategies, and beyond: Studies in honour of Adriana Belletti*. John Benjamins, Amsterdam, pp. 3–16.
- Deal, Amy Rose (2016): ‘Cyclicity and Connectivity in Nez Perce Relative Clauses’, *Linguistic Inquiry* **47**(3), 427–470.
- Donati, Caterina and Carlo Cecchetto (2011): ‘Relabeling Heads: A Unified Account for Relativization Structures’, *Linguistic Inquiry* **42**(4), 519–560.
- Embick, David and Rolf Noyer (2001): ‘Movement Operations after Syntax’, *Linguistic Inquiry* **32**(4), 555–595.
- Fanselow, Gisbert (2003): Münchhausen-style head movement and the analysis of Verb-Second. In: A. Mahajan, ed., *Head movement and syntactic theory*. ULCA & Universität Potsdam Working Papers in Linguistics, Los Angeles & Potsdam, pp. 40–76.
- Georgi, Doreen and Gereon Müller (2010): ‘Noun-Phrase Structure by Reprojection’, *Syntax* **13**(1), 1–36.
- Grosu, Alexander (2002): ‘Strange Relatives at the Interface of Two Millennia’, *GLOT International* **6**(6), 145–167.
- Grosu, Alexander (2012): ‘Towards a More Articulated Typology of Internally Headed Relative Constructions: The Semantics Connection’, *Language and Linguistics Compass* **6**(7), 447–476.
- Heck, Fabian (2005): *Gegen Kopfanhebung in deutschen Relativsätzen*. Talk presented at Tagung zur Generativen Grammatik des Südens (GGS), Universität Tübingen.
- Henderson, Brent (2007): ‘Matching and raising unified’, *Lingua* **117**(1), 202–220.
- Himmelreich, Anke (2017): *Case Matching Effects in Free Relatives and Parasitic Gaps: A Study on the Properties of Agree*. PhD thesis, Universität Leipzig.
- Hornstein, Norbert and Juan Uriagereka (2002): Reprojections. In: S. D. Epstein and T. D. Seely, eds., *Derivation and explanation in the Minimalist Program*. Blackwell, Oxford, p. 106–132.

- Kayne, Richard S. (1994): *The Antisymmetry of Syntax*. Linguistic Inquiry Monographs, MIT Press, Cambridge, MA.
- Kholodilova, Maria (2013): 'Inverse attraction in Ingrian Finnish', *Linguistica Uralica* **XLIX**(2), 96–116.
- Lebeaux, David (1988): Language acquisition and the form of grammar. PhD thesis, University of Massachusetts at Amherst.
- Lebeaux, David (1990): 'Relative Clauses, Licensing, and the Nature of the Derivation', *North East Linguistics Society* **20**(2), 318–332.
- Lehmann, Christian (1984): *Der Relativsatz*. Gunter Narr Verlag, Tübingen.
- Lipták, Anikó (2009): The landscape of correlatives: An empirical and analytical survey. In: A. Lipták, ed., *Correlatives cross-linguistically*. John Benjamins, Amsterdam, pp. 1–49.
- Pankau, Andreas (2018): 'The Matching Analysis of relative clauses: an argument from antipronominal contexts', *The Journal of Comparative Germanic Linguistics* **21**, 189–245.
- Salzmann, Martin (2006): Resumptive Prolepsis: A Study in indirect A'-dependencies. Doctoral thesis, Universiteit Leiden.
- Sato, Yosuke (2010): Relabeling and Multiple Spell-Out: Raising-to-Object as Epiphenomenon. Ms., National University of Singapore.
- Sauerland, Ulrich (1998): On the Making and Meaning of Chains. Doctoral thesis, Massachusetts Institute of Technology, Cambridge, MA.
- Sportiche, Dominique (2017): Relative Clauses. Ms., University of California, Los Angeles.
- Stabler, Edward P. (1997): Derivational minimalism. In: C. Retoré, ed., *Logical aspects of computational linguistics*. Springer, Berlin, p. 68–95.
- Takahashi, Shoichi and Sarah Hulsey (2009): 'Wholesale Late Merger: Beyond the A/Ā distinction', *Linguistic Inquiry* **40**(3), 387–426.
- Travis, Lisa (1984): Parameters and effects of word order variation. Doctoral thesis, Massachusetts Institute of Technology, Cambridge, MA.
- Vergnaud, Jean-Roger (1974): French relative clauses. Doctoral thesis, Massachusetts Institute of Technology, Cambridge, MA.
- de Vries, Mark (2002): The Syntax of Relativization. Doctoral thesis, University of Amsterdam.