

October 2014

## Cyclicity and connectivity in Nez Perce relative clauses

Amy Rose Deal  
UC Santa Cruz  
ardeal@ucsc.edu

### Contents

<b>1</b>	<b>Introduction</b>	<b>2</b>
<b>2</b>	<b>The basics</b>	<b>5</b>
2.1	A' movement . . . . .	5
2.2	Other facts insensitive to relative pronoun position . . . . .	7
2.3	Morphology of the relative pronoun . . . . .	8
2.4	Morphology of the complementizer . . . . .	9
<b>3</b>	<b>Positions for relative pronouns</b>	<b>10</b>
3.1	The distribution of <i>ke</i> . . . . .	10
3.2	Syntactic and PF analyses . . . . .	13
3.3	Explaining optionality at the PF interface . . . . .	17
<b>4</b>	<b>CP, TP, and <i>that</i>-trace effects</b>	<b>20</b>
<b>5</b>	<b>The question of NP movement</b>	<b>26</b>
5.1	Approaches to the external head . . . . .	26
5.2	The form of an argument from case . . . . .	28
<b>6</b>	<b>Evidence from left dislocation</b>	<b>30</b>
6.1	Connectivity and left dislocation . . . . .	30
6.2	Anticonnectivity and left dislocation . . . . .	34
<b>7</b>	<b>Conclusions</b>	<b>38</b>

## 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 operator 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 head-raising. The argument comes from connectivity and anticonnectivity in morphological case. These new data complement the range of existing arguments concerning head-raising, which draw primarily on connectivity effects at the syntax-semantics interface.

### 1 Introduction

Externally-headed relative clauses feature a single nominal expression in apparent correspondence with two argument positions. One is external to the relative CP, in the matrix clause, and it is here that we find the “head” (or “pivot”) NP. The other is internal to the relative CP, and here we typically find only a gap. The connection between this gap and the external head has for several decades placed relative clauses at the core of the study of movement dependencies. One major strand of this research has focused on movement of the relative operator from an argument position to the CP edge. Another, in the wake of influential work by Kayne (1994), has focused on movement of the head NP itself. On raising analyses, the head NP originates within the relative clause with the relative pronoun as its determiner. A' movement of the relative operator DP to the clause edge is followed by movement of the head NP to the left of the relative pronoun.

In this paper I investigate these two types of movement through the lens of Nez Perce, a Sahaptian language. There are two notable features of restrictive relatives in this language, each of which casts light on one aspect of movement in relativization. The first is that relative pronouns freely alternate between two positions. One, featured below in the (a) examples, is the familiar position between the complementizer and the NP head. The other, featured in the (b) examples, is to the right of the complementizer, apparently inside the relative clause. Consultants perceive the variants to be interchangeable.<sup>1</sup>

<sup>1</sup> Nez Perce examples not attributed to a published source are from field research in Lapwai, ID, from 2007 to 2014. The judgments reported are those of Florene Davis and 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

- (1) a. picpic **yo̥x̥** ke kine \_\_\_ hi-pinmix-saqa  
 cat.NOM RP.NOM C here \_\_\_ AGR-sleep-TAM  
 ‘the cat that was sleeping here’
- b. picpic ke **yo̥x̥** kine \_\_\_ hi-pinmix-saqa  
 cat.NOM C RP.NOM here \_\_\_ AGR-sleep-TAM  
 ‘the cat that was sleeping here’
- (2) a. ’iniit **yo̥x̥** ke Jack hi-hi-ce ’iin hani-ya \_\_\_  
 house.NOM RP.NOM C Jack.NOM AGR-say-TAM 1SG.NOM make-TAM \_\_\_  
 ‘the house that Jack says he built’
- b. ’iniit ke **yo̥x̥** Jack hi-hi-ce ’iin hani-ya \_\_\_  
 house.NOM C RP.NOM Jack.NOM AGR-say-TAM 1SG.NOM make-TAM \_\_\_  
 ‘the house that Jack says he built’

Example (2b) shows that the lower position of the relative pronoun need not be within the minimal finite clause containing the gap. That suggests that the alternation is between two A’ positions for relative pronouns. I argue that these are Spec,CP, in the (a) examples, and a position on the edge of the relative TP, in the (b) examples. Movement of the relative operator passes cyclically through the lower A’ position on its way to the higher one. The alternation in relative pronoun position reflects two possible ways the resulting A’ chain may be spelled out.

The motivation for cyclic A’ movement typically involves considerations of locality. If the relative operator must move through the TP edge on its way to the CP edge, that suggests that the TP complement of relative C delimits a phase. It turns out that additional evidence for this claim can be marshalled from an old puzzle about *that*-trace effects in English. As Bresnan (1972) observed, these effects are notably absent in the immediate environment of relative C.

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

Obviation of the *that*-trace effect in this environment turns out to follow precisely as expected, once the general theory of *that*-trace effects from Pesetsky and Torrego (2001) is combined with the phasal architecture of relative clauses motivated by the Nez Perce patterns in (1)-(2). A crucial role in the explanation is played in particular by the fact that TP constitutes a phase in proximity to relative C, but not in other environments. The conclusion is thus in line with recent work suggesting that phase-inducing properties of functional heads are in part determined by syntactic context (Den Dikken 2007, Gallego 2007, Bošković 2014).

The second important behavior of Nez Perce relative clauses speaks to questions of NP movement, the key ingredient to the raising analysis and the subject of a significant ongoing debate. Three main points of view in this debate should be recognized. One, proposed by Kayne (1994)

---

agreement, AGT agentive nominalization, ATTRIB attributive, C complementizer, CAUSE causative, DUNNO speaker ignorance marker, ERG ergative case, FREQ frequentative deverbal adjective suffix, 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, 2013a), 1SG (etc.) 1st person singular (etc.), 3REFL (etc.) 3rd person reflexive (etc.). Features of missing arguments are glossed according to the speaker’s translation. Word order in Nez Perce is highly flexible (Rude, 1992); for ease of reading, gaps and null arguments are linearized in an SVO order.

and subsequently developed in depth by Bianchi (1999, 2000a,b), maintains that the head of a relative clause is always generated internal to the relative clause; the derivation of externally-headed relatives always involves NP-movement. The second is directly the opposite, maintaining a CP-external origin for the relative clause head and rejecting all forms of the raising analysis. This has been defended by Borsley (1997, 2001). The third approach maintains that both head-raising and non-head-raising structures are required for relative clauses, and indeed that relative clauses are often structurally ambiguous. That conclusion has been defended on a variety of grounds by Áfarli (1994), Sauerland (1998), Bhatt (2002), Szczegielniak (2006) and Hulsey and Sauerland (2006).

What makes Nez Perce especially relevant to this debate is its system of case-marking, which provides a morphosyntactic diagnostic for connectivity between the head NP and the relative clause-internal gap. Relative clauses in Nez Perce show a mixture of connectivity and anticonnectivity in this dimension. On one hand, for in situ DPs, connectivity effects in case-marking are absent: the marking of the head noun is determined by the case assigned to the overall DP in the matrix. This conforms to the cross-linguistically typical pattern, which is compatible with analyses both with and without NP raising (Bianchi 1999, De Vries 2002).

- (4) 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.1SG AGR-like-TAM \_\_\_\_  
       ‘Where is the shirt that I like?’

On the other hand, it is possible to find case connectivity between the head NP and the clause-internal gap in Nez Perce under particular syntactic circumstances. Nez Perce allows DPs to be left dislocated in a construction showing properties of what has been called Hanging-Topic Left Dislocation (HTLD). When a nominal containing a relative clause is left-dislocated in this way, the head of the relative clause may surface in a morphological case which could only have been determined internal to the relative clause. Thus, in (5), the head noun surfaces in the accusative case.

- (5) [<sub>DP</sub> **Samax̂-na** ko-nya    kex *pro<sub>subj</sub>*    'a-sayqi-ca    \_\_\_\_ ]<sub>1</sub>,  
       [    shirt-ACC    RP-ACC C    PRO.1SG AGR-like-TAM \_\_\_\_ ],  
       mine    *pro*<sub>1</sub>      hii-we-s?  
       where    PRO.3SG AGR-be-TAM  
       ‘The shirt that I like, where is it?’

This is a pattern of ‘inverse case attraction’, attested in various extinct Indo-European languages and 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 HTLD contexts, however. It turns out that the very same type of dislocation which supports the case pattern in (5) also supports a pattern where the head NP behaves for purposes of case as though it was generated *outside* the relative clause. This, I argue, speaks to the position of those who have defended both head-raising structures and non-head-raising alternatives as co-existing possibilities for relative clauses.

The paper is structured as follows. In the next section, I introduce the basic facts of relativization in Nez Perce, emphasizing syntactic and semantic commonalities between clauses that vary in relative pronoun position. This prepares the ground for section 3, where I introduce the core analysis of the alternation in (1)/(2): the relative operator moves cyclically through the TP edge

on the way to the CP edge, and either the copy in TP or in CP may be pronounced. The syntactic uniformity of relative clauses explains the commonalities noted in section 2. Together with principles of chain interpretation at PF, the analysis also explains two important differences that correlate with relative pronoun position. These concern case attraction of the relative pronoun, and phonological phrasing of the relative pronoun with the complementizer. In section 4, I show how the involvement of TP in particular opens the door to an explanation of apparently unrelated facts, such as the English pattern in (3), and consider the consequences for an expanded CP structure and for the theory of locality.

Section 5 then pivots to the case facts in light of the analysis of relative pronoun position. I begin by reviewing classical, matching and raising analyses for relative clauses, and show (following Bianchi 1999 and De Vries 2002) how the apparent challenge to raising from case patterns like (4) may be neutralized. The key ingredient is a mechanism for assignment of case to the head NP relatively late in the derivation. The expectation is that case connectivity will arise in relative clauses only in syntactic environments where this type of mechanism is inapplicable. In section 6, I show that left dislocation furnishes such an environment, paving the way for a purely morphosyntactic argument for NP-movement. At the same time, however, left dislocation structures provide evidence of a co-existing structure for relative clauses in Nez Perce which does not involve NP raising. Section 7 assembles the consequences, and concludes the paper.

## 2 The basics

This section sets out the fundamentals of Nez Perce relative clause structure, grouped into four general topics. First is the evidence that relative pronouns undergo A' movement, regardless of their surface position. Second is a set of additional syntactic and semantic similarities between clauses varying in relative pronoun position. Third and fourth are morphological matters, concerning, respectively, the relative pronoun and the complementizer.

### 2.1 A' movement

As in English, externally headed relative clauses in Nez Perce always occur to the right of the external head – *samx̂* ‘shirt’ in (6), *picpic* ‘cat’ in (7). There is a corresponding gap in the relative clause. The (a) and (b) examples vary the relative order of the relative pronoun (bolded) and the complementizer. (The precise form of the complementizer – e.g. *ke*, *kex*, *kem* – is discussed in section 2.4.)

- (6) 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.1SG 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.1SG AGR-like-TAM \_\_\_\_  
 ‘Where is the shirt that I like?’

- (7) 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.1SG fish.NOM  
 'Where is the cat that ate my fish?' <sup>2</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.1SG 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>3</sup>

- (8) a. Kii hii-we-s 'iniit [<sub>CP</sub> **yoŋ** 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>4</sup>
- b. Ku'nu 'ituu-wecet *pro<sub>subj</sub>* hi-'nahpayk-a hipt [<sub>CP</sub> kex **kon-ya**  
 DUNNO what-reason PRO.3SG AGR-bring-TAM food.NOM [ C RP-ACC  
*pro<sub>subj</sub>* 'a-w-caqa *pro<sub>obj</sub>* [<sub>CP</sub> weet'u *pro<sub>subj</sub>* 'a-himkasayq-ca \_ ] ].  
 PRO.1SG AGR-tell-TAM PRO.3SG [ NEG PRO.1SG AGR-like.taste-TAM \_ ] ]  
 'I don't know why he brought food that I told him I don't like.'

Relative clauses give rise to island effects of the familiar kinds; the relevant judgments do not vary with relative pronoun position. Relativization itself shows sensitivity to various islands – a coordinate structure in (9), for instance.

- (9) \* Mine hii-we-s picpic { **yoŋ** ke / ke **yoŋ** } [ 'eekeex kaa \_ ]  
 where AGR-be-TAM cat.NOM { RP.NOM C / C RP.NOM } [ magpie.NOM and \_ ]  
 hii-we-s kasłcím?  
 AGR-be-TAM same.size  
 'Where is the cat that the 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.

- (10) a. Cepeepy'uŋtin' hii-we-s hipt { **yoŋ** kex / kex **yoŋ** }  
 pie.NOM AGR-be-TAM food.NOM { RP.NOM C / C RP.NOM }  
*pro<sub>subj</sub>* liloy-no'qa [ c'alawí *pro<sub>subj</sub>* hani-yo'qa \_ ]  
 PRO.1SG be.happy-TAM [ if PRO.1SG make-TAM \_ ]  
 'Pie is a food that I would be happy if I could make \_.'

<sup>2</sup> This example involves object possessor raising within the relative clause; the verbal morpheme  $\mu$  is a symptom. See section 3.3 and Deal (2013a).

<sup>3</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 (8a) and (8b), respectively, with the result that the object relative pronoun bears NOM in (8a) and ACC in (8b). On the case patterns of Nez Perce, see Deal (2010b, ch 5-8, 2014b).

<sup>4</sup> The subject of the most deeply embedded clause here is a shifty indexical. See Deal (2014a).

- b. \* 'Isii hii-we-s haama { **ko-nim** kem / kem **ko-nim** }  
 who.NOM AGR-be-TAM man.NOM { RP-ERG C / C RP-ERG }  
*pro<sub>subj</sub>* liloy-no'qa [ c'alawí \_\_\_ paa-ni-yo'qa cepeepy'uŋtiis-ne ]?  
 PRO.2SG be.happy-TAM [ 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.

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

These facts are as expected if Nez Perce relative pronouns always undergo A' movement – movement which is unbounded and island sensitive – regardless of the position in which the relative pronoun surfaces.

## 2.2 Other facts insensitive to relative pronoun position

There are several additional important ways in which the syntax and semantics of Nez Perce is insensitive to relative pronoun position. First, relative clauses may be coordinated, regardless of relative pronoun placement.

- (12) Mine hii-we-s samŋ [CP kex **kon-ya** 'iin 'a-sayqi-ca \_\_\_]  
 where AGR-be-TAM shirt.NOM [ C RP-ACC 1SG.NOM AGR-like-TAM \_\_\_]  
 kaa [CP **kon-ya** kem 'iim weet'u 'a-sayqi-ca \_\_\_ ]?  
 and [ RP-ACC C 2SG.NOM NEG AGR-like-TAM \_\_\_ ]?  
 'Where is the shirt that I like and that you don't like?'

This suggests that both types of relative clauses constitute CPs, as indicated.

Second, relative clauses may be stacked in the familiar way, and this is possible even in cases where the two clauses differ in relative pronoun placement.

- (13) Sepe-x-nim *pro<sub>obj</sub>* cepeeletp'et [CP **yoŋ** kem *pro<sub>subj</sub>* hani-ya \_\_\_]  
 CAUSE-see-TAM PRO.1SG picture.NOM [ RP.NOM C PRO.2SG make-TAM \_\_\_]  
 [CP kex **ko-nya** *pro<sub>subj</sub>* 'a-sayqi-ca \_\_\_ ]!  
 [ C RP-OBJ PRO.1SG AGR-like-TAM \_\_\_ ]  
 'Show me the picture that you made that I like!'

Finally, on a semantic note, the alternation in relative pronoun position is possible in both restrictive and non-restrictive relative clauses. The primary focus of this paper is on restrictive relatives; for the examples we have seen so far, the translations accepted and produced by consultants are suggestive of a restrictive interpretation. In (14), where a restrictive interpretation is clearly favored, we see that both orders remain possible.

- (14) Context: I want a cat that can kill mice, since my own cats don't do that.

*Pro<sub>subj</sub>* wewluq-se picpic { **yôx** ke / ke **yôx** } \_\_ hii-we-s ta'c  
 PRO.1SG want-TAM cat.NOM { RP.NOM C / C RP.NOM } \_\_ AGR-be-TAM good  
 cepeqick-e'weet laqas-na.  
 catch-AGT mouse-ACC  
 'I want a cat that is a good mouse-catcher.'

The same holds when a non-restrictive interpretation is favored, as in (15); restrictiveness has no effect on relative pronoun position.

- (15) Jill, { **ko-nim** kex / kex **konim** } \_\_ hi-cewcew-nuu-me *pro<sub>obj</sub>*,  
 Jill.NOM, { RP-ERG C / C RP-ERG } \_\_ AGR-call-APPL-TAM PRO.1SG,  
 hii-we-s saykiptaw'aat.  
 AGR-be-TAM doctor.NOM  
 'Jill, who called me, is a doctor.'

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

### 2.3 Morphology of the relative pronoun

Relative pronouns in Nez Perce are drawn from the series of distal demonstratives and deictic elements. As arguments, these elements show distinctions of number and case, both as relative pronouns and as demonstratives. Table (16) shows the paradigm for the core cases of nominative, ergative and accusative; the singular forms of the three cases are exemplified above. Table (17) lists the major adjunct relative pronouns.

- (16) Core relative pronouns

	SINGULAR	PLURAL
NOM	yôx	yôxme
ERG	konim	konmam
ACC	konya	konmana / yoxmene [idiolectical variation]

- (17) Adjunct relative pronouns

time	kaa	(lit. 'then')
location	kona	(lit. 'there')
manner	ku'us	(lit. 'thus')

With one important exception, to be discussed in section 3.2, the case of a relative pronoun in an argument relative corresponds to the case associated with the A' gap. That is accusative in (18), ergative in (19), and nominative in (20).

- (18) 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.1SG AGR-like-TAM \_\_  
 'Where is the shirt that I like?'



- (19) 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.1SG fish.NOM  
 'Where is the cat that ate my fish?'
- (20) Mine hii-we-s      picpic    **yo $\hat{x}$**       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?'

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). Both when the relative pronoun is ergative, as in (21a), and when it is accusative, as in (21b), the verb is expressed in its ordinary transitive form.

- (21) a. *Pro<sub>subj</sub>* 'e-'pewi-se      cepeepyuxti's-ne ko-nya    ke 'aayato-nm  
 PRO.1SG AGR-look.for-TAM pie-ACC      RP-ACC C woman-ERG  
 paa-ny-a      \_\_.  
 AGR-make-TAM \_\_  
 'I'm looking for the pie that the woman made.'
- b. *Pro<sub>subj</sub>* 'e-'pewi-se      'aayato-na ko-nim ke \_\_ paa-ny-a      ki-nye  
 PRO.1SG AGR-look.for-TAM woman-ACC RP-ERG C \_\_ AGR-make-TAM this-ACC  
 cepeepyuxti's-ne.  
 pie-ACC  
 'I'm looking for the woman who made this pie.'

The same holds in *wh*-questions: verbs surface in their ordinary transitive form, regardless of which argument is A' moved (Deal, 2010b). Morphology of the relative pronoun or *wh*-word does not affect verbal morphology.

## 2.4 Morphology of the complementizer

The final topic for this introductory section is the complementizer *ke*, a word that shows 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 (22), and *-m*, for second person, in (23). The form of agreement is identical for subjects and for objects; this is a pattern of 'omnivorous agreement' (Nevins 2011, Preminger 2011).

- (22) a. cickan      yo $\hat{x}$       ke-x *pro<sub>subj</sub>* 'ew-'nii-ye      *pro<sub>obj</sub>* \_\_  
 blanket.NOM RP.NOM C-1 PRO.1SG AGR-give-TAM PRO.3SG \_\_  
 'the blanket that I gave to her'
- b. cickan      yo $\hat{x}$       ke-x Beth-nim hi-'nii-ye      *pro<sub>obj</sub>* \_\_  
 blanket.NOM RP.NOM C-1 Beth-ERG AGR-give-TAM PRO.1SG \_\_  
 'the blanket that Beth gave to me'
- (23) a. cickan      yo $\hat{x}$       ke-m *pro<sub>subj</sub>* Beth-ne 'ew-'nii-ye      \_\_  
 blanket.NOM RP.NOM C-2 PRO.2SG Beth-ACC AGR-give-TAM \_\_  
 'the blanket that you gave to Beth'

- b. cickan        yoŋ        ke-m Beth-nim hi-’nii-ye        *pro<sub>obj</sub>*    —  
 blanket.NOM RP.NOM C-2    Beth-ERG AGR-give-TAM PRO.2SG —  
 ‘the blanket that Beth gave to you’

This pattern is discussed by Deal (2014c), who concludes that *ke* contains a  $\phi$ -probe specified for particular person features (Béjar 2003, Béjar and Rezac 2009, Nevins 2011, Preminger 2011). The features in question are revealed in clauses with both first and second person arguments. Here, structure matters: C agrees with both a first person subject and a second person object, (24), but only the subject when the subject is second person, (25).

- (24) cickan        yoŋ        ke-m-ex *pro<sub>subj</sub>*    ’inii-ye    *pro<sub>obj</sub>*    —  
 blanket.NOM RP.NOM C-2-1    PRO.1SG give-TAM PRO.2SG —  
 ‘the blanket that I gave to you’
- (25) cickan        yoŋ        ke-m *pro<sub>subj</sub>*    pii-’ni-me        *pro<sub>obj</sub>*    —  
 blanket.NOM RP.NOM C-2    PRO.2SG AGR-give-TAM PRO.1SG —  
 ‘the blanket that you gave to me’

This suggests that *ke* is specified for [PARTICIPANT,ADDRESSEE] – the featural signature of second person. Probing continues past a first person subject in search of [ADDRESSEE] in (24), but the second person subject in (25) fully satisfies the C probe.

Person-based, omnivorous agreement of the type just demonstrated occurs in Nez Perce with a variety of clause-initial, functional elements. One, in addition to *ke*, is the yes/no particle *weet*; another is the element *ku’* which introduces certain conditional clauses. The agreement properties of these elements are quite distinct from those of verbs and nouns. Verbs agree non-omnivorously with subjects and with objects, using distinct agreement morphemes. Nouns optionally agree with their modifiers in number and case; they do not agree with their arguments, such as possessors. A reasonable generalization to be made is that person-based, omnivorous agreement is restricted in Nez Perce to the category C.

### 3 Positions for relative pronouns

The patterns reviewed in the previous section emphasize the commonalities between clauses with relative pronouns to the left and right of C. In this section I offer an account of relative pronoun position which captures these similarities, along with two important differences. The first difference concerns whether the relative pronoun may show case attraction. The second concerns whether the relative pronoun forms a prosodic unit with the complementizer. I maintain that both differences, along with the similarities in structure and meaning, are best accounted for if the relative pronoun moves cyclically through two A’ positions on the edge of the relative clause. The higher position is on the edge of CP; the lower position is on the edge of TP. Copies of the relative pronoun are syntactically present in both positions, and principles of chain spell-out determine which is submitted for interpretation at PF.

#### 3.1 The distribution of *ke*

The route I want to take to these conclusions starts with the complementizer. Thus far we have seen one major part of the distribution of *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 (26) and (27). Complementizer agreement is determined as in relative clauses.

- (26) 'Isii-nm (ke-m) \_\_ hi-wapayata-yo' *pro<sub>obj</sub>*?  
 who-ERG (C-2) \_\_ AGR-help-TAM PRO.2SG  
 'Who is going to help you?'  
 (27) Miniku haama (ke-m) Beth-nim hii-ca-qa *pro<sub>obj</sub>* [*CP* \_\_ hi-k'oomay-ca ]?  
 which man.NOM (C-2) Beth-ERG AGR-tell-TAM PRO.2SG [ \_\_ AGR-be.sick-TAM ]  
 'Which man did Beth tell you is sick?'  
 (28) 'Ituu ke-m-ex *pro<sub>subj</sub>* 'inii-yo'qa *pro<sub>obj</sub>* \_\_?  
 what.NOM C-2-1 PRO.1SG give-TAM PRO.2SG \_\_  
 'What could I give you?'

The presence of *ke* in questions and relative clauses immediately suggests a morphological connection to A' movement. The impression is bolstered by consideration of environments where *ke* is absent. It does not appear in non-relative declarative clauses, for instance, whether matrix or embedded. These lack any overt exponent of C.

- (29) (\*ke) Beth hi-neki-se [*CP* (\*ke) Jill-nim pee-siw'e-nu' Matt-ne ]  
 (\*C) Beth.NOM AGR-think-TAM [ (\*C) Jill-ERG AGR-not.recognize-TAM Matt-ACC ]  
 'Beth thinks Jill won't recognize Matt.'

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

- (30) 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?'  
 (31) Weet-ex 'iin weyelkilit-ne 'a-capakayx-s?  
 Y.N-1 1SG.NOM wheel-ACC AGR-clean-TAM  
 'Have I cleaned the wheel?'

Let us suppose then that *ke* is a complementizer morphologically specified for A' 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.

- (32) 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 the C phase head at the top of the A' chain, purely formal [wh] features occur on C phase heads lower down on the path of A' movement.<sup>5</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.

- (33) Kii hii-we-s 'iniit [<sub>CP</sub> yô 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.'
- (34) Kii hii-we-s 'iniit [<sub>CP</sub> yô ke Jack hi-hi-ce  
 this.NOM AGR-be-TAM house.NOM [ RP.NOM C Jack.NOM AGR-say-TAM  
 [<sub>CP</sub> \_\_\_\_ 0 / \***kex** [ '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.<sup>6</sup>

This generalization takes on a special significance when we return to pairs like (35) and (36), which vary the 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 a substantive [wh] feature responsible for movement to this position. The presence of *ke* in the (b) examples is more curious and more telling.

- (35) a. sam̂ **ko-nya** kex *pro*<sub>subj</sub> 'a-sayqi-ca \_\_\_\_  
 shirt.NOM RP-ACC C PRO.1SG AGR-like-TAM \_\_\_\_  
 'the shirt that I like'

<sup>5</sup> This way of describing the two types of features follows Rizzi (2006).

<sup>6</sup> Notably, while the Nez Perce pattern 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. (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).) 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 the status of that feature as substantive rather than purely formal.

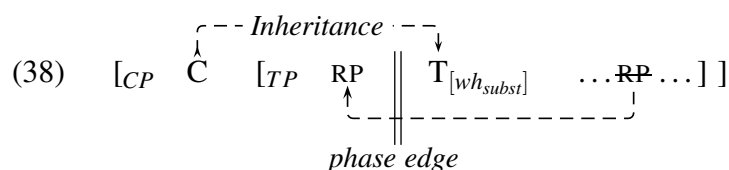
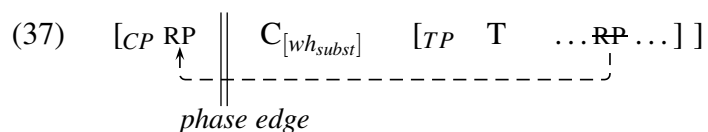
- b. samx̂      kex **ko-nya** *pro<sub>subj</sub>* 'a-sayqi-ca    \_\_  
 shirt.NOM C    RP-ACC PRO.1SG AGR-like-TAM    \_\_  
 'the shirt that I like'
- (36) a. picpic    **yox̂**      ke kine \_\_ hi-pinmix-saqa  
 cat.NOM RP.NOM C here \_\_ AGR-sleep-TAM  
 'the cat that was sleeping here'
- b. picpic    ke **yox̂**      kiney    \_\_ hi-pinmix-saqa  
 cat.NOM C    RP.NOM right.here \_\_ AGR-sleep-TAM  
 'the cat that was sleeping right here'

The dilemma is this. In all of these examples, C has a morphological form indicative of a substantive [wh] feature. In the (b) examples, however, the piece which we would expect to surface in the specifier position appears lower down in the relative clause.

### 3.2 Syntactic and PF analyses

Two natural responses to this dilemma should be considered.

The first makes use of ideas developed by Chomsky (2008) concerning the relationship between C, the phase head, and its complement, TP.<sup>7</sup> Chomsky proposes that various of the features of T are not inherent in that category, but rather are inherited from C; this, he suggests, is how T comes to possess unvalued  $\phi$ -features. Suppose the features subject to inheritance included [wh] features. If C simply transferred its [wh] feature to T, cyclic movement would pass through the TP edge instead of the CP edge. This in turn would suggest that inheritance of [wh] would be tantamount to inheritance of phasal status from C by T. The alternation in relative pronoun position follows, on this view, if inheritance of the substantive [wh]-feature may be merely optional. When C retains its [wh] feature, it attracts the relative operator, resulting in relative pronoun - complementizer order. When the feature is transferred to T, the relative operator moves to its specifier instead, resulting in the order complementizer - relative pronoun. In both cases, the A' dependency terminates at the highest phase edge internal to the relative clause, as is standard.<sup>8</sup>



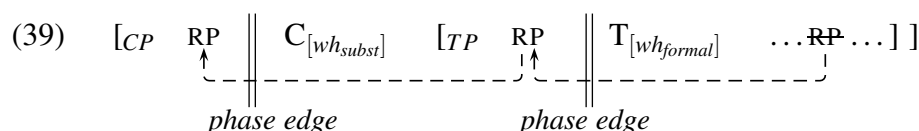
Because variation in the syntax of inheritance is the key piece of this analysis for understanding the alternation in (35) and (36), I call this the syntactic approach to relative pronoun position.

<sup>7</sup> I set aside for the moment the possibility that the traditional C category corresponds to a range of heads, as in Rizzi (1997), returning to this question in section 4.

<sup>8</sup> For simplicity, I depict the relative operator here and throughout this section as merely a relative pronoun. These representations can be modified to reflect a head-raising or matching approach, as discussed in section 5.1, with the addition of a copy of the head NP serving as the complement to each instance of RP.

One consequence of the syntactic approach is that the appearance of *ke* in structures like (38) must be taken to reflect the association of the substantive [wh] feature with C *prior* to inheritance. Note that, because the [wh] feature in question is substantive, it is not possible for T to inherit it while C also retains a copy – a scenario in which presumably T and C would both act as phase heads. To satisfy the substantive [wh] feature on T, A' movement would have to terminate in the specifier of that head, problematically leaving the substantive [wh] feature on the higher phase head unchecked. The result is that *ke*, on the syntactic approach, can be seen only as a somewhat imprecise guide to the ultimate syntactic location of substantive [wh]. Its appearance is compatible with substantive [wh] either on C itself, or on the head of its TP complement.

This result could be avoided under slightly modified assumptions. Suppose, for instance, that the C-T relationship results in T bearing a purely formal [wh] feature, rather than a substantive one.<sup>9</sup> The substantive feature may therefore be retained by C. The outcome is a structure in which movement must proceed cyclically through the edge of TP, where it satisfies formal [wh], on its way to the edge of CP, where it satisfies substantive [wh].



This structure in turn paves the way for a second type of response to the dilemma we are facing: the optionality lies not in how features are distributed, but in how the overall A' chain is pronounced. It resides, in other terms, not in the narrow syntax, but in interpretation at the PF interface. I therefore call this the PF approach to relative pronoun position. PF interpretation of the highest copy results in relative pronoun - complementizer order. PF interpretation of the intermediate copy at the TP edge results in complementizer - relative pronoun order. Independent of what may happen at the interface, A' movement in the syntax uniformly terminates in Spec,CP. This provides an explanation for why *ke* uniformly appears in relative clauses which does not retreat from the hypothesis that *ke* marks substantive [wh] features on C.

Seen in this way, the Nez Perce facts present 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>10</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 (bolded) takes the relative form, whereas the *wh*-word remains embedded in a lower clause.

(40) Coptic (Reintges, 2007, 270)

- a. **ere**            əm-mɛɛʃe      ʃə əmmo-s      [ ʃe ang nim ]  
REL(-PRES) DEF.PL-crowd say PREP-3SG.F [ C I    who ]  
'Who is the crowd saying that I am?'

<sup>9</sup> There is, to my mind, an open question about whether such a relationship should be considered Inheritance, or merely a standard case of a head selecting for particular features on the head of its complement.

<sup>10</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.

- b. **ənt**-a-tetən-ei      eβol e-t-erəmos      [ 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?’

Here again 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 a PF approach for A' movement in Coptic. A' movement does indeed take place in the syntax in examples like (40); the *wh*-word nevertheless surfaces in situ because PF interpretation singles out a lower copy for pronunciation.

Now, there is an empirical argument to be made for the PF approach to the Nez Perce puzzle, which brings us to the first difference correlated with relative pronoun position. One important way the syntactic and PF approaches differ is in the phasal status of CP when the relative pronoun is pronounced at the edge of TP. On the PF approach, CP is always a phase, and the relative pronoun may be pronounced inside or outside this phase. On the syntactic approach, movement of the relative pronoun to CP correlates with the phasehood of CP. The relative pronoun always surfaces on the highest phase edge of the relative clause; it never surfaces inside the relative clause phase. The expectation on the syntactic approach therefore is that relative pronouns should always behave as though they belong to the matrix phase. On the PF approach, this is expected only for relative pronouns to the left of C, not those to the right.

The phenomenon which allows us to test these predictions is case attraction. We observed in section 2.3 that the case of the relative pronoun is standardly determined internal to the relative clause. Relativization of an object in (41a) produces an accusative relative pronoun; relativization of an intransitive subject in (41b) produces a nominative relative pronoun. In these examples the case of the relative pronoun contrasts with the case of the head noun, determined external to the relative clause.

- (41) 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.1SG 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.1SG AGR-recognize-TAM woman-ACC RP.NOM C \_\_\_ AGR-arrive-TAM  
‘I recognize the woman who just came in.’

Case attraction is a pattern whereby the relative pronoun takes on the case of the head noun, potentially departing from the case associated with the A' gap. The examples below show the case-attracted versions of (41): the accusative of (41a) is replaced by nominative, whereas the nominative of (41b) is replaced by accusative.

- (42) a. Mine hii-we-s      samx̂      **yox̂**      kex *pro<sub>subj</sub>* 'a-sayqi-ca      \_\_\_?  
where AGR-be-TAM shirt.NOM RP.NOM C PRO.1SG 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.1SG AGR-recognize-TAM woman-ACC RP-ACC C \_\_\_ AGR-arrive-TAM  
‘I recognize the woman who just came in.’

Case attraction in a number of extinct Indo-European languages is discussed by Bianchi (2000b), who makes the important observation that attraction is subject to locality effects. As Harbert (1982) points out, when a preposition is pied-piped by the relative pronoun in Classical Greek, case attraction becomes impossible.<sup>11</sup>

(43) Classical Greek

eidénai tēn dúnamin (toútōn) [<sub>CP</sub> [<sub>PP</sub> eph' hous / \*hōn ]<sub>1</sub>  
to.discover the strength those.GEN.PL [ [ against RP.PL.ACC / \*RP.PL.GEN ]  
án īōsin —<sub>1</sub> ]  
they.are.to.proceed — ]  
'to discover the strength of those against whom they are to proceed'

Bianchi interprets this fact as evidence that case attraction depends on local government of the relative pronoun by the matrix D. My proposal, which is very much in the same spirit, is that case attraction follows from Agree in the DP containing the relative clause. Agreement between the matrix D and the relative pronoun may overwrite the latter's case, resulting in the case attraction pattern. In Nez Perce, this agreement is like other instances of case concord in that it is optional for elements other than the most local N within D's complement. An adjective, for instance, may but need not carry the case of the noun it modifies. (For clarity, I have included the silent D in the following glosses.)

- (44) a. 'E-'pewi-tx [<sub>DP</sub> ∅ yoosyoos wixsilikeecet'es-ne ]!  
AGR-look.for-IMP [ D.ACC blue chair-ACC ]  
'Look for the blue chair!'  
b. *Pro<sub>subj</sub>* 'e-'pewi-se [<sub>DP</sub> ∅ yoosyoos-na wixsilikeecet'es-ne ].  
PRO.1SG AGR-look.for-TAM [ D.ACC blue-ACC chair-ACC ]  
'I am looking for the blue chair.'

(44b) is like the case attraction examples (42) in that case is spread from D to an element other than the most local N. (44a) is like examples (41) in that this fails to happen.

With this background, we can proceed to use case attraction as a test for the presence of a phase boundary between the matrix D and the relative pronoun at the edge of TP.<sup>12</sup> The case attraction examples in (42) featured relative pronouns to the left of C. Crucially, the case pattern of these examples is not well-formed with relative pronouns to the right of C. Relative pronouns in the lower position may only show the case determined internal to the relative clause. These facts complement (43) in demonstrating locality in case attraction.

<sup>11</sup> The observation is ultimately due to Smyth (1920, 568), who provides example (43) with the parenthesized matrix demonstrative, as cited here. The passage without the demonstrative appears in Xenophon's *Anabasis*, 5.1.8.

<sup>12</sup> The local nature of case attraction opens up similar diagnostic possibilities for adpositions, of course, as we see in the Greek example (43). However, it remains an open question at present whether Nez Perce makes use of a P category. Notably, the grammatical tradition on the language (e.g. Aoki 1979, 1994, Rude 1985, 1999) does not recognize such a category, instead classifying the translation equivalents of common adpositions either as nouns, verbs, or case inflections.



- (45) a. Mine hii-we-s sam̂ kex { \*yô / ko-nya } *pro<sub>subj</sub>*  
 where AGR-be-TAM shirt.NOM C { \*RP.NOM / RP-ACC } PRO.1SG  
 'a-sayqi-ca \_\_\_?  
 AGR-like-TAM \_\_\_  
 'Where is the shirt that I like?'  
 b. *Pro<sub>subj</sub>* 'e-suki-ce 'aayato-na ke { \*ko-nya / yô } \_\_\_  
 PRO.1SG AGR-recognize-TAM woman-ACC C { \*RP-ACC / RP.NOM } \_\_\_  
 hi-pay-n.  
 AGR-arrive-TAM  
 'I recognize the woman who just came in.'

The interaction between case and position for relative pronouns is summarized in (46).

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

		RP position	
		Spec,CP	Spec,TP
RP case	CP-internal case (Non-attraction)	Y <i>e.g. (18)-(20), (41)</i>	Y <i>e.g. (35b), (36b)</i>
	CP-external case (Case attraction)	Y <i>e.g. (42)</i>	n <i>e.g. *(45)</i>

The correlation between relative pronoun position and the possibility of case attraction is as predicted on the PF approach. Only relative pronouns to the left of C are external to the relative clause phase, and thus accessible for agreement with the matrix D. Relative pronouns to the right of C are internal to the relative clause phase, and not accessible for case attraction.

### 3.3 Explaining optionality at the PF interface

Suppose we now adopt the PF approach to relative pronoun position, as in (39). The major question we must face is why it should be possible for the PF interface to show flexibility in the pronunciation of the A' chain.

An important clue can be found elsewhere in the grammar of Nez Perce. Seen through the PF approach, the alternation in relative pronoun position turns out to be closely parallel to a pattern of overt and covert movement for object possessors, discussed in Deal (2013a). The two positions for object possessors are seen in (47). One position is inside the object DP, where possessors surface in the genitive case, (47a). The other position is outside DP, in the vP spine, where possessors are marked with the accusative case, (47b). The two examples are semantically equivalent.

- (47) a. A.-nim <T.-na> paa-'yâ-na'ny-a **T.-nm taaqmaat̚**  
 A.-ERG <T.-ACC> AGR-find- $\mu$ -TAM T.-GEN hat.NOM  
 'A. found T.'s hat.'  
 b. A.-nim **T.-na** paa-'yâ-na'ny-a <T.-nm> **taaqmaat̚**.  
 A.-ERG T.-ACC AGR-find- $\mu$ -TAM <T.-GEN> hat.NOM  
 'A. found T.'s hat.'

Part of the evidence for phonologically invisible possessor movement in examples like (47a) involves Condition C effects (Deal, 2013a, 417-418). But interestingly, part of it also involves a morphological signal that movement is taking place. Both versions of (47) contain the affix *na'ny*, argued in Deal (2013a) to spell-out a functional head  $\mu$ .<sup>13</sup> This head merges below vP and attracts the object's possessor to its specifier. The vP structure for both versions of (47) is as in (48).

(48)  $[_{VP} \text{ A. v } [_{\mu P} \text{ T. } \mu [_{VP} \text{ find } [_{DP} \text{ T. hat } ] ] ] ]$

As in relative clauses, the result of movement in this structure may be interpreted at PF in either of two ways, resulting in overt and covert movement.

One distinctive aspect of the possessor raising alternation is the correlation between the placement of the possessor phrase and its morphological case. In Deal (2013a), the presence of the accusative case in (47b) is handled in the normal way: an accusative case feature is assigned in syntax to the possessor chain. The top copy of this chain is realized, and the accusative feature is faithfully realized at PF. In examples like (47a), by contrast, an additional mechanism comes into the mix. While the possessor chain is still syntactically associated with an accusative case feature, a PF rule kicks in to overwrite the case value of the copy of the possessor that remains in Spec,DP. The overwriting rule, explored in detail in Deal (2013a), is as in (49).

(49) For any case value  $\alpha$ , (Deal, 2013a, 412)

$$[\text{Case}:\alpha] \rightarrow [\text{Case:Gen}] / [{}_{DP} \text{DP}:[\_\_] [{}_{DP} \dots]]$$

I want to now suggest that the existence of a rule like (49) is related to the fact that a lower copy is even eligible for pronunciation in (47).

Typically, Nez Perce behaves like a language that requires highest copies to be pronounced. It insists on overt *wh*-movement in interrogatives, for instance. Similarly, inverse scope patterns are not freely available (Deal, 2011). Both facts suggest that the copy pronunciation algorithm for this language obeys a familiar principle:

(50) Pronounce Highest Copy! (PHC)

In just the familiar way, regular obedience to this principle 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, (49). 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 type of principle, which in this case favors the pronunciation of the lower copy:

(51) Apply Morphological Rules Overtly! (AMRO)

Any grammar must choose between these principles in cases where they conflict, assuming that economy conditions rule out pronunciation of multiple members of a chain. What then can account for variation of the type we see in possessor raising, which holds internal to the idiolects of particular speakers? A plausible assumption is that individual speakers have access to multiple

<sup>13</sup> The rather complex morphophonology of this head is discussed by Deal and Wolf (In press).

co-existing grammars, as argued both for adults and children by Charles Yang (2000, 2004). On Yang's model, speakers draw probabilistically from a set of grammars in the course of language use. The alternation in the overtiness of possessor raising could be seen, though this lens, as resulting from the co-existence of a grammar strictly obeying PHC with a grammar obeying AMRO in cases of conflict. In both grammars, in the absence of a morphological rule, the highest copy will be pronounced. When a morphological rule applies, the grammars diverge, producing variation.

This approach predicts that variation in the overtiness of movement will come about in any environment in which a morphological rule applies to a non-topmost copy. This in turn brings us to the second of our two differences between high and low relative pronouns, which is morphophonological. When a relative pronoun appears to the right of *ke*, but not when it appears to the left, the relative pronoun and the complementizer form a prosodic unit.

There are two types of evidence for the prosodic unit in question. First, for speakers showing vowel harmony, the complementizer and the low relative pronoun form a harmony domain. As described by Aoki (1966), harmony in Nez Perce contrasts a dominant set of vowels, /a o/, with a recessive set, /e u/.<sup>14</sup> Recessive vowels change to the corresponding dominant vowel when a dominant vowel is present elsewhere in the domain. When a relative pronoun containing a strong vowel (/a/ or /o/) appears to the right of the complementizer, the recessive vowel of *ke* harmonizes, producing *ka*. The following examples, drawn from corpora, reflect the grammar of a speaker retaining the vowel harmony pattern.

- (52) *Pro<sub>subj</sub>* hipe-quyim-ne teŋsem **ka kona** *pro<sub>subj</sub>* hi-tkuliik-cine \_\_\_\_.  
 PRO.3PL AGR-climb-TAM ridge.NOM C RP.LOC PRO.3PL AGR-hunt-TAM \_\_\_\_  
 'They went up the ridge where they had been hunting.' (Aoki and Walker, 1989, 552)
- (53) Kaa pee-Ø-ne yoq'op-nim cuuŋim-nim 'iceyeeye-ne **ka ko-nya** teewis  
 then AGR-tell-TAM DEM-ERG bull-ERG coyote-ACC C RP-ACC horn.NOM  
*pro<sub>subj</sub>* paa-wi-hany-a \_\_\_\_, "pii-wapayata-m'ee!"  
 PRO.3SG AGR-DIST-make-TAM \_\_ AGR-help-TAM  
 'Then that bull said to the coyote for whom he had made horns, "Now you help me!"'  
 (Aoki and Walker, 1989, 480)

This pattern of vowel harmony is not attested when the relative pronoun precedes the complementizer, suggesting that in that case the two do not form a prosodic unit.

Current speakers of Nez Perce do not have productive vowel harmony (Crook, 1999). They do, however, retain a pattern which provides a second type of evidence for prosodic grouping: stress. For these speakers, pronouns to the right of C share a stress domain with the complementizer, in contrast to those to the left of C. Stress falls on the first syllable of the complementizer when the relative pronoun precedes, as in (54). When the relative pronoun follows, as in (55), stress falls on the relative pronoun; the first syllable of the complementizer is not stressed.

- (54) cíckan yoŋ ké-m-ex *pro<sub>subj</sub>* 'iníi-ye *pro<sub>obj</sub>* \_\_\_\_  
 blanket.NOM RP.NOM C-2-1 PRO.1SG give-TAM PRO.2SG \_\_\_\_  
 'the blanket that I gave to you'

<sup>14</sup> There is an extensive literature on this pattern, its historical development, and its theoretical consequences: i.a. Chomsky and Halle (1968, pp 377-9), Jacobsen (1968), Rigsby and Silverstein (1969), Zwicky (1971), Hall and Hall (1977), Mackenzie and Drescher (2004).



On the other hand, the expansion of CP makes available a number of lower specifier positions in the CP domain which could in principle act as phases and thus serve as an alternative lower landing site for relative operator movement.<sup>16</sup> To tell apart these possibilities we must investigate the connection between relativization and the TP layer in particular.

One key aspect of this connection concerns subjects. It should be mentioned right away that research on Nez Perce has not yet established that subjects in this language move to the TP projection, or otherwise interact with T.<sup>17</sup> If, however, the Nez Perce facts are indicative of a larger pattern in the derivation of externally-headed relatives, we can expect to find relevant clues in subject behavior in languages where the connection between subjects and TP is much more secure. One such language is English, of course. I want now to show how an old problem in English *that*-trace effects finds its solution in light of the claim that it is TP indeed which constitutes the lower phase in relative clauses. The English facts support, in particular, the following version of that claim (leaving open for the moment how the term ‘relative C’ is to be understood in an expanded CP model):

- (59) *Lower Phase Conjecture* (LPC) (to be revisited)  
The TP sister of relative C is a phase.

I return to some consequences and a possible refinement of the LPC at the end of this section.

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.

- (60) 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.

- (61) 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) before theoretical attentions shifted away, leaving Bresnan’s observations unexplained. Returning to the pattern now in the light of the Nez Perce facts, 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

<sup>16</sup> See Bianchi (1999) and Zwart (2000) for proposals in which relative pronouns occupy the non-topmost layer in a split CP.

<sup>17</sup> Two strands of research are relevant here. One concerns subject agreement, standardly taken to indicate an Agree relation between the subject and T. Deal (2010b) observes that morphological facts suggest instead that subject agreement features are borne by the Aspect head in Nez Perce. The choice of aspect determines the way that subject agreement is expressed on the verb (whether as a prefix or as a suffix), whereas tense has no such effect. The other strand concerns A-scrambling, often taken to arise when the object moves to TP instead of the subject (Mahajan, 1990). Deal (2013b) argues that, while Nez Perce does have A-scrambling, objects scramble over subjects at the level of vP, not TP. This leaves open the question of whether T enters into Agree with the subject.

facts of (60) within the phase theory. An extension of their analysis to (61) 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 (60). 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. Note that Pesetsky and Torrego couch their analysis in a traditional phrase structure in which the CP domain is not expanded, as in the previous section. Suppose we understand this structure as resulting from the lexical expression of Force and Finiteness in a single head in English, as Rizzi (1997) proposes; this single head C also serves as the phase head. By contrast to CP, TP in an ordinary declarative or interrogative clause is not a phase. That means that 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.

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

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>18</sup>

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

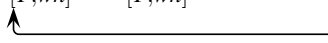
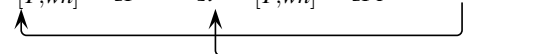
Two separate movements must occur in this case, since there is not a single element that C can attract that bears both [T] and [wh].

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 (60) once again.

<sup>18</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.

- (60) 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 (64a) rather than (64b).

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


It is clear why this preference should hold: this is a simple case of economy in movement. In (64a), 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 (64b), 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 (61) above.

- (61) 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 (61a) when only the TP of the relative clause has been constructed. [T] on the subject is checked in Spec,TP.<sup>19</sup>

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

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.

- b.  $[ \text{ Rel-C}_{[T,wh]} [_{TP} [_{DP} \text{ Op } ]_{[wh]} \text{ T VP } ] ]$

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]. This now has the effect that [T] on C is left unsatisfied. C is forced to satisfy its [T] feature by attracting the T head, resulting in *that*.

- c.  $[_{CP} [_{DP} \text{ Op } ]_{[wh]} [_{T} \text{ that}]_i + \text{Rel-C}_{[T,wh]} [_{TP} \text{ t } \text{ T}_i \text{ VP } ] ]$   


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, (64b). 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.

<sup>19</sup> Op here may be understood as containing the head NP, as discussed in section 5.1; see note 8.

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. At the same time, the special role of subjects in particular in the English *that*-trace pattern provides evidence that it is indeed TP, as the LPC records, which serves as the lower phase in relative clauses.

I suspect the English facts are not exceptional in this regard. While many languages do not show *that*-trace effects (a fact which might be explained by simply treating their complementizers as the realization of a C head, rather than a C-T complex), a number of languages show other types of special behavior for the highest subject position in relative clauses. In languages using resumptive pronouns in relative clauses, for instance, resumptives are typically impossible in the highest subject position, as McCloskey (1990) observed.<sup>20</sup> This type of pattern is shown below for Palestinian Arabic, drawing from work by Shlonsky (1992, 2002). Relativization of the highest subject in this language requires a gap and does not tolerate a resumptive pronoun, (66a). Relativization of all other arguments shows the opposite pattern: a resumptive pronoun is required and a gap is ruled out.

- (66) a. l-bint ʔilli (\*hiy) raayha ʕal beet  
           the-girl that (\*she) going to house  
           ‘the girl that is going home’  
       b. l-bint ʔilli            ʕufti-\*(ha)  
           the-girl that (you.F) saw-\*(her)  
           ‘the girl that you saw’  
       c. l-bint ʔilli            fakkarti ʔinno \*(hiy) raayha ʕal beet  
           the-girl that (you.F) thought that \*(she) going to the house  
           ‘the girl that you thought is going home’  
       d. l-bint ʔilli            fakkarti ʔinno Mona ḥabbat-\*(ha)  
           the-girl that (you.F) thought that Mona loved-\*(her)  
           ‘the girl that you thought that Mona loved’

Shlonsky’s proposal is that resumptive pronouns appear as a last resort, when movement is blocked. The blocking effect is derived in his system by treating the Spec,CP position in Palestinian Arabic as an A-position, with the consequence that movement of an object to Spec,CP incurs a relativized minimality violation. In the present system, the impossibility of movement for all but the highest subject can immediately be made to follow from the phase theory if formal [wh] features cannot be present at the TP level in Palestinian Arabic. If the highest TP constitutes a phase in relative clauses, but only the highest subject can obtain a position on the edge of this TP, only the highest subject will be able to move to CP and leave behind a gap in the relative clause. Spec,CP remains strictly an A’ position.

<sup>20</sup> Indeed, Demirdache (1997) observes a close connection between the so-called ‘Highest Subject Restriction’ in resumption and the *that*-trace effect.



These patterns come with a number of theoretical implications. One immediate consequence of both the English and the Palestinian Arabic facts concerns the effects of syntactic context on the phasehood of TP. In order to derive the specialness of *that*-trace obviation at the very top of relative clauses, the phasal status of TP in relatives must not extend to questions or to ordinary embedded clauses.<sup>21</sup> The subject's T feature remains present and able to satisfy requirements of C in such environments precisely because TP does not constitute a phase. Likewise, while resumption in Palestinian Arabic is required for relativization of all but the highest subject, this pattern does not extend to questions. In a question, both subjects and objects may be moved, leaving behind a gap in argument position (Shlonsky, 2002).

- (67) Miin l-ʔasad ʔakal \_\_ mbarriḥ?  
       who the-lion ate       yesterday  
       'Who did the lion eat yesterday?'
- (68) Miin \_\_ ḥall l-muškil?  
       who \_\_ solved the-problem  
       'Who solved the problem?'

The absence of a highest subject effect in this environment is explained if TP constitutes a phase in Palestinian Arabic only in proximity to relative C. The overall conclusion is that it must be possible for a certain projection type to constitute a phase in one syntactic environment but not in another – a conclusion also reached, though by different means, by Den Dikken (2007), Gallego (2007), and Bošković (2014). 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.

An additional consequence is that we can remain relatively neutral on the question of an expanded CP layer, so far as concerns the cyclic movement of relative operators. Cyclic movement through the TP edge may be represented either with a traditional CP, as in (39), or with an expanded one, as in (58). The choice between these representations merits further discussion primarily as concerns the proper statement of the LPC, especially with reference to an expanded CP model.

Given that relative pronouns move to Force in such a model (Rizzi, 1997), the label of “relative C” could naturally be understood as referring to the Force head. Force, however, is projected at a considerable structural distance from T. Quite substantial countercyclicity is thus involved if TP becomes a phase only when Force is merged. The solution may lie in the presence of relative-clause related features lower in the C domain, which must be checked against related features on the Force head. This immediately makes for a connection with Authier (2013)'s work on polarity features both on Force and on Fin, the latter checked against the former. In a parallel way, we might thus posit a relative Fin head bearing a feature to be checked against the Force head which attracts relative pronouns. The LPC can be restated accordingly:

- (69) *Lower Phase Conjecture* (LPC) (restated)  
       The TP sister of relative C / Fin is a phase.

The position of relative Fin vis-à-vis TP in the expanded CP model is the same as the position of C vis-à-vis TP in the traditional CP model. Only very limited countercyclicity is required then in the

<sup>21</sup> The present view is thus distinguished both from the standard view of phasal categories (e.g. Chomsky 2008), according to which TP is never a phase, as well as from views according to which TP is always a phase. On the latter proposal, see Assmann et al. (2012) and references there.

determination of the phasehood of TP. Phasehood for TP is determined at the point of merger with a head – alternatively, relative C (the term I will use for the remainder of this paper) or relative Fin.

## 5 The question of NP movement

So far we have been concerned primarily with the internal structure of CP. We now turn to the question of how the CP relates syntactically to the head NP in the matrix clause. The way this NP comes to be CP-external is a major dividing point among analyses of relative clauses. In this section I review these analyses and the ways that patterns of morphological case do and do not decide among them. Then, in the next section, I show how case facts from Nez Perce provide a new argument that relative clauses across languages may, but need not, be derived by NP movement. Many Nez Perce relative clauses – though crucially, not all – are structurally ambiguous between raising and non-raising analyses.

### 5.1 Approaches to the external head

What I will call the ‘classical’ view of relative clause structure takes the head NP to originate outside the relative CP, in the position in which it ultimately surfaces. CP-internally, the relative operator consists simply of the relative pronoun.<sup>22</sup> This is shown in (70) for the DP *the proposal which we support*, modifying the standard classical view to include TP-level cyclicity.

(70)  $[_{DP} \text{ the } [_{NP} [_{NP} \text{ proposal } ] [_{CP} \text{ which } C [_{TP} \text{ ~~which~~ } [_{TP} \text{ we } T [ \text{ support } \text{ ~~which~~ } ] ] ] ] ] ] ]$

A prominent variant of this view 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 in a series of papers by Uli Sauerland (1998, 2000, 2002; also Hulsey and Sauerland 2006). While the matching approach takes the head NP to originate outside the relative clause, it also posits an identical NP inside the relative clause, sister to the relative pronoun. The CP-internal NP is deleted under identity with the CP-external NP.

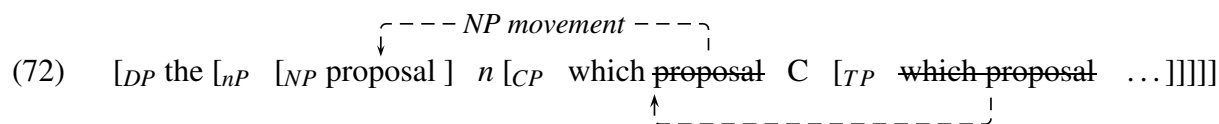
(71)  $[_{DP} \text{ the } [_{NP} [_{NP} \text{ proposal } ] [_{CP} \text{ which } \text{proposal} C [_{TP} \text{ ~~which-proposal~~ } \dots ] ] ] ] ]$

Because these approaches both treat the head NP as originating outside the relative CP, they both predict the absence of syntactic connectivity effects between the head and the CP-internal gap.

The expectation is different on raising approaches. Like the matching approach, raising approaches treat the relative pronoun as a determiner taking an NP complement. Instead of remaining in situ in DP, however, this NP moves to the left of the relative pronoun, where it is pronounced as the relative clause head. Varieties of the raising approach differ as to the precise landing site for NP movement (see Vergnaud 1974, Kayne 1994, Bianchi 2000a, Bhatt 2002, De Vries 2002, for

<sup>22</sup> See De Vries (2002) for discussion of the history of this view, and references in De Vries (2013).

several possibilities). In (72), I follow Bhatt (2002) in taking the NP to move to the specifier of a nominal functional projection.<sup>23</sup>



Because the head NP originates inside the relative clause, the signature prediction of the raising approach is syntactic connectivity between the head and the relative clause-internal gap.

What sort of evidence of syntactic connectivity could tell these approaches apart? The effects which have been most discussed in the literature involve patterns of connectivity holding at the syntax-semantics interface – idiomatic interpretation, binding, and scope (Schachter 1973, Vergnaud 1974, Åfarli 1994, Alexiadou et al. 2000, Bianchi 2000a, Bhatt 2002, De Vries 2002, Hulsey and Sauerland 2006, Donati and Cecchetto 2011). The best argument from binding in English, for instance, is based on cases like (73), where a pronoun in the head NP is interpreted as bound by a quantifier internal to the relative clause.<sup>24</sup>

- (73) a. The  $[_{NP} \text{ picture of his}_i \text{ mother } ] [_{CP} \text{ that every soldier}_i \text{ kept } \_ \text{ wrapped in a sock } ]$  was not of much use to him. (Bhatt, 2002)
- b. The  $[_{NP} \text{ period of his}_i \text{ life } ] [_{CP} \text{ about which nobody}_i \text{ speaks } \_ ]$  is adolescence. (Alexiadou et al., 2000)

On the raising analysis, the proper interpretation of the bound pronoun is ensured by syntactic reconstruction of the head NP to the gap position, or LF interpretation of the copy in this position. The foremost challenge to this argument comes from the literature on *semantic* reconstruction. If,

<sup>23</sup> This choice is motivated by two kinds of considerations. One is the pattern of relative clause coordination seen in examples like (i) (compare the parallel Nez Perce structure (5)), which is most straightforwardly accounted for if the head NP does not form a surface constituent with the relative pronoun (Bianchi 2000a, Bhatt 2002; cf. Kayne 1994).

- (i) the proposal [ which you outlined  $\_$  ] and [ which I support  $\_$  ]

The other is that moving elements at least typically do not project (though cf. Vergnaud 1974, Bhatt 1999, Donati and Cecchetto 2011 and others). A nominal head distinct from the moving NP is thus required above CP to anchor the nominal functional sequence, explaining why nominals modified by relative clauses are like other nominals in their possibilities for adjectives, possessors, and numerals. (Note that not all such elements may be taken to originate inside the relative clause and move with NP, as discussed by Bhatt (2002) and Heycock (2005).) See Alexiadou et al. (2000) and Bhatt (2002) for discussion of further possibilities for the landing site for NP movement.

<sup>24</sup> Also much discussed in the literature is binding as in (i), where Principle A of the binding theory is involved.

- (i) The  $[_{NP} \text{ portrait of himself}_i ] [_{CP} \text{ that John}_i \text{ painted } \_ ]$  is extremely flattering. (Schachter, 1973)

As both Bhatt (2002) and De Vries (2002) point out, this argument called into question by the fact that picture-DPs constitute an environment for exempt anaphora (in the terms of Pollard and Sag 1992) / logophoricity (in the terms of Reinhart and Reuland 1993); English reflexives readily function as exempt anaphors / logophors. De Vries (2002, p 80-81) argues that similar reanalysis is not available for certain condition A examples in Dutch, making the Dutch argument potentially stronger evidence for head-raising than the English one. Note, however, that semantic reconstruction of the type discussed in the text is possible for reflexive elements just as it is for ordinary bound pronouns, reproducing the challenge to examples like (73). (On syntactic and semantic approaches to reconstruction for principle A, see Fox and Nissenbaum (2004).) Note also that reflexive possessives are not reliably licensed in relative clause heads in Swedish (Platzack, 2000), suggesting cross-linguistic variation either in the possibility of a raising analysis or in nature of reconstruction for principle A.

as Sharvit (1999) shows, the gap in the relative clause is simply assigned a suitably high semantic type, the interpretation of examples like (73) may be handled without syntactic reconstruction and without NP raising.

This type of challenge can be circumvented most readily by investigation of connectivity of a purely morphosyntactic type. Connectivity in morphological case in particular is promising, given its role in supporting movement analyses of sluicing and pseudocleft constructions (Ross 1969, Merchant 2001; Den Dikken 2006). We will see shortly that the rich case system of Nez Perce proves useful in this respect.<sup>25</sup>

## 5.2 The form of an argument from case

To arrive at the argument, we should first consider the ways that different types of case patterns bear on the raising analysis. It is relatively clear how we should interpret the presence of case connectivity, i.e. a case form for the head noun that could only be determined internal to the relative clause: this provides evidence for NP raising. Matters are less straightforward for the *absence* of case connectivity, which happens to be the much more commonly attested pattern. Of key concern are examples like Nez Perce (74) and (75), alongside their crosslinguistic counterparts.<sup>26</sup> In these examples, different cases are assigned CP-internally, to the gap, and CP-externally, to the matrix DP; the head noun must surface in the case assigned to the matrix DP. In (74), the CP-internal case is ergative, and the CP-external case is accusative. The head must surface in the accusative. In (75), the CP-internal case is accusative, and the CP-external case is nominative. The head must surface in the nominative.

- (74) *Pro<sub>subj</sub>* 'e-cepeqick-e { picpic-ne / \*picpic-nim } [<sub>CP</sub> ko-nim kex \_\_\_\_  
 PRO.1SG AGR-catch-TAM { cat-ACC / \*cat-ERG } [ RP-ERG C \_\_\_\_  
 hii-pe-e'ny-e *pro<sub>obj</sub>* cuu'yem ]  
 AGR-eat-μ-TAM PRO.1SG fish ]  
 'I caught the cat that ate my fish.'
- (75) Mine hii-we-s { samx̂ / \*samax̂-na } [<sub>CP</sub> ko-nya kex *pro<sub>subj</sub>*  
 where AGR-be-TAM { shirt.NOM / \*shirt-ACC } [ RP.NOM C PRO.1SG  
 'a-sayqi-ca \_\_\_\_]?  
 AGR-like-TAM \_\_\_\_]  
 'Where is the shirt that I like?'

Borsley (1997) contends that this type of pattern undermines the support for the raising analysis, since a syntactic metric of connectivity notably fails to show a connection between the NP head and the CP-internal gap.<sup>27</sup> Proponents of the raising analysis have disputed this conclusion.

<sup>25</sup> Indeed, case patterns in the language prove useful both as evidence bearing on head raising in grammar in general, and as the primary, if not only, evidence on raising available internal to Nez Perce itself. Arguments from idioms, binding and scope cannot be reproduced in the language: it does not seem to possess verb-object idioms, to allow NP complements for picture-nouns, or to possess superlative or scopal adjectives of the type investigated by Bhatt (2002). (See, in this connection, Alexiadou et al. (2000) and Heycock (2005) for critical discussion of idiom and adjective facts as evidence of head raising in other languages.) It furthermore does not possess anaphors subject to principle A, discussed in the previous footnote.

<sup>26</sup> See, for instance, Smyth (1920) for Classical Greek, Borsley (1997) for Russian and Polish, Alexiadou et al. (2000) and De Vries (2002) for German, Vogel (2002) for Icelandic.

<sup>27</sup> Similar arguments are advanced by Platzack (2000).

Bianchi (2000a) suggests that case connectivity is absent not because NPs do not raise, but because 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. For De Vries (2002), the solution lies instead in the mechanics of syntactic feature checking between the head N and various Ds. The head N must agree with the relative determiner (i.e. the relative pronoun) in  $\phi$ -features, and must check its case feature against a matching case feature on a D head. The matching case feature does not have to be found on the relative determiner, however. As a result of NP-movement, the head noun comes to be in a local configuration with the matrix D; this provides the requisite syntactic context for checking of its case.

Bianchi's and De Vries' approaches have in common the idea that anticonnectivity as in (74)/(75) arises because NP receives or checks its morphological case relatively late in the derivation. That, not the absence of NP-movement, is why the case of the relative determiner need not match the case of the head noun. An additional implementation of this idea should also be explored, in view of the analysis of case attraction in section 3.2. In case attraction, too, we find anticonnectivity in case; here it is the relative pronoun which fails to show connectivity with the gap. To handle that pattern, its optionality, and its interaction with relative pronoun position, I proposed that the relative pronoun is assigned a case feature internal to the relative clause, in the syntax, but that this case feature may be overwritten once the relative operator obtains a position in which a new case is assigned under Agree. Suppose such an approach is extended to the head NP. The derivation of an example like (74) would look in part as in (76).

- (76) a. Raising of NP out of the relative CP
- $$\begin{array}{ccccccc} [_{nP} & \text{NP}_{[ERG]} & n & [_{CP} & [_{DP} & \text{RP}_{[ERG]} & \text{NP}_{[ERG]}] & C & [_{TP} & \dots \\ & \uparrow & & & & & & & & \\ & \text{-----} & \text{NP raising} & \text{-----} & & & & & & \end{array}$$
- b. Merger of the external D
- $$[_{DP} \text{ D}_{[ACC]} \quad [_{nP} \text{ NP}_{[ERG]} \quad n \quad [_{CP} \text{ } [_{DP} \text{ RP}_{[ERG]} \text{ NP}_{[ERG]}] \quad C \quad [_{TP} \dots$$
- c. Agreement and case overwriting within DP
- $$\begin{array}{ccccccc} [_{DP} & \text{D}_{[ACC]} & [_{nP} & \text{NP}_{[ERG]} & n & [_{CP} & [_{DP} \text{ RP}_{[ERG]} \text{ NP}_{[ERG]}] & C & [_{TP} & \dots \\ & & \uparrow & & & & & & & \\ & & \text{Overwriting} & & & & & & & \end{array}$$

Like the Agree operation responsible for case attraction, the operation in (76c) represents a type of DP-internal concord, spreading the features of D to material within its complement. Like for relative pronouns, the case feature of an NP is retained on lower copies, and so Agree of this type does not result in an unrecoverable deletion. Unlike for relative pronouns, Agree in this instance cannot, in view of (74)/(75), be taken to be optional. This is presumably a consequence of the general fact that feature sharing is obligatory between D and the most local N of its complement, though not in Nez Perce between D and other material contained in its complement.

I take the upshot of this analysis, like those from Bianchi (2000a) and De Vries (2002), to be as follows. A language in which there is no case connectivity in relative clauses is a language in which no argument can be mounted for or against the raising analysis on the basis of case patterns. The absence of connectivity is compatible both with a non-raising derivation and with raising plus

obligatory overwriting. Only in a language where overwriting is not obligatory will it be possible to mount a case-based argument for or against raising. We will now see that Nez Perce is such a language.

## 6 Evidence from left dislocation

### 6.1 Connectivity and left dislocation

The environment in Nez Perce which does not show an obligatory overwriting effect is a variety of left dislocation. When the head NP and its relative clause appear to the left of the matrix, followed by a clear prosodic break, the head may show a case which could only be determined internal to the relative clause. We see this pattern in (77a); compare the ill-formed in situ version (77b).

- (77) a. [<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.1SG fish.NOM ],  
*pro<sub>subj</sub>* 'e-cepeqick-e *pro<sub>1</sub>*.  
 PRO.1SG AGR-catch-TAM PRO.3SG  
 'The cat that ate my fish, I caught it.'
- b. \* *Pro<sub>subj</sub>* 'e-cepeqick-e picpic-nim [<sub>CP</sub> ko-nim kex \_\_ hii-pe-e'ny-e  
 PRO.1SG AGR-catch-TAM cat-ERG [ RP-ERG C \_\_ AGR-eat- $\mu$ -TAM  
*pro<sub>obj</sub>* cuu'yem ].  
 PRO.1SG fish.NOM ]  
 'I caught the cat that ate my fish.'

I have glossed (77a) as featuring a left-peripheral DP coindexed with a matrix pronominal. If this analysis is on the right track, this example demonstrates case connectivity in an externally-headed relative clause, exactly as predicted possible in the absence of overwriting on the raising analysis. I return momentarily to why it should be that overwriting is not present in this structure. We must first consider the evidence that the structural analysis just sketched is indeed motivated for examples of this type.

For the purposes of this discussion I will refer to structures like (77a) by the neutral descriptive term of 'left dislocation'. A first thing to note about left dislocation is that it coexists with a range of patterns generally possible in Nez Perce relative clauses. In a relative clause within a dislocated DP, the relative pronoun may appear on either side of the complementizer, for instance.

- (78) [<sub>DP</sub> Sama $\hat{x}$ -na [<sub>CP</sub> { ko-nya kex / kex ko-nya } *pro<sub>subj</sub>* 'a-sayqi-ca \_\_ ]]<sub>1</sub>,  
 [ shirt-ACC [ { RP-ACC C / C RP-ACC } PRO.1SG AGR-like-TAM \_\_ ],  
 mine *pro<sub>1</sub>* hii-we-s?  
 where PRO.3SG AGR-be-TAM  
 'The shirt that I like, where is it?'

Multiple relative clauses may be stacked on a single head in left dislocation, just like in situ.

- (79) [<sub>DP</sub> 'Aayato-nm [<sub>CP</sub> kem ko-nim \_\_ hi-cewcewi-ne *pro<sub>obj</sub>* ] [<sub>CP</sub> kem ko-nim \_\_  
[ woman-ERG [ C RP-ERG \_\_ AGR-call-TAM PRO.2SG ] [ C RP-ERG \_\_  
hi-wapayatay-o' *pro<sub>obj</sub>* ]]1, manaa *pro<sub>1</sub>* hi-we' niki-se?  
AGR-help-TAM PRO.2SG ]] how PRO.3SG AGR-be.called-TAM  
'The woman who called you who is going to help you, what is her name?'
- (80) [<sub>DP</sub> Picpic-ne [<sub>CP</sub> ko-nya kex *pro<sub>subj</sub>* 'e-kiwyek-e \_\_] [<sub>CP</sub> ko-nya kex *pro<sub>subj</sub>*  
[ cat-ACC [ RP-ACC C PRO.1SG AGR-feed-TAM \_\_] [ RP-ACC C PRO.1SG  
'a-sayqi-ca \_\_ ]]1, 'isii-nm 'u-u-s *pro<sub>1</sub>*?  
AGR-like-TAM \_\_ ]] who-GEN AGR-be-TAM PRO.3SG  
'The cat that I fed that I like, whose is it?'

Relative clauses may also be coordinated in the familiar way.

- (81) [<sub>DP</sub> Picpic-ne [<sub>CP</sub> [<sub>CP</sub> ko-nya kex *pro<sub>subj</sub>* 'e-kiwyek-e \_\_] kaa [<sub>CP</sub> ko-nya kex  
[ cat-ACC [ [ RP-ACC C PRO.1SG AGR-feed-TAM \_\_] and [ RP-ACC C  
*pro<sub>subj</sub>* 'a-sayqi-ca \_\_ ]]1, 'isii-nm 'u-u-s *pro<sub>1</sub>*?  
PRO.1SG AGR-like-TAM \_\_ ]] who-GEN AGR-be-TAM PRO.3SG  
'The cat that I fed and that I like, whose is it?'

And elements of nominal functional structure, such as demonstratives, may appear to the left of the head noun.

- (82) [<sub>DP</sub> Ki-nm ciq'aamqal-nim [<sub>CP</sub> ko-nim kex \_\_ hi-wahoo-caqa *pro<sub>obj</sub>* ]]1,  
[ this-ERG dog-ERG [ RP-ERG C \_\_ AGR-howl.at-TAM PRO.1SG ]],  
'isii-nm 'u-u-s *pro<sub>1</sub>*?  
who-GEN AGR-be-TAM PRO.3SG  
'This dog that was howling at me, whose is it?'
- (83) [<sub>DP</sub> Ki-nye cepeepy'uxtiis-ne [<sub>CP</sub> ko-nya kenm *pro<sub>subj</sub>* 'epe-ep-u' \_\_ ]]1,  
[ this-ACC pie-ACC [ RP-ACC C PRO.1PL.INCL AGR-eat-TAM \_\_ ]],  
'isii-nm 'u-u-s haani-t *pro<sub>1</sub>*?  
who-GEN AGR-be-TAM make-PART PRO.3SG  
'This pie that we are going to eat, who made it?'

All this is to be expected if left dislocation structures indeed feature DP constituents in the left periphery. Notably, certain of these facts serve to clarify that the Nez Perce left dislocation construction is not, alternatively, a species of correlative structure, in which a clausal rather than nominal constituent appears on the left edge (Srivastav 1991, Dayal 1996). In contrast to headed relative clauses, correlatives do not allow stacking (McCawley 2004, Grosu and Landman 1998); (79) and (80) thus speak in favor of a headed relative analysis. Correlatives also systematically lack nominal functional structure above the CP level (Keenan 1985), in contrast to the pattern in (82) and (83). An additional important difference concerns requirements placed on the main clause. Correlatives require the presence of a demonstrative or null pronoun in the main clause, and do not tolerate substitution of an indefinite expression, such as a numeral (Dayal 1996, 160-161). No such requirement is in place in Nez Perce. The main clause in (77a) and (78)-(83) contains a null pronoun, and either a demonstrative or a numeral may be used instead. We see the range of possibilities in (84):

- (84) [<sub>DP</sub> Ha-'ayato-nm [<sub>CP</sub> ko-nma-m kem \_\_ hipo-opayatay-o'qa *pro<sub>obj</sub>* ]]<sub>1</sub>,  
 [ PL-woman-ERG [ RP-PL-ERG C \_\_ AGR-help-TAM PRO.2SG ]]  
 waaq'o lepu'<sub>1</sub> / *pro*<sub>1</sub> / yox-me<sub>1</sub> kine hi-w-siix.  
 already two.NOM / PRO.3PL / DEM.NOM-PL here AGR-be-TAM  
 Lit. 'Women who can help you, two / they / those are already here.'

In the version of (84) which contains a numeral in the matrix, the most colloquial translation of the preposed phrase uses an indefinite: 'Concerning women who can help you, two are already here.' Such a reading is not allowed, crosslinguistically, for correlative structures (Grosu and Landman 1998, Lipták 2009).

Now, the question of matrix clause contents points to a second way the present analysis of left dislocation can be justified, and the Nez Perce facts situated in a typology of dislocation across languages. In all of the examples above, the dislocated DP is coindexed with an element internal to the matrix TP. Crosslinguistically, dislocation constructions split into those which show connectivity between the dislocated phrase and a TP-internal element, versus those that do not. Constructions of the former type include contrastive left dislocation (CLD) in Germanic and clitic left dislocation (CLLD) in Romance, Semitic and Greek; those of the latter type include hanging topic left dislocation (HTLD) across a range of European languages. This difference is typically captured by treating CLD and CLLD, but not HTLD, as derived by movement. (See Van Riemsdijk 1997, Alexiadou 2006, and references there.)

There are two main types of phenomena that can be used in Nez Perce to assess the possibility of movement of the peripheral DP. The first uses locality constraints. (85) shows that the left dislocated DP may be coindexed with an element inside a matrix relative clause island. (Recall that (11) confirms the island status of Nez Perce relative clauses.)

- (85) [<sub>DP</sub> cepeepyuxti's-ne [<sub>CP</sub> kex ko-nya *pro<sub>subj</sub>* 'e-hip-e \_\_ ]]<sub>1</sub>,  
 [ pie-ACC [ C RP-ACC PRO.1SG AGR-eat-TAM \_\_ ]]  
*pro<sub>subj</sub>* 'e-cukwe-ce haama-na ke ko-nim<sub>2</sub> \_\_<sub>2</sub> paa-ny-a *pro*<sub>1</sub>  
 PRO.1SG AGR-know-TAM man-ACC C RP-ERG \_\_ AGR-make-TAM PRO.3SG  
 'The pie I ate, I know the man who made it.'

Similarly, (86) shows coindexation of the dislocated DP with the subject of a clausal adjunct; compare (10b), showing the impossibility of relativization from the corresponding position.

- (86) [<sub>DP</sub> ciq'aamqal-nim [<sub>CP</sub> ko-nim kex \_\_ hi-wahoo-caqa *pro<sub>obj</sub>* ]]<sub>1</sub>,  
 [ dog-ERG [ RP-ERG C \_\_ AGR-howl.at-TAM PRO.1SG ]],  
*pro<sub>subj</sub>* 'ays-no'qa c'alawi *pro*<sub>1</sub> hi-tqasaw-no'qa  
 PRO.1SG be.happy-TAM if PRO.3SG AGR-go.silent-TAM  
 'The dog that was howling at me, I'd be happy if he'd be quiet.'

Such facts are parallel to findings on HTLD in European languages (Ross 1967, §6.2.1; Van Riemsdijk and Zwarts 1997 [1974]; Alexiadou 2006, 673-674), and strongly suggestive of a derivation which does not involve movement of the dislocated DP from within the matrix TP.

The second diagnostic features case marking. In languages like German and modern Greek, HTLD constructions allow the left-dislocated DP to appear in the nominative even when the corresponding TP-internal element is non-nominative (Van Riemsdijk 1997, Alexiadou 2006). To see



this effect most clearly in Nez Perce, we should examine examples where the dislocated DP contains no relative clause. This is so in (87), which retains the locality properties of its counterpart example (85). Despite the fact that the coindexed pronominal in the matrix clause is associated with accusative case, the initial DP appears in the nominative.<sup>28</sup>

- (87) [<sub>DP</sub> *kii*            *cepeepyuxtin'* ]<sub>1</sub>,  
       [    *this.NOM* *pie.NOM*            ]  
       *pro*<sub>subj</sub>    'e-cukwe-ce    haama-na ke ko-nim<sub>2</sub> \_\_\_\_<sub>2</sub> *paa-ny-a*            *pro*<sub>1</sub>  
       PRO.1SG AGR-know-TAM man-ACC C RP-ERG \_\_\_\_ AGR-make-TAM PRO.3SG  
       'This pie, I know the man who made it.'

The absence of case connectivity between the initial DP and the coindexed element of the matrix is again parallel to HTLD; it is again straightforwardly predicted if the initial DP originates in the left periphery, rather than moving there.

An immediate rejoinder to this argument arises in view of case overwriting. Couldn't it be that case overwriting, rather than the absence of movement, is why Nez Perce left dislocation lacks connectivity in case? (87) makes it clear that this objection will not get very far. In order for overwriting to play a crucial role in a sentence like this one, the initial DP would need to originate within the matrix relative clause and receive a case there, and subsequently undergo movement to the initial position in violation of a relative clause island.

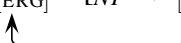
The base-generation analysis avoids this final consequence, and in doing so, effectively turns the question of case overwriting on its head. It suggests that DPs may be merged in such a way as to be at no point in an argument position, where they might receive or check a case feature by standard pathways. Their licensing is apparently unconnected to the syntactic calculus of case. Plausibly, initial DPs as in (87) are generated simply without a syntactic case feature on D and surface in the nominative as a morphological default, as Schütze (2001) suggests.<sup>29</sup> That leads to the immediate prediction that the D of a left-peripheral DP will not be able to overwrite the case of the most local NP of its complement, should that NP have obtained a case prior to NP-movement. Base-generated, clause-peripheral DPs constitute an environment where, effectively, case overwriting is called off.

That turns out to immediately explain why it should be that case connectivity crops up in relative clauses 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.<sup>30</sup> D may still agree with its local NP in the familiar way, but given NP-movement, it is NP that has a case feature; we might imagine that this feature is instead shared upward, to D:

<sup>28</sup> The accusative status of the anaphoric *pro* in this example is indicated morphosyntactically by two patterns. First, the subject of its clause is ergative; ergative subjects in Nez Perce require accusative objects. Second, verbal agreement in its clause uses the prefix *paa* (harmonized from *pee*); this portmanteau prefix includes 3rd person object agreement, and object agreement in Nez Perce requires an accusative object. On the connections between subject case, verb agreement, and object case, see Deal 2010b.

<sup>29</sup> This does not imply that *all* nominative is a morphological default; see section 6.2 for a critical distinction between default and non-default nominative concerning case attraction.

<sup>30</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.

- (88) a. Merger of the external, caseless D  
 $[DP \ D_{[-]} \ [NP \ NP_{[ERG]} \ [CP \ [DP \ RP_{[ERG]} \ NP_{[ERG]}] \ C \ [TP \ \dots$
- b. Agreement and case sharing within DP  
 $[DP \ D_{[ERG]} \ [NP \ NP_{[ERG]} \ [CP \ [DP \ RP_{[ERG]} \ NP_{[ERG]}] \ C \ [TP \ \dots$   


The upward passing of case is clear in examples like (82) and (83), repeated below, where a matrix demonstrative appears above the relative clause head.<sup>31</sup>

- (82)  $[DP \ Ki-nm \ ciq'aamqal-nim \ [CP \ ko-nim \ kex \ \_\_ \ hi-wahoo-caqa \ pro_{obj} \ ]_1,$   
 $[ \ this-ERG \ dog-ERG \ [ \ RP-ERG \ C \ \_\_ \ AGR-howl.at-TAM \ PRO.1SG \ ]],$   
*'isii-nm 'u-u-s pro<sub>1</sub>?*  
 who-GEN AGR-be-TAM PRO.3SG  
 'This dog that was howling at me, whose is it?'  
 (83)  $[DP \ Ki-nye \ cepeepy'u\hat{x}tiis-ne \ [CP \ ko-nya \ kenm \ pro_{subj} \ 'epe-ep-u' \ \_\_ ]_1,$   
 $[ \ this-ACC \ pie-ACC \ [ \ RP-ACC \ C \ PRO.1PL.INCL \ AGR-eat-TAM \ \_\_ ]],$   
*'isii-nm 'u-u-s haani-t pro<sub>1</sub>?*  
 who-GEN AGR-be-TAM make-PART PRO.3SG  
 'This pie that we are going to eat, who made it?'

Such passing of features upward is ruled out in derivations like (76), where D has a case feature, presumably because case features cannot be deleted unrecoverably. Thus D must pass its case feature to NP (whose case feature is preserved on lower copies), rather than vice versa.

Let me now briefly summarize. At this point we have taken several important steps toward a morphosyntactic argument for the raising analysis. We saw first that the absence of case connectivity for in situ DPs may be reconciled with NP movement given a mechanism for ensuring that the NP receives or checks its case relatively derivationally late. Case overwriting is one such mechanism, which draws independent support from relative pronoun case attraction. This 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 Nez Perce left dislocation structures – an instantiation, essentially, of HTLD – is a confirmation for this approach. The D external to the relative clause 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 material originating in the matrix DP.

## 6.2 Anticonnectivity and left dislocation

These results leave two possible overall approaches to Nez Perce relatives still on the table. One is that all Nez Perce relatives have a structure like (72), manifesting head-raising. The other is

<sup>31</sup> The demonstratives of these examples might be treated as D heads directly agreeing with the raising NP, or as elements of the matrix DP's functional spine, between D and *nP*. In the latter case these examples instantiate concord of the type seen for adjectives in (44b). See Deal (2010b) for an argument that Nez Perce demonstratives are not Ds.

that some relatives have structure (72) while others have a structure like (70) or (71) – that is, NP movement takes place in some relative clauses but not in others. This second possibility would match the conclusions of Åfarli (1994) on Norwegian, Szczegielniak (2006) on Polish and Russian, and Sauerland (1998), Bhatt (2002), and Hulsey and Sauerland (2006) on English. English stands out in this list of languages in that it does not morphologically mark the difference between relative clauses that are and are not derived by raising, for instance by a distinctive choice of relative complementizer or relative pronoun. Nez Perce behaves like English in this respect, as we will now see.

The argument for a non-raising analysis in Nez Perce relatives again comes from left dislocation. Suppose, as above, that a DP originating in the left periphery lacks a case feature and is realized in the nominative as a morphological default. If the head of the relative clause originates external to the relative CP, it too is expected to lack a case feature, and therefore surface in the nominative. This explains the second pattern of case possible under left dislocation in Nez Perce, as we see in examples like (89).

- (89) [<sub>DP</sub> yôx ciq'aamqal [<sub>CP</sub> kex ko-nim \_\_ hi-wahoo-tato *pro<sub>obj</sub>* ]]<sub>1</sub>,  
 [ that.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.'

This example is importantly parallel to (86) in the relationship between the peripheral DP and the coindexed element of the matrix; both sentences, I contend, instantiate the same type of base-generated left dislocation structure, i.e. HTLD. The case difference for the head noun follows because relative clauses may be derived in two ways. Case connectivity, as in (86), follows if the base-generated peripheral DP includes a relative clause constructed according to the raising analysis. An absence of connectivity, as in (89), follows if a non-raising derivation is used instead. On a classical analysis, for instance, (89) may be derived as follows:<sup>32</sup>

- (90) 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 without syntactic case features and must be realized in the nominative. This is parallel to left dislocation of a DP not containing a relative clause, as in (91), or (87) above.

- (91) [<sub>DP</sub> yôx himeeq'is wahoo-t'ipec ciq'aamqal ]<sub>1</sub>,  
 [ that.NOM big bark-FREQ dog.NOM ],  
*pro<sub>subj</sub>* 'ays-no'qa c'alawi *pro<sub>1</sub>* hi-tqasaw-no'qa  
 PRO.1SG be.happy-TAM if PRO.3SG AGR-go.silent-TAM  
 'That big ever-barking dog, I'd be happy if he'd be quiet.'

<sup>32</sup> I leave open here the choice between a classical analysis and a matching analysis, exemplifying the former for the sake of simplicity. The reader can verify that a matching analysis can also derive the absence of case connectivity.

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>33</sup> The difference nevertheless matters when it comes to the question of case attraction for relative pronouns. In examples like (92), a syntactic nominative case feature is passed from the matrix D to the head noun as well as to the relative pronoun. (This example appears above as (42a); here 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.

- (92) 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.1SG AGR-like-TAM \_\_]  
 'Where is the shirt that I like?'

The analysis we have followed predicts that, under left dislocation, because there is no syntactic nominative feature on D, no parallel overwriting should be possible. There is simply no syntactic feature to overwrite with. The prediction is borne out. Examples (93) are impossible; compare the well-formed versions in (94), where the relative pronoun retains its case.

- (93) a. \* [DP Yo $\hat{x}$  sam $\hat{x}$  [CP **yo $\hat{x}$**  kex *pro<sub>subj</sub>* 'a-sayq-caqa \_\_ ]]<sub>1</sub>,  
 [ that.NOM shirt.NOM [ RP.NOM C PRO.1SG AGR-like-TAM \_\_ ]]  
 mine *pro<sub>1</sub>* hii-we-s?  
 where PRO.3SG AGR-be-TAM  
 'That shirt that I liked, where is it?'  
 b. \* [DP Picpic [CP **yo $\hat{x}$**  kex \_\_ hii-pe-e'ny-e *pro<sub>obj</sub>* cuu'yem ]]<sub>1</sub>,  
 [ cat.NOM [ RP.NOM C \_\_ AGR-eat- $\mu$ -TAM PRO.1SG fish.NOM ],  
*pro<sub>subj</sub>* 'e-cepeqick-e *pro<sub>1</sub>*.  
 PRO.1SG AGR-catch-TAM PRO.3SG  
 'The cat that ate my fish, I caught it.'
- (94) a. [DP Yo $\hat{x}$  sam $\hat{x}$  [CP **ko-nya** kex *pro<sub>subj</sub>* 'a-sayq-caqa \_\_ ]]<sub>1</sub>  
 [ that.NOM shirt.NOM [ RP-ACC C PRO.1SG AGR-like-TAM \_\_ ]]  
 mine *pro<sub>1</sub>* hii-we-s?  
 where PRO.3SG AGR-be-TAM  
 'That shirt that I liked, where is it?'  
 b. [DP Picpic [CP **ko-nim** kex \_\_ hii-pe-e'ny-e *pro<sub>obj</sub>* cuu'yem ]]<sub>1</sub>,  
 [ cat.NOM [ RP-ERG C \_\_ AGR-eat- $\mu$ -TAM PRO.1SG fish.NOM ],  
*pro<sub>subj</sub>* 'e-cepeqick-e *pro<sub>1</sub>*.  
 PRO.1SG AGR-catch-TAM PRO.3SG  
 'The cat that ate my fish, I caught it.'

This contrast confirms that the morphological nominative of left-dislocation has a different source than its counterpart in situ. The purely morphological status of nominative in left dislocation

<sup>33</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.

is what underlies the utility of this construction in demonstrating both raising and non-raising derivations for Nez Perce relative clauses.

The investigation of case and left dislocation thus leads us to conclude that head-raising is a possible analysis of relative clauses, but it is not the only analysis available. Outside of left dislocation, the two structural possibilities fail to produce any surface difference, resulting in structural ambiguity. Consider the triplets below: the (a) and (b) examples feature left dislocation, showing, respectively, raising and non-raising derivations. The (c) examples feature in situ DPs, for which the case on the head will be determined external to the relative clause, regardless of whether NP-movement is operative.

- (95) a. [<sub>DP</sub> Ko-nya samaŋ-na [<sub>CP</sub> ko-nya kex *pro<sub>subj</sub>* 'a-sayqi-ca \_\_ ]]<sub>1</sub>,  
 [ that-ACC shirt-ACC [ RP-ACC C PRO.1SG AGR-like-TAM \_\_ ]]  
 mine *pro<sub>1</sub>* hii-we-s?  
 where PRO.3SG AGR-be-TAM  
 'That shirt that I like, where is it?'  
 b. [<sub>DP</sub> Yoŋ samŋ [<sub>CP</sub> ko-nya kex *pro<sub>subj</sub>* 'a-sayqi-ca \_\_ ]]<sub>1</sub>,  
 [ that.NOM shirt.NOM [ RP-ACC C PRO.1SG AGR-like-TAM \_\_ ]]  
 mine *pro<sub>1</sub>* hii-we-s?  
 where PRO.3SG AGR-be-TAM  
 'That shirt that I like, where is it?'  
 c. Mine hii-we-s [<sub>DP</sub> samŋ [<sub>CP</sub> ko-nya kex *pro<sub>subj</sub>* 'a-sayqi-ca \_\_ ]]<sub>1</sub>?  
 where AGR-be-TAM [ shirt.NOM [ RP-ACC C PRO.1SG AGR-like-TAM \_\_ ]]  
 'Where is the shirt that I like?'  
 (96) a. [<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.1SG fish.NOM ],  
*pro<sub>subj</sub>* 'e-cepeqick-e *pro<sub>1</sub>*.  
 PRO.1SG AGR-catch-TAM PRO.3SG  
 'The cat that ate my fish, I caught it.'  
 b. [<sub>DP</sub> Picpic [<sub>CP</sub> ko-nim kex \_\_ hii-pe-e'ny-e *pro<sub>obj</sub>* cuu'yem ]]<sub>1</sub>,  
 [ cat.NOM [ RP-ERG C \_\_ AGR-eat- $\mu$ -TAM PRO.1SG fish.NOM ],  
*pro<sub>subj</sub>* 'e-cepeqick-e *pro<sub>1</sub>*.  
 PRO.1SG AGR-catch-TAM PRO.3SG  
 'The cat that ate my fish, I caught it.'  
 c. *Pro<sub>subj</sub>* 'e-cepeqick-e [<sub>DP</sub> picpic-ne [<sub>CP</sub> ko-nim kex \_\_ hii-pe-e'ny-e  
 PRO.1SG AGR-catch-TAM [ cat-ACC [ RP-ERG C \_\_ AGR-eat- $\mu$ -TAM  
*pro<sub>obj</sub>* cuu'yem ]]  
 PRO.1SG fish ]]  
 'I caught the cat that ate my fish.'

Case in the (c) examples may be determined either via case overwriting, on the raising analysis, or via normal mechanics of case assignment to NPs, on the non-raising alternative.

## 7 Conclusions

There are two primary conclusions from this study. The first is that relative operator movement is more cyclic than previously conceived, passing not only through the edges of embedded CPs but also through the edge of the TP immediately subjacent to relative C. In Nez Perce, cyclicity of this type undergirds a PF analysis of relative pronoun position, which explains the syntactic and semantic unity of relative clauses alongside their differences in case attraction and prosodic phrasing. Cyclicity at the TP level raises a broader prospect for the theory of locality, which I have expressed as the LPC:

(97) *Lower Phase Conjecture (LPC)*

The TP sister of relative C / Fin is a phase.

We expect in comparative syntax that the discovery of highly abstract properties of individual languages will point the way to broader mechanisms that are active in language more generally. We have seen, as expected, that the LPC proves instrumental in bringing under a unified explanation a series of apparently distinct observations about the top of relative clauses cross-linguistically.

The second conclusion is that NP-movement is possible, but not obligatory, in the formation of relative clauses. The head-raising analysis is possible alongside a non-raising alternative; many relative clauses are therefore structurally ambiguous. This conclusion has been reached already by a number of authors working to investigate head-raising through the lens of connectivity patterns holding at the syntax-semantics interface. The contribution of the Nez Perce facts to this literature is underlined by the use of a purely morphosyntactic diagnostic for connectivity. This diagnostic shows that it must indeed be the case, internal to the syntax, that NPs raise in some relative clauses but not in others. The variable interpretations of relative clauses need not be handled exclusively through mechanisms internal to the semantic component.

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.
- Alexiadou, Artemis. 2006. Left dislocation (including CLLD). In *The Blackwell companion to syntax*, eds. Martin Everaert and Henk van Riemsdijk, volume II, 668–699. Malden, MA: Blackwell Publishers.
- Alexiadou, Artemis, Paul Law, André Meinunger, and Chris Wilder. 2000. Introduction. In *The syntax of relative clauses*, eds. Artemis Alexiadou, Paul Law, André Meinunger, and Chris Wilder, 1–51. Amsterdam: John Benjamins.

- Aoki, Haruo. 1966. Nez Perce vowel harmony and Proto-Sahaptian vowels. *Language* 42:759–767.
- Aoki, Haruo. 1979. *Nez Perce texts*. Berkeley: University of California Press.
- Aoki, Haruo. 1994. *Nez Perce dictionary*. Berkeley: University of California Press.
- Aoki, Haruo, and Deward Walker. 1989. *Nez Perce oral narratives*. Berkeley: University of California Press.
- Assmann, Anke, Doreen Georgi, Fabian Heck, Gereon Müller, and Philipp Weisser. 2012. Ergatives move too early. Ms, University of Leipzig.
- Authier, J.-Marc. 2013. Phase-edge features and the syntax of polarity particles. *Linguistic Inquiry* 44:345–389.
- Béjar, Susana. 2003. Phi-syntax: a theory of agreement. Doctoral Dissertation, University of Toronto.
- Béjar, Susana, and Milan Rezac. 2009. Cyclic Agree. *Linguistic Inquiry* 40:35–73.
- Bhatt, Rajesh. 1999. Covert modality in non-finite contexts. Doctoral Dissertation, University of Pennsylvania.
- 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*, eds. Artemis Alexiadou, Paul Law, André Meinunger, and Chris Wilder, 53–81. Amsterdam: John Benjamins Publishing Company.
- 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.
- Borsley, Robert D. 2001. More on the raising analysis of relative clauses. Ms, University of Essex.
- 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* 45:27–89.
- Bresnan, Joan. 1972. Theory of complementation in English syntax. Doctoral Dissertation, MIT.
- 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*, eds. 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 Language*, ed. Michael Kenstowicz, 1–52. Cambridge, Mass: MIT Press.
- Chomsky, Noam. 2008. On phases. In *Foundational issues in linguistic theory: essays in honor of Jean-Roger Vergnaud*, ed. R. Freidin et al, 133–166. Cambridge, MA: MIT Press.
- Chomsky, Noam, and Morris Halle. 1968. *The sound pattern of English*. New York: Harper & Row, Publishers.
- Chomsky, Noam, and Howard Lasnik. 1977. Filters and control. *Linguistic Inquiry* 8:425–504.
- Chung, Sandra. 1998. *The design of agreement: evidence from Chamorro*. University of Chicago Press.
- Crook, Harold David. 1999. The phonology and morphology of Nez Perce stress. Doctoral Dissertation, University of California at Los Angeles.
- Dayal, Veneeta. 1996. *Locality in Wh-quantification: Questions and relative clauses in Hindi*. Dordrecht: Kluwer Academic Press.
- 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. Possessor raising. *Linguistic Inquiry* 44:391–432.
- Deal, Amy Rose. 2013b. Short and long object movement in Nez Perce. Paper presented at the 19th International Congress of Linguists, Geneva, July 2013.
- Deal, Amy Rose. 2014a. Nez Perce embedded indexicals. In *Proceedings of SULA 7: Semantics of Under-Represented Languages in the Americas*, ed. H. Greene, 23–40. Amherst: GLSA.
- Deal, Amy Rose. 2014b. Person-based split ergativity in Nez Perce is syntactic. Ms, University of California.
- Deal, Amy Rose. 2014c. Properties of probes: evidence from Nez Perce complementizer agreement. Abstract for NELS 45.
- Deal, Amy Rose, and Matthew Wolf. In press. Outwards-sensitive phonologically-conditioned allomorphy in Nez Perce. In *The morphosyntax-phonology connection*, eds. V. Gribanova and S. Shih. Oxford University Press.



- Demirdache, Hamida. 1997. Dislocation, resumption and weakest crossover. In *Materials on left dislocation*, eds. Elena Anagnostopoulou, Henk van Riemsdijk, and Frans Zwarts, 193–231. John Benjamins.
- den Dikken, Marcel. 2006. Specificational copular sentences and pseudoclefts. In *The Blackwell Companion to Syntax*, eds. Martin Everaert and Henk van Riemsdijk, 292–409. Blackwell Publishers.
- 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.
- Donati, Caterina, and Carlo Cecchetto. 2011. Relabeling heads: a unified account for relativization structures. *Linguistic Inquiry* 42:519–560.
- Embick, David, and Rolf Noyer. 2001. Movement operations after syntax. *Linguistic Inquiry* 32:555–595.
- Fox, Danny, and Jon Nissenbaum. 2004. Condition A and scope reconstruction. *Linguistic Inquiry* 35:475–485.
- Gallego, Ángel J. 2007. Phase theory and parametric variation. Doctoral Dissertation, Universitat Autònoma de Barcelona.
- 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.
- Grosu, Alexander, and Fred Landman. 1998. Strange relatives of the third kind. *Natural Language Semantics* 6:125–170.
- Hall, Beatrice, and R.H.R. Hall. 1977. Nez Perce vowel harmony: an Africanist explanation and some theoretical questions. In *Issues in vowel harmony*, ed. R.M. Vago, Studies in Language Companion Series 6. John Benjamins.
- Harbert, Wayne. 1982. On the nature of the matching parameter. *The Linguistic Review* 2:237–284.
- Heycock, Caroline. 2005. On the interaction of adjectival modifiers and relative clauses. *Natural Language Semantics* 13:359–382.
- Hulsey, Sarah, and Uli Sauerland. 2006. Sorting out relative clauses. *Natural Language Semantics* 14:111–137.
- Jacobsen, William. 1968. On the history of Nez Perce vowel harmony. *Language* 44:819–829.
- 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.
- Keenan, Edward L. 1985. Relative clauses. In *Language Typology and Syntactic Description II: complex constructions*, ed. Timothy Shopen. Cambridge: Press Syndicate of the University of Cambridge.
- Legate, Julie Anne. 2008. Morphological and abstract case. *Linguistic Inquiry* 39:55–101.
- Lipták, Anikó. 2009. The landscape of correlatives: an empirical and analytical survey. In *Correlatives cross-linguistically*, ed. Anikó Lipták, 1–46. John Benjamins.
- Mackenzie, Sara, and Bezalel Elan Dresher. 2004. Contrast and phonological activity in the Nez Perce vowel system. In *Proceedings of BLS 29*, ed. P. Nowak et al., 283–294. Berkeley Linguistics Society.
- Mahajan, Anoop. 1990. The A/A-bar distinction and movement theory. Doctoral Dissertation, Massachusetts Institute of Technology.
- McCawley, James D. 2004. Remarks on adsentential, adnominal and extraposed relative clauses in Hindi. In *Clause structure in South Asian languages*, eds. Veneeta Dayal and Anoop Mahajan, 291–311. Kluwer.
- McCloskey, James. 1979. *Transformational syntax and model theoretic semantics*. Dordrecht, The Netherlands: D. Reidel Publishing Company.
- McCloskey, James. 1990. Resumptive pronouns,  $\bar{A}$ -binding and levels of representation in Irish. In *The syntax and semantics of modern Celtic languages*, ed. Randall Hendrick. San Diego: Academic Press.
- McCloskey, James. 2002. Resumption, successive cyclicity, and the locality of operations. In *Derivation and explanation in the minimalist program*, eds. 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.
- Nevins, Andrew. 2011. Multiple agree with clitics: person complementarity vs. omnivorous number. *Natural Language and Linguistic Theory* 29:939–971.
- 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.

- Platzack, Christer. 2000. A complement-of-N account of restrictive and non-restrictive relatives: the case of Swedish. In *The syntax of relative clauses*, eds. Artemis Alexiadou, Paul Law, André Meinunger, and Chris Wilder, 265–308. Amsterdam: John Benjamins Publishing Company.
- Pollard, Carl, and Ivan A. Sag. 1992. Anaphors in English and the scope of binding theory. *Linguistic Inquiry* 23:261–304.
- Preminger, Omer. 2011. Agreement as a fallible operation. Doctoral Dissertation, MIT.
- Reinhart, Tanya, and Eric Reuland. 1993. Reflexivity. *Linguistic Inquiry* 24:657–720.
- Reintges, Chris H. 2007. Variable pronunciation sites and types of wh-in-situ. In *The Copy Theory of Movement*, eds. 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*, eds. Lisa Lai-Shen Cheng and Norbert Corver. MIT Press.
- van Riemsdijk, Henk. 1997. Left dislocation. In *Materials on left dislocation*, eds. Elena Anagnostopoulou, Henk van Riemsdijk, and Frans Zwarts, 1–10. John Benjamins.
- van Riemsdijk, Henk, and Frans Zwarts. 1997 [1974]. Left dislocation in Dutch and the status of copying rules. In *Materials on left dislocation*, eds. Elena Anagnostopoulou, Henk van Riemsdijk, and Frans Zwarts, 13–29. John Benjamins.
- Rigsby, Bruce, and Michael Silverstein. 1969. Nez Perce vowels and Proto-Sahaptian vowel harmony. *Language* 45:45–59.
- 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. 2005. Phase theory and the privilege of the root. In *Organizing grammar*, eds. Hans Broekhuis, Norbert Corver, Riny Huybregts, Ursula Kleinhenz, and Jan Koster, 529–537. Berlin: Mouton de Gruyter.
- Rizzi, Luigi. 2006. On the form of chains: criterial positions and ECP effects. In *WH-movement: moving on*, eds. Lisa Lai-Shen Cheng and Norbert Corver, 97–133. MIT Press.
- Ross, John. 1967. Constraints on variables in syntax. Doctoral Dissertation, Massachusetts Institute of Technology.
- Ross, John Robert. 1969. Guess who? In *Chicago Linguistics Society*, eds. Robert I. Binnick, Alice Davison, Georgia M. Green, and Jerry L. Morgan, 252–286. Chicago, Illinois.
- Rude, Noel. 1985. Studies in Nez Perce grammar and discourse. Doctoral Dissertation, University of Oregon.
- 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.

- Rude, Noel. 1999. External possession in Sahaptian. In *External possession*, eds. D. Payne and I. Barshi, 403–427. Amsterdam/Philadelphia: John Benjamins.
- Sauerland, Uli. 1998. On the making and meaning of chains. Doctoral Dissertation, Massachusetts Institute of Technology, Cambridge, Massachusetts.
- Sauerland, Uli. 2000. Two structures for English restrictive relative clauses. In *Proceedings of the Nanzan GLOW*, ed. M. Saito et al, 351–366. Nagoya: Nanzan University.
- Sauerland, Uli. 2002. Unpronounced heads in relative clauses. In *The interfaces: Deriving and interpreting omitted structures*, eds. K Schwabe and S Winkler, 205–226. Amsterdam: John Benjamins.
- Schachter, Paul. 1973. Focus and relativization. *Language* 49:19–46.
- Schütze, Carson T. 2001. On the nature of default case. *Syntax* 4:205–238.
- Sharvit, Yael. 1999. Functional relative clauses. *Linguistics and Philosophy* 22:447–478.
- Shlonsky, Ur. 1992. Resumptive pronouns as a last resort. *Linguistic Inquiry* 23:443–468.
- Shlonsky, Ur. 2002. Constituent questions in Palestinian Arabic. In *Themes in Arabic and Hebrew syntax*, eds. Jamal Ouhalla and Ur Shlonsky, 137–160. Dordrecht, The Netherlands: Kluwer Academic Publishers.
- Smyth, Herbert Weir. 1920. *Greek grammar*. Harvard University Press.
- Srivastav, Veneeta. 1991. The syntax and semantics of correlatives. *Natural Language and Linguistic Theory* 9:637–686.
- 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.
- Vergnaud, Jean-Roger. 1974. French relative clauses. Doctoral Dissertation, Massachusetts Institute of Technology.
- Vogel, Ralf. 2002. Free relative constructions in OT-syntax. In *Resolving Conflicts in Grammars: Optimality Theory in Syntax, Morphology, and Phonology*, eds. Gisbert Fanselow and Caroline Fery, *Linguistische Berichte*, 119–162. Hamburg: Helmut Buske.
- de Vries, Mark. 2002. The syntax of relativization. Doctoral Dissertation, University of Amsterdam.
- de Vries, Mark. 2013. Relative clauses. In *Oxford Bibliographies in Linguistics*, ed. Mark Aronoff. Available online at <http://www.oxfordbibliographies.com/view/document/obo-9780199772810/obo-9780199772810-0120.xml>.

- Yang, Charles D. 2000. Internal and external forces in language change. *Language Variation and Change* 12:231–250.
- Yang, Charles D. 2004. Universal grammar, statistics or both. *TRENDS in Cognitive Sciences* 8:451–456.
- Zwart, C. Jan-Wouter. 2000. A head raising analysis of relative clauses in Dutch. In *The syntax of relative clauses*, eds. Artemis Alexiadou, Paul Law, André Meinunger, and Chris Wilder, 349–385. Amsterdam: John Benjamins Publishing Company.
- Zwicky, Arnold M. 1971. More on Nez Perce: an alternative analysis. *International Journal of American Linguistics* 37:122–125.