Unexpected Narrow Scope and Reconstruction into Relative Clause*

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This paper focuses on the facts concerning the "scope reconstruction" observed in relative clauses. It is shown that there are two different mechanisms which account for the relative scope between the quantified head and the quantifier inside the relative clause: (i) scope construal via the interpretation of the copy of the promoted head in its base position, and (ii) scope construal via choice function mechanism. The apparent unexpected narrow scope interpretation of the quantified head results from scope construal via the choice function mechanism which applies to the indefinite inside the relative clause. The narrow scope interpretation of the quantified head also results from scope construal via the interpretation of the copy with the presence of type (II) determiners/quantifiers that can occupy the position internal to the functional projection FP between DP and NP within the relative clause.

Keywords: relative clause, reconstruction, promotion analysis, scope of indefinites

1. Introduction

The nominal phrase *headway* in example (1a) is a non-referential expression. It is a part of an idiom chunk *make headway*, and is incompatible with the definite article *the*. With a relative clause, however, *headway* can co-occur with, and be preceded by, the definite article *the*, as shown in (1b).

(1) a. John made (*_the_) headway.

b. _The_ headway [that John made *e*] was amazing.

(cf. Schachter (1973), Browning (1987: 130), Aoun and Li (2003: 103))

In the promotion analysis of the relative clause proposed by Kayne (1994), the NP modified by the relative clause (henceforth, Head) does not constitute a direct complement of the determiner of the DP2 as in (2b). Kayne argues that the DP1 involving the Head is promoted to a specifier position of the relative clause CP as in (2c), and the relative clause CP is the direct complement of the determiner of the DP2 (henceforth, external determiner). The linear order between the relative pronoun *which* and the Head *book* is derived via further raising of the Head within the promoted internal DP1, as illustrated in (2c).[1]

(2) a. the [$_{Head}$ book $_{NP}$] which I read yesterday

b. [$_{DP2}$ the   [$_{Head}$ book $_{NP}$] [$_{CP}$ [$_{DP1}$ which] C^0 [$_{IP}$ I read   [$_{DP1}$ which]   yesterday]]]

c. [$_{DP2}$ the [$_{CP}$ [$_{DP1}$ [$_{Head}$ book $_{NP}$] which t_{NP}]   C^0 [$_{IP}$ I read   [$_{DP1}$ ~~which~~ [$_{NP}$ ~~book~~]] yesterday]]]
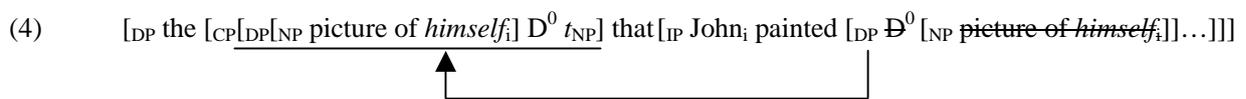
[1] The precise position of the promoted head [$_{NP}$ *book*] is under discussion: [Spec,DP] in Kayne (1994) as in (2c), but [Spec,TopP] of the relative clause in Bianchi (1999), Aoun and Li (2003), and Inada (2007). In any case, the movement of the Head within the raised DP seems counter-cyclic and hence should be motivated theoretically and empirically. In this paper, I leave this issue open and continue to illustrate the derivation as in (2b) for convenience. For the derivation of the relative clause under the promotion analysis, see also note 4.

This promotion analysis is supported cross-linguistically by the fact that the Head shows the various reconstruction effects with respect to binding and scope construal.

(3) a. The picture of *himself*$_i$ that John$_i$ painted *e* in art class is impressive. (Aoun and Li (2003))

    b. * The portrait of *John*$_i$ that he$_i$ painted *e* is extremely unflattering. (Schachter (1973: 32))
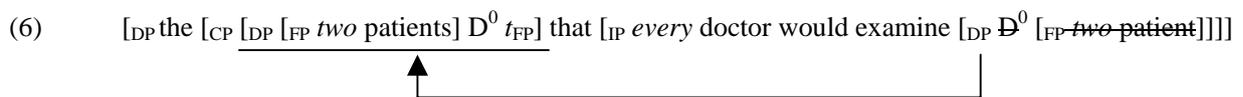
As shown in (3a), the anaphor contained in the Head can be locally bound at the position *e* within the relative clause. In the case of (3b), the reconstructed interpretation violates the Binding Condition C, and thus it is ill-formed.

In the minimalist program, the reconstruction effects are taken to be a result of the interpretation of a copy of a moved element in its base position.[2] Given the promotion analysis, the binding reconstruction is accounted for straightforwardly under the copy theory of movement. The lower copy of the anaphor *himself* in (3a) is interpreted as being bound by the subject of the relative clause, *John*, as illustrated in (4).

(4) $[_{DP}$ the $[_{CP}[_{DP}[_{NP}$ picture of *himself*$_i]$ D^0 $t_{NP}]$ that $[_{IP}$ John$_i$ painted $[_{DP}$ ~~D^0~~ $[_{NP}$ ~~picture of *himself*$_i$~~]]…]]]

As for the scope reconstruction, we observe for example that (5) is two-way ambiguous with respect to the relative scope of the universal quantifier *every* and the numeral *two*.[3]

(5) John will interview the *two* patients that *every* doctor would examine *e*. (Aoun and Li (2003))
    (*two > every, every > two*)

(6) $[_{DP}$ the $[_{CP}$ $[_{DP}$ $[_{FP}$ *two* patients] D^0 $t_{FP}]$ that $[_{IP}$ *every* doctor would examine $[_{DP}$ ~~D^0~~ $[_{FP}$ ~~*two* patient~~]]]]]

(6) is the configuration of the relative clause of example (5). Adopting the split DP hypothesis, the numeral *two* is considered to be the element that occupies the head (or specifier) position of the distinct functional projection between DP and NP. In this paper we refer to this projection as FP.[4] Thus, just like the binding reconstruction, the reconstructed interpretation results from interpreting the copy of the promoted element in its base position, if we assume that the promoted DP is not the Head *patients* alone, but is the Head with the modifying numeral, *two patients*, that is FP, as shown in (6).

The facts concerning the scopal interpretation between the quantified Head and the quantifier within the relative clause are not so simple. Consider example (7).

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[2] Inada (2007) argues for the promotion analysis from a new point of view. Inada (2007) claims that there are two types of relatives: (i) the head-raising relatives under the promotion analysis, and (ii) the adjunct relatives with an operator movement inside the relative clause, and argues that the restriction on the size of the pied-piped phrase in some kind of relatives is accounted for by this claim. The promotion analysis predicts the minimal pied-piping -- only PP pied-piping or a movement of just a relativized DP is possible in head-raising relatives -- since, in the course of the derivation, the legitimate extraction of the head NP from the moved (pied-piped) phrase is required and thus the phrase should not be so "heavy". See Inada (2007) for detailed discussion about the correlation between the size of pied-piping and the reconstruction effect.

[3] D^0 within the promoted DP in (6) is often occupied by the relative pronoun such as *which*, as shown in (2c), and in this case the complementizer *that* must be phonologically null in English.

[4] The exact status of this functional projection will not be discussed in detail in this paper. Although the functional projection is referred to just as FP, it would be a number phrase NumP since it contains at least the numeral expressions. In addition, it is worth noticing that the movement of the NumP inside the DP is not "too local" because there are several functional projections proposed between NumP and DP. In this paper, however, I will use the term FP because our concern is not with the specification of DP-internal layered structures.

(7)   Ford recalled *all* the '75 models which *e* were put out by *a* factory of theirs in Detroit.
        (*all* > *a*, *a* > *all*)   (Fodor and Sag (1982: 371))

(7) is also two-way ambiguous with respect to the relative scope of the universal quantifier *all* and the indefinite *a*. The availability of the narrow scope interpretation of the quantified Head apparently demonstrates that the universal quantifier *all* is reconstructed in the position of the copy inside the relative clause. Under the promotion analysis and the split DP hypothesis, however, the quantifier that precedes the external determiner is obviously outside the relative clause, and thus the FP to be raised in (7) involves only *'75 models*: the quantifier *all* does not form a constituent with this raised FP.[5]

(8)   [$_{DP}$ *all* the [$_{CP}$ [$_{DP}$[$_{FP}$ '75 models] which] [$_{IP}$ [$_{DP}$ ~~which '75 models~~] were put out by *a* factory]]] …

Thus, the apparent scope reconstruction of *all the '75 models* in (8) cannot be accounted for by ascribing to the presence of the copy of the promoted DP within the relative clause.

This paper investigates how the "reconstructed interpretation of the quantifier of the Head" can be accounted for. I will argue that the reconstructed scope interpretation results from two different mechanisms: scope construal via choice function mechanism and scope construal via the interpretation of the copy of the promoted DP in its base position. In section 2, I first discuss a recent approach to the scope properties of the indefinites, where scope construal via choice function is held to be responsible for the unexpected narrow scope interpretation of the quantified Head. Next, I point out that there remains a case where the narrow scope interpretation of the quantified Head is not due to scope construal via choice function mechanism, and thus is still unexpected. In section 3, I show that the availability of the narrow scope interpretation of the quantified Head determines whether the determiners/quantifiers of the Head is internal to FP or external to FP.

2.   Semantic Account for Scope Reconstruction: Wide Scope of Indefinites

2.1. Scope Interaction between the Quantified Head and the Quantifier inside Relative Clause

In (9), the quantifier of the Head can take narrow scope when the quantifier in the relative clause is the indefinite *a*.

(9) a. Ford recalled *all* the '75 models which were put out by *a* factory of theirs in Detroit.   (= (7))
         (*all* > *a*, *a* > *all*)   (Fodor and Sag (1982: 371))
     b. John wants to date *exactly half* the girls who go out with *a* professor who flunked him out of Linguistics 101.
         (*exactly half* > *a*, *a* > *exactly half*)   (Fodor and Sag (1982: 372))
     c. Mary dates *at least five* men who know *a* producer I know.
         (*at least five* > *a*, *a* > *at least five*)   (Fodor and Sag (1982: 372))
     d. Mary dates *every* man who has met *a* producer I know.
         (*every* > *a*, *a* > *every*)   (Ruys (2006: 184))

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[5] Although the copy of the raised Head within the relative clause is in the subject position, (7) can be taken to be an instance of reconstruction effects because the higher quantifier *all* can take narrow scope, as shown in (i).

(i)   *All* the '75 models were put out by *a* factory of theirs in Detroit.

In contrast, in (10), the quantifier of the Head cannot take narrow scope when the lower quantifier is the universal quantifier *every*.

(10) a. I read *every₁* paper that *every₂* professor in my department recommended *e*.
($every_1 > every_2$, $*every_2 > every_1$)

b. Mary dates *a* man who *e* has met *every* producer I know. (Ruys (2006: 185))
($a > every$, $*every > a$)

As shown in (10a), when the two universal quantifiers interact, scope reversal which would result from scope reconstruction is not observed: the narrow scope interpretation of the higher universal quantifier *every* is impossible. In (10b), the indefinite *a* of the Head cannot take narrow scope under the lower quantifier *every*.

Notice, however, that we have discussed that the quantifier of the Head can sometimes take narrow scope under the universal quantifier, as repeated below.

(11) John will interview the *two* patients that *every* doctor would examine *e*. (= (5))
($two > every$, $every > two$)

The (un)availability of the narrow scope interpretation of the quantified Head in (9) - (11) cannot be ascribed only to scope construal via the interpretation of the copy of the quantifier at the original position of the promoted DP. Narrow scope of the quantifier with the Head in (9a,b) is unexpected because it precedes the definite article *the* and is external to the promoted DP. Moreover, if narrow scope of the quantifier *every* in (9d) is somehow accounted for by the presence of the copy in the base position, the unavailability of narrow scope interpretation of the universal quantifier in (10a) becomes problematic.

Concerning the correlation between the possibility of narrow scope and the type of lower quantifiers, the following descriptive generalization holds.

(12) *Generalization 1:*
When the lower quantifier is an indefinite, narrow scope interpretation of the quantifier of the Head is always possible, while it is not always possible when the lower quantifier is a universal quantifier.

2.2. Wide Scope of Indefinites via Choice Function

Let us take a brief look at the scope properties of the indefinites and the universal quantifiers. Consider the examples in (13). (13a) and (13b) are ambiguous, in that both the universal quantifier *every* and the indefinite *some* in the object position take wide scope as well as narrow scope relative to *some/every* in the subject position.

(13) a. *Every* girl watched *some* movie.
b. *Some* girl watched *every* movie.

When these lower quantifiers are embedded in an island, the indefinite *some* can still take wide scope as shown in (14a), while the universal quantifier *every* cannot take wide scope as shown in (14b).

(14) a. *Every* girl will be happy [if *some* movie is shown]. ($every > some$, $some > every$)
b. *Some* girl will be happy [if *every* movie is shown]. ($some > every$, $*every > some$)

It is necessary to apply the covert operation QR in order to get the wide scope interpretation of the lower quantifier. It is generally assumed that the covert QR is clause-bounded and thus is island-sensitive. Thus the

absence of the wide scope interpretation of the universal quantifier *every* in an adjunct island in (14b) is due to scope construal via QR. On the other hand we cannot have recourse to QR to get the wide scope interpretation of indefinites, because existential quantification of the lower quantifier *some* in (14a) takes place across a clause boundary and scopes out of an adjunct island.[6]

Then the problem is how the wide scope interpretation of the indefinites is obtained. One of the plausible solutions is provided by Reinhart's (1992, 2006) choice function mechanism. Let us see how the choice function mechanism can explain the wide scope taking of the indefinites. The example (16a) is construed as (16b) by the choice function defined as in (15).

(15)   *Choice Function:* A function f is a choice function (CH (f)) if it applies to any nonempty set and yields a member of that set.   (Reinhart (2006: 81))

(16) a.   If we invite some philosopher, Max will be offended.
     b. $\exists$f (CH (f) $\wedge$ (we invite f (philosopher) $\rightarrow$ Max will be offended))

(16b) says that a function exists, such that if we invite the philosopher it selects, Max will be offended. It is equivalent to the representation of the wide scope interpretation which is obtained by the application of the island-free QR.[7]

2.3. Scope "Reconstruction" of Quantified Heads Revisited

Let us now consider the scopal relation of the quantifier of the Head and the quantifier within the relative clause. The contrast between (14a) and (14b) repeated below parallels the contrast between (17a) and (17b).

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[6] It is worth noticing that Reinhart (2006) shows that QR would not assign the correct truth conditions for the scope of indefinites. Plural indefinites can scope out of an island, but cannot distributively scope out.

(i)   a.   Three relatives of mine inherited a house.   (Reinhart (2006))
          "there are three relatives of mine who together inherited a house"
          "there are three relatives of mine who each inherited a house"
     b.   If three relatives of mine die, I will inherit a house.
          "there are three relatives of mine such that if they all die, I will inherit a house"
          "*there are three relative of mine the death of each of whom will leave me with a house"

In (ib), the plural indefinite *three relatives* can take scope out the QP *a house* of the matrix clause since the first interpretation is acceptable, but the distributive reading of this plural indefinite, as shown in the second interpretation, is impossible. What it indicates is that existential scope and distributivity are two separate matters. Suppose QR is an operation that raises quantifiers to be understood distributively. Then the lack of the distributive interpretation in (ib) is straightforward, and we need a non-QR solution to the problem of the separated collective interpretation, which would be obtained by the wide scope of indefinites.

[7] One might argue that the wide scope interpretation over an island is provided via binding by the existential operator, such as unselective binding, which involves no movement. Reinhart (1992, 2006) points out, however, that there is a problem about the analysis in which the wide scope of indefinites is attributed to unselective binding.

(i)   a.   If we invite some philosopher, Max will be offended.
     b. $\exists_i$ [if we invite [some philosopher]$_i$ Max will be offended]
     c. $\exists$x ((philosopher (x) $\wedge$ we invite x) $\rightarrow$ (Max will be offended))   (Reinhart (2006: 73))

The interpretation that we are trying to account for is that there is some philosopher such that if we invite that philosopher Max will be offended. The LF derived via unselective binding is (ib), where we introduce an existential operator as a binder. The structure is thus interpreted as in (ic). The problem is that if we leave the restrictive clause *philosopher (x)* (x is a philosopher) in situ as in (ib), the sentence results in a necessary truth in any world that contains non-philosophers.

Under Heim's (1982) analysis of unselective binding, QR is first applied, which generally moves whole NP containing the N-restriction. However, this QR is the movement to topmost IP position, violating the subjacency condition.

(14) a. *Every* girl will be happy [if *some* movie is shown]. (*every > some, some > every*)

   b. *Some* girl will be happy [if *every* movie is shown]. (*some > every, *every > some*)

(17) a. Mary dates *every* man [who has met *a* producer I know]. (*every > a, a > every*)

   b. Mary dates *a* man [who has met *every* producer I know]. (*a > every, *every > a*)

(14a) is ambiguous but does not involve any copy for the narrow scope interpretation of the higher quantifier. From this observation, it is plausible to claim that the "reconstructed" narrow scope interpretation of the quantifier of the Head in (17a) is not necessarily derived from scope construal via the interpretation of the copy inside the relative clause, but is obtained from the application of scope construal via choice function mechanism to the lower indefinite. Unlike indefinites, universal quantifiers inside the relative clause cannot take wide scope over the islands, as shown in (14b) and (17b).

   Given the choice function mechanism, we can account for the unexpected narrow scope interpretation of the quantifier of the Head in (9), repeated below.

(9) a. Ford recalled *all* the '75 models which were put out by *a* factory of theirs in Detroit.
     (*all > a, a > all*)

   b. John wants to date *exactly half* the girls who go out with *a* professor who flunked him out of Linguistics 101.
     (*exactly half > a, a > exactly half*)

   c. Mary dates *at least five* men who know *a* producer I know.
     (*at least five > a, a > at least five*)

   d. Mary dates *every* man who has met *a* producer I know.
     (*every > a, a > every*)

(18) is an illustration of the narrow scope interpretation of the universal quantifier with the Head *every man*.

(18) a. Mary dates every man who has met a producer I know.   (= (9d))

   b. $\exists f$ (CH (f) $\land$ $\forall y$ (man (y) $\land$ y has met f(producer) $\rightarrow$ Mary dates y))

Thus, when the lower quantifier inside the relative clause is an indefinite, the narrow scope interpretation of the quantifier of the Head is obtained from the LF representation of existential quantification over the choice function that applies to the indefinite, whatever the higher quantifier of the Head is. When the lower quantifier is universal, the choice function does not apply. Thus the wide scope of the lower universal quantifier *every* is not possible.

3. Syntactic Account for Scope Reconstruction: Promotion Analysis and Two Types of Quantifiers

   When the lower quantifier inside the relative clause is a universal quantifier, the narrow scope interpretation of the quantified Head is possible only if the quantifier of the Head constitutes a copy of the promoted DP in the base position, as discussed in section 1. Consider examples (5) and (10b), repeated below.

(19) a. John will interview the *two* patients that *every* doctor would examine *e*.   (= (5))
     (*two > every, every > two*)

   b. Mary dates *a* man who *e* has met *every* producer I know.   (= (10b))
     (*a > every, *every > a*)

The narrow scope interpretation of the Head is possible in (19a), but is impossible in (19b). Suppose both the numeral *two* and the indefinite *a* are the elements within the DP-internal functional projection FP. Then both of

them would be interpreted at the position of the copy inside the relative clause. What should be accounted for is the contrast between (19a) and (19b).

Concerning the correlation between the possibility of wide scope and the syntactic position of lower quantifiers inside the relative clause, the following descriptive generalization holds.

(20)   *Generalization 2:*
        Wide scope interpretation of the lower universal quantifier inside relative clause is possible when it is in the subject position, while such wide scope interpretation is impossible when it is in the object position.

The descriptive generalization 2 states that the position of the copy of FP inside the relative clause provides a cue for the determination of the relative scope.[8]

Next, consider another contrast, shown in (5) and (10a), repeated below.

(21) a.   John will interview the *two* patients that *every* doctor would examine *e*.   (= (5))
           (*two > every, every > two*)
     b.   I read *every₁* paper that *every₂* professor in my department recommended *e*.   (= (10a))
           (*every₁ > every₂ , *every₂ > every₁*)

In (21a) the quantifier with the Head is the numeral and in (21b) it is the universal quantifier. The narrow scope interpretation of the quantified Head is possible in (21a) whereas it is impossible in (21b). The position of the copy of FP is in the object position both in (21a) and (21b). Thus it is necessary to examine what type of quantifiers is internal to FP. Under the promotion analysis of the relative clause and the split DP hypothesis presented above, the descriptive generalization 3 holds if the numeral is internal to FP inside the relative clause, while the universal quantifier is external to FP and outside the relative clause.

(22)   *Generalization 3:*
        When the copy inside the relative clause is in the object position, a Head with the numeral can take the narrow scope while the Head with the universal quantifier cannot.

With respect to this question, Aoun and Li (2003) point out the following interesting contrast.

(23) a.   {*The / All / That / What*} headway that Mel made was astounding.   (Aoun and Li (2003: 108))
     b. * {*Some / Much / Most / Little / This / Ø*} headway that Mel made was satisfactory.

Aoun and Li (2003) observe that there are two types of determiners/quantifiers: one type can co-occur with the non-referential NP *headway* with relative clause as in (23a), and the other type cannot as in (23b). Recall that, under the promotion analysis, the definite article *the* is outside the relative clause CP and does not directly select

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[8] Notice that if the quantified head *a man* in (19b) is interpreted in its base position, the narrow scope interpretation under the lower quantifier is possible, as shown in (i).

(i)   Some man met every producer I know. *(some > every, every > some)*

In this case, the wide scope interpretation of the lower universal quantifier *every* is obtained by QR. The reason that there is a subject-object asymmetry observed in (19) is considered to be the property of the universal quantifier in the object position, that is, it cannot take wide scope over the moved *wh*-phrase, as shown in (ii).

(ii)   Who bought everything? *(who > every, *every > who)*

The application of QR is somehow blocked by A'-movement of the *wh*-phrase. Because the same type of A'-movement is involved within the relative clause, the application of QR to the lower universal quantifier *every* is blocked in (19b).

the non-referential NP *headway*.[9] According to Aoun and Li (2003), the type of determiners/quantifiers in (23a) is called type (I), and the one in (23b) is called type (II). Aoun and Li (2003) further claim that type (I) includes the determiners/quantifiers in (24a) and type (II) includes those in (24b). Thus numerals fall into type (II).

    (24) a.   *these, every, any, my, ...*   : Type (I)

         b.   *ten (numerals), lots, several, a, ...*   : Type (II)

Based on the contrast in (23), I argue that type (II), which cannot co-occur with the non-referential NP, is internal to FP and inside the relative clause, and type (I), which can, is external to FP and outside the relative clause.[10,11]

    Given the analysis of the structural position of two types of the determiners/quantifiers, the configuration relevant to the scope reconstruction can be illustrated as below.

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[9]   With respect to the definiteness, maximality, or referentiality, the following data also show that the external determiner does not directly select the Head.

(i)   a.   the three books of John's *(that I read)   (Kayne (1994: 86))

       b.   the four of the books *(that I read)

(ii)   a.   I bought one type of bread.

       b.   I bought the type of bread *(you like).

(iii) a.   Maria weighs forty-five kilos.

       b.   Maria weighs the forty-five kilos *(Susanna would love to weigh).

(iv) a.   John painted the house a nice color.

       b.   John painted the house the nice color *(his girlfriend liked).

(v)   a.   Mary bought a house with windows.

       b.   Mary bought a house with the windows *(that she liked).   (Schmitt (2000: 311-312))

[10] Aoun and Li (2003) show that type (II) cannot co-occur with numerals, whereas type (I) can co-occur with them.

(i)   a.   *the* forty men   b.   **some* eight mammals

          these two insects   **most* nine squids

          every ten minutes   **many* twelve pounds

          all fifty Vikings   **a few* ten oboes

          any five cigars   **each* fifty minutes

If the structural positions of the numeral and type (II) is assumed to be the same, the type of the determiners/quantifiers in (iia), which can co-occur with type (II), is also considered to be type (I), and the type in (iib), which cannot co-occur with type (II), is also type (II).

(ii)   a.   *what* few remarks   b.   **ten* many people

           -er many bottles   **lots of* many boys

           my many dreams   **several* many ladies

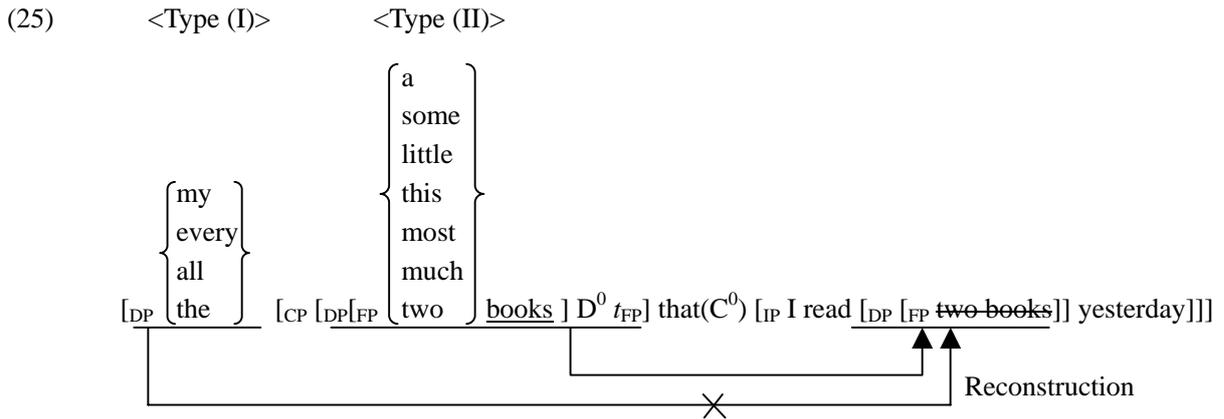   **a* several clouds

Aoun and Li (2003) point out these facts in a little different context. They observe that the determiners in (23b) are not allowed to occur with the Head of the so-called amount relatives and claim that the amount relatives must have been derived via head-raising under promotion analysis.

[11] It is observed that the reconstructed interpretation is available with type (II) determiners/quantifiers, such as, *two, few,* and *many,* when they occur with *the.* Furthermore, Bhatt (2002) observes that, with the definite article *the,* the quantifier *few* does license Negative Polarity Items (NPIs) inside the relative clause, as shown in (i).

(i)   a.   the few books that John ever said that Tolstoy had finished (high reading)   (Bhatt (2002: 72))

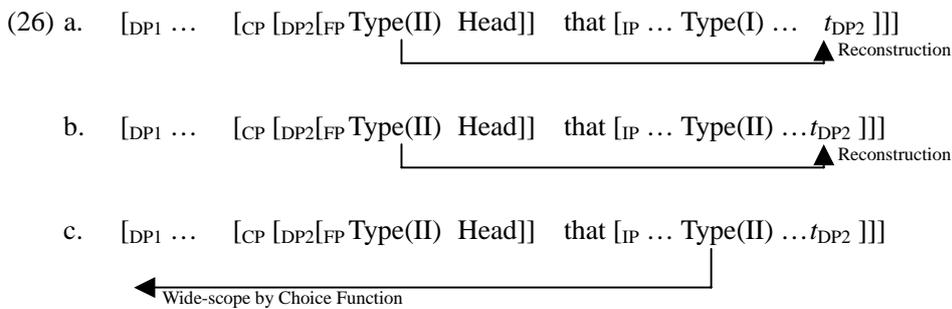   b.   the few books that John said that Tolstoy had ever finished (low reading)

These examples also show that type (II) determiners/quantifiers discussed in this section are internal to FP and inside the relative clause. However, when it is bare, *few* does not license NPIs in the case of the "low reading" in (iib).

(ii)   a.   few books that John ever said that Tolstoy had finished (high reading)   (ibid.)

       b.   *few books that John said that Tolstoy had ever finished (no low reading)

(25) <Type (I)> <Type (II)>

$$[_{DP} \begin{Bmatrix} my \\ every \\ all \\ the \end{Bmatrix} \quad [_{CP} [_{DP}[_{FP} \begin{Bmatrix} a \\ some \\ little \\ this \\ most \\ much \\ two \end{Bmatrix} \underline{books}] \, D^0 \, t_{FP}] \, that(C^0) \, [_{IP} \text{ I read } [_{DP} [_{FP} \text{ two books}]] \text{ yesterday}]]]$$
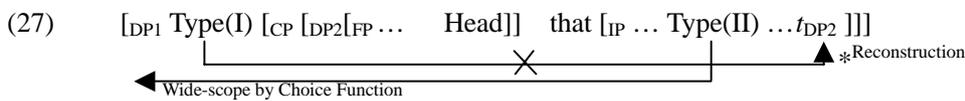
Reconstruction

The configuration in (26) is an illustration of the possibility of scope reconstruction with respect to two types of determiners/quantifiers. Type (II) can take narrow scope because it is internal to FP and inside the relative clause, while type (I) cannot take narrow scope because it is external to FP and hence outside the relative clause..

   In sum, the scope reconstruction which results from the interpretation of the copy in the base position is possible when the determiners/quantifiers of the Head are type (II).
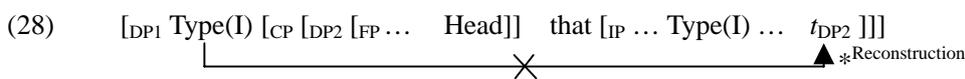
(26) a. $[_{DP1} \ldots \quad [_{CP} [_{DP2}[_{FP} \text{Type(II)} \quad \text{Head}]] \quad that [_{IP} \ldots \text{Type(I)} \ldots \quad t_{DP2}]]]$
Reconstruction

   b. $[_{DP1} \ldots \quad [_{CP} [_{DP2}[_{FP} \text{Type(II)} \quad \text{Head}]] \quad that [_{IP} \ldots \text{Type(II)} \ldots t_{DP2}]]]$
Reconstruction

   c. $[_{DP1} \ldots \quad [_{CP} [_{DP2}[_{FP} \text{Type(II)} \quad \text{Head}]] \quad that [_{IP} \ldots \text{Type(II)} \ldots t_{DP2}]]]$
Wide-scope by Choice Function

The arguments so far demonstrate that the narrow scope interpretation of the quantified Head in (26a-b) is the genuine case of what is called "scope reconstruction". As shown in (26c), narrow scope also takes place as the result of the application of existential quantification over choice function to the lower quantifier, when it is type (II).

   As illustrated in (27), the wide scope interpretation of the lower quantifier can be provided by scope construal via choice function mechanism. Thus the apparent narrow scope of the quantified Head is also possible even if the quantifiers/determiners of the Head are type (I).

(27) $[_{DP1} \text{Type(I)} [_{CP} [_{DP2}[_{FP} \ldots \quad \text{Head}]] \quad that [_{IP} \ldots \text{Type(II)} \ldots t_{DP2}]]]$
*Reconstruction
Wide-scope by Choice Function

As shown in (28), where the quantifiers/determiners of the Head and the lower determiners/quantifiers are both type (I), the narrow scope of the quantified Head is impossible.

(28) $[_{DP1} \text{Type(I)} [_{CP} [_{DP2} [_{FP} \ldots \quad \text{Head}]] \quad that [_{IP} \ldots \text{Type(I)} \ldots \quad t_{DP2}]]]$
*Reconstruction

4. Concluding Remarks

In this paper, I have claimed that there are two different mechanisms for the scope reconstruction. One is scope construal via choice function mechanism, from which the island-free wide-scope interpretation of indefinites results. The other is scope construal via the interpretation of the copy of the promoted Head in its base position inside the relative clause, from which the narrow scope interpretation of the quantified Head results. The former is taken to be semantic reconstruction from which the narrow scope interpretation of the quantified Head follows indirectly. The latter is syntactic reconstruction by which the narrow scope interpretation derive directly. In addition, I have shown the narrow scope interpretation of the quantified Head is possible with the presence of the type II determiners/quantifiers that can occupy the position internal to the functional projection FP between DP and NP within the relative clause.

Finally, I would like to point out that there is a redundancy in the applicability of scope construal which derives the narrow scope interpretation of the quantified Head. Consider the following four configurations discussed in this paper.

(29) a. … Type(II) … Type(I) … :   Reconstruction via copy / *Choice function

    b. … Type(II) … Type(II) … :   Reconstruction via copy / Choice function

    c. … Type(I) … Type(II) … :   *Reconstruction via copy / Choice function

    d. … Type(I) … Type(I) … :   *Reconstruction via copy / *Choice function

When the higher determiners/quantifiers in the Head and the lower determiners/quantifiers inside the relative clause are both type (II), one or the other of the two mechanisms for scope construal is applicable in the same configuration (29b), and the same interpretive effect (the reconstructed interpretation) is obtained . This consequence would be problematic from the minimalist perspective, since the computational system of the human language is taken to be an optimal and perfect system. I will leave this problem for future research.[12]

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[12] See Reinhart's (2006) argument about reference-set computations and the interface economy. Taking her interface strategies into consideration, we can argue that there is no need to apply the choice function in this case and the redundancy would not arise, since the mechanism for interpreting the base copy and the promotion of the Head are in the same boat at any rate, whereas the application of the choice function might be costly and hence extra.

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