

## Cyclicity and connectivity in Nez Perce relative clauses

Amy Rose Deal  
UC Santa Cruz  
ardeal@ucsc.edu

This paper studies two aspects of movement in relative clauses, focusing on evidence from Nez Perce. First, I argue that relativization involves cyclic A' movement, even in monoclausal relatives: the relative element moves to Spec,CP via an intermediate position in an A' outer specifier of TP. Cyclicity of this type suggests that the TP sister of relative C constitutes a phase – a result whose implications extend to an ill-understood corner of the English *that*-trace effect. Second, I argue that Nez Perce relativization provides new evidence for an ambiguity thesis for relative clauses, according to which some but not all relatives are derived by a head-raising analysis. The argument comes from connectivity and anticonnectivity in morphological case. These new data complement the range of standard arguments for head-raising, which draw primarily on connectivity effects at the syntax-semantics interface.

### 1 Introduction

Languages are oftentimes different not in the essentials of how they function, but in the ways they reveal and conceal different parts of their shared essential core. That finding is particularly clear in comparative work, where time and time again, a structure is discovered to be in common across two languages, only one of which reveals it clearly.

To pick a familiar example, English shows us rather straightforwardly the existence of a configurational clause structure wherein subjects are superior to objects and various modifiers – a fact at work in explaining immediately striking properties like SVO order, but also a range of more subtle effects. One such is the Condition C paradigm in (1), for instance; a name may be coindexed with a pronoun that precedes it only if that pronoun does not occupy a c-commanding position.

- (1) a. Mary<sub>i</sub> looked for her<sub>i</sub> son.  
b. \*She<sub>i</sub> looked for Mary<sub>i</sub>'s son.  
c. Mary<sub>i</sub>'s son looked for her<sub>i</sub>.  
d. Her<sub>i</sub> son looked for Mary<sub>i</sub>.

In languages where word order is more flexible, the most obvious effect of configurational clause structure is missing. That is the case in languages like Nez Perce, where any order of subject, verb and object is acceptable in a simple clause (Rude, 1992). Yet even here, as in many other languages with similar surface behaviors, the more subtle effects of configurational structure prove to be

present nevertheless. We see, for instance, exactly the same type of binding-theoretic asymmetries in this language as in English (1).<sup>1</sup>

- (2) a. Meeli<sub>i</sub> hi-pnim-sa 'ip-nim<sub>i</sub> coqoycoqoy-pa  
 Mary.NOM AGR-sleep-TAM 3SG-GEN tepee-LOC  
 Mary<sub>i</sub> is sleeping in her<sub>i</sub> tepee.
- b. \*pro<sub>i</sub> hi-pnim-sa Meeli-nm<sub>i</sub> coqoycoqoy-pa  
 pro<sub>subj</sub> AGR-sleep-TAM Mary-GEN tepee-LOC  
 She<sub>i</sub> is sleeping in Mary<sub>i</sub>'s tepee.
- c. Weet A.-nim<sub>i</sub> haacwal-nim pe-'pewi-se pro<sub>i</sub>?  
 Y.N A-GEN son-ERG AGR-look.for-TAM pro<sub>obj</sub>  
 Is A<sub>i</sub>'s son looking for her<sub>i</sub>?
- d. Weet 'ip-nim<sub>i</sub> haacwal-nim pe-'pewi-se A.<sub>i</sub>-ne?  
 Y.N 3SG-GEN son-ERG AGR-look.for-TAM A-ACC  
 Is her<sub>i</sub> son looking for A.<sub>i</sub>?

We also see constraints on word order re-emerging in multi-clausal examples. Material from the embedded clause surfaces to the right of main clause material.

- (3) a. Beth hi-neki-se [ Jill-nim pee-siw'e-nu' Matt-ne ]  
 Beth.NOM AGR-think-TAM [ Jill-ERG AGR-not.recognize-TAM Matt-ACC ]  
 Beth thinks Jill will not recognize Matt.<sup>2</sup>
- b. \*Beth **Jill-nim** hi-neki-se [ \_\_\_ pee-siw'e-nu' Matt-ne ]  
 Beth.NOM Jill-ERG AGR-think-TAM [ \_\_\_ AGR-not.recognize-TAM Matt-ACC ]  
 Beth thinks Jill will not recognize Matt.

The analytical path from observations like these is a familiar one. Nez Perce is just as configurational as English is in its core clausal structures; what is interesting is that it possesses auxiliary processes which may alter the order of major constituents internal to a clause. That is why Nez Perce does not wear its configurationality on its sleeve as English does.

The same type of comparative reasoning must also be applied in the opposite direction, of course. Just as the analysis of English and other languages can illuminate core structures also present in Nez Perce, so too we expect that the analysis of Nez Perce will reveal patterns which illuminate the analysis of English and other languages. That type of back-and-forth has after all played an enormously important role in the story of comparative syntax. In some cases this virtuous circle has allowed a choice to be made between competing analyses of some phenomenon – long-distance A' movement, for instance, where crucial evidence has come from languages like

<sup>1</sup> Nez Perce examples not attributed to a published source are from field research in Lapwai, ID, from 2007 to 2013. The judgments reported are those of Ms. Florene Davis and Ms. Bessie Scott.

The following abbreviations are used in Nez Perce glosses: ACC accusative case (equivalent to the case glossed as 'objective' in Crook (1999), Deal (2010a) et seq.), AGR agreement, AGT agentive nominalization, ATTRIB attributive, C complementizer, CAUSE causative, ERG ergative case, GEN genitive case, IMP imperative, INST instrumental case, LOC locative case, NOM nominative case, RP relative pronoun, TAM tense/aspect/mood, Y.N yes/no question particle,  $\mu$  functional head present in possessor raising (Deal, 2013b), 1SG (etc.) 1st person singular (etc.), 3REFL (etc.) 3rd person reflexive (etc.).

<sup>2</sup> Note that the verb *siw'e* 'not recognize' here is monomorphemic.

Irish (McCloskey, 1979), Chamorro (Chung, 1991) and recently Dinka (van Urk and Richards, to appear). In other cases it has led to entirely new directions for the analysis of familiar facts — Cable (2010)'s Tlingit-inspired analysis of English *wh*-questions being a recent case in point.

For an illustration of how Nez Perce syntax might illuminate the analysis of English, a prime candidate area is relative clauses. The immediate attraction of this area is that the two languages seem to be rather similar to one another. In both languages, relatives may modify NPs<sup>3</sup> which appear external to the relative CP — that is, relative clauses may have "external heads". They have relative pronouns on the left periphery, corresponding to a gap inside the CP. That makes it easy to suppose that Nez Perce (4)-(5) will have the essentially same structure as their English translations do. The difference in the order of verb and adverb in (5) presumably just follows from the general processes responsible for word order freedom within the Nez Perce clause.

- (4) lepit cepeepy'uŕtin' yoŕ ke Beth ha-ani-ya \_\_\_\_  
 two pie.NOM RP.NOM C Beth.NOM AGR-make-TAM \_\_\_\_  
 two pies that Beth made
- (5) picpic yoŕ ke kine \_\_\_\_ hi-pinmix-saqa  
 cat.NOM RP.NOM C here \_\_\_\_ AGR-sleep-TAM  
 the cat that was sleeping here

Indeed, at a first glance, the only point of difference in the relative structures themselves is that Nez Perce allows both the specifier and the head of CP to be overtly filled — which is to say that this language fortunately lacks one of the more anomalous and parochial properties of English.

Things change when we go beyond a first glance, of course, just as is usually the case. Nez Perce relative clauses are also different from English in that the relative pronoun may alternatively surface to the *right* of the complementizer:

- (6) lepit cepeepy'uŕtin' ke yoŕ Beth ha-ani-ya \_\_\_\_  
 two pie.NOM C RP.NOM Beth.NOM AGR-make-TAM \_\_\_\_  
 two pies that Beth made
- (7) picpic ke yoŕ kine \_\_\_\_ hi-pinmix-saqa  
 cat.NOM C RP.NOM here \_\_\_\_ AGR-sleep-TAM  
 the cat that was sleeping here

Note that these examples form minimal pairs with (4) and (5). Consultants perceive the variants to be interchangeable. Note also that the two positions for the relative pronoun are on opposite sides of the C head, and thus are not unambiguously within the same clause. That makes this alternation surprising not simply by comparison to English, but also internal to Nez Perce, since word order across clause boundaries in this language is not typically free.

The first part of this paper is addressed to the syntax of Nez Perce relatives with this alternation in mind. Because Nez Perce and English relatives are in many respects apparently similar, it makes sense to start on the former with the help of structures proposed for the latter. Among the plausible candidates are (8), representing a body of analyses wherein the head NP originates external to the

<sup>3</sup> This is the case at least for restrictive relatives, which are the focus of attention in this paper.

relative clause, along with (9), representing analyses involving head-raising.<sup>4</sup>

- (8) [<sub>NP</sub> house [<sub>CP</sub> (which/Op) (that) [<sub>TP</sub> Jack built <which/Op> ]]]]
- (9) [<sub>NP</sub> house [<sub>CP</sub> [<sub>DP</sub>(which/Op) <house>] (that) [<sub>TP</sub> Jack built <which/Op house> ]]]]

Such structures will have to be modified in some way to allow for the word order in (6)/(7). It turns out that a case can be made for a very simple type of modification. If we take seriously the possibility that intermediate copies are sometimes pronounced, the modification can be as simple as positing an intermediate stopping place of A' movement in the outer Spec of TP in the relative clause. That in turn would be a candidate for an aspect of the core structure of relative clauses, shared across languages. We would then expect the candidate structures for English relatives to look as so:

- (10) [<sub>NP</sub> house [<sub>CP</sub> which/Op (that) [<sub>TP</sub> <which/Op> [<sub>TP</sub> Jack built <which/Op> ]]]]
- (11) [<sub>NP</sub> house [<sub>CP</sub> [<sub>DP</sub>which/Op <house>] (that) [<sub>TP</sub> <which/Op house> [<sub>TP</sub> Jack built <which/Op house> ]]]]

The intermediate step in A' movement would be an aspect of relative clause structure shared across Nez Perce and English – yet only Nez Perce would announce the structure directly by way of word order possibilities.

Just as in the case of configurationality, there are important follow-up questions to be asked. If Nez Perce reveals a core structure which is shared with English, we expect to see evidence of that structure within English itself, even if in some subtle form. It turns out that English provides us exactly the evidence we seek, in the form of an old puzzle about *that*-trace effects. These effects are notably absent in the immediate environment of relative C (Bresnan, 1972).

- (12) a. the farm that \_\_ grew the rutabaga  
b. Machines \*(that) \_\_ add have been used for thousands of years.

The finding turns out precisely as expected, once the general theory of *that*-trace effects from Pesetsky and Torrego (2001) is combined with the analyses in (10)/(11). Just as before, the facts of word order in one language point the way to an understanding of more subtle types of effects in another language. The difference from the configurationality example is only that the roles of Nez Perce and English have been reversed.

In this first case the Nez Perce facts push us to a new analysis of English relative clauses – or rather, two new analyses, if we consider both non-head-raising (10) and head-raising (11) as live options on the table. The choice between analyses like these is a standing point of controversy in

<sup>4</sup> Both analyses are to be understood as representative of a family of approaches. A notable variant of the externally-headed analysis, for instance, is the ‘matching’ approach characteristic of early generative work (see Stockwell, Schachter, and Partee 1973, ch 7, Vergnaud 1974, ch 1), more recently updated and defended by Sauerland (1998). A variety of versions of the head-raising analysis may be found in Vergnaud 1974, Kayne 1994, Āfarli 1994, Bianchi 1999, 2000a,b, and Bhatt 2002.

the relative clause literature, of course, and we ought to ask in addition if the Nez Perce facts can help us resolve it. This is the aim of the second part of the paper.

There are three main points of view to be considered. One has a vocal proponent in Kayne 1994, and has been subsequently developed in depth by Bianchi (1999, 2000a,b). It maintains that relative clauses always involve a head-raising step, wherein the NP ultimately modified by the relative clause moves from within the relative CP. In present terms, this would favor exclusively a structure like (11). The second point of view is directly the opposite, maintaining a CP-external origin for the relative clause head and rejecting all forms of head raising; this has been defended by Borsley (1997). This would favor exclusively a structure like (10). The third approach maintains both head-raising and non-head-raising structures, in present terms adopting both (10) and (11) as viable analyses. On this approach, relative clauses are often structurally ambiguous. That conclusion has been defended on a variety of grounds by Áfarli (1994), Bhatt (2002), Szczegielniak (2006) and Hulsey and Sauerland (2006).

The primary way the Nez Perce facts speak to this debate is through patterns of morphological case-marking. In certain syntactic contexts, the NP heads of relative clauses show case connectivity – they surface, that is, in a morphological case which could only have been determined internal to the relative clause. One such example is (13), where the head noun surfaces in the accusative case.

- (13) [<sub>DP</sub> **samâx-na** ko-nya kex *pro*<sub>subj</sub> 'a-sayqi-ca \_\_\_\_ ]<sub>1</sub>,  
 [ shirt-ACC RP-ACC C *pro*<sub>subj</sub> AGR-like-TAM \_\_\_\_ ],  
 mine *pro*<sub>1</sub> hii-we-s ?  
 where *pro*<sub>subj</sub> AGR-be-TAM  
 The shirt that I like, where is it?

The case pattern here is one discussed by Bianchi (1999) as key evidence for the head-raising approach. This is not the only type of case pattern available in Nez Perce, however. It turns out that the very same syntactic contexts which support the case pattern in (13) also support a pattern where the head NP behaves for purposes of case as though it was generated *outside* the relative clause. This speaks to the position of those who have defended both head-raising structures, like (11), and non-head-raising alternatives, such as (10), as co-existing possibilities for relative clauses. Where before, Nez Perce relatives pushed the analysis of English relatives in a new direction, in this case they contribute to the resolution of an ongoing debate. With its rich system of case-marking, Nez Perce is again forthright where English is taciturn on the proper analysis of a core syntactic structure.

## 2 The basics

At this point the heavy lifting can begin. We should first acquaint ourselves with the fundamentals of Nez Perce relative structure.

As in English, externally headed relative clauses in Nez Perce always occur to the right of the external head – *samâx* ‘shirt’ in (14), *picpic* ‘cat’ in (15). There is a corresponding gap in the relative clause. The (a) and (b) examples vary the relative order of the complementizer and relative pronoun. (The precise form of the complementizer – e.g. *ke*, *kex*, *kem* – is discussed in section 3.)

- (14) a. Mine hii-we-s samâx **ko-nya kex** *pro*<sub>subj</sub> 'a-sayqi-ca \_\_\_\_ ?  
 where AGR-be-TAM shirt.NOM RP-ACC C *pro*<sub>subj</sub> AGR-like-TAM \_\_\_\_

Where is the shirt that I like?

- b. Mine hii-we-s samx̂ **kex ko-nya** *pro<sub>subj</sub>* 'a-sayqi-ca \_\_\_\_?  
 where AGR-be-TAM shirt.NOM C RP-ACC *pro<sub>subj</sub>* AGR-like-TAM \_\_\_\_  
 Where is the shirt that I like?
- (15) a. Mine hii-we-s picpic **ko-nim kex** \_\_\_\_ hi-ip-e'ni-s *pro<sub>obj</sub>* cuu'yem?  
 where AGR-be-TAM cat.NOM RP-ERG C \_\_\_\_ AGR-eat- $\mu$ -TAM *pro<sub>obj</sub>* fish.NOM  
 Where is the cat that ate my fish?<sup>5</sup>
- b. Mine hii-we-s picpic **kex ko-nim** \_\_\_\_ hi-ip-e'ni-s *pro<sub>obj</sub>* cuu'yem?  
 where AGR-be-TAM cat.NOM C RP-ERG \_\_\_\_ AGR-eat- $\mu$ -TAM *pro<sub>obj</sub>* fish.NOM  
 Where is the cat that ate my fish?

The gap may be found one or more clauses away from the relative head. This behavior, too, holds irrespective of relative pronoun placement, as attested by the (a) and (b) examples.<sup>6</sup>

- (16) a. kii hii-we-s 'iniit [<sub>CP</sub> yox̂ **ke** Jack hi-hi-ce  
 this.NOM AGR-be-TAM house.NOM [ RP.NOM C Jack.NOM AGR-say-TAM  
 [<sub>CP</sub> 'iin hani-ya \_ ] ]  
 [ 1SG.NOM make-TAM \_ ] ]  
 This is the house that Jack says he built<sup>7</sup>
- b. Meeli hii-we-s lamt'ay' sepeehitemenew'eet  
 Mary.NOM AGR-be-TAM final teacher.NOM  
 [<sub>CP</sub> **ke ko-nya** Taamsas-nim 'ee hi-tamtay-caqa  
 [ C RP-ACC T-ERG 2SG.CLITIC AGR-tell-TAM  
 [<sub>CP</sub> *pro<sub>subj</sub>* 'a-k-caqa \_ ] ]  
 [<sub>CP</sub> *pro<sub>subj</sub>* AGR-see-TAM \_ ] ]  
 Mary is the final teacher that Taamsas told you she saw.

Relative clauses give rise to island effects of the familiar kinds. Relativization itself shows sensitivity to various islands – a coordinate structure in (17), for instance.

- (17) \* Míne hii-we-s picpic ke yox̂ [kii 'eekeex kaa \_\_\_\_] hi-w-siix  
 where AGR-be-TAM cat.NOM C RP.NOM [this magpie.NOM and \_\_\_\_] AGR-be-TAM  
 kushtite?  
 same.size  
 Where is the cat that this magpie and \_\_\_\_ are the same size?

Relativization out of an adjunct clause shows the subject/object asymmetry at one point attributed to the ECP. The object of a clausal adjunct may be relativized, but the subject may not.

<sup>5</sup> This example involves object possessor raising within the relative clause; the verbal morpheme  $\mu$  is a symptom. See Deal (2013b).

<sup>6</sup> Note that Nez Perce allows two case patterns in transitive clauses: NOM-NOM and ERG-ACC. These occur in the most deeply embedded clauses in (16a) and (16b), respectively, with the result that the object relative pronoun bears NOM in (16a) and ACC in (16b). On the case patterns of Nez Perce, see Deal (2010b, ch 5-8).

<sup>7</sup> The subject of the most deeply embedded clause here is a shifty indexical. See Deal (2013a).

- (18) a. cepeepy'uŋtin' hipt hii-we-s yoŋ kex *pro<sub>subj</sub>* liloy-no'qa  
 pie.NOM food.NOM AGR-be-TAM RP.NOM C *pro* be.happy-TAM  
 [ c'alawí *pro<sub>subj</sub>* hani-yo'qa \_\_\_ ]  
 [ if *pro* make-TAM \_\_\_ ]  
 Pie is a food that I would be happy if I could make \_\_\_.<sup>8</sup>
- b. \*'isii hii-we-s haama kem ko-nim *pro<sub>subj</sub>* liloy-no'qa  
 who AGR-be-TAM man.NOM C RP-ERG *pro<sub>subj</sub>* be.happy-TAM  
 [ c'alawí \_\_\_ paa-ni-yo'qa cepeepy'uŋtiis-ne ]?  
 [ if \_\_\_ AGR-make-TAM pie-ACC \_\_\_ ]  
 Who is the man that you would be happy if \_ made pies?

And the relative clause constitutes an island for additional A' movement.

- (19) \*'ituu<sub>1</sub> *pro<sub>subj</sub>* 'e-'pewi-se 'aayat-ona [<sub>CP</sub> yoŋ<sub>2</sub> ke \_\_\_<sub>2</sub>  
 what *pro<sub>subj</sub>* AGR-look.for-TAM woman-ACC [<sub>CP</sub> RP.NOM C \_\_\_<sub>2</sub>  
 ha-ani-tato \_\_\_<sub>1</sub> ]?  
 AGR-make-HAB \_\_\_<sub>1</sub> ]  
 What<sub>1</sub> are you looking for the woman who makes \_\_\_<sub>1</sub>?

Once again, these behaviors appear to be insensitive to the relative pronoun's position.

Relative clauses may be stacked on a single head in the familiar way. This is possible even in cases where the two relatives differ in relative pronoun placement.

- (20) sepe-x-nim *pro<sub>obj</sub>* cepeeletp'et [<sub>CP</sub> yoŋ **kem** *pro<sub>subj</sub>* hanii-ya \_\_\_ ]  
 CAUSE-see-TAM *pro<sub>obj</sub>* picture.NOM [ RP.NOM C *pro<sub>subj</sub>* make-TAM \_\_\_ ]  
 [<sub>CP</sub> **kex ko-nya** *pro<sub>subj</sub>* 'a-sayqi-ca \_\_\_ ]  
 [ C RP-OBJ *pro<sub>subj</sub>* AGR-like-TAM \_\_\_ ]  
 Show me the picture that you made that I like.

Finally, a note on relative clause interpretation is in order. For the examples we have seen so far, the translations accepted and produced by consultants are suggestive of a restrictive interpretation. In contexts where this type of interpretation is clearly favored, both positions for the relative pronoun continue to be possible.

- (21) Context: I want a cat that can kill mice, since my own cats don't do that.
- a. *pro<sub>subj</sub>* wewluq-se picpic yoŋ ke \_\_\_ hii-we-s ta'c cepeqick-e'weet  
*pro<sub>subj</sub>* want-TAM cat.NOM RP.NOM C \_\_\_ AGR-be-TAM good catch-AGT  
 laqas-na  
 mouse-ACC  
 I want a cat that is a good mouse-catcher.
- b. *pro<sub>subj</sub>* wewluq-se picpic ke yoŋ \_\_\_ hii-we-s ta'c cepeqick-e'weet  
*pro<sub>subj</sub>* want-TAM cat.NOM C RP.NOM \_\_\_ AGR-be-TAM good catch-AGT  
 laqas-na  
 mouse-ACC  
 I want a cat that is a good mouse-catcher.

<sup>8</sup> Note that the relative clause is extraposed in this example.

These data are indicative of the more general fact that consultants do not perceive a semantic difference corresponding with relative pronoun position.

Overall, this body of facts suggests a structure for Nez Perce restrictive relatives which mirrors their English cousins in key respects. Relativization involves unbounded, island-sensitive filler-gap dependencies – i.e. A'-movement. Nez Perce makes it relatively clear what is undergoing this movement, since it overtly morphologically marks its relative pronouns for the case associated with the A' gap. That is accusative in (22), ergative in (23), and nominative in (24).<sup>9</sup> (On the intricacies of case-marking in Nez Perce, see Deal 2010a,b.)

- (22) Mine hii-we-s sam̂ ko-nya kex *pro<sub>subj</sub>* 'a-sayqi-ca \_\_\_\_?  
 where AGR-be-TAM shirt.NOM RP-ACC C *pro<sub>subj</sub>* AGR-like-TAM \_\_\_\_  
 Where is the shirt that I like?

- (23) Mine hii-we-s picpic ko-nim kex \_\_\_\_ hi-ip-e'ni-s *pro<sub>obj</sub>* cuu'yem?  
 where AGR-be-TAM cat.NOM RP-ERG C \_\_\_\_ AGR-eat-μ-TAM *pro<sub>obj</sub>* fish.NOM  
 Where is the cat that ate my fish?

- (24) Mine hii-we-s picpic yô ke kine \_\_\_\_ hi-pinmix-saqa?  
 where AGR-be-TAM cat.NOM RP.NOM C here \_\_\_\_ AGR-sleep-TAM  
 Where is the cat that was sleeping here?

The connection between the gap position and the case of the relative pronoun may be handled by treating the pronoun as an operator DP which moves to the specifier of relative C. Alternatively, the relative pronoun may be treated as an operator D which carries the head NP to the edge of CP, from which the NP subsequently raises. That makes for analyses like (25) and (26), respectively, for example (22).

- (25) [<sub>NP</sub> sam̂ [<sub>CP</sub> konya kex [<sub>TP</sub> *pro* 'asayqica <konya> ]]]]

- (26) [<sub>NP</sub> sam̂ [<sub>CP</sub> [<sub>DP</sub> konya <sam̂>] kex [<sub>TP</sub> *pro* 'asayqica <konya sam̂> ]]]]

And indeed these possibilities are simply what we have seen for English relatives in (8) and (9).

<sup>9</sup> Note that there is no apparent difference in Nez Perce between A' movement of ergatives and non-ergatives. This pattern makes Nez Perce a "morphologically ergative" language in the sense of Dixon (1979) and Bittner and Hale (1996). In both a subject question like (i) and a non-subject question like (ii), the verb is expressed in its ordinary transitive form. The same holds in relativization: verbs surface in their ordinary transitive form, regardless of which argument is relativized.

- (i) 'itu-nm pee-p-tetu ɬepɬep-ne?  
 what-ERG AGR-eat-TAM butterfly-ACC  
 What eats butterflies?
- (ii) 'ituu-ne ɬepɬep-nim pee-p-tetu?  
 what-ACC butterfly-ERG AGR-eat-TAM  
 What do butterflies eat?

This is in contrast to the pattern in "syntactically ergative" languages like Kalaallisut (a.k.a. West Greenlandic; Bittner 1994), Chuckchi (Comrie, 1979) and Mam (England, 1983), where ergative arguments cannot be A' moved in clauses with standard transitive verbal inflection. See Deal (2014) for a survey of this type of effect.



We are now nearly ready to train our guns on the alternative order of complementizer and relative pronoun – an order not yet handled by the structures in (25)/(26). But before we undertake that task, we should spend a moment exploring an additional aspect of the Nez Perce relative which proves to play an important role. That is the relative complementizer *ke*.

### 3 Features of the complementizer

Thus far we have seen one major part of the distribution of complementizer *ke* – it occurs in a left-peripheral position in relative clauses. The other major place where *ke* appears is in interrogatives, where it surfaces with the *wh*-word to its immediate left. In this environment, *ke* is typically optional, as we see most directly in (28).

- (27) 'ituu        ke-x *pro<sub>subj</sub>* hipi-se \_\_\_\_?  
       what.NOM C-1 *pro<sub>subj</sub>* eat-TAM \_\_\_\_  
       What am I eating?
- (28) 'isii-nm (ke-m) \_\_\_\_ hi-wapayata-yo' *pro<sub>obj</sub>*  
       who-ERG (C-2) \_\_\_\_ AGR-help-TAM *pro<sub>obj</sub>*  
       Who is going to help you?

In connection with these facts it must be noticed that *ke* is a word showing a small amount of inflection. It shows agreement with first and second person arguments in the clause below it, thus taking the suffix *-x*, for first person, in (27), and *-m*, for second person, in (28). When both first and second person arguments are locally available, *ke* may agree with both, taking the multisyllabic form *kemex*:

- (29) 'ituu        ke-m-ex *pro<sub>subj</sub>* 'inii-yo'qa *pro<sub>obj</sub>* \_\_\_\_?  
       what.NOM C-2-1 *pro<sub>subj</sub>* give-TAM *pro<sub>obj</sub>* \_\_\_\_  
       What could I give you?

Exactly the same pattern emerges in relative clauses. Here, too, the complementizer may be relatively phonologically simple, or quite complex, depending on the extent of its agreement. We see this in the forms in (30). These range from merely *ke*, where first and second persons are lacking, to *kemex*, in the case where both are present.

- (30) a. cickan        yoŋ        **ke** Beth-nim pe-'en-ye        Linde-ne \_\_\_\_  
       blanket.NOM RP.NOM C-1 Beth-ERG AGR-give-TAM Lindy-ACC \_\_\_\_  
       the blanket that Beth gave to Lindy
- b. cickan        yoŋ        **ke-x** *pro<sub>subj</sub>* 'eneec-'nii-ye *pro<sub>obj</sub>* \_\_\_\_  
       blanket.NOM RP.NOM C-1 *pro<sub>subj</sub>* AGR-give-TAM *pro<sub>obj</sub>* \_\_\_\_  
       the blanket that I gave to them
- c. cickan        yoŋ        **ke-m** *pro<sub>subj</sub>* mamay'as-na 'eneec-'nii-ye \_\_\_\_  
       blanket.NOM RP.NOM C-2 *pro<sub>subj</sub>* children-ACC AGR-give-TAM \_\_\_\_  
       the blanket that you gave to the children
- d. cickan        yoŋ        **ke-m-ex** *pro<sub>subj</sub>* 'inii-ye *pro<sub>obj</sub>* \_\_\_\_  
       blanket.NOM RP.NOM C-2-1 *pro<sub>subj</sub>* give-TAM *pro<sub>obj</sub>* \_\_\_\_  
       the blanket that I gave to you

This agreement system is discussed in depth in Deal (2013c) and Deal and Tucker (In prep), where a preliminary analysis is proposed for it. The pattern is relevant here simply because it helps to clarify the relationship between various syntactic properties of Nez Perce relatives and the phonological behavior of the complementizer. The possibility of quite complex complementizer forms, as in (30d), suggests in particular that the complementizer is most likely not itself a clitic element whose position might be determined otherwise than in narrowly syntactic terms.

With these remarks in mind, for the project of this paper we can henceforth simply abstract away from agreement morphology as we proceed to inquire generally into the distribution of *ke*.

The striking thing about that distribution is that *ke* appears to be connected in an intimate way with A' movement. This complementizer does not appear in non-relative declarative clauses, whether matrix or embedded. These lack any overt exponent of C.

- (31) Beth        hi-neki-se        [<sub>CP</sub> Jill-nim pee-siw'e-nu'        Matt-ne ]  
 Beth.NOM AGR-think-TAM [ Jill-ERG AGR-not.recognize-TAM Matt-ACC ]  
 Beth thinks Jill won't recognize Matt.
- (32) Watiisx    'aayato-nm pee-Ø-ne        saykiptaw'atoo-na [<sub>CP</sub> ta'c *pro*<sub>subj</sub>  
 yesterday lady-ERG AGR-tell-TAM doctor-ACC        [ good *pro*<sub>subj</sub>  
 'ipnee-tewyek-ce ]  
 3REFL-feel-TAM ]  
 Yesterday the lady told the doctor she was feeling well.

Nor does it appear in yes/no questions, which are introduced by the word *weet*.

- (33) Weet cicyukiis-iin' *pro*<sub>subj</sub> hii-we-s?  
 Y.N sugar-ATTRIB *pro*<sub>subj</sub> AGR-be-TAM  
 Is it sweetened?
- (34) Weet kii        haama        ha-anii-ya        yoŋ        coqoycoqoy?  
 Y.N this.NOM man.NOM AGR-make-TAM that.NOM tepee.NOM  
 Did this man make that tepee?

Such facts suggest that *ke* is a complementizer morphologically specified for A' movement contexts.

Such specialization is a famous property of Irish, of course. In Irish, the leniting complementizer *aL* appears in every embedded clause along the path of A' movement (McCloskey 1979 et seq.). Thus C is marked the same way in Irish whether A' movement terminates in its specifier or merely moves through it cyclically on its way to a higher landing site.

- (35) cuid den fhilíocht [a] chualaís ag do sheanmháthair á rá [a] cheap an  
 some-of-the poetry aL heard [S2] by your grandmother being-said aL composed the  
 sagart úd —  
 priest DEM  
 some of the poetry that you heard your grandmother saying that that priest composed (McCloskey, 2002, 185)

McCloskey (2002) takes this pattern to show that the same featural manipulations take place in Spec,CP all along the path of A' movement. If movement to the highest Spec,CP is feature-driven,

then movement to intermediate Spec,CPs must be feature-driven as well. In correspondence with the substantive [wh] feature found on C at the top of the A' chain, purely formal [wh] features occur on C heads lower down on the path of A' movement.<sup>10</sup>

These facts and this analysis underline both a similarity and a difference with the situation in Nez Perce. Nez Perce is like Irish in using a special complementizer at the top of an A'-dependency, suggesting that the morphology of C in both languages is sensitive to the feature [wh]. Where the two languages differ is in the morphology of lower Cs along the extraction path. Unlike Irish *aL*, Nez Perce *ke* is possible only in the clausal periphery in which A' movement terminates. In interrogatives, it may appear directly after the *wh*-word on the left periphery, but it never appears in embedded clauses along the path of extraction. In relative clauses, similarly, *ke* appears in the highest CP, but does not occur in lower clauses.

- (36) *kii hii-we-s 'iniit [CP yo& ke Jack ha-ani-ya \_\_\_\_]*  
 this.NOM AGR-be-TAM house.NOM [ RP.NOM C Jack.NOM AGR-make-TAM \_\_\_\_ ]  
 This is the house that Jack built
- (37) *kii hii-we-s 'iniit [CP yo& ke Jack hi-hi-ce*  
 this.NOM AGR-be-TAM house.NOM [ RP.NOM C Jack.NOM AGR-say-TAM  
*[CP \_\_\_\_ & [ 'iin hani-ya \_\_\_\_ ] ]*  
*[ \_\_\_\_ C [ 1SG.NOM make-TAM \_\_\_\_ ] ]*  
 This is the house that Jack says he built

The generalization is that *ke* appears in C only when a substantive [wh] feature is present. A merely formal [wh] feature is not enough.

It is worth standing back at this point to observe how this set of facts fits in to a larger typology of morphological sensitivity to the feature [wh]. While the Nez Perce pattern of special realization only for substantive [wh] diverges from Irish, it matches quite closely the pattern in a diverse set of other languages. Chung (1998, ch 6) shows the same pattern in Chamorro, for instance: C takes on special forms when A' movement terminates in its specifier, but mere cyclic movement through the specifier is not enough to trigger a special form of C. That suggests that the morphology of C is sensitive only to substantive [wh] features.<sup>11</sup> In Hausa, where [wh] features affect the morphology of an inflectional, auxiliary-like head, the pattern emerges once again. The *wh*-form appears in the clause where A' movement terminates, but not in lower clauses along the path of extraction (Green and Reintges, 2001). In both of these additional cases, morphological markings are sensitive not just to the [wh] feature *tout court*, but to status of that feature as substantive rather than purely formal.

#### 4 Back to positions for relative pronouns

The analysis of *ke* takes on a special significance when we return to pairs like (38) and (39), which vary the relative position of the complementizer and relative pronoun. We now understand why *ke* should appear in cases where the relative pronoun surfaces in Spec,CP (the (a) examples); C bears

<sup>10</sup> This way of describing the two types of features follows Rizzi (2006).

<sup>11</sup> Interestingly enough, Chamorro is also morphologically sensitive to [wh] on its verbs themselves, and here the Irish-type pattern is found: all [wh] features, formal or substantive, trigger the [wh] form of the verb. See Chung (1998).

a substantive [wh] feature responsible for movement to this position. The presence of *ke* in the (b) examples is more curious and more telling.

- (38) a. samâ **ko-nya kex** *pro<sub>subj</sub>* 'a-sayqi-ca \_\_\_\_  
 shirt.NOM RP-ACC C *pro<sub>subj</sub>* AGR-like-TAM \_\_\_\_  
 the shirt that I like
- b. samâ **kex ko-nya** *pro<sub>subj</sub>* 'a-sayqi-ca \_\_\_\_  
 shirt.NOM C RP-ACC *pro<sub>subj</sub>* AGR-like-TAM \_\_\_\_  
 the shirt that I like
- (39) a. picpic **yoâ ke** kine \_\_\_\_ hi-pinmix-saqa  
 cat.NOM RP.NOM C here \_\_\_\_ AGR-sleep-TAM  
 the cat that was sleeping here
- b. picpic **ke yoâ** kiney \_\_\_\_ hi-pinmix-saqa  
 cat.NOM C RP.NOM right.here \_\_\_\_ AGR-sleep-TAM  
 the cat that was sleeping right here

In all of these examples, C has a morphological form indicative of A' movement to Spec,CP. In the (b) examples, however, the piece which we would expect to surface in the specifier position appears lower down in the relative clause.

This case is not without parallel in the literature on [wh] morphology. There is a clear similarity to a pattern of *wh*-agreement in Coptic, which has been discussed by Chris Reintges and colleagues in a series of papers (Green and Reintges 2001, Reintges, LeSourd, and Chung 2006, Reintges 2007). In Coptic, as in Nez Perce, C takes a special form in environments where we expect A' movement to terminate in its specifier.<sup>12</sup> This is the so-called "relative" form of C. What is special about the relative form of C is that it co-occurs with a pattern of *wh*-in-situ in interrogatives: the *wh*-word surfaces not in Spec,CP, as expected, but in its base position. In the following examples the matrix C takes the relative form, whereas the *wh*-word remains embedded in a lower clause.

- (40) a. **ere** əm-mεεše čə əmmo-s [ čə ang nim ]  
 REL(-PRES) DEF.PL-crowd say PREP-3SG.F [ C I who ]  
 Who is the crowd saying that I am?
- b. **ənt-a-tetən-ei** eβol e-t-eṛemos [ e-nau e-u ]  
 REL-PERF-2PL-come PCL to-DEF.SG.F-desert [ to-see.INF at-what ]  
 What have you come out of the desert to see?
- (Reintges, 2007, 270)

Once again there is a tension between the analysis of morphology on C, which plausibly involves substantive [wh] features of the sort found in A' movement, and the position of the item which we expect to undergo that A' movement. Reintges et al. (2006) and Reintges (2007) resolve the tension by proposing that A' movement does indeed take place in the syntax in examples like (40). The *wh*-word nevertheless surfaces in situ due to the way the resulting A' chain is pronounced. Phonological interpretation singles out the lowest copy in the chain for pronunciation; the copy in matrix Spec,CP in (40) remains syntactically present, but phonologically unrealized.

<sup>12</sup> Speaking simply of C here is a bit of a simplification, abstracting away from various factors which support a more articulated C system in Coptic.

This line of thinking can be extended to our Nez Perce puzzle with only a small change. In Nez Perce, a copy other than the one in Spec,CP is pronounced, but this is not the copy in the base position. Especially revealing on this point are examples like (38b), where the object is relativized, along with examples like (41). Here the relative pronoun is pronounced below Spec,CP, but outside the clause in which it originates.

- (41) lamt'ay' sepeehitemenew'eet [<sub>CP</sub> ke **ko-nya** Taamsas-nim 'ee hi-tamtay-caqa  
 final teacher.NOM [<sub>CP</sub> C RP-ACC T-ERG 2SG AGR-tell-TAM  
 [<sub>CP</sub> *pro*<sub>subj</sub> 'a-k-caqa \_\_\_\_ ]]  
 [<sub>CP</sub> *pro*<sub>subj</sub> AGR-see-TAM \_\_\_\_ ]]  
 the final teacher that Taamsas told you she saw \_\_\_\_

The pronounced copy seems to be, in other words, in an intermediate position. This is presumably an A' position; it can be obtained by movement out of a finite clause. The precise location of this position is immediately below relative C and immediately above the subject of the relative clause; a prime candidate is the outer specifier of relative C's TP sister. That would point to a structure like (42) for the relative clause of (41).<sup>13</sup>

- (42) [<sub>CP</sub> <konya><sub>1</sub> ke [<sub>TP</sub> **ko-nya**<sub>2</sub> [<sub>TP</sub> Taamsas-nim 'ee hi-tamtay-caqa  
 [<sub>CP</sub> <RP-ACC> C<sub>[wh]</sub> [<sub>TP</sub> RP-ACC [<sub>TP</sub> T-ERG 2SG AGR-tell-TAM  
 [<sub>CP</sub> <konya><sub>3</sub> Ø [<sub>TP</sub> *pro*<sub>subj</sub> 'a-k-caqa <konya><sub>4</sub> ]]]]  
 [<sub>CP</sub> <RP-ACC> C<sub>[wh]</sub> [<sub>TP</sub> *pro*<sub>subj</sub> AGR-see-TAM <RP-ACC> ]]]]

Here the various copies are numbered for ease of reference. Copy 1 sits in Spec,CP, as forced by the substantive [wh] feature on the C realized as *ke*. Copy 2 is the pronounced copy in outer Spec of the TP complement to relative C – an intermediate A' position. Copy 3 is an intermediate copy on the edge of the embedded CP, forced by the formal [wh] feature on the lower C. Copy 4 is in the base position.

The major upshot of this analysis is that the difference between pairs like (38) and (39) is ultimately a phonological one. The choice point is not in the syntactic structure of A' chains, but in which copy of the chain is pronounced. The pair in (38) has the structure in (43), for instance, with its two options for phonological interpretation.

- (43) a. samx̂ [<sub>CP</sub> **ko-nya** kex [<sub>TP</sub> <konya> [<sub>TP</sub> *pro*<sub>subj</sub> 'a-sayqi-ca <konya> ]]]  
 shirt [<sub>CP</sub> RP-ACC C [<sub>TP</sub> <RP-ACC> [<sub>TP</sub> *pro*<sub>subj</sub> AGR-like-TAM <RP-ACC> ]]]  
 the shirt that I like  
 b. samx̂ [<sub>CP</sub> <konya> kex [<sub>TP</sub> **ko-nya** [<sub>TP</sub> *pro*<sub>subj</sub> 'a-sayqi-ca <konya> ]]]  
 shirt [<sub>CP</sub> <RP-ACC> C [<sub>TP</sub> RP-ACC [<sub>TP</sub> *pro*<sub>subj</sub> AGR-like-TAM <RP-ACC> ]]]  
 the shirt that I like

Option (43a) is the familiar case of pronunciation of the topmost member of the chain. Option (43b) is the Coptic-style case. The morphology of C shows the topmost member of the chain to be syntactically present, but a lower copy is what is actually pronounced.

<sup>13</sup> Here and in (43), for simplicity, I present only the simple non-head-raising analysis; the head-raising analysis would have a copy of the head NP serving as the sister to each copy of the relative pronoun. (So too would the matching analysis referenced in footnote 4.)



not freely available (Deal, 2011). Both facts suggest that the copy pronunciation algorithm for this language obeys a familiar constraint:

(47) Pronounce Highest Copy! (PHC)

In just the familiar way, regular obedience to this constraint is a boon to the learner, who is able to use the surface position of elements as a guide to their semantic scope. In the case of possessors, however, obedience to the PHC diminishes the body of evidence showing the effects of a language-particular morphological rule, (46). Such rules vary widely from language to language, and learners presumably require substantial evidence to acquire them. Perhaps the pressure to produce such evidence underlies a competing constraint, which in this case favors the pronunciation of the lower copy:

(48) Apply Morphological Rules Overtly! (AMRO)

The conflict between these constraints must be adjudicated in keeping with economy conditions on chain pronunciation; no more than one copy of an element may be pronounced. The result is that speakers are forced to choose between two ways of pronouncing the chain produced by possessor raising. One way obeys the PHC constraint, and results in movement that is overt. The other way obeys the AMRO constraint, and results in covert movement.

This proposal makes a key prediction for relative clauses. If lower copies become optionally available for pronunciation only when they provide the context for overt operation of some morphological rule, we should see a morphological difference between relative pronouns in Spec,TP and in Spec,CP.

The prediction is borne out: in its lower position, the relative pronoun forms a phonological word with the complementizer. The clearest signal that word-formation has taken place comes from vowel harmony, a phonological process operative at the word level in Nez Perce.<sup>15</sup> The complementizer and the relative pronoun may behave as a harmony domain only in cases where the relative pronoun occupies the low position. It is harmony that explains why the complementizer takes form *ka*, instead of *ke*, in (49).

- (49) *pro<sub>subj</sub>* hi-pe-quyim-ne teŋsem **ka kona** *pro<sub>subj</sub>* hi-tkuliik-cine  
*pro<sub>subj</sub>* AGR-climb-TAM ridge.NOM C RP.LOC *pro<sub>subj</sub>* AGR-hunt-TAM

Then they went up the ridge where they had been hunting (Aoki and Walker, 1989, 552)

Harmony follows straightforwardly here if a merger rule has first applied, bringing the complementizer and relative pronoun together into a phonological word. Merger, that is, feeds harmony. (50) records a hypothesis about the form of the merger rule.

- (50) [ C [TP [DP RP → [ C+RP [TP [DP

(50) could be considered a rule of local dislocation in Embick and Noyer's terms (2001). The precise form of the rule, however, is not so crucial as its mere existence. Its existence explains why AMRO should apply in the case of relative pronouns: when the highest copy is pronounced, that bleeds the overt application of a rule like (50). That in turn explains why copies of relative pronouns in Spec,TP should be eligible for pronunciation, even though these copies are not the topmost members of their respective chains.

<sup>15</sup> Vowel harmony applies both progressively and regressively in this language. For discussion, see Deal and Wolf to appear, and references there.

## 5 Locality domains and *that*-trace effects

The result of the previous section is that relative pronouns surface in two A' positions in the Nez Perce relative clause: Spec,CP and an A' outer specifier of TP. If we are on the right track so far, these are two stops along the A' chain formed by movement of the relative DP. We have come to conclude that even simple cases of relativization in this language feature A' movement in two steps.

Of course, in a broader view, the existence of relative clauses derived by multiple instances of A' movement is hardly controversial. This is the analysis typically extended to multiclausal relatives such as Irish (35), or its English translation.

- (35) cuid den fhilíocht [a] chualaís ag do sheanmháthair á rá [a] cheap an  
 some of-the poetry aL heard [S2] by your grandmother being-said aL composed the  
 sagart úd —  
 priest DEM  
 some of the poetry that you heard your grandmother saying that that priest composed (McCloskey, 2002, 185)

One consequence of the present analysis is a deepened similarity between short and long relative clauses. Both involve A' movement proceeding in a cyclic fashion to the specifier of relative C, making one or more stops in A' specifiers along the way.

That parallel suggests an answer to an important question we must now address. *Why* must the relative DP move through TP on its way to CP? The theory of locality holds the answer, if long relatives like (35) are any guide. Cyclic movement applies in long relatives to bring the relative DP out of a succession of phasal categories; it is to this end that purely formal [wh] features are able to appear on phase heads along the way (Chomsky 2000, McCloskey 2002). If the same motivation drives cyclic A' movement in short relatives, that tells us something interesting about the structure of locality domains in relative clauses:

- (51) *Lower Phase Conjecture* (LPC)  
 The TP sister of relative C is a phase.

It is the need to escape the TP phase that leads to the intermediate step of A' movement discovered in the previous section. And if this is true for Nez Perce, the strongest and most interesting hypothesis is that it is true for all languages. There is a foundational fact at the core of the two positions for Nez Perce relative pronouns.

The LPC raises issues which are interesting, and difficult, and which bear on matters of serious ongoing debate. If it is right, for instance, it must be possible for a certain projection type to constitute a phase in one syntactic environment but not in another.<sup>16</sup> That means that the theory of locality domains cannot be restricted to the simple enumeration of a set of cyclic categories, as Chomsky 2000, 2001 had suggested. The very nature of a phase hangs in the balance. In lieu of speculation on these foundational matters, I will simply proceed to a case study which shows us that the LPC itself is capable of some serious work. That case comes from an old problem, and one external to Nez Perce – the absence, in English, of a *that*-trace effect in the immediate environment of relative C.

<sup>16</sup> See den Dikken (2007) and Bošković (2014), and references there, for a defense of this claim.



The basics of the English *that*-trace effect were observed by Perlmutter (1971). Both in long questions and in long relative clauses, the overt complementizer *that* is forbidden in a CP from which the subject has been extracted.

- (52) a. Who did he say (\*that) \_\_\_ bought the rutabaga?  
 b. the woman who he said (\*that) \_\_\_ bought the rutabaga

An important exception occurs at the very top of relative clauses, as Bresnan (1972, ch 3) quickly observed. When the subject is extracted from the TP sister of relative C, *that* is not only possible, but indeed obligatory when the relative pronoun is null.

- (53) a. the woman that \_\_\_ bought the rutabaga  
 b. Machines \*(that) \_\_\_ add have been used for thousands of years.

The matter was much discussed for almost a decade (see Chomsky and Lasnik 1977, Kayne 1980, 1981, Chomsky 1981, 245-6, Pesetsky 1982), but theoretical attentions then shifted away, leaving Bresnan's observations unexplained. Returning to the pattern now with the LPC in hand, it turns out that we can explain those observations in a way that was not possible before. The analysis builds on the work of Pesetsky and Torrego (2001), who situate the basic *that*-trace facts of (52) within the phase theory. An extension of their analysis to (53) follows immediately, interestingly enough, as soon as their theory is paired with the LPC.

We should first review the basic mechanisms Pesetsky and Torrego use in addressing the core paradigm in (52). Their approach arises at the intersection of four proposals, the first of which concerns the relationship between subjects and T. Subjects agree with T and share their  $\phi$ -features with it. They also receive features from T in return, and these features are typically known as "nominative case". But what is nominative case? The feature appears only on DPs, and furthermore only on those which have agreed with T. It is, to another way of looking, the feature [T] on DP – and that is the hypothesis that Pesetsky and Torrego propose.

Like the nominative case feature it replaces, [T] on DP is uninterpretable; it must be deleted before LF. The second proposal concerns the mechanics of this deletion. While the checking of the [T] feature on the subject happens in Spec,TP, the deletion of the checked feature is postponed until the completion of the entire phase. In a matrix question, CP is a phase, but TP is not a phase. That means that, in a matrix question, deletion of checked [T] on the subject only takes place once the entire CP has been built.

The third and fourth proposals concern the nature of English finite C. Consider the featural makeup of C in an embedded clause from which a *wh*-phrase is extracted. In order to attract the *wh*-phrase, C must have a [wh] feature. Pesetsky and Torrego propose that English C quite generally contains a [T] feature as well (their third proposal). When a subject *wh*-phrase is extracted from CP, then, both [wh] and [T] on C can be satisfied by a single instance of movement: movement of the subject to Spec,CP.

- (54)  $[_{CP} \text{who}_{[T,wh]} \text{ } C_{[T,wh]} \text{ } [_{TP} <\text{who}> \text{ } T \text{ } [_{VP} \text{bought the rutabaga} ] ]$
- 

Note that the [T] feature on the subject has already itself been checked at the TP level. It is not yet deleted, however, which enables it to further satisfy the [T] feature on C within the same phase.

There is a different calculus in play in object questions. To satisfy [wh] on C, the object *wh*-phrase must move to Spec,CP. To satisfy its [T] feature, C attracts T itself. Pesetsky and Torrego's fourth proposal is that, in embedded clauses, the morphological result of this movement is *that*.<sup>17</sup>

- (55)  $[_{CP} \text{ what}_{[wh]} \quad [_{T} \text{ that}]_i + C_{[T,wh]} \quad [_{TP} \text{ Mary}_{[T]} \quad <T_i> \quad [_{VP} \text{ bought } <\text{what}> ] ]$
- 

Note that two separate movements must occur in this case, since there is not a single element that C can attract that bears both [T] and [wh].

These proposals pave the way for Pesetsky and Torrego's analysis of the core *that*-trace facts, which traces them back to a simple matter of economy. Consider the examples in (52) once again.

- (52) a. Who did he say (\*that) \_\_ bought the rutabaga?  
b. the woman who he said (\*that) \_\_ bought the rutabaga

To rule out the illicit instances of *that*, the lower clause must be required to have derivation (56a) rather than (56b).

- (56) a.  $[_{CP} \text{ who}_{[T,wh]} \quad C_{[T,wh]} \quad [_{TP} <\text{who}> \quad T \quad [_{VP} \text{ bought the rutabaga } ] ]$
- 
- b. \*  $[_{CP} \text{ who}_{[T,wh]} \quad [_{T} \text{ that}]_i + C_{[T,wh]} \quad [_{TP} <\text{who}> \quad T_i \quad [_{VP} \text{ bought the rutabaga } ] ]$
- 

It is clear why this preference should hold: this is a simple case of economy in movement. In (56a), the [T] and [wh] features on C are satisfied with only one instance of movement – subject movement to Spec,CP. That blocks the more complex derivation in (56b), where two movements are involved – phrasal movement for [wh], and head movement for [T].

What of the special behavior, now, of *that* and a subject gap at the very top of a relative clause? (Pesetsky and Torrego leave this as an open puzzle.) Let us return to the relative clause data we saw in (53) above.

- (53) a. the woman that \_\_ bought the rutabaga  
b. Machines \*(that) \_\_ add have been used for thousands of years.

Consider the point in the derivation of (53a) when only the TP of the relative clause has been constructed. [T] on the subject is checked in Spec,TP.<sup>18</sup>

- (57) a.  $[_{TP} \quad [_{DP} \text{ Op / Op woman } ]_{[T,wh]} \quad T \quad [_{VP} \text{ bought the rutabaga } ] ]$

The next step is merger of relative C. Once TP is merged with this head, it forms a phase – so the LPC tells us. In Pesetsky and Torrego's system, this has the immediate effect that checked uninterpretable features within TP are deleted. This means that [T] on the subject is no longer present for syntactic computation.

<sup>17</sup> The optionality of *that* in various cases is discussed in Pesetsky and Torrego 2001, §4. It is not clear that the mechanism for optional *that* proposed there remains available on the present approach; regrettably, I must leave this interesting matter for future work.

<sup>18</sup> The internal structure of the relative DP here remains agnostic regarding the head-raising analysis of relatives.

- b. [ Rel-C<sub>[T,wh]</sub> [TP [DP Op / Op woman]<sub>[wh]</sub> T VP ] ]

With the subject's [T] feature deleted, there is only one way the derivation can continue, in view of the [T] and [wh] features on C. The subject must move to Spec,CP to check the feature [wh]. Unlike in interrogatives, this leaves [T] on C unsatisfied. C is forced to satisfy its [T] feature by attracting the T head, resulting in *that*.

- c. [CP [DP Op / Op woman]<sub>[wh]</sub> [T that]<sub>i</sub>+Rel-C<sub>[T,wh]</sub> [TP t T<sub>i</sub> VP ]]
- 

Since there is no way of satisfying C's needs with fewer instances of movement, this derivation is not ruled out by the economy constraints that damned the parallel interrogative derivation, (56b). The presence of a lower phase in relative clauses has the effect of ruling out the option of satisfying C via a single instance of subject movement.

What we have from this study of *that*-trace phenomena is then a confirmation not only for the LPC as a particular claim about locality domains, but for broader aspects of the theory of phases. Cyclicity, on this theory, is tightly connected to the groupings of syntactic material which are delivered to the LF interface. Together, Nez Perce and English relative clauses show us this connection: Nez Perce shows us that relative DPs move cyclically through the edge of the topmost TP in relative clauses, and English shows us that the topmost TP in relative clauses is a domain in which checked uninterpretable features are fully deleted, in preparation for LF interpretation.

## 6 Taking stock

Let's pause to glance back at what has transpired thus far.

Suspecting that Nez Perce and English relative clauses share core elements of structure, we first fit a subset of Nez Perce relatives into structures of the type typically posited for English. This worked well only for half the data – only for the order relative pronoun - C. To handle the C - relative pronoun order – and (crucially) the form of the relative complementizer – we posited an additional step of A' movement in relative clauses. That step brings the relative DP through the edge of the TP immediately subjacent to relative C. This TP was thus proposed to constitute a phase. In Nez Perce, we see evidence of the lower A' position in word order patterns, reflecting conflicting constraints on how chains are pronounced. In English, we see evidence of the phasal status of the TP sister of relative C. That is what is responsible for the absence of *that*-trace effects at the top of relative clauses.

All this puts us in a position to apply exactly the comparative reasoning with which we began, except that the roles of English and Nez Perce have been reversed. English relativization, we might conclude, is just as cyclic as its Nez Perce counterpart is; phase boundaries fall in the same place in the two languages. The word order facts come out differently because English has less flexibility in how A' chains are pronounced. So English does not wear the cyclic derivation of relative clauses on its sleeve as Nez Perce does.

That is to say that we are in a good position to adopt candidate syntactic structures for Nez Perce and English relatives that are fully shared, though subject to slightly divergent patterns of phonological realization. One possibility we have maintained throughout is a non-head-raising analysis, the simplest form of which is now (58). The other is a head-raising analysis like (59).

(58) [<sub>NP</sub> NP [<sub>CP</sub> RP C [<sub>TP</sub> <RP> [<sub>TP</sub> ... <RP> ... ]]]]

(59) [<sub>NP</sub> NP [<sub>CP</sub> [<sub>DP</sub> RP <NP>] C [<sub>TP</sub> <RP NP> [<sub>TP</sub> ... <RP NP> ... ]]]]

These structures offer potentially competing pictures on how relative clauses are derived. It is time to consider the evidence Nez Perce offers on the choice between these derivations.

In considering that evidence, we should focus our attention on the key difference between the two proposals: the origin of the head NP. On analysis (58), the head NP originates outside the relative clause.<sup>19</sup> On the head-raising analysis (59), by contrast, the head NP originates inside the relative clause, alongside the relative pronoun. Thus the signature prediction of the head-raising approach is connectivity between the head NP and the relative clause-internal gap.

In support of the head-raising analysis, a number of connectivity effects of this type have been discussed for English and other languages. These all come from the syntax-semantics interface, curiously enough. They involve idiomatic interpretation, binding, and scope (Schachter 1973, Vergnaud 1974, Áfarli 1994, Bianchi 2000a, Bhatt 2002, Hulsey and Sauerland 2006). In principle, we expect to see connectivity of these syntactico-semantic varieties complemented with connectivity in morphological case – the type of purely morphosyntactic connectivity used to support movement analyses of sluicing and pseudocleft constructions (Ross 1969, Merchant 2001; den Dikken 2006).

Luckily, with its rich system of morphological marking, Nez Perce makes it relatively easy to approach the question from this direction. The facts themselves turn out to be quite rich, of course. We approach them in two sets – a first set which lays the foundations, and a second set which lets us explore connectivity and anti-connectivity in the head NP's morphological case. The ultimate picture turns out to support *both* head-raising and non-head-raising as possible analyses of relative structures in Nez Perce – Nez Perce relative clauses are often structurally ambiguous. And so the Nez Perce facts provide a new type of evidence for the position of Áfarli (1994), Bhatt (2002), Szczegielniak (2006) and Hulsey and Sauerland (2006): the syntactic means for both the head-raising and the non-head-raising analyses exist in the grammar, side by side.

## 7 The case for case overwriting

We begin this part of the investigation with a set of data which helps to clarify how surface morphological cases relate to cases assigned over the course of the derivation of a relative clause.

The issue arises as soon as we consider case-marking in ordinary relative clauses like those in (60) and (61). The pattern here is a familiar one: the head NP bears the case assigned external to the relative clause, and the relative pronoun bears the case assigned internal to the relative clause. In (60), the internal case is the ergative, and the external case is the accusative. The head NP must surface in the accusative.

<sup>19</sup> Recall that this claim is shared with analyses positing “matching” of a relative-clause-external head NP by a covert CP-internal counterpart, as in Sauerland (1998). Analysis (58), like its predecessor, thus stands for a range of non-head-raising analyses, both the matching analysis and what Bhatt (2002) calls simply “the head-external analysis”.

- (60) a. *pro<sub>subj</sub>* 'e-cepeqick-e **picpic-ne** [<sub>CP</sub> ko-nim kex \_\_ hii-pe-e'ny-e *pro<sub>obj</sub>*  
*pro<sub>subj</sub>* AGR-catch-TAM cat-ACC [ RP-ERG C \_\_ AGR-eat- $\mu$ -TAM *pro<sub>obj</sub>*  
 cuu'yem ]  
 fish ]  
 I caught the cat that ate my fish.
- b. \**pro<sub>subj</sub>* 'e-cepeqick-e **picpic-nim** [<sub>CP</sub> ko-nim kex \_\_ hii-pe-e'ny-e *pro<sub>obj</sub>*  
*pro<sub>subj</sub>* AGR-catch-TAM cat-ERG [ RP-ERG C \_\_ AGR-eat- $\mu$ -TAM *pro<sub>obj</sub>*  
 cuu'yem ]  
 fish ]  
 I caught the cat that ate my fish.

Similarly, in (61), the internal case is the instrumental, and the external case is the nominative. The head NP must surface in the nominative.

- (61) a. ku'x 'isii-nm k'upip hi-ky-e'ny-e *pro<sub>obj</sub>* **soo $\hat{x}$**  [<sub>CP</sub> kon-ki kex  
 someone-ERG break AGR-do- $\mu$ -TAM *pro<sub>obj</sub>* spoon.NOM [ RP-INST C  
*pro<sub>subj</sub>* siis hanii-tato \_\_ ]  
*pro<sub>subj</sub>* soup.NOM make-TAM \_\_ ]  
 Someone broke on me the spoon I make soup with.
- b. \*ku'x 'isii-nm k'upip hi-ky-e'ny-e *pro<sub>obj</sub>* **soo $\hat{x}$ -ki** [<sub>CP</sub> kon-ki kex  
 someone-ERG break AGR-do- $\mu$ -TAM *pro<sub>obj</sub>* spoon-INST [ RP-INST C  
*pro<sub>subj</sub>* siis hanii-tato \_\_ ]  
*pro<sub>subj</sub>* soup.NOM make-TAM \_\_ ]  
 Someone broke on me the spoon I make soup with.

In these pairs, the relative pronoun bears the case associated with the gap position, but the case of the head NP is entirely unrelated to the relative pronoun's case. There is no case connectivity for the head NP.

Such patterns are readily handled on the head-external analysis, which predicts that case connectivity should not be possible. The head NP originates outside the relative clause, and should get its case there. To accommodate them within the head-raising analysis requires additional technology – plausibly, a mechanism which makes it possible for the head NP to be assigned its morphological case relatively late. One such mechanism is sketched by Bianchi (2000a), who suggests that case features for nouns arise only in the morphological component. In the syntax, case features are assigned only to Ds. The morphological case of the NP is calculated once its movement is complete, on the basis of the syntactic environment in which it finds itself at PF. This means that the NP is bound to surface in the case of the higher D, determined external to the relative clause.

A variant of Bianchi's approach should also be explored, for reasons that will shortly become clear. That is that the raising NP is indeed assigned a case feature internal to the relative clause in the syntax, but that this case feature is overwritten once the NP obtains a position in which a new case is assigned. Thus the NP still receives its surface case relatively late. This lateness, however, is not simply due to its status as an NP, but due to the fact that the original case value for NP is overturned in the course of the derivation. On this approach the derivation of an example like (60a) would look in part as in (62).

- (62) a. Raising of NP out of the relative CP  

$$[NP \quad NP_{[ERG]} \quad [CP \quad [DP \quad RP_{[ERG]} \quad NP_{[ERG]}] \quad C \quad [TP \quad \dots]$$

$$\uparrow \text{----- } NP \text{ raising } \text{-----} \downarrow$$
- b. Merger of the external D  

$$[DP \quad D_{[ACC]} \quad [NP \quad NP_{[ERG]} \quad [CP \quad [DP \quad RP_{[ERG]} \quad NP_{[ERG]}] \quad C \quad [TP \quad \dots]$$
- c. Agreement and case overwriting within DP  

$$[DP \quad D_{[ACC]} \quad [NP \quad NP_{[ACC]} \quad [CP \quad [DP \quad RP_{[ERG]} \quad NP_{[ERG]}] \quad C \quad [TP \quad \dots]$$

$$\downarrow \text{Overwriting} \uparrow$$

The operation in (62c) represents a type of obligatory DP-internal concord, spreading the case-feature of D to its local NP. Since the case feature of NP is retained on lower copies, this does not result in an unrecoverable deletion. It does have the effect that the case assigned to the external D is visible overtly; the D itself is typically null in Nez Perce. The obligatoriness of the overwriting is revealed by the ill-formedness of examples like (60b), where the NP retains the ergative case assigned internal to the relative clause.

What this analysis gets us is a way to maintain the head-raising analysis in the face of facts like (60) and (61). The price is an additional mechanism – case overwriting – that is not required for these facts on the head-external analysis. That, all else being equal, would clearly favor the head-external approach on grounds of parsimony. All is not equal, however. It turns out that case overwriting is not so easily dispensed with. Whether or not we adopt the head-raising approach, overwriting remains necessary to account for a further pattern – so-called "case attraction" for relative pronouns.

The basic facts are simple: when the relative pronoun surfaces to the left of C, it may bear the case assigned to the head NP in the higher clause. This means that case connectivity is absent not only between the head NP and the gap, but also between the relative pronoun and the gap. That suggests that at least the relative pronoun may have its case overwritten by the case of the matrix D. The case it has received inside the relative clause is no longer visible in the surface forms. In (63a), accusative is overwritten with nominative; in (63b), nominative is overwritten with accusative.

- (63) a. Mine hii-we-s samx̣ **yox̣** kex *pro<sub>subj</sub>* 'a-sayqi-ca \_\_\_\_?  
 where AGR-be-TAM shirt.NOM RP.NOM C *pro<sub>subj</sub>* AGR-like-TAM \_\_\_\_  
 Where is the shirt that I like?
- b. *pro<sub>subj</sub>* 'e-suki-ce 'aayato-na **ko-nya** ke \_\_\_\_ hi-pay-n  
*pro<sub>subj</sub>* AGR-recognize-TAM woman-ACC RP-ACC C \_\_\_\_ AGR-arrive-TAM  
 I recognize the woman who just came in.

The pattern is similar to one noted by Bianchi (2000a) for Ancient Greek and Latin. In Nez Perce, there are two important further observations to be made.

First, relative pronoun case attraction involves the transfer of a case feature from the matrix D to an item other than the head N of D's complement. In Nez Perce, concord of this type is usually optional. An adjective, for instance, may but need not carry the case of the noun it modifies.

- (64) a. 'e-'pewi-tx yoosyoos wixsilikeecet'es-ne  
 AGR-look.for-IMP blue chair-ACC  
 Look for the blue chair!

- b. *pro<sub>subj</sub>* 'e-'pewi-se                      yoosyoos-na wixsilikeecet'es-ne  
*pro<sub>subj</sub>* AGR-look.for-TAM blue-ACC      chair-ACC  
 I am looking for the blue chair.

Similarly, while the head noun must carry the case of the external D in (60) and (61), this pattern is optional for the relative pronoun. The relative pronoun may also surface in the case it is assigned within the relative clause. Examples (65) contrast with (63) only in the relative pronoun's case.

- (65) a. Mine hii-we-s      samx̂      **ko-nya** kex *pro<sub>subj</sub>* 'a-sayqi-ca      \_\_\_?  
           where AGR-be-TAM shirt.NOM RP-ACC C *pro<sub>subj</sub>* AGR-like-TAM \_\_\_  
           Where is the shirt that I like?
- b. *pro<sub>subj</sub>* 'e-suki-ce                      'aayato-na **yox̂**      ke \_\_\_ hi-pay-n  
           *pro<sub>subj</sub>* AGR-recognize-TAM woman-ACC RP.NOM C \_\_\_ AGR-arrive-TAM  
           I recognize the woman who just came in.

Second, case overwriting is not possible for relative pronouns that surface in the low position, Spec,TP. No surprise, if case overwriting arises through an agreement process which is sensitive to phase boundaries – it may apply to relative pronouns on the edge of CP, but not to those within the complement of C. Examples (66) contrast with (63) only in the relative pronoun's position.

- (66) a. \* Mine hii-we-s      samx̂      kex **yox̂**      *pro<sub>subj</sub>* 'a-sayqi-ca      \_\_\_?  
           where AGR-be-TAM shirt.NOM C      RP.NOM *pro<sub>subj</sub>* AGR-like-TAM \_\_\_  
           Where is the shirt that I like?
- b. \* *pro<sub>subj</sub>* 'e-suki-ce                      'aayato-na      ke **ko-nya** \_\_\_ hi-pay-n  
           *pro<sub>subj</sub>* AGR-recognize-TAM woman-ACC C      RP-ACC \_\_\_ AGR-arrive-TAM  
           I recognize the woman who just came in.

The interaction between case and position for relative pronouns is summarized in (67).

- (67) Interaction between case and position for relative pronouns

		RP position	
		Spec,CP	Spec,TP
RP case	CP-internal case	Y <i>e.g. (22)-(24), (65)</i>	Y <i>e.g. (38b), (39b)</i>
	CP-external case	Y <i>e.g. (63)</i>	n <i>e.g. *(66)</i>

This complex body of facts falls into place on the assumption that Nez Perce contains a case overwriting mechanism like in (62c), the essential function of which is to transfer features between D and other material inside D's local domain. This mechanism only applies optionally in the case of material other than the N head, as (64) shows us. Thus examples of the type in (63) (CP-external case / Spec,CP) and of the type in (65) (CP-internal case / Spec,CP) are both possible. And any such mechanism should be constrained by absolute locality domains, showing bounds on the distance over which it is able to operate. That is borne out in the ill-formedness of examples like (66) (CP-external case / Spec,TP).

With the overwriting mechanism independently in place to deal with case attraction, we come full circle on the case facts with which we began. The non-head-raising analysis can indeed account

for the pattern in (60) and (61) in a simple way. The head-raising analysis accounts for these facts with the help of an additional mechanism which proves to be independently motivated. On either analysis, case overwriting is needed for examples like (63), where the case of the relative pronoun is overwritten with a case from the matrix clause. The straightforward parsimony argument against head-raising thus neutralized, further evidence is needed to truly compare the candidate analyses of relative clauses.

## 8 Connectivity and left dislocation

The hint we need to make further progress proves already to be close at hand. It comes from what Nez Perce speakers do when confronted with examples like (60b) and (61b), which attempt case connectivity for the head NP.

- (60) b. \**pro<sub>subj</sub>* 'e-cepeqick-e **picpic-nim** [<sub>CP</sub> ko-nim kex \_\_ hii-pe-e'ny-e *pro<sub>obj</sub>*  
*pro<sub>subj</sub>* AGR-catch-TAM cat-ERG [ RP-ERG C \_\_ AGR-eat- $\mu$ -TAM *pro<sub>obj</sub>*  
 cuu'yem ]  
 fish.NOM ]  
 I caught the cat that ate my fish.
- (61) b. \*ku'x 'isii-nm k'upip hi-ky-e'ny-e *pro<sub>obj</sub>* **soo $\hat{x}$ -ki** [<sub>CP</sub> kon-ki kex  
 someone-ERG break AGR-do- $\mu$ -TAM *pro<sub>obj</sub>* spoon-INST [ RP-INST C  
*pro<sub>subj</sub>* siis hanii-tato \_\_ ]  
*pro<sub>subj</sub>* soup.NOM make-TAM \_\_ ]  
 Someone broke on me the spoon I make soup with.

One reaction to examples of this type is a simple correction of the case on the NP head. That results in sentences of the type we saw above in (60a) and (61a). The other reaction – the one that should interest us here – involves a switch to a structure of a significantly different type. The head NP and its relative clause appear to the left of the matrix, followed by a clear prosodic break. And the head NP *retains the CP-internal case* that was not possible in the (60b)/(61b)-type structure.

- (68) [<sub>DP</sub> **picpic-nim** [<sub>CP</sub> ko-nim kex \_\_ hii-pe-e'ny-e *pro<sub>obj</sub>* cuu'yem ]]<sub>1</sub>,  
 [ cat-ERG [ RP-ERG C \_\_ AGR-eat- $\mu$ -TAM *pro<sub>obj</sub>* fish.NOM ],  
*pro<sub>subj</sub>* 'e-cepeqick-e *pro<sub>1</sub>*  
*pro<sub>subj</sub>* AGR-catch-TAM *pro<sub>obj</sub>*  
 The cat that ate my fish, I caught it.
- (69) [<sub>DP</sub> **soo $\hat{x}$ -ki** [<sub>CP</sub> kon-ki kex *pro<sub>subj</sub>* siis hanii-tato \_\_ ]]<sub>1</sub>,  
 [ spoon-INST [ RP-INST C *pro<sub>subj</sub>* soup.NOM make-TAM \_\_ ],  
 ku'x 'isii-nm k'upip hi-ky-e'ny-e *pro<sub>obj</sub>* *pro<sub>1</sub>*  
 someone-ERG break AGR-do- $\mu$ -TAM *pro<sub>obj</sub>* *pro<sub>obj</sub>*  
 The spoon I make soup with, someone broke it on me.

These examples demonstrate exactly the type of case connectivity we expect on the head-raising analysis. But why is that evidence available here, but not without left dislocation?

We must ask what type of left-dislocation structure it is that we are faced with. One answer to that question is already in fact snuck into the glosses of (68) and (69), where the left-peripheral



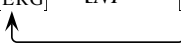
DPs have been coindexed with a silent *pro* in matrix object position.<sup>20</sup> That makes the structure of these examples similar to those types of left-dislocation that involve a resumptive element in argument position, which are often approached via base-generation of the topical element within the CP periphery (e.g. Rizzi 1997, Aoun and Benmamoun 1998, Grohmann 2000, among many others). In the case of (68) and (69), the resumptive element happens to be the ordinary anaphoric pronoun of Nez Perce, namely the silent *pro*. Tellingly, though, it is also possible for the initial DP to be coindexed with an overt anaphoric DP. (Here again, the head of the relative clause shows case connectivity with the relative-internal gap.)

- (70) [<sub>DP</sub> samaŋ-na ko-nya kex *pro*<sub>subj</sub> 'a-sayqi-ca \_\_\_\_ ]<sub>1</sub>,  
 [ shirt-ACC RP-ACC C *pro*<sub>subj</sub> AGR-like-TAM \_\_\_\_ ],  
 mine hii-we-s [<sub>DP</sub> yoŋ samŋ \_\_\_\_ ]<sub>1</sub> / *pro*<sub>1</sub> ?  
 where AGR-be-TAM [ DEM shirt.NOM ] / *pro*<sub>subj</sub>  
 The shirt that I like, where is that shirt / it?

This possibility would of course not be expected if the initial, bracketed DP could only obtain its peripheral position via movement. Its sometime flexibility in the pronunciation of chains notwithstanding, Nez Perce does not allow two copies in the same chain to be pronounced. Furthermore, it should be noted that base-generation of the peripheral DP explains how it is that this DP can appear on the opposite side of a *wh*-dependency from the associated argument position. Since the DP does not move, there is no violation of a *wh*-island.

Now, this type of analysis for left-dislocation comes with well-known consequences for the case theory. The left-peripheral DP is at no point in an argument position, where it might receive or check a case feature by the normal pathways. Its licensing is apparently unconnected to the syntactic calculus of case. Plausibly, it is generated simply without a syntactic case feature on D, as Schütze (2001) suggests.<sup>21</sup>

That turns out to immediately explain why it should be that case-connectivity crops up in exactly this type of syntactic circumstance. D does not overwrite NP's case under left dislocation because D has no case feature to pass to NP. D may still agree with its local NP in the familiar way, but it is NP that has a case feature; we might imagine that this feature is instead shared upward, to D:

- (71) a. Merger of the external, caseless D  
 [<sub>DP</sub> D<sub>[--]</sub> [<sub>NP</sub> NP<sub>[ERG]</sub> [<sub>CP</sub> [<sub>DP</sub> RP<sub>[ERG]</sub> NP<sub>[ERG]</sub>] C [<sub>TP</sub> ...
- b. Agreement and case sharing within DP  
 [<sub>DP</sub> D<sub>[ERG]</sub> [<sub>NP</sub> NP<sub>[ERG]</sub> [<sub>CP</sub> [<sub>DP</sub> RP<sub>[ERG]</sub> NP<sub>[ERG]</sub>] C [<sub>TP</sub> ...
- 

This passing of features upward is ruled out in derivations like (62), where D has a case feature, presumably because case features cannot be deleted unrecoverably. Thus D must pass its case

<sup>20</sup> This is one of two *pro* objects in (69), as this example features an applicative object. On the syntax of the relevant applicative construction, see Deal (2013b).

<sup>21</sup> I note this absence of a feature on D as [–], to indicate a gap in the overall set of N-related features ( $\phi$ /Case) that D bears. Because D agrees with N in a variety of features, I assume that D-N agreement takes place regardless of whether there is such a gap.

feature to NP (whose case feature is preserved on lower copies), rather than vice versa. Where D has no case feature, however, such concerns are moot. Feature-sharing of the type in (71b) takes place, resulting in a case for the matrix D which reflects the case assigned relative-clause-internally to NP. In the left-dislocation examples (68) and (70), this matrix D is silent, making its case value difficult to judge. When it is made overt in (72) and (73), though, the upward passing of case features becomes clear to see.<sup>22 23</sup>

- (72) [<sub>DP</sub> ki-nm ciq'aamqal-nim [<sub>CP</sub> ko-nim kex \_\_ hi-wahoo-caqa *pro<sub>obj</sub>* ]]<sub>1</sub>,  
 [ this-ERG dog-ERG [ RP-ERG C \_\_ AGR-howl.at-TAM *pro<sub>obj</sub>* ]],  
 'isii-nm 'u-u-s *pro<sub>1</sub>* ?  
 who-GEN AGR-have-TAM *pro<sub>obj</sub>* ?  
 This dog that was howling at me, whose is it?
- (73) [<sub>DP</sub> ki-nye cepeepy'uxtiis-ne [<sub>CP</sub> ko-nya kenm *pro<sub>subj</sub>* 'epe-ep-u' \_\_ ]]<sub>1</sub>,  
 [ this-ACC pie-ACC [ RP-ACC C *pro<sub>subj</sub>* AGR-eat-TAM \_\_ ]],  
 'isii-nm 'u-u-s haani-t *pro<sub>1</sub>* ?  
 who-GEN AGR-have-TAM make-PART *pro<sub>obj</sub>* ?  
 This pie that we are going to eat, who made it?

This pattern – a sort of magnification of the case feature assigned internal to the relative clause – turns out to be simply the flip side of the concordial agreement operation responsible for case overwriting on NP. D and N always agree in case in Nez Perce (among other features), and typically this means that D's case feature must be shared down to N. In the special circumstance where N has a case feature but D does not, however, feature sharing has the opposite result: it is N's case feature which ends up being shared with D.

Let's pause to zoom out a bit. What we have in these facts is a morphosyntactic connectivity argument in favor of the head-raising analysis. That analysis requires case-overwriting or something very much like it to handle in-situ DPs, as in (60) and (61). It leads to an expectation about syntactic contexts where the overwriting mechanism is called off: here, the case assigned internal to the relative clause should be able to surface on the NP head. What we have in left dislocation structures is a confirmation for this approach. In the left-dislocation structure, the external D embedding the relative construction receives no case feature which may be used to overwrite the case on NP. The CP-internal case may surface faithfully, therefore – and it may even spread beyond material originating inside the relative clause, passing its case feature up to the embedding D.

As we might hope, the resulting picture vindicates a number of the premises we have adopted along the way. A key role is played by the fact that left-dislocation structures are base-generated, for instance. This is what differentiates the external D in left dislocation from its counterpart in situ: D in an in-situ DP always bears a case feature, but D in a base-generated left-dislocated DP does not. That is why D is able to overwrite NP's case in situ, but not in left dislocation. Also crucial is the premise that NPs do indeed receive case internal to the relative clause in the course of

<sup>22</sup> The coindexed matrix pronouns in both examples occupy nominative case positions; coindexation with these pronouns cannot be the source of the determiner case in the dislocated DP.

<sup>23</sup> The analysis of proximal demonstrative *kii* as a D element departs from Deal (2010b), where demonstratives are treated as occupying a high functional position in the nominal projection, but not D. That proposal is compatible with the main thrust of argument here: if only the head NP is raised out of the relative CP, high functional material appearing to the left of the head outside the relative CP must be first merged outside the relative CP.

syntactic computation. If NPs only received their case features at PF on the basis of their surface environments, it would not be possible to mount an argument for the head-raising approach from connectivity in morphological case. In showing us that such an argument is possible, Nez Perce confirms for us that NP case features exist in purely syntactic computations.

## 9 Anticonnectivity and left dislocation

With this new body of data in hand, we return to our two candidate structures for relative clauses, non-head-raising (58) and head-raising (59). The investigation of the previous section has confirmed the signature prediction of the head-raising analysis, (59): the head NP shows connectivity with the gap inside the relative clause.

(58) [<sub>NP</sub> NP [<sub>CP</sub> RP C [<sub>TP</sub> <RP> [<sub>TP</sub> ... <RP> ... ]]]]

(59) [<sub>NP</sub> NP [<sub>CP</sub> [<sub>DP</sub> RP <NP>] C [<sub>TP</sub> <RP NP> [<sub>TP</sub> ... <RP NP> ... ]]]]

That leaves two possible overall approaches to Nez Perce relatives still on the table. One is that all Nez Perce relatives have structure (59), manifesting head-raising. The other option is that some have structure (59) while others retain structure (58) – that is, head-raising takes place in some relative clauses but not in others.

The investigations of the previous two sections have revealed a path to take in testing for a non-head-raising analysis. We should look for an absence of case connectivity, but we will have to do so in a special environment. It will not be helpful to look in environments like (74), where case overwriting is in effect. There is necessarily anticonnectivity here between the NP and the gap, but this could simply result from the obligatoriness of the case overwriting mechanism.

- (74) a. Mine hii-we-s **samx̂** ko-nya kex *pro<sub>subj</sub>* 'a-sayqi-ca \_\_\_\_?  
 where AGR-be-TAM shirt.NOM RP-ACC C *pro<sub>subj</sub>* AGR-like-TAM \_\_\_\_  
 Where is the shirt that I like?
- b. \*Mine hii-we-s **sama<sup>h</sup>x̂-na** ko-nya kex *pro<sub>subj</sub>* 'a-sayqi-ca \_\_\_\_?  
 where AGR-be-TAM shirt-ACC RP-ACC C *pro<sub>subj</sub>* AGR-like-TAM \_\_\_\_  
 Where is the shirt that I like?

To show that anticonnectivity in case really results from a non-raising analysis, we will have to look in an environment like left dislocation, where NPs surface in the original case that they are assigned. If, under left dislocation, it is possible for the head NP to surface in a case *other* than the case determined internal to the relative clause, that suggests that the head NP can be generated outside the relative CP.

Key test cases are examples like (75) – a sentence which Nez Perce speakers judge to be well-formed. Left dislocation in this example clearly results from base-generation; movement of the dislocated DP would constitute an illegal extraction from an adjunct clause (cf. (18b)).

- (75) [<sub>DP</sub> yo<sup>h</sup> ciq'aamqal kex ko-nim \_\_\_\_ hi-wahoo-tato *pro<sub>obj</sub>* ]<sub>1</sub>,  
 [ DEM.NOM dog.NOM C RP-ERG \_\_\_\_ AGR-howl.at-TAM *pro<sub>obj</sub>* ],

*pro*<sub>subj</sub> 'ays-no'qa      c'alawi *pro*<sub>1</sub> hi-tqasaw-no'qa  
*pro*<sub>subj</sub> be.happy-TAM if *pro*<sub>subj</sub> AGR-go.silent-TAM  
 That dog that howls at me, I'd be happy if he'd be quiet.

The importance of this example comes from the distinction between the case of the head NP, on one hand, and that of the gap and relative pronoun, on the other. The relative pronoun here surfaces in the ergative, yet somehow the head NP and the external demonstrative surface in the nominative.

We should pause to consider the appearance of nominative in particular. As in many languages with reasonably rich case systems, in Nez Perce, the nominative is the case that simple DPs appear in in base-generated left-dislocation structures.

- (76) met'u [<sub>DP</sub> kii      haacwal ]<sub>1</sub>, [ ki-nm      haacwal-m ]<sub>1</sub> paa-tmipn'i-qana      ki-nye  
 but [ this.NOM boy.NOM ], [ this-ERG boy-ERG ] AGR-remember-TAM this-ACC  
 pit'iin-ine  
 girl-ACC  
 But this boy, this boy remembered this girl. (Aoki, 1979)

If we think of nominative form as a default case in Schütze (2001)'s sense, this is simply the morphological form that nominals take when there is no syntactic case feature determining some alternative realization. In the left-dislocated DP of (76), both D and N have no alternative but to surface in the nominative; there is no way for these items to bear syntactic case features, given the origin of this DP on the edge of the clause.

A parallel account can be extended to (75), on the assumption that the head NP may be generated *outside* the relative CP, in accordance with structure (58). In contrast to the head-raising derivation in (59), in this derivation, the head NP is never inside the relative clause, and so has no way of obtaining a syntactic case feature there. It simply externally merges to CP, and the caseless determiner characteristic of left dislocation is subsequently merged with the result.

- (77) a. Merger of caseless NP and relative CP  
 [<sub>NP</sub> NP<sub>[--]</sub> [<sub>CP</sub> [<sub>DP</sub> RP<sub>[ERG]</sub> ] C [<sub>TP</sub> ...  
 b. Merger of the external, caseless D  
 [<sub>DP</sub> D<sub>[--]</sub> [<sub>NP</sub> NP<sub>[--]</sub> [<sub>CP</sub> [<sub>DP</sub> RP<sub>[ERG]</sub> ] C [<sub>TP</sub> ...

Both the external NP and the external D are thus without syntactic case features and must be realized in the nominative, exactly as in the simpler left-dislocation example (76).

This way of handling the morphological nominative of left dislocation makes a crucial distinction between this instance of nominative and its counterpart on DPs within the TP. Unlike nominative subjects, which bear a syntactic nominative case feature, nominative DPs in left dislocation bear no syntactic feature for any case. The two types of DPs end up with the same morphological form despite this important difference in their syntax.<sup>24</sup>

The difference nevertheless matters when it comes to the question of case attraction. In examples like (78), a syntactic nominative case feature is passed from the matrix D to the head noun as well as to the relative pronoun. (For clarity, I have included the silent D in the gloss.) The case of the relative pronoun, first determined in the relative clause, is thus overwritten as nominative from its original value as accusative.

<sup>24</sup> The heart of the matter here is exactly the distinction between morphological and abstract case which plays an important role in work like Legate 2008.

- (78) Mine hii-we-s [DP  $\emptyset$  sam $\hat{x}$  yo $\hat{x}$  kex *pro<sub>subj</sub>* 'a-sayqi-ca \_\_\_]?  
 where AGR-be-TAM [ D.NOM shirt.NOM RP.NOM C *pro<sub>subj</sub>* AGR-like-TAM \_\_\_]  
 Where is the shirt that I like?

But in the left-dislocation construction, because there is no syntactic nominative feature on D, no parallel overwriting is possible. There is simply no syntactic feature to overwrite with. Thus (79) is impossible; compare the well-formed version in (80), where the relative pronoun retains its case.

- (79) \* [DP yo $\hat{x}$  sam $\hat{x}$  yo $\hat{x}$  kex *pro<sub>subj</sub>* 'a-sayq-caqa \_\_\_ ], mine *pro<sub>1</sub>*  
 [ DEM.NOM shirt.NOM RP.NOM C *pro<sub>subj</sub>* AGR-like-TAM \_\_\_ ] where *pro<sub>subj</sub>*  
 hii-we-s ?  
 AGR-be-TAM  
 The shirt that I liked, where is it?
- (80) [DP yo $\hat{x}$  sam $\hat{x}$  ko-nya kex *pro<sub>subj</sub>* 'a-sayq-caqa \_\_\_ ], mine *pro<sub>1</sub>*  
 [ DEM.NOM shirt.NOM RP-ACC C *pro<sub>subj</sub>* AGR-like-TAM \_\_\_ ] where *pro<sub>subj</sub>*  
 hii-we-s ?  
 AGR-be-TAM  
 The shirt that I liked, where is it?

The contrast between (78) and (79) makes it clear that morphological nominative in left-dislocation has a different source than its counterpart in situ. In left dislocation, the nominative form of the external D and the head NP results from a default realization in the absence of any case feature at all. The external D lacks a case feature simply because it is generated in a position outside the reach of syntactic mechanisms for case-based licensing. The NP, more crucially, lacks a case feature for exactly this same reason – not having originated inside the relative clause, it does not have any route to a syntactic feature for case.

Supposing we now adopt both (58) and (59) as admissible structures for Nez Perce relatives, we are left with a straightforward account for both versions of the minimal pair in (81). The difference lies in the case of the external determiner and head noun – accusative (as determined by the relative clause gap position) in (81a), but nominative in (81b). The former is possible in view of structure (59), whereby the head NP originates and receives a case feature within the relative clause. The latter is possible in view of structure (58), where the head NP originates relative-clause-externally.

- (81) a. [DP ko-nya sama $\hat{x}$ -na ko-nya kex *pro<sub>subj</sub>* 'a-sayqi-ca \_\_\_ ]<sub>1</sub>, mine *pro<sub>1</sub>*  
 [ DEM-ACC shirt-ACC RP-ACC C *pro<sub>subj</sub>* AGR-like-TAM \_\_\_ ] where *pro<sub>subj</sub>*  
 hii-we-s ?  
 AGR-be-TAM  
 The shirt that I like, where is it?
- b. [DP yo $\hat{x}$  sam $\hat{x}$  ko-nya kex *pro<sub>subj</sub>* 'a-sayqi-ca \_\_\_ ], mine *pro<sub>1</sub>*  
 [ DEM.NOM shirt.NOM RP-ACC C *pro<sub>subj</sub>* AGR-like-TAM \_\_\_ ] where *pro<sub>subj</sub>*  
 hii-we-s ?  
 AGR-be-TAM  
 The shirt that I like, where is it?

Case facts, that is, support *both* the head-raising analysis and the non-head-raising analysis as permissible structures for relative clauses. The ingredients for the two structures co-exist in the grammar of Nez Perce.

The investigation of case and left dislocation thus points us at a position that has been defended for English by Bhatt (2002) and Hulsey and Sauerland (2006): head-raising is indeed a possible analysis of relative clauses, but it is not the only analysis available. In English, the two structural possibilities frequently fail to produce any surface difference, resulting in structural ambiguity; this is true in Nez Perce, too, as we see in examples like (74a).

- (74) a. Mine hii-we-s samx̂ ko-nya kex *pro<sub>subj</sub>* 'a-sayqi-ca \_\_\_?  
 where AGR-be-TAM shirt.NOM RP-ACC C *pro<sub>subj</sub>* AGR-like-TAM \_\_\_  
 Where is the shirt that I like?

Regardless of whether such examples feature head-raising, the case on the head will be determined external to the relative clause – either via case overwriting, on the raising analysis, or via normal mechanics of case assignment to NPs, on the non-raising alternative.

## 10 Conclusions

We arrive at a picture of Nez Perce relative clauses that weighs in on existing debates, and breaks into new ground beyond them. On the first count, Nez Perce shows us by its morphological case that head-raising is only one of multiple possibilities for the construction of relative clauses. The head-raising analysis is possible alongside a non-head-raising alternative; many relative clauses are therefore structurally ambiguous. On the second count, Nez Perce shows us by its word order that relative DPs move cyclically through a specifier of TP immediately subjacent to relative C. This is a new fact, almost entirely concealed in familiar languages, whose consequences for the phase theory and for relativization in additional languages largely remain to be explored.

Overall, the implications of Nez Perce relative clauses flow from the way the language morphosyntactically reveals certain aspects of relative structure which are customarily concealed in more familiar languages. Comparative research is about leveraging the clear cases of a phenomenon to explain the less clear ones. I hope to have shown that Nez Perce has much to offer as a clear case in the formation of relative clauses.

## References

- Áfarli, Tor A. 1994. A promotion analysis of restrictive relative clauses. *The Linguistic Review* 11:81–100.
- Aoki, Haruo. 1979. *Nez Perce texts*. Berkeley: University of California Press.
- Aoki, Haruo, and Deward Walker. 1989. *Nez Perce oral narratives*. Berkeley: University of California Press.
- Aoun, Joseph, and Elabbas Benmamoun. 1998. Minimality, reconstruction, and PF movement. *Linguistic Inquiry* 29:569–597.
- 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*. Mouton de Gruyter.
- Bianchi, Valentina. 2000a. The raising analysis of relative clauses: a reply to Borsley. *Linguistic Inquiry* 31:123–140.
- Bianchi, Valentina. 2000b. Some issues in the syntax of relative determiners. In *The syntax of relative clauses*, ed. Artemis Alexiadou, Paul Law, André Meinunger, and Chris Wilder, 53–81. Amsterdam: John Benjamins Publishing Company.
- Bittner, Maria. 1994. *Case, scope and binding*. Dordrecht: Kluwer.
- Bittner, Maria, and Ken Hale. 1996. The structural determination of case and agreement. *Linguistic Inquiry* 27:1–68.
- Borsley, Robert D. 1997. Relative clauses and the theory of phrase structure. *Linguistic Inquiry* 28:629–647.
- 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:to appear.
- Bresnan, Joan. 1972. Theory of complementation in English syntax. Doctoral Dissertation, MIT.
- Cable, Seth. 2010. *The grammar of Q: Q-particles, wh-movement and pied-piping*. Oxford University Press.
- Chomsky, Noam. 1981. *Lectures on government and binding*. Dordrecht: Foris Publications.
- Chomsky, Noam. 2000. Minimalist inquiries: The framework. In *Step by step: Essays on minimalist syntax in honor of Howard Lasnik*, ed. Roger Martin, David Michaels, and Juan Uriagereka, 89–156. Cambridge, Mass: MIT Press.
- Chomsky, Noam. 2001. Derivation by phase. In *Ken Hale: A life in linguistics*, ed. Michael Kenstowicz, 1–52. Cambridge, Mass: MIT Press.
- Chomsky, Noam, and Howard Lasnik. 1977. Filters and control. *Linguistic Inquiry* 8:425–504.
- Chung, Sandra. 1991. Functional heads and proper government in Chamorro. *Lingua* 85:85–134.
- Chung, Sandra. 1998. *The design of agreement: evidence from Chamorro*. University of Chicago Press.
- Comrie, Bernard. 1979. Degrees of ergativity: some Chukchee evidence. In *Ergativity*, ed. Frans Plank. Academic Press.
- Crook, Harold David. 1999. The phonology and morphology of Nez Perce stress. Doctoral Dissertation, University of California at Los Angeles.
- Deal, Amy Rose. 2010a. Ergative case and the transitive subject: a view from Nez Perce. *Natural Language and Linguistic Theory* 28:73–120.

- Deal, Amy Rose. 2010b. Topics in the Nez Perce verb. Doctoral Dissertation, University of Massachusetts Amherst.
- Deal, Amy Rose. 2011. Modals without scales. *Language* 87:559–585.
- Deal, Amy Rose. 2013a. Nez Perce embedded indexicals. In *Proceedings of SULA 7*, ed. Hannah Greene. GLSA.
- Deal, Amy Rose. 2013b. Possessor raising. *Linguistic Inquiry* 37:391–432.
- Deal, Amy Rose. 2013c. Short and long object movement in Nez Perce. Paper presented at the 19th International Congress of Linguists, Geneva, July 2013.
- Deal, Amy Rose. 2014. Ergativity. In *International handbook on syntactic contemporary research*, ed. A. Alexiadou and T. Kiss. Mouton de Gruyter, 2nd edition.
- Deal, Amy Rose, and Matthew Tucker. In prep. Nez Perce agreement and the theory of Agree. Ms, UC Santa Cruz.
- Deal, Amy Rose, and Matthew Wolf. to appear. Outwards-sensitive phonologically-conditioned allomorphy in Nez Perce. In *The morphosyntax-phonology connection*, ed. Vera Gribanova and Stephanie Shih. Oxford University Press.
- den Dikken, Marcel. 2006. Specificational copular sentences and pseudoclefts. In *The Blackwell companion to syntax*, ed. Martin Everaert and Henk van Riemsdijk, 292–409.
- den Dikken, Marcel. 2007. Phase extension: Contours of a theory of the role of head movement in phrasal extraction. *Theoretical Linguistics* 33:1–41.
- Dixon, R.M.W. 1979. Ergativity. *Language* 55:59–138.
- Embick, David, and Rolf Noyer. 2001. Movement operations after syntax. *Linguistic Inquiry* 32:555–595.
- England, Nora. 1983. *A grammar of Mam, a Mayan language*. University of Texas Press.
- Green, Melanie, and Chris H Reintges. 2001. Syntactic anchoring in Hausa and Coptic *wh*-constructions. In *Proceedings of the Twenty-Seventh Annual Meeting of the Berkeley Linguistics Society: Special Session on Afroasiatic Languages*, 61–73.
- Grohmann, Kleanthes K. 2000. Prolific peripheries: a radical view from the left. Doctoral Dissertation, University of Maryland.
- Hulsey, Sarah, and Uli Sauerland. 2006. Sorting out relative clauses. *Natural Language Semantics* 14:111–137.
- Kayne, Richard S. 1980. Extensions of binding and case-marking. *Linguistic Inquiry* 11:75–96.
- Kayne, Richard S. 1981. ECP extensions. *Linguistic Inquiry* 12:93–133.
- Kayne, Richard S. 1994. *The antisymmetry of syntax*. Cambridge, Massachusetts: MIT Press.



- Legate, Julie Anne. 2008. Morphological and abstract case. *Linguistic Inquiry* 39:55–101.
- McCloskey, James. 1979. *Transformational syntax and model theoretic semantics*. Dordrecht, The Netherlands: D. Reidel Publishing Company.
- McCloskey, James. 2002. Resumption, successive cyclicity, and the locality of operations. In *Derivation and explanation in the minimalist program*, ed. Samuel David Epstein and T. Daniel Seely, 184–226. Malden, Massachusetts: Blackwell Publishing.
- Merchant, Jason. 2001. *The syntax of silence: sluicing, islands, and the theory of ellipsis*. Oxford: Oxford University Press.
- Perlmutter, David. 1971. *Deep and surface structure constraints in syntax*. Holt, Rinehart and Winston.
- Pesetsky, David. 1982. Complementizer-trace phenomena and the nominative island condition. *The Linguistic Review* 1:297–344.
- Pesetsky, David, and Esther Torrego. 2001. T-to-C movement: Causes and consequences. In *Ken Hale: A life in language*, ed. Michael Kenstowicz, 355–426. MIT Press.
- Reintges, Chris H. 2007. Variable pronunciation sites and types of wh-in-situ. In *The Copy Theory of Movement*, ed. Norbert Corver and Jairo Nunes, 255–287. John Benjamins Publishing Company.
- Reintges, Chris H, Philip S. LeSourd, and Sandra Chung. 2006. Movement, wh-agreement, and apparent wh-in-situ. In *WH-movement: moving on*, ed. Lisa Lai-Shen Cheng and Norbert Corver. MIT Press.
- Rizzi, Luigi. 1997. The fine structure of the left periphery. In *Elements of grammar*, ed. Liliane Haegeman, 281–337. Dordrecht: Kluwer Academic Publishers.
- Rizzi, Luigi. 2006. On the form of chains: criterial positions and ECP effects. In *WH-movement: moving on*, ed. Lisa Lai-Shen Cheng and Norbert Corver, 97–133. MIT Press.
- Ross, John Robert. 1969. Guess who? In *Chicago Linguistics Society*, ed. Robert I. Binnick, Alice Davison, Georgia M. Green, and Jerry L. Morgan, 252–286. Chicago, Illinois.
- Rude, Noel. 1992. Word order and topicality in Nez Perce. In *Pragmatics of word order flexibility*, ed. D. Payne, 193–208. Amsterdam/Philadelphia: John Benjamins.
- Sauerland, Uli. 1998. On the making and meaning of chains. Doctoral Dissertation, Massachusetts Institute of Technology, Cambridge, Massachusetts.
- Schachter, Paul. 1973. Focus and relativization. *Language* 49:19–46.
- Schütze, Carson T. 2001. On the nature of default case. *Syntax* 4:205–238.
- Stockwell, Robert P., Paul Schachter, and Barbara Hall Partee. 1973. *The major syntactic structures of English*. New York: Holt, Rinehart and Winston, Inc.

- Szczegielniak, Adam. 2006. Two types of relative clauses in Slavic – evidence from reconstruction and ellipsis. In *Proceedings of the thirty-third Western Conference on Linguistics*, ed. Michal Temkin Martínez et al., 373–384.
- van Urk, Coppe, and Norvin Richards. to appear. Two components of long-distance extraction: Successive cyclicity in Dinka. *Linguistic Inquiry* .
- Vergnaud, Jean-Roger. 1974. French relative clauses. Doctoral Dissertation, Massachusetts Institute of Technology.