More evidence for the split analysis of relative clauses[*]

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1. Proposal

This paper brings new evidence for the proposal that there are at least two ways to derive relative clauses (henceforth RC) in English. In addition, we discuss relative clauses in Serbian which exhibit the same behavior. More specific to this paper is the claim that either of these types of derivation correlates to the type of relative marker (RM) involved in the construction: relative pronouns, such as English *wh-* and Serbian *koj-* involve head external base-generation whereas, Complementizers, such as *that* in English and *što* in Serbian, involve raising/matching of the head noun.

Furthermore, we argue that RCs introduced by different relative markers can attach to different phrasal level within an extended DP.[1] RCs headed by relative pronouns (Wh-RCs) can adjoin to either *NP*s, ΦPs (Déchaine and Witschko (2002)), or *iP*s (an index phrase in the spirit of Elbourne (2005))). On the other hand, RCs headed by complementizers (Comp-RCs) have a more restricted domain of attachment, and can only adjoin to *NP*s and ΦPs.

The paper is structured as follows: Section §**2** reviews relevant RC analyses. In Section §**3** we discuss English and Serbian data arguing for different RC derivations correlating to different RMs. Section §**4** offers evidence for the different phrasal attachment of RCs headed by different RMs. Section §**5** concludes briefly.

2. Analyses of Relative Clauses

This section briefly reviews three syntactic analyses of RCs which have been previously proposed and greatly argued for in the literature. We present the structures and derivations without any of the arguments that led to their proposal for reason of space.[2] In turn, we will discuss the *Head External Analysis*, the *Raising Analysis*, and the *Matching Analysis*.
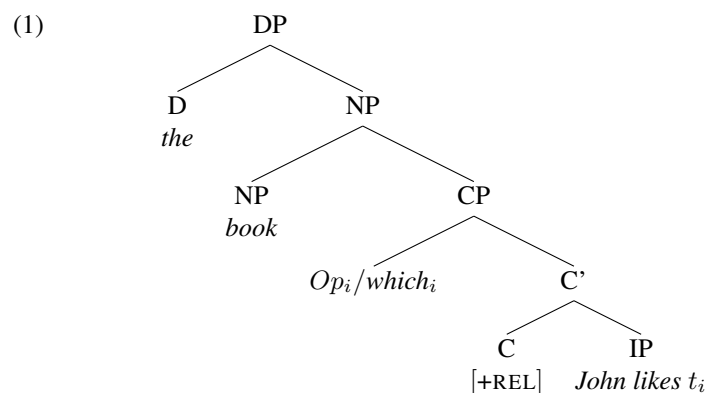
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[1] See Alexiadou, Haegeman and Stavrou (2007) for an extended survey of projections proposed in the literature for DPs and NPs.

[2] For a survey of the arguments leading to such conclusions we direct the reader to Bhatt (2002) and Bianchi (1999).

2.1 Head External Analysis

Under the Head External Analysis (Quine (1960); Ross (1967); Montague (1974); Partee (1975); Chomsky (1977); among others), the relative head is base generated outside the relative clause which it combines with. Crucially, there is no relative head inside the RC. Under the Head-External view of RCs, the empty operator or a relative pronoun inside the RC is linked to the external relative head via predication, which is semantically interpreted as intersective modification. The RM (empty operator or a relative pronoun) undergoes A'-movement from its base-generated argument position within the RC to the RC's CP, as depicted below in (1). Since the relative head is outside of the RC, no *reconstruction effects* into the RC internal position are predicted to arise.

(1)

```
                    DP
                   /  \
                  D    NP
                the   /  \
                    NP    CP
                  book   /  \
                 Op_i/which_i   C'
                              /  \
                             C    IP
                          [+REL]  John likes t_i
```

(Bhatt 2002:44)

2.2 Raising Analysis

Under the Raising Analysis[3] (Smith (1964); Brame (1968); Stockwell *et. al.* (1973); Vergnaud (1974); Kayne (1994); Bianchi (1999); among others), the relative head is merged inside the RC and it subsequently raises out of it to the higher NP position. Such a view of RC derivation opens up the possibility of *reconstructing* the relative head into its base position, i.e. inside the RC.

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[3] There are different labels used for this analysis, such as *Promotion* and *Head-Internal* analysis. We will use the term *Raising*.

(2)

DP

D
the

NP

NP
book$_j$

CP

[*Op/which t$_j$*]$_i$

C'

C
[+REL]

IP
John likes t$_i$
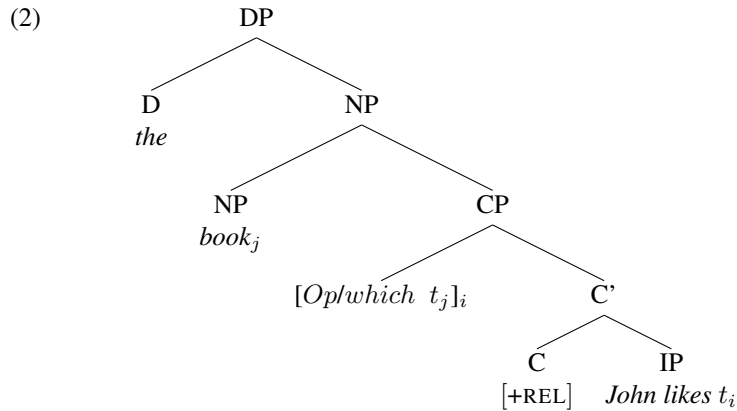
(Bhatt 2002:45)

2.3 Matching Analysis

The Matching analysis (Lees (1960); Chomsky (1965); Sauerland (1998); Salzmann (2006); among others) assumes that there is an internal relative head inside the RC and an external relative head in the main clause. The internal relative head subsequently deletes complying to the Relative Deletion Rule, (3):

(3) **Relative deletion:** In matching relatives, the internal head must not be pronounced. Furthermore, the external head must be antecedent of the internal head. (Sauerland (1999))

The presence of a relative head inside the RC, at least at some point of derivation, means that *reconstruction effects* should be observed. For this reason, and due to the similarity of this type of analysis to the raising analysis, we will treat both approaches on par for the remainder of this article; a simplifying assumption which should prove harmless to the claims put forth in what follows. The tree structure depicting this type of derivation is found in (4).

(4)

DP

D
the

NP

NP
book

CP

[Op / *which book*]$_i$

C'

C
+rel

IP
John likes t$_i$
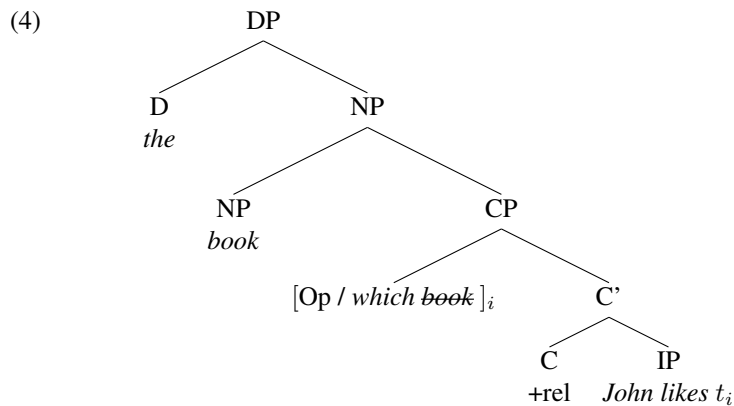
(Bhatt 2002:46)

3. Relativizing Analyses to Relative Markers

It is typically assumed that all analyses just reviewed are equally available to both *wh*-RCs and *Comp*-RCs. However, in this section we argue that, at least in some dialects of English and Serbian, RCs headed by different RMs behave differently with respect to available idiomatic interpretations and degree readings. We take the observed differences to be strongly suggestive of different derivations/analyses being involved. Specifically, we argue that *wh*-RCs involve an externally generated relative head, with no reconstruction inside the RC whereas, *Comp*-RCs involve raising of an internal relative head or a matching internal relative head; i.e. allowing for reconstruction. We first examine the argument pertaining to idiom interpretation, and then discuss the argument pertaining to degree readings.

3.1 Idioms

It is a generally accepted assumption that idiom-parts **must form a constituent** in a derivation in order to yield idiomatic readings (Schachter (1973); Marantz (1984)). As (5) and (6) demonstrate for English and Serbian, *wh*-RCs do not allow idiomatic interpretations whereas, *Comp*-RCs do.[4]

(5)   ENGLISH

    a. *?The headway [**which we made**] was satisfactory.

    b. The headway [**that we made**] was satisfactory.
       (taken from Schachter 1973:31)

(6)   SERBIAN
    (idiom: *to play with fire*)

    a. *Vatra* [**kojom se igraš**] *doći će ti glave.*
       fire which REFL play come WILL you head

       "You will pay the price for playing with fire (you will burn yourself)."
       *"You will pay the price for playing with dangerous stuff."
       1em

    b. *Vatra* [**što se njome igraš**] *doći će ti glave.*
       fire that REFL it play come WILL you head

       "You will pay the price for playing with dangerous stuff."

    Such a contrast is unexpected under a uniform analysis of *wh*- and *Comp*-RCs. However, it is predicted if (i) *wh*-RCs involve *only* a head-external relative head as in (7a) and if (ii) *Comp*-RCs involve an internal relative head that raises outside of the RCs or deletes under identity with the external relative head, as in (7b).

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4   Note that Szczegielniak (2004) reports the same contrast exists in Polish and Russian: *wh*-RCs do not allow idiomatic readings whereas *Comp*-RCs do.

(7)   a. *Wh-RCs*: $[_{DP}$ the $[_{NP}$ headway $[_{CP}$ **which**$_i$ we made **t**$_i$]]] ...

b. *Comp-RCs*: $[_{DP}$ the $[_{NP}$ **headway**$_i$ $[_{CP}$ that we made **t**$_i$]]] ...

In (7a), the noun *headway* is not inside the RC, so it cannot form a constituent with the verb *make* (to the exclusion of other formatives not relevant to the idiom); hence, the expression lacks idiomatic meaning.

In (7b), on the other hand, the noun *headway* is merged inside the RC as complement to the verb *make*; hence, idiomatic interpretation is possible given that the relevant idiom parts do indeed form a constituent prior to the raising / deletion of the internal relative head.

The difference in availability of idiomatic readings in the two types of RCs: *wh-* and *Comp*-RCs, suggests that the two types of RCs cannot be treated uniformly. The former indicates that it is only an external relative head that exists in the structure whereas the latter indicates that the internal relative head must be present at least at some point of derivation.

3.2   Degree Readings

Ever since Carlson (1977), it has been argued that degree / amount readings are possible with RCs that are derived via raising of the internal relative head. The most famous example illustrating the point is given below:

(8)   It will take us the rest of our long lives to drink the champagne they spilled that evening.
(taken from Carlson (1977))

There has been numerous proposals as to how degree readings are derived, but most of them revolve around the same basic idea: the relative head must be interpreted inside the RC in order for the degree reading to be available. Under the Raising RC analysis, this implies that the relative head must *reconstruct* into its base-generated position, i.e. inside the RC. Under the Matching analysis, the internal relative head must be interpreted in order to have a degree reading.

Of interest to the current investigation, *wh-* and *Comp*-RCs do not behave the same in these structures. Namely, *wh*-RCs do not allow degree readings while *Comp*-RCs do. Consider the following cases:[5]

(9)   a. *It will take us the rest of our long lives to drink the champagne **which** they spilled that evening.

b. It will take us the rest of our long lives to drink the champagne **that** they spilled that evening.

And the same contrast holds in Serbian: the degree reading is unavailable with *wh*-RCs but it is with *Comp*-RCs, as shown in (10a) and (10b) respectively below:[6]

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[5]   Note that the asterisk marks the unavailability of degree reading.

[6]   The same contrast is reported for Polish and Russian (Szczegielniak (2004)).

(10) a. *Potrebno nam je sto godina da popijemo*
　　　　need　　us　AUX　hundred　years　that　drink-we

　　　　*šampanjac **koji** su prosuli te večeri.*
　　　　champagne　which　AUX　spilled　that　evening

　　b. *Potrebno nam je sto godina da popijemo*
　　　　need　　us　AUX　hundred　years　that　drink-we

　　　　*šampanjac **što** su prosuli te večeri.*
　　　　champagne　that　AUX　spilled　that　evening

　　　　"We will need a hundred years to drink the champagne they spilled that evening."

Here again, such a contrast is unexpected under a uniform analysis of *wh-* and *Comp*-RCs. However, we can account for this contrast if we assume that *Comp*-RCs involve head-raising or matching derivations, but not a head external analysis:

(11)　　a. *Wh-RCs*: $[_{DP}$ the $[_{NP}$ champagne $[_{CP}$ **which**$_i$ they spilled **t**$_i$]]] ...

　　　　b. *Comp-RCs*: $[_{DP}$ the $[_{NP}$ **champagne**$_i$ $[_{CP}$ that they spilled **t**$_i$]]] ...

This section has established that in order to account for the different behavior of *wh-* and *Comp*-RCs with respect to idiomatic interpretations and degree readings, the two types of RCs must be taken to involve different derivations, namely the base-generation of a relative head external to the RC (*wh-*RCs) and the base-generation of a relative head inside the RC (*Comp*-RCs). We turn to a discussion of the height of attachment of these two types of RCs in the next section.

4.　The Relative Attachment of Relative Clauses

In this section, we argue on the basis of the interaction between pronouns and RCs, that *wh-*RCs are less limited with respect to their possible height of attachments than *Comp*-RCs. We will first discuss the interaction between pronouns and RCs in English and Serbian; then, we turn to the internal syntactic structure of pronouns, and what their differing interaction with *wh-* and *Comp*-RCs might reveal.

4.1　Pronouns and RCs

As noted by Elbourne (2005) and subsequent related work, some RCs may restrict some pronouns:

(12)　VOLDEMORT PRONOUNS

　　　a. **He** $[_{RC}$ **who should not be named**] was not invited to the party.

b. **She** [$_{RC}$ **who must be obeyed**] has made her entrance.

According to Elbourne (2005), pronouns have the syntax and semantics of (definite) determiners followed by an elided NP. RCs as in (12) are taken to be stranded after the elision of the noun, (13), and as such this analysis of the phenomenon bolsters the claim that anaphoric pronouns involve elided NPs.

(13) [$_{DP}$ he i [$_{NP}$ ~~sorcerer~~ [$_{RC}$ who should not be named]]]

However, notice that *wh*-RCs can attach to pronominal relative heads while *Comp*-RCs cannot. Compare the unacceptable string in (14) to its acceptable counterpart in (12a).

(14) ****He [$_{RC}$ **that should not be named**] was not invited to the party.

Interestingly, the same generalization holds in some dialects of Serbian:[7]

(15) a. **On** [$_{RC}$ **koga nećemo imenovati**] *nije pozvan na žurku.*
         he   who will-not name   not invited on party

      b. *?***On** [$_{RC}$ **što ga nećemo imenovati**] *nije pozvan na*
           he   that him will-not name   not invited on
         žurku.
         party
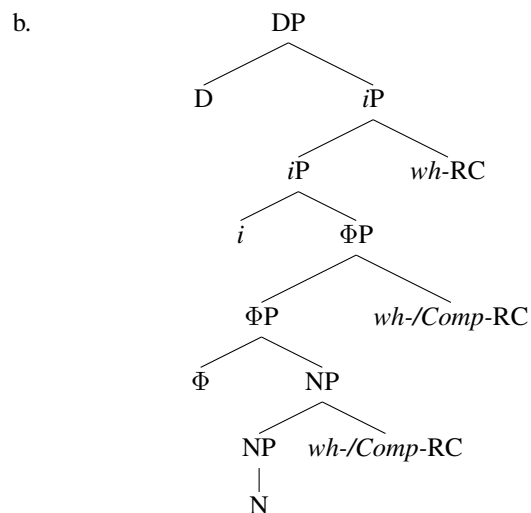   "He who would not be named was not invited to the party"

We wish to propose that this distinction is due to two factors: *(i)* the inner syntax of pronouns (as shown in (16a)), and *(ii)* the different level of attachment of *wh*-RCs and *Comp*-RCs, presented in (16b).[8] [9]

(16) a.

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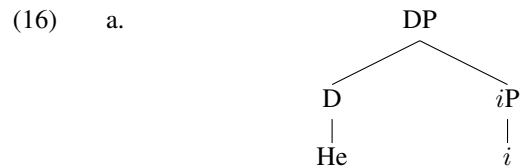
[7]   The example (15b) is not judged as ungrammatical by all the speakers we consulted but it is marked as degraded compared to the example in (15a).
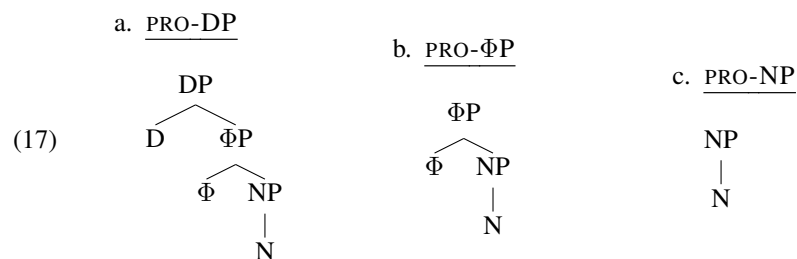
[8]   See for instance Abney (1987) who proposes that pronouns are of category D, without an embedded NP.

[9]   The *i*P here is taken to be an *index*-Phrase, as that found in the work of Elbourne (2005); it is of semantic type <e,t> and restricts the reference of the expression anaphorically.

b.

```
                        DP
                      /    \
                    D       iP
                          /    \
                        iP      wh-RC
                      /    \
                    i       ΦP
                          /    \
                        ΦP      wh-/Comp-RC
                      /    \
                    Φ       NP
                          /    \
                        NP      wh-/Comp-RC
                        |
                        N
```

4.2 Déchaine and Witschko (2002)

Déchaine and Witschko (2002) (henceforth D&W) proposed that three different pronoun types found cross-linguistically should be analyzed as having different internal structures, (17). The pronoun types described are taken from various different languages, namely *Halkomelem*, *Shuswap*, *Japanese*, *French*, *English*, *Plains Cree*, and *Mojave*.

(17)

a. <u>PRO-DP</u>

```
        DP
      /    \
    D       ΦP
          /    \
        Φ       NP
                |
                N
```

b. <u>PRO-ΦP</u>

```
      ΦP
    /    \
  Φ       NP
          |
          N
```

c. <u>PRO-NP</u>

```
  NP
  |
  N
```

The evidence brought forth by D&W involves syntactic distribution, semantic function, and binding theoretic status . The table below (their 24) summarizes their claim for some of the pronominal expressions they discuss.

Examples:	Halkomelem independent pronouns	Shuswap independent pronouns	Japanese *kare*
Proform:	pro-DP	pro-ΦP	pro-NP
Internal Syntax:	D syntax; morphologically complex	Neither D syntax nor N syntax	N syntax
Distribution:	argument	argument or predicate	predicate
Semantics:	definite		constant
Binding-theoretic status:	R-expression	variable	

Given their different internal syntax, such pronoun types are a great testing ground for investigating the attachment level of RCs. We discuss the different pronominal expressions found in English and Serbian in §**4.2.2** . But first, we dispute the presence of null NPs both in the D&W analysis, and the Elbournian analysis discussed above.

4.2.1 Adjunct Stranding

Typically, cases of Noun Phrase Ellipsis (NPE) in English can strand adjuncts, as in (18a).[10] However, pronouns cannot strand adjuncts in this way, as shown in (18b). (18c) involves a full definite description, which is assumed to be equivalent in meaning to the anaphoric pronoun structure under the Elbournian account.

(18) a. A girl from Swabia is meaner than one from Bavaria.

b. *The girl from Swabia is meaner than her from Bavaria.

c. The girl from Swabia is meaner than the girl from Bavaria.

The underlying structures of both (18a) and (18b) are roughly the same according to the Elbournian account, where in both cases the elision of the NP 'girl' is licensed by the overt local antecedent NP from the matrix clause.[11]

(19) a. [$_{DP}$ one [$_{NP}$ ~~girl~~] [$_{PP}$ from Bavaria]]

b. *[$_{DP}$ she/her *i* [$_{NP}$ ~~girl~~] [$_{PP}$ from Bavaria]]

All else being equal, we would expect PP adjunction to the elided NP to be acceptable in both cases, and the subsequent stranding to obtain in both cases as well. However, if we assume that pronouns do not actually involve any elided NP

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[10]   This argument is taken from Gagnon (2012a) who offers syntactic arguments which shed doubt on the presence of an elided NP in pronoun syntax. Gagnon (2012b) further argues that the syntactic d-type theory of pronouns involving NPE is not descriptively adequate, and that a semantic d-type approach (Cooper (1979)) is superior.

[11]   D&W propose that object pronouns in English (*e.g.* her/him) are in fact pro-ΦPs. We assume that this is correct, and take the current argument to establish that at least for the pro-DPs and pro-ΦPs discussed here, no elided or null NP is present.

at all, but are of category D as suggested above, nothing special needs to be said here.

Turning to French, the same point can be made, where NPE allows for the stranding of prenominal modifiers:[12]

(20) *J'ai   vu   les garçons dans la   cour.   Les grands [e]*
I'have seen the boys   in   the courtyard. The tall   [e]
jouaient avec les petits [e].
played   with the little [e]
'I've seen the boys in the courtyard. The big ones were playing with the little ones.'

But here again, pronouns cannot appear followed by prenominal modifiers:

(21) *J'ai   vu   les garçons dans la   cour.   *Ils grands [e]*
I'have seen the boys   in   the courtyard. They tall   [e]
jouaient avec ils   petits [e].
played   with they little [e]
'I've seen the boys in the courtyard. The big ones were playing with the little ones.'

Also, the same generalization holds in Serbian. Compare (22), where the noun is elided and the PP adjunct stranded, with (23), where a pronoun cannot appear with the stranded modifier.

(22) *Videla sam dečake u dvorištu. Mnogi [e] iz Novog Sada*
seen.I AUX boys   in courtyard. Many [e] from Novi Sad
su   igrali fudbal.
AUX played soccer
'I've seen the boys in the courtyard. Many from Novi Sad were playing soccer.'

(23) *Videla sam dva dečaka u dvorištu. *On [e] iz Novog*
seen.I AUX two boys   in courtyard. he [e] from Novi
Sada je igrao fudbal s njim [e] iz Subotice.
Sad AUX played soccer with him [e] from Subotica
'I've seen the boys in the courtyard. The one from Novi Sad was playing soccer with the one from Subotica.'
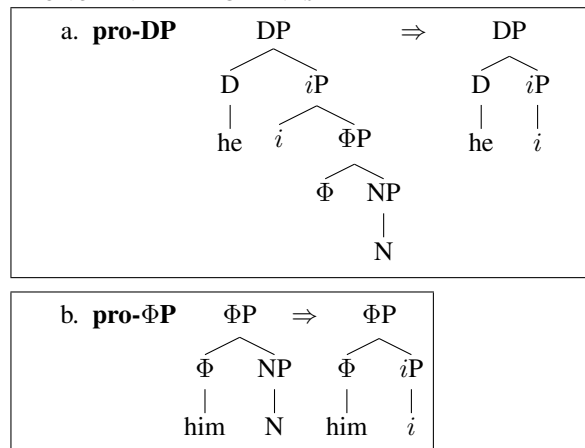
Based on these data, we conclude that elided NPs are not present in the pronouns' inner syntax.

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[12]   These data originate from the work of Herschensohn (1978) who argues that those sentences involve ellipsis.

4.2.2 Fragmenting Pronouns

Given the argument just presented, we assume the following inner syntax for pronouns, where they are either of category D or Φ, and have no embedded elided NP:[13]

(24)   PRONOMINAL FRAGMENTS

```
a. pro-DP        DP          ⇒         DP
                ╱  ╲                   ╱  ╲
               D    iP               D     iP
               │   ╱ ╲               │     │
               he i   ΦP             he    i
                      ╱ ╲
                     Φ   NP
                         │
                         N
```

```
b. pro-ΦP     ΦP    ⇒     ΦP
             ╱  ╲         ╱  ╲
            Φ    NP      Φ    iP
            │    │       │    │
           him   N      him   i
```

Based on the difference regarding the type of the RC (*wh-* and *Comp-*) and the attachment to different types of pronouns (pro-DP, pro-ΦP and pro-NP), we suggest that the RCs introduced by different RMs attach at different phrase levels. As discussed above and repeated in (25) below, *wh-*RCs can attach to pro-DP while *Comp-*RCs cannot. We also observe that both types of RCs can attach to pro-ΦP and pro-NP. The examples illustrating this point are given in (25c) and (25d). The syntax of RC attachment is provided in (26a,b,c).

(25)   **pro-DP**

   a.   *He **that** should not be named was not invited to the party.

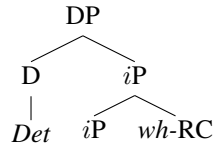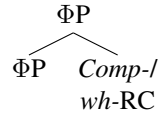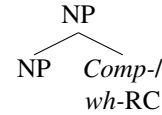   b.   He **who** should not be named was not invited to the party.

   pro-ΦP

   c.   Out of the sorcerers, I've invited him who/that should not be named.

   pro-NP

   d.   Every one who/that should not be named was invited to the party.

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[13]   Where i is an index of semantic type $\langle e,t \rangle$, as found in Elbourne (2005), with the following Cooperesque denotation, argued for in Gagnon (2012b): $\lambda x. \alpha(x)$. Under such a view, the pronoun is taken to be an *iota*-operator (ι of type $\langle \langle e, t \rangle, e \rangle$), as in Link (1983).

(26) RC Attachment

    a. **pro-DP**   b. **pro-ΦP**   c. **pro-NP**

```
         DP                    ΦP                    NP
        /  \                  /  \                  /  \
      D      ιP            ΦP    Comp-/          NP    Comp-/
      |     /  \                 wh-RC                 wh-RC
     Det  ιP   wh-RC
```

Further evidence for this distribution can be found when examining other categories. For instance, demonstratives, arguably of category D, can readily combine with *wh*-RCs (27a), but not with *Comp*-RCs (27b).

(27) Demonstratives

    a. That which he has written is an inspiration to us all.

    b. *That that he has written is an inspiration to us all.

<div align="right">Browne (1986:115, ex 20)</div>

Further evidence for this relative height of attachment can be drawn from RCs in French. Vergnaud (1974) argued convincingly that French RCs require the raising analysis. Under our current terms, this makes French RCs *Comp*-RCs, which can only be attached to either ΦP or NP, but crucially not DP, where there is no landing site for the relative head.

This analysis accounts for the fact that French 3rd person pronouns, unlike English, cannot combine with RCs:

(28)   a. He/She who should not be named

    b. *Il/Elle   qui ne   doit pas être nommé*
       *He/She that neg has neg be   named

Both French and English 3rd person pronouns are D-heads, without more embedded structure, but only English has *wh*-RCs which may attach at the DP-level:
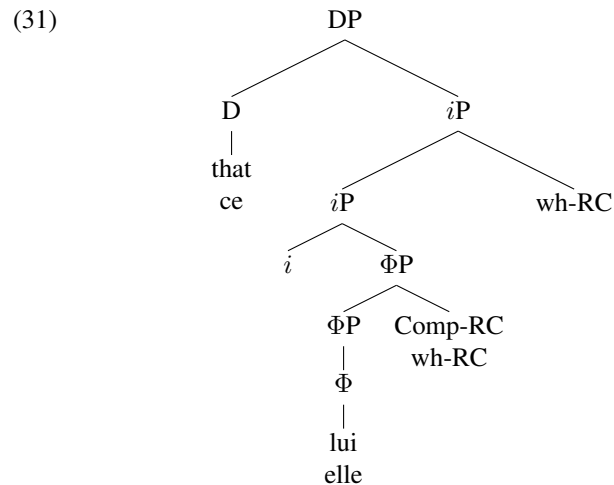
(29)

```
                 DP
                /  \
              D      ιP
              |     /  \
            he/il  ιP   wh-RC
```
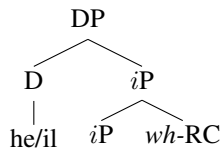
Furthermore, the Demonstrative system in French lends support to this analysis. In (30a), we have an RC attaching to the NP 'garçon' in a DP headed by the demonstrative 'ce', which is acceptable as expected. In (30b), we see that French RCs cannot attach to the bare demonstrative pronoun, unlike English. Rather, what we analyze as a Φ-head, expressing the gender feature, is required for an RC to be licit, as seen in (30c).

(30) a. *Ce garçon que j' ai rencontré hier est venu*
this boy that I have met yesterday IS-AUX come
pour souper.
for dinner
'This boy that I met yesterday came for dinner.'

b. **Ce que j' ai rencontré hier est venu pour*
this that I have met yesterday IS-AUX come for
souper.
dinner

c. *Celui/Celle que j' ai rencontré hier est*
This-Masc/This-Fem that I have met yesterday IS-AUX
venu pour souper.
come for dinner

The proposed syntax for the English and French demonstrative constructions is found in (31), where the overt expression of the ΦP through a gender head is required in order for a *Comp*-RC to be introduced; a possible outcome in French, but not in English.

(31)

```
                      DP
                     /  \
                   D      iP
                   |     /  \
                 that   iP    wh-RC
                 ce    /  \
                      i    ΦP
                          /  \
                        ΦP    Comp-RC
                        |      wh-RC
                        Φ
                        |
                       lui
                       elle
```

5. Conclusions

There were three parts to our contribution in this work.

(i) Based on idiomatic interpretations and degree readings, we have argued that cross-linguistically, *wh-* and *Comp*-RCs require at least two different derivational strategies: *wh*-RCs involve head external base-generation whereas *Comp*-RCs involve raising / matching.

(ii) We further argued that *wh*-RCs and *Comp*-RCs attach at different phrasal levels. Based on the observed patterns of interactions between pronouns and RCs, we concluded that *wh*-RCs adjoin at *i*P, ΦP or NP whereas, *Comp*-RCs adjoin at the ΦP or NP.

(iii) Finally, we provide an inner syntax for third person and demonstrative pronouns which aligns with their interaction with RCs, namely $[_{DP}$ he $[_{iP}$ *i*]].

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