

Deletion Under Identity in Relative Clauses*

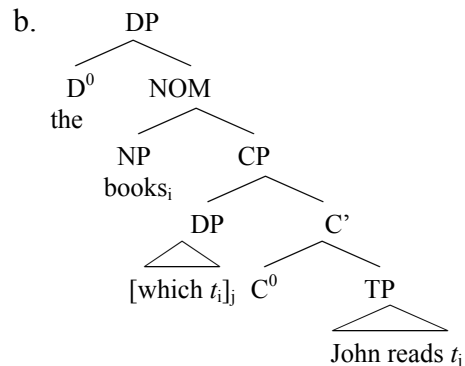
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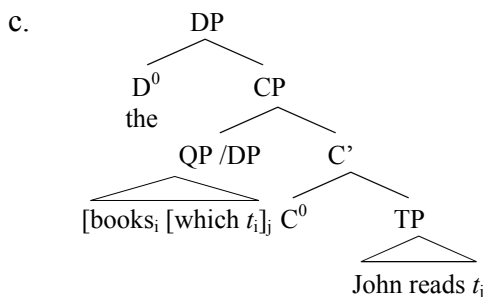
0. The Head Promotion Account: An Overview

The *Head Promotion* Account, on which the head undergoes raising from the relative clause internal position, has been argued for quite extensively in the generative literature (Brame 1968, Schachter 1973, Vergnaud 1974, and more recently Kayne 1994, Sauerland 1998, Bianchi 1999, Bhatt 1999, Safir 1999, Aügero-Bautista 2000, Hornstein 2000, among many others). Different implementations differ in the nature of the constituent undergoing movement (NP or DP or a something in between), the landing site of the constituent undergoing movement (CP internal or CP external), and the relationship of the moved head to the relative clause (complementation or adjunction). The two most common variants are illustrated in (1b-c).

(1) a. the books which John read



* I would like to thank Marcel den Dikken, Dan Finer and Richard Larson for useful comments and suggestions, and the audience at NELS 31 for stimulating discussion. All the remaining errors and omissions are solely mine.



Familiar arguments in favor of the derivations schematized in (1b-c) involve anaphor/reciprocal binding, variable binding, idiom chunk interpretation, and scope. The data given in (2-5) all point towards the conclusion that at LF the relative head undergoes reconstruction to its pre-movement position. Only after reconstruction is the right c-command configuration obtained.

- (2) a. The interest in each other_i that John and Mary_i showed was fleeting.
 b. The ~~interest in each other~~_i that John and Mary_i showed *interest in each other*_i was fleeting. (Jackendoff 1972, Schachter 1973)
- (3) a. The book on her_i desk that every professor_i liked best concerned model theory.
 b. The ~~book on her desk~~ that every professor_i liked best *book on her_i desk* concerned model theory.
- (4) a. The headway that we made was satisfactory.
 b. The ~~headway~~ that we made *headway* was satisfactory. (Brame 1968, Schachter 1973)
- (5) a. No linguist would read the many books Gina will need for vet school.
 b. No linguist would read the ~~many books~~ Gina will need *many books for vet school*. (Sauerland 1998)

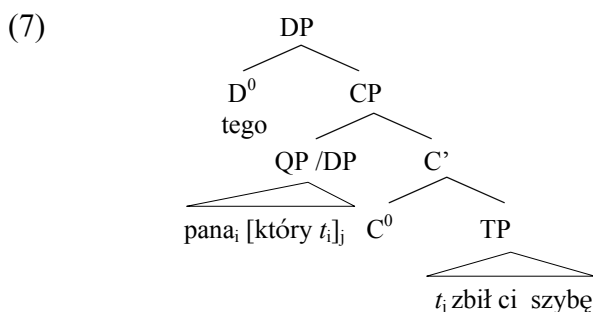
In spite of this evidence, there are some issues that the *Head Promotion Account* raises. The main goal of this paper is to point out some of these issues, and show how a somewhat updated form of a *Deletion Under Identity Account* solves them.

1. Three Puzzles for the *Head Promotion* Account

1.1. Case (Kayne 1994, Borsley 1997, Bianchi 2000)

The first puzzle for the *Head Promotion* Account involves case. As noted by Kayne (1994), and further discussed by Borsley (1997) and Bianchi (2000), the *Head Promotion* Account raises two questions: (i) why the head and the relative clause internal gap can differ in case, and (ii) why the relative *wh*-pronoun and the nominal head can differ in case. These mismatches in case are hard to see in languages with impoverished case systems like English. They become quite obvious, however, once other languages are taken into consideration. Borsley (1997) discusses examples like (6) from Polish, where the relative pronoun *który* ‘which’ is Nominative, however the relative head *ten pan* ‘this man’ is Accusative.¹ This is unexpected on the derivation given in (7), where the phrase *który pan* ‘which man’ moves from the subject position to [Spec,CP], and the nominal *pan* ‘man’ moves to the specifier of the relative *which* phrase.

- (6) Widziałem tego pana który zbił ci szybę.
 saw-1SG this-ACC man-ACC which-NOM broke you glass
 ‘I saw the man who broke your glass.’ (Borsley 1997:638)



There are ways to capture this mismatch in case on a *Head Promotion* Account, however they appear somewhat counterintuitive. Kayne (1994), for example, assumes that nominal *man* situated in [Spec, *which*] can have its case licensed/checked by the matrix D^0 . However, the relationship between the matrix D^0 head *tego* ‘this’ and the nominal *pana* ‘man’ in (7) does not constitute a checking configuration. By contrast, the relationship between the nominal *pana* ‘man’ and the relative pronoun *który* ‘which’ does, since it is a spec-head relation. So it is not clear why we do not end up with (8) instead of (6), in which the head bears Nominative case.

- (8) * Widziałem tego pan który zbił ci szybę.
 saw-1SG this-ACC man-NOM which-NOM broke you glass
 ‘I saw the man who broke your glass.’

Bianchi (2000) takes a slightly different approach to the case puzzle. She proposes that the case features of the relative D^0 are checked and erased by the time *który*

¹ In Polish, the partitive *wh*-pronoun *który* ‘which’ is used as a relative pronoun with both animate and inanimate heads.

pan ‘which man’ gets to [Spec, CP]. Since the Nominative case feature of *pan* ‘man’ is erased, it can be assigned Accusative case by the matrix D^0 .

Both of these approaches to case in headed relative predict that there should be no contrast with respect to case between headed and headless relatives, relative clauses that appear to be ‘headed’ by wh-pronouns themselves, such as the one in (9) below.

(9) I saw whoever John recommended.

The presence of the so-called matching effects in free relatives show that this is not the case. As is well known, free relatives are subject to a matching requirement which requires that the wh-pronoun be of the right category and case to satisfy the case and category restrictions of both the relative and the matrix predicate (for discussion, see Bresnan and Grimshaw 1978, Groos and van Riemsdijk 1981, Citko 2000, among many others). Free relatives in which the wh-pronoun is Accusative and the relative clause gap is Nominative are ungrammatical.²

(10) * Widziałem **kogokolwiek** *e* zbił ci szybę.
 saw-1SG whoever-ACC *e*-NOM broke your glass
 ‘I saw whoever broke your glass.’

On the assumption that the wh-phrase in [Spec,CP] is accessible to case assignment by the matrix D^0 , and its Nominative case feature is erased by the time it gets to [Spec, CP], it is not clear what excludes (11), in which the wh-pronoun is assigned Accusative case by the matrix D^0 .³

(11) * I saw [_{DP} D^0 -ACC [_{CP} whoever_i-ACC [_{TP} *t*_i-NOM broke your glass]]]

1.2. Negative Polarity Item Licensing

The second puzzle for the *Head Promotion* Account involves the licensing of negative polarity items in relative clauses. As shown by Linebarger (1980), negative polarity items are subject to the Immediate Scope Constraint, given in (12), which requires that they be within the immediate scope of their licensors at LF. Immediate scope here refers to the fact that no other scope-bearing element can intervene between the negative polarity item and its licensor.

(12) IMMEDIATE SCOPE CONSTRAINT (Linebarger 1980, 1987:338)

A negative polarity item is acceptable in a sentence S if in the LF of S the subformula representing the NPI is in the immediate scope of the negation operator. An element is in the immediate scope of NOT only if (1) it occurs in a proposition that is in the entire

² The matching requirement is suspended in the presence of a syncretic form. For discussion of case syncretism in free relatives, see Citko 2000.

³ For the sake of argument, I adopt the so-called Comp Account of free relatives, on which the wh-pronoun is in [Spec, CP] and the head is empty. The same argument, however, holds on the alternative approach, the so-called Head Account, on which the wh-pronoun is in the head position.

scope of NOT, and (2) within this proposition there are no logical elements intervening between it and NOT.

The Immediate Scope Constraint is what accounts for the ungrammaticality of (13a). As shown in (13b), the universal quantifier *every charity* intervenes between the negative polarity item *red cent* and negation at LF.

- (13) a. * John didn't give a red cent to every charity.
 b. NOT $\forall x$ [John gave a red cent to x]
where x = a charity
 'It wasn't every charity that John gave a red cent to.'

On the assumption that the relative clause head undergoes LF reconstruction, relative clauses of the kind given in (14) are predicted to show similar intervention effects. However, these examples, brought to my attention by Richard Larson (personal communication), are fully grammatical.⁴

- (14) a. Nobody found a picture of anyone that everybody liked.
 b. Mary didn't throw away pictures of anyone that everybody wanted to have.

The head *pictures of anyone* reconstructs to the relative clause internal position, where it is separated from its licenser *nobody* in (15a) and the negation in (15b) by the universal quantifier *everybody*.

- (15) a. Nobody found a ~~picture of anyone~~ that everybody liked *picture of anyone*.
 b. Mary didn't throw away ~~pictures of anyone~~ that everybody wanted to have *pictures of anyone*.

1.3. The Lack of Principle C Effects (Munn 1994, Sauerland 1999, Safir 1998)

The third puzzle for the *Head Promotion* Account involves Principle C effects. The *Head Promotion* Account predicts that the configuration given in (16) should be ungrammatical. At LF, the relative head undergoes LF reconstruction, where the name ends up being c-commanded by a coindexed pronoun.

- (16) a. [DP ... name_i ...]_j [CP pronoun_i ... t_j]
 b. [DP ... ~~name_i~~ ...]_j [CP pronoun_i ... name_i] (LF reconstruction)

⁴ The strength of this argument depends on the assumption that NPI licensing is an LF condition. For arguments that this is indeed the case, see Linerbager (1980).

Interestingly, as was first pointed out by Munn (1994), this prediction is not borne out, and relative clauses involving the configuration given in (16) are grammatical on a coindexed reading. Furthermore, they contrast in this respect with analogous wh-questions, as shown by the following examples (examples from Sauerland 1998 and Safir 1999).

- (17) a. The picture of John_i which he_i saw in the paper is very flattering.
 b. * Which picture of John_i did he_i see in the paper?
- (18) a. The pictures of Marsden_i which he_i displays prominently are generally the attractive ones.
 b. * Which pictures of Marsden_i does he_i display prominently?
- (19) a. I have a report on Bob's_i division he_i won't like.
 b. * Which report on Bob's_i division will he_i not like?
- (20) a. In pictures of Al_i which he_i lent us, he_i is shaking hands with the President.
 b. * Which pictures of Al_i did he_i lend us?

Furthermore, Munn (1994) and Sauerland (1998) point out that in cases involving idiom chunks, variable binding, or narrow scope interpretation of the head, Principle C effects in relative clauses re-emerge. This is shown in (21-23) (examples from Sauerland 1998).

- (21) * The headway on Mary's_i project that she_i had made pleased the boss.
 (22) * The letters by John_i to her_j that he_i told every girl_j to burn were published.
 (23) * The many books for Gina's_i vet school that she needs will be expensive.

To recapitulate, the facts involving negative polarity item licensing and Principle C effects suggest that the head of the relative clause does not always have to be interpreted in a reconstructed position. This raises the question of how to reconcile these facts with the familiar evidence pointing towards reconstruction in relatives (anaphor/variable binding, idiom interpretation, scope). On a descriptive level, a natural solution would be to assume that reconstruction in relative clauses is optional. This raises the question of whether the optionality of reconstruction can be derived from some independently motivated properties of relative clauses. In what follows, I argue that this is possible if we assume a *Deletion Under Identity* Account of relative. Such an account, in addition to solving the case and the negative polarity licensing puzzle, derives the optionality of reconstruction in relative clauses from an independent mechanism of copy deletion.

2. Towards an Analysis

2.1. A Deletion Under Identity Account

The three puzzles receive a natural explanation on a somewhat updated form of a *Deletion Under Identity* account, which goes back to some of the earliest accounts of relative clauses (Stockwell, R.P., P. Schachter, and B. Partee. 1973, Chomsky 1965, Chomsky and Lasnik 1977). To see how it works, consider the following relative clause.

(24) the picture which he likes

On a *Deletion Under Identity* account, it involves base-generation of the head *the picture* in a CP external position, and movement of the wh-phrase *which picture* from the relative clause internal position to [Spec, CP], as shown in (25).

(25) [DP the picture [CP [DP which picture]_i [TP he likes *t_i*]]] (wh-movement)

The next step in the derivation involves PF deletion of the nominal *picture* in [Spec, CP] under identity with the external head.⁵ In what follows, I will represent elements that have undergone PF deletion by means of shading, and elements that have undergone LF deletion by means of a single strikethrough.

(26) the picture [CP which ~~picture~~ [TP he likes *t_i*]] (PF deletion under identity)

At LF, the restriction of the wh-phrase undergoes reconstruction. Crucially, the CP external head, not being part of the movement chain, does not reconstruct.

(27) the picture [CP which ~~picture~~ [TP he likes *picture*]] (LF reconstruction)

The result is an LF representation containing two ‘copies’ of the nominal *picture*, one in the external head position, and the other one in the reconstructed position.⁶ I further assume that one of them can delete at LF, since its content is recoverable from the remaining copy. The issue of which one deletes is determined by independent principles; both (28a) and (28b) are in principle possible. In (28a) the upper copy undergoes LF backwards deletion under identity with the lower copy, and in (28b) the lower copy undergoes deletion under identity with the upper copy.

(28) a. the picture [CP which ~~picture~~ [TP he likes *picture*]]

b. the picture [CP which ~~picture~~ [TP he likes *picture*]]

⁵ In *that*-relatives or contact relatives, what undergoes deletion is the entire wh-phrase *which picture*:

(i) the picture [CP which picture that [TP he likes ~~which picture~~]]

(ii) the picture [CP ~~which picture~~ [TP he likes ~~which picture~~]]

⁶ I am using the term ‘copy’ in a non-technical sense, to refer to tokens of the same element. The two instances of *picture* in (27) are not in a chain relationship.

2.2. The Three Puzzles Solved

2.2.1. Case

A *Deletion Under Identity* Account presented in the previous section accounts for why the relative clause head can differ in case from the relative wh-pronoun and the relative clause gap. The crucial example is repeated in (29).

- (29) Widziałem tego pana który zbił ci szybę.
 saw-1SG this-ACC man-ACC which-NOM broke you glass
 ‘I saw the man who broke your glass.’

The mismatch in case is expected, since the external head is not in a chain relationship with the relative clause internal gap. Thus, it can receive case separately from the relative clause internal operator phrase. The head *tego pana* ‘this man-ACC’ is base-generated in the external head position, and the Nominative wh-phrase *który pan* ‘which man’ moves to [Spec, CP]. This is schematized in (30).

- (30) Widziałem [_{DP} tego pana] [_{CP} [który pan]_i [_{TP} *t_i* zbił ci szybę]]]
 saw-1SG this-ACC man-ACC which-NOM man-NOM broke you glass

PF deletion involves only the nominal *pan* ‘man’. The wh-pronoun *który* ‘which’, bearing Nominative case, does not delete.

- (31) Widziałem [_{DP} tego pana] [_{CP} [który pan]_i [_{TP} *t_i* zbił ci szybę]]]
 saw-SG this-ACC man-ACC which-NOM man-NOM broke you glass
 (PF deletion under identity)

I assume that deletion is less strict than movement with respect to identity of features, and that total identity is not required for deletion to be possible (Quine 1962, Chomsky 1965). The Nominative case marked *pan* ‘man’ in [Spec,CP] can thus delete under identity with the Accusative head.⁷

2.2.2. Negative Polarity Item Licensing

Next, let us consider negative polarity item licensing puzzle, which concerned the lack of intervention effects in relative clauses of the following kind.

- (32) Nobody found a picture of anyone which everybody liked.

⁷ There are other cases of deletion without totally identity in features. The examples in (i-ii) are a case in point. They both involve VP deletion under only partial identity: (i) involves no identity in tense features, whereas (ii) no identity in person features.

(i) Mary went to school and John will, too. (VP deletion with no identity in tense features)
 (ii) Mary likes John and but I don’t. (VP deletion with no identity in person features)

The grammaticality of (32) can also be accounted for on a *Deletion Under Identity* Account, whose derivation first involves movement of the wh-phrase *which picture of anyone* to [Spec,CP].

- (33) No one found [DP a picture of anyone] [CP[which picture of anyone]_i [TP everybody liked *t_i*]]] (wh-movement)

Next, the nominal *picture of John* deletes under identity with the external head:

- (34) No one found [DP a picture of anyone] [CP[which ~~picture of anyone~~]_i [TP everybody liked *t_i*]]] (PF deletion under identity)

At LF, the restriction of the moved wh-phrase reconstructs to the relative clause internal position:

- (35) No one found [DP a picture of anyone] [CP [which ~~picture of anyone~~ [TP everybody liked ~~which picture of anyone~~]]] (LF reconstruction)

Since the negative polarity item *anyone* is contained within the external head, it is in a local domain of its licenser *no one*, and the universal quantifier *everyone* does not intervene. (35), however, involves two ‘copies’ of the nominal *picture of anyone*, one of which is still separated from its licenser by the universal quantifier. I propose that deletion under identity is not limited to the PF component, and can also take place at LF. The reconstructed copy can thus delete under identity with the external head. The final LF representation is given in (36).

- (36) No one found [DP a picture of anyone] [CP [which ~~picture of anyone~~ [TP everybody liked ~~which picture of anyone~~]]] (LF copy deletion)

2.2.3. The Lack of Principle C Effects

The lack of Principle C effects can be accounted for in an analogous manner. Consider the example given in (37).

- (37) The picture of John_i which he_i likes is on the front page.

Its derivation is schematized in (38). The wh-phrase *which picture of John* moves to [Spec,CP], where the nominal restriction *picture of John* deletes under identity with the external head.

- (38) a. [TP [DP The picture of John_i]] [CP [which picture of John_i]_j [TP he_i likes *t_j* is on the front page]]] (wh-movement)
- b. [TP [DP The picture of John_i]] [CP [which ~~picture of John_i~~]_j [TP he_i likes *t_j* is on the front page]]] (PF deletion under identity)

At LF, the copy in [Spec,CP] reconstructs to its pre-movement position, which results in a Principle C effect; *John* ends up being c-commanded by a coindexed pronoun *he*.

- (39) [TP [DP The picture of John_i [CP [which ~~picture of John_i]~~]; [TP **he**_i likes *picture of John_i* is on the front page]]] (LF reconstruction)

The offending copy, however, can delete at LF, since it is recoverable from the external head:

- (40) The picture of John_i [which ~~picture of John_i~~; [**he**_i likes *picture of John_i* is on the front page]] (LF copy deletion)

This account, based on copy deletion, is similar in spirit to Munn's (1994) account.

A *Deletion Under Identity* Account also explains why in cases involving idiom chunk interpretation, variable binding or scope, Principle C effects re-emerge. To see how this works, consider the example given in (41).

- (41) * The headway on Mary's_i project which she_i had made pleased the boss.

Its derivation is schematized in (42). First, the wh-pronoun *which headway on Mary's project* moves to [Spec,CP]. At PF the nominal restriction *headway on Mary's project* deletes under identity with the external head, and at LF it undergoes reconstruction. This results in a Principle C effect, as shown in (42c).

- (42) a. [TP [DP The headway on Mary's_i project] [CP [which headway on Mary's_i project]; [TP she_i made *t_j* pleased the boss]]] (wh-movement)
- b. [TP [DP The headway on Mary's_i project] [CP [which ~~headway on Mary's_i project~~]; [TP she_i made *t_j* pleased the boss]]] (PF deletion under identity)
- c. [TP [DP The headway on Mary's_i project] [CP [which ~~headway on Mary's_i project~~]; [TP she_i made *headway on Mary's_i project* pleased her boss]]] (LF reconstruction)

The reconstructed copy has to be present in order to satisfy the adjacency condition on idiom interpretation that requires that the two parts of the idiom *make* and *headway* be adjacent at LF. Thus, LF deletion of the lower copy, which would ameliorate a Principle C effect, is blocked for independent reasons, having to do with idiom interpretation. In relative clauses involving variable binding and narrow scope of the head, deletion of the lower copy is also blocked, which explains why they also show Principle C effects.

A derivation involving *Deletion Under Identity* raises the question of how idiom chunks, anaphors or bound variables contained inside the external head get licensed. Consider the following example.

- (43) The headway she had made pleased her boss.

Its derivation is schematized in (44).

- (44) a. [TP [DP The headway on Mary's_i project] [CP [which headway on Mary's_i project]_j] [TP she_i made *t_j* pleased the boss]]] (wh-movement)
- b. [TP [DP The headway on Mary's_i project] [CP [which ~~headway on Mary's_i project~~]_j] [TP she_i made *t_j* pleased the boss]]] (PF deletion under identity)
- c. [TP [DP The headway on Mary's_i project] [CP [which ~~headway on Mary's_i project~~]_j] [TP she_i made *which headway on Mary's_i project* pleased her boss]]]

(44c) contains an apparently unlicensed idiom chunk in the head position, where being unlicensed simply refers to the fact that the nominal *headway* is not a complement of *make*. This would suggest that (43) should be comparable in status to (45).

- (45) * The headway pleased her boss.

The suggestion I would like to make is that in the case of the relative clause given in (44c), the external head can delete at LF. This solves the issue of having an unlicensed idiom chunk in the head position.

- (46) [TP [DP The ~~headway~~] [CP [which ~~headway~~]_j] [TP *she*_i had made *which headway* pleased her boss]]] (LF copy deletion)

The content of the deleted copy is recoverable from the relative clause internal copy. In general, LF copy deletion (up to recoverability) rescues an otherwise ungrammatical structure. It can ameliorate a Principle C effect or a violation of the adjacency condition on idiom interpretation. In both cases, the offending copy can delete as long as it is recoverable from another copy. In the case of Principle C effects, the reconstructed copy can delete since it is recoverable from the CP external copy. In the case of idiom interpretation, the CP external copy can delete since it is recoverable from the relative clause internal copy.

Furthermore, a *Deletion Under Identity* Account explains the contrast between relative clauses and wh-questions with respect to Principle C. Wh-questions, in contrast to relatives, contain one copy of a wh-phrase at LF, as shown in (47).

- (47) a. * I wonder which pictures of John_i he_i is willing to sell.
- b. I wonder [which ~~pictures of John_i~~] he_i is willing to sell [*which pictures of John_i*] (LF reconstruction)

Since the upper copy has been deleted in the process of reconstruction, deletion of the lower copy violates the recoverability condition on deletion.

- (48) * I wonder [~~which pictures of John_i~~] he_i is willing to sell [~~which pictures of John_i~~].

3. On a *Vehicle Change* Account

Safir (1999) rejects a copy deletion account of the lack of Principle C effects in relative clause, and derives it instead from an independently motivated mechanism, the *Vehicle Change* mechanism of Fiengo and May (1994). *Vehicle Change* replaces a name with its ‘pronominal correlate’, a pronoun bearing the same index. To see how this works, consider the relative clause given in (49).

(49) A picture of John_i which he_i thought Mary would like to have was recently stolen.

For independent reasons, Safir (1999) assumes that LF can, or indeed must, contain multiple copies. The relative clause given in (49) thus involves the following representation at LF.

(50) A picture of John_i which he_i thought Mary would like to have *picture of John_i* was recently stolen. (LF reconstruction)

Vehicle Change allows for the replacement of the offending name with a pronoun, which results in the following representation.

(51) A picture of John_i which he_i thought Mary would like to have *picture of him_i* was recently stolen. (*Vehicle Change*)

While Safir offers an interesting new perspective on the lack of Principle C effects, the specifics of his account raise some questions. The *Vehicle Change* mechanism in its original Fiengo and May 1994 formulation applies to constructions involving ellipsis not movement. Extending it to constructions involving movement predicts the lack of Principle C effects in many environments in which they do occur. For example, since both relatives and wh-questions involve movement and reconstruction, it is not clear how to derive the following contrast between the two.⁸

(52) a. The picture of John_i that he_i likes is on display.

⁸ Safir questions the existence of any contrast between wh-questions and relatives with respect to Principle C effects. He gives a number of examples of wh-questions where the Principle C effect does not arise, contra the predictions made by the *Copy Theory* of movement (Safir 1999:609):

- (i) Which biography of Picasso_i do you think he_i wants to read?
- (ii) Which witness’s attack on Lee_i did he_i try to get expunged from the trail records?
- (iii) Which criticism of Lee_i did he_i choose to ignore?
- (iv) Which evaluation of Lee’s_i physical fitness did he_i use when he applied to NASA for space training?
- (v) Whose allegation that Lee_i was less than truthful did he_i refute vehemently?

The judgments regarding these sentences vary, and I do not at present have an explanation for this variation. Safir takes the lack of Principle C effects to be the general pattern, and attributes the violations of Principle C effects, where they do occur, to independent factors. A more standard view, which I am assuming here, is to assume that the presence of Principle C violations in wh-questions is the norm, and to treat the lack of Principle C effects, where it does occur, as an instance of accidental coreference. Thus, I will proceed on the assumption that the contrast between wh-questions and relatives is real, and needs to be accounted for.

- b. * Which picture of John_i does he_i like?

Furthermore, a *Vehicle Change* Account does not explain the correlation between Principle C effects and variable binding, scope, or idiom interpretation. Recall that in cases in which reconstruction is forced for variable binding, idiom chunk interpretation or scope, Principle C effects re-emerge. For example, in (53) the adjacency requirement on idiom chunk interpretation forces the interpretation of the head in a relative clause internal position, which yields a Principle C effect.

- (53) a. * The headway on Mary's_i project that she_i made pleased the boss.
 b. The ~~headway on Mary's_i project~~ that she_i *made headway on Mary's project* pleased the boss.

However, if *Vehicle Change* can apply to (53b), yielding a well formed (54), it is not clear how to explain ungrammaticality of this example.

- (54) The ~~headway on Mary's_i project~~ that she_i made *headway on her_i project* pleased the boss. (*Vehicle Change*)

Another prediction that a *Vehicle Change* Account makes concerns Principle B. Pronouns that are a result of a *Vehicle Change* mechanism in ellipsis contexts are subject to Principle B. This is illustrated in (55). The elliptical structure in (55a) is just as ungrammatical as its non-elliptical counterpart in (55b).

- (55) a. * Amy introduced Jack_i to everyone and he_i did, too.
 b. * Amy introduced Jack_i to everyone and he introduced Jack_i/him_i, too.

LF reconstruction, followed by *Vehicle Change*, yields a violation of Principle B, as shown in (56c).

- (56) a. Amy [introduced Jack_i] to everyone and he_i did [_{VP} ∅] too.
 b. * Amy [introduced Jack_i] to everyone and he_i did [introduce Jack_i].
 c. * Amy [introduced Jack_i] to everyone and he_i did [introduced him_i].

This predicts that pronouns resulting from *Vehicle Change* in relative clauses should also exhibit Principle B effects. This prediction does not appear to be borne out. Consider the relative clause given in (57a). At LF, the name *John* is c-commanded by a coindexed pronoun, in violation of Principle C. *Vehicle Change*, however, changes the name to a pronoun, as shown in (57c).

- (57) a. Pictures of John_i that he_i likes were recently stolen.
 b. Pictures of John_i that he_i likes *pictures of John_i* were recently stolen.

- c. Pictures of John_i that he_i likes *pictures of him_i* were recently stolen.

This predicts that the relative clause in (57a) should be comparable in status to (58) below.

- (58) He_i likes pictures of him_i.⁹

The acceptability of (58) on a coindexed reading, however, depends on the interpretation assigned to the implicit PRO subject of the *picture* noun phrase. If the implicit PRO subject is controlled by the matrix subject, the result violates Principle B.

- (59) * He_i likes [_{DP} PRO_i pictures of him_i]

However, if the implicit PRO subject is assigned arbitrary interpretation, the result is grammatical.

- (60) He_i likes [_{DP} PRO_{arb} pictures of him_i]

However, it is possible to construct examples where the PRO subject can only be controlled by the matrix subject. In (61), for example, the PRO subject can only be controlled by the matrix subject, and consequently, the sentence is ungrammatical.

- (61) * He_i/Picasso_i painted [_{DP} PRO_i self-portraits of him_i] in the Blue period.

Now, let us consider a parallel relative clause.

- (62) The self-portraits of Picasso_i that he_i had painted in the Blue period are in the Met now.

This example is grammatical on a coindexed reading. This is surprising on a *Vehicle Change* Account, on which the head undergoes reconstruction (63a), and the name *Picasso* is replaced with a pronoun (63b).

- (63) a. The ~~self-portraits of Picasso_i~~ that he_i had painted *self-portraits of Picasso_i* in the Blue period are in the Met now. (LF reconstruction)
- b. The ~~self-portraits of Picasso_i~~ that he_i had painted *self-portraits of him_i* in the Blue period are in the Met now. (*Vehicle Change*)

At LF then, the relative clause given in (62) above involves the same configuration as the ungrammatical example given in (61). This leaves the contrast in grammaticality between the two unaccounted for.

⁹ Note that here a *picture* noun phrase is indefinite, which controls for the effects of the Specified Subject Constraint.

(i) He_i likes Mary's picture of him_i.
(ii) He_i likes the picture of him_i.

4. Conclusion

To recapitulate briefly, the three puzzles for the *Head Promotion* Account of relative clauses can be avoided on a *Deletion Under Identity* Account. Mismatches in case between the relative head and the relative clause internal gap are expected, since the head is not in a chain relationship with the clause internal gap. The lack of intervention effects in relative clauses containing a negative polarity item embedded inside the head and a universal quantifier c-commanding a relative clause internal gap is also expected, since at LF the negative polarity item remains in a local relationship with its licensor. Finally, the lack of Principle C effects is also expected, since the reconstructed copy of the head can delete under identity with the external head.

References

- Borsley, Robert. 1997. Relative clauses and the theory of phrase structure. *Linguistic Inquiry* 28:629-648.
- Brame, Michael. 1968. A new analysis of the relative clause: evidence for an interpretive theory. Ms. MIT
- Chomsky, Noam. 1965. *Aspects of the theory of syntax*. Cambridge, Mass.: MIT Press.
- Citko, Barbara. 2000. *Parallel Merge and the syntax of free relatives*. Doctoral dissertation. SUNY at Stony Brook.
- Kayne, Richard. 1994. *The antisymmetry of syntax*. Cambridge, Mass.: MIT Press.
- Ladusaw, William. 1979. *Polarity sensitivity as inherent scope relations*. Doctoral dissertation, MIT, Cambridge, Mass.
- Linebarger, Marcia. 1980. *The grammar of negative polarity*. Doctoral dissertation, MIT, Cambridge, Mass.
- , 1987. Negative polarity and grammatical representation. *Linguistics and Philosophy* 10: 325-387.
- Munn, Alan. 1994. A minimalist account of reconstruction asymmetries. *Proceedings of NELS 24*, 397-410, GLSA, University of Massachusetts, Amherst.
- Quine, Willard van Orman. 1962. Identity, ostension, and hypostasis. *From a Logical Point of View*. New York: Harper and Row.
- Ross, John R. 1967. *Constraints on variables in syntax*. Doctoral dissertation, MIT, Cambridge, Mass.
- Safir, Ken. 1999. A-bar reconstruction and vehicle change in A-bar chains. *Linguistic Inquiry* 30:587-621.
- Sauerland, Uli. 1998. *The meaning of chains*. Doctoral dissertation, MIT, Cambridge, Mass.
- Schachter, P. 1973. Focus and relativization. *Language* 53:19-49.
- Stockwell, R.P., P. Schachter, and B. Hall Partee. 1973. *The major syntactic structures of English*. New York: Holt, Rinehart and Winston.
- Vergnaud, Jean-Roger. 1974. *French relative clauses*. Doctoral dissertation, MIT, Cambridge, Mass.