Hubert Haider, Jan. 02, 2020

On the serialization of relative clauses
A rejoinder to Cinque's "*Different merge positions*"

1. What is at issue

Whenever there is more than a single relative clause in a noun phrase or in an extraposed position, these clauses are serialized in a preferred order, which Cinque (2019:134) interprets as follows: "*Kind-defining RCs are lower than nonrestrictives and higher than ordinary restrictives*" and therefore, ordinary restrictive relative clauses precede kind-defining ones (1a,b), which in turn precede non-restrictive RCs within a noun phrase (1c,d). The examples in (1) are German counterparts of Italian example pairs Cinque adduces from Benincà (2012). The Italian examples corresponding to the order illustrated in (1b) and (1d) are starred by Cinque. The judgements are based on the customary self-appreciation of acceptability and have not been assessed by controlled testing.

(1) a. Das ist eines der Häuser, die ihr angeboten wurden, [die mehr als eine Etage haben]$_{kind}$.
       this is a house that me offered was [that two floors has]

   b.?Das ist eines der Häuser, [die mehr als eine Etage haben]$_{kind}$, die ihr angeboten wurden.

   c. Das ist ein Haus, [das zwei Etagen hat]$_{kind}$, das bekanntlich Karajan gehörte.
       this is a house [that two floors has] [that as-is-well-known Karajan belonged]

   d.?Das ist ein Haus, das bekanntlich Karajan gehörte, [das zwei Etagen hat]$_{kind}$.

   e. der Schritt, der bekanntlich unvermeidlich ist, zu dem sie sich jetzt entschlossen hat
       the step, which as-is-well-known inevitable is, for which she REFL now decided has

In my judgement of the German examples (1), there is a contrast, but the deviance in acceptability would not warrant starring the utterances (1b,d), that is, qualifying them as unacceptable and ungrammatical. (1e) is a good candidate for full acceptance in either order. Anyway, the contrast between the pairs (1a,b) and (1c,d) is definitely milder than the contrast between word order variants of adverbials of different semantic types illustrated in (2). In this case, any change in the relative order of the three adverbials yields a robustly unacceptable utterance.

(2) dass sie *leider oft unkorrekt* abgerechnet haben
     that they *regrettably often incorrectly* billed have

The rigid relative order in (2) is a reflex of the fact that each of the three adverbials is of a distinct semantic type. Each type selects a different semantic domain and the domains are in superset-subset relations. *'Correctly'* as a manner adverb modifies the denotation properties of the verb, the frequency adverb *'rarely'* quantifies over events, and the sentence adverbial *'regrettably'* specifies the attitude towards the whole clause as a proposition. Syntactically, the semantic domains are congruent with the respective c-command domains of the adverbs. Not only is the relative order in (2) rigid, conjoining any two of these adverbials is unacceptable as well, as illustrated by (3a,b).

(3) a.*[Leider und oft]$_{Adv.}$ hat er unkorrekt abgerechnet.
        [unfortunately and often] has he incorrectly billed

   b.*[Leider und unkorrekt]$_{Adv.}$ hat er oft abgerechnet.
       unfortunately and incorrectly has he often billed

   c. *Unkorrekt* hat er leider oft abgerechnet.
       incorrectly has he unfortunately often billed

d. *Leider* hat er oft unkorrekt abgerechnet.
    unfortunately has he often incorrectly billed

c. *Oft* hat er leider unkorrekt abgerechnet.

The deviance of conjoined adverbs of different semantic types could in principle be derived from a semantic or a syntactic infringement. A semantic account would go like this. The type of the conjunct is the type of the conjoined items. If the type of the conjunct is not identical with the type of the conjoined items, it must be compatibles with the type of each conjunct. Otherwise, a conjunct would specify a domain for (one of) these adverbs that is different from the domain that at least one of the adverbs require. This is indeed the case if adverbs of different types are conjoined, as in (3a,b).

A syntactic account would presuppose that each semantic type of an adverb is syntactically encoded. This is what Cinque (1999) has argued for in detail. In this scenario, each (semantic type of an) adverb is paired with a different functional head, and the respective adverb occupies the functional specifier of the functional projection. Consequently, conjoining two type-incongruent adverbs would amount to conjoining two incongruent functional projections.

As criticized in Haider (2000, 2004), such an approach *redundantly doubles* the very same information. On the one hand, the semantics of the particular adverbs governs the compositional construction of the semantic representation. On the other hand, the very same information is encoded syntactically in terms of distinct (empty) syntactic heads, and eventually, it is the semantics that determines the cascading. However, syntax does not overrule semantics but merely provides the structural scaffolding.

The empirically appropriate approach arguably is modular, and more economic. Semantics specifies the semantic domain requirements and syntax determines what is a licit syntactic slot for an adverbial and what is the resulting c-command domain, which ultimately corresponds to the semantic domain. The actual placement of adverbials in one of these slots follows from their domain requirements (see Haider 2004) and is semantically governed. The semantic properties decide which one of the available slots for adverbs is compatible with the semantic requirements of a given adverbial. The analogous situation seems to hold for the semantically differentiated kinds of relative clauses.

2. Relative clauses

If "*kind-defining RCs are lower than nonrestrictives and higher than ordinary restrictives*", this – first of all – reflects a semantic property. Syntactically, a relative clause is just a relative clause. One and the same relative clause may be restrictive or not, depending on the context. The clause (4a), for example, may be used as an interrogative or a relative clause. If its antecedent is a noun (which does not select an interrogative clause), it is construed as a relative clause. If its antecedent noun can serve as a restrictor, we call it a restrictive relative clause (4b); if not, it is called non-restrictive (4c).

(4) a. who knows the password
     b. every client who knows the password
     c. his wife, who knows the password

For modelling the serialization properties of relative clauses, Cinque (2019) adopts the same strategy as in his studies on adverbials. The different *functions* of relative clauses are 'syntactified'. A difference in function is paired with a difference of the structural position a relative clause is merged (2019:141,143) as specifier of a silent functional head (Cinque 2019, fn. 17):

(5) $[_{FP} RC_{nonrestr.} [F° [_{FP} [F° RC_{kind\text{-}restr.} [_{FP} [F° RC_{restr.} [_{FP} AP [F° [NP]]]]]]]]]$[1]

Again, semantic information is doubled in syntactic phrase structuring and the suspicion arises once more that this may be redundant and empirically unjustified. The empirical justification is independently challenged at least by the following facts:

- Restrictive RCs may be conjoined with non-restrictive ones.
- Restrictive RCs precede N°-dependent complements.
- RCs extraposed to clause final positions display the same order preference as NP-internal ones.
- Preverbal participial constructions ('reduced relatives') do not pattern as predicted by the merger hierarchy.

2.1 The fact that restrictive and non-restrictive relative clauses may be *conjoined* (6) indicates that the two interpretations do not entail different domain requirements as in the case of adverbials. The attachment site of the conjoined structure must be compatible with the requirements of both, the restrictive and the appositive relative, and it is compatible indeed, as the acceptability of examples such as (6) demonstrates.

(6) a. manches von dem, [[was er noch besaß]$_{restr.}$ aber [~~was~~ bekanntlich schon verpfändet war]]$_{n\text{-}restr.}$
     some of that [[which he still owned] but [as-is-well-known already pawned was]]
   b. manches von dem, [[was bekanntlich schon verpfändet war]$_{n\text{-}restr.}$ aber [~~was~~ er noch besaß]]$_{restr.}$

Syntactically, two relative clauses can be conjoined, independently of their semantic qualities, and, moreover, they can be serialized in any order within the conjunction. If there were any distinct domain requirement at issue, coordination ought to be as deviant as in the case of adverbials (3,b).

2.2 An NP-internal *restrictive* relative clause *follows* a comparative *PP extraposed* out of an adnominal attribute. Consequently, the *restrictive* relative clause must be *higher* in the structure than the preceding extraposed PP.

(7) a. ein [viel längerer e$_i$]^2 Brief, [*als der von mir*]$_i$, [den er am Vortag abgeschickt hatte]$_{restr.}$
     a much longer letter, than the (one) from me [which he at the-day-before sent had]
   b.??ein viel längerer Brief, [den er am Vortag abgeschickt hatte]$_{restr.}$ *als der von mir*

At first sight, this seems to be well-covered by a derivational scenario in which postnominal clauses result from fronting ('roll-up') of the NP within the cascade of functional projections a complex nominal phrase consists of. In (7a), the PP would be extraposed to the functional phrase that contains the AP and the NP, which then gets 'rolled up'. So far, so good, but only if

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[1] The surface order in languages with head-initial NPs is derived by "rolling-up" the lowest FP that contains the NP (Cinque 2019: 134) to the next-higher FP, which in turn is moved ahead. The result is a mirror-image serialization of the base order.

[2] i. [Viel ausführlicher, *als der von mir*]$_{AP}$ war der Brief von ihm
   much more-elaborate *than the (one) of me* was the letter by him

"the extension of the LCA" (Cinque 2019:131) is correct[3] according to which relative clauses are universally prenominal. The postnominal serialization is the result of fronting ('rolling-up') the NP.

The problems are waiting and appear when post-nominal items come into play that depend on the noun of the noun phrase. These items are predicted to precede relative clauses of any kind since they are necessarily pied-piped when an NP is 'rolled up' ahead of relative clauses. According to the "extension of the LCA", objects are base-generated universally in head-complement structures. Hence, an object clause of a noun or a complement PP that is dependent on the noun have their base positions *after* the head noun. Consequently, they have to *precede* relative clauses of any kind. However, this is not what the facts tell us (Haider 2010: 189; 1997).

(8) a. der Versuch, der (bekanntlich) selten gelingt, [den Stern ohne Fernrohr zu orten]_{Obj.}

    the attempt, which as-is-well-known rarely succeeds, [the star without telescope to locate]

  b. Sie hat die Behauptung, die er formuliert hat, [dass Rauchen gesund sein kann]_{Obj.}], ignoriert.

    she has the claim that he formulated has [that smoking healthy can be] ignored.

In (8), roll-up would pied-pipe the object clause and hence this clause would have to precede a relative clause in the surface order. (9) is a case of what is standardly called PP-extraposition. However, in the LCA framework adopted by Cinque, extraposition does not exist. It is replaced by roll-up. Hence, the PP in (9) is predicted to be pied-piped when the NP is rolled up and the order in (9) could not be derived.

(9) a. Ist der Mann, der dort steht [mit dem Muttermal auf seiner Stirn]_{PP}, wirklich Gorbatschow?

    is the man who over-there stands [with the birthmark on his forehead really Gobachev

  b. Das einzige Foto, das er besitzt [von seiner Großmutter]_{PP} ist sehr unscharf.

    the only photo that he owns [of his grandmother] is very blurred

2.3 Relative clauses that are extraposed out of an NP and placed at the end of a sentence show the same order preference as NP-internal clauses. In (10a,b), the restrictive RC precedes the non-restrictive RC. The object clause follows.

(10) a. weil er einer Frau gesagt hat, [die er kürzlich kennengelernt hatte], [die bekanntlich sehr

    since he a woman told has [who he recently met had] [who as-is-well-known very

    vermögend ist], [dass er sie heiraten möchte]

    wealthy is] that he her (to) marry wants

  b. weil er [einer Frau, die er kürzlich kennengelernt hatte, die bekanntlich sehr vermögend ist] gesagt hat, [dass er sie heiraten möchte]

If the object clause is the object of the noun, as in (8), the order is the same as in (10), with the object clause following the relative clauses, although the object clause in (10) is the object of the matrix verb, while it is the object of the noun in (11):

(11) Ich bin [Zeuge [eines *Versuchs*]] gewesen, [den Freunde unternahmen]_{restr.} (und) [der bekanntlich

    I have [witness [(of) an attempt]] been [which friends undertook] (and) [which as-is-well-known

    auch misslingen kann]_{n-restr.}, [den zugefrorenen Fluss auf Skiern zu überqueren]_{object.}

    also fail can] [the frozen river on skis to cross]

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[3] Ample and diverse evidence against Kayne's LCA theory in general is gathered in Haider (2013, ch. 9) and (2015).

What is the grammatical source of the parallel serialization in each case? The Kaynean LCA perspective suggests that in each case the relative clauses are stranded by fronting the NP. However, this is impossible in the case of (11), since the relevant noun, viz. *'Versuch'* (attempt), is embedded in the NP headed by *'Zeuge'* (witness). So, there is no roll-up derivation available for (11). The roll-up version of (11) would be (12).

(12) Ich bin [Zeuge [des *Versuchs* [den Freunde unternahmen]$_{restr.}$ (und) [der bekanntlich auch misslingen kann]$_{n\text{-}restr.}$, [den zugefrorenen Fluss auf Skiern zu überqueren]$_{object}$ gewesen.

In fact, (11) cannot be derived in a LCA-based system at all. In order to derive a head-final VP as in German, the object NP would have to be fronted to the preverbal position. This would willy-nilly pied-pipe the embedded NP together with its relative clauses and its object clause. These structures are disregarded in the literature, although they are easy to locate in corpora:

(13) a. Er konnte sich [an [jede Schaube [jedes Autos^i]]] erinnern, das^i er je repariert hatte.[4]
   he could REFL [at [each bolt [(of) each car]]] recollect, that he ever repaired had

   b. Du wirst dich [an [den Namen [des Mannes^i]]] erinnern, den^i du heiraten wolltest.[5]
    you must REFL [at [the name [(of) the man]]] recollect, who you marry wanted

   c. Er wollte was [über [die Geschichte [dieses Kindes^i]]] erfahren, das^i vom Himmel gefallen war.[6]
    he wanted something [about [the story [(of) the kid]]] learn, that from heaven dropped had

   d. Sie habe [den Besitzer [des Hundes^i]] gesucht, der^i von der Polizei auf Struppi getauft wurde.[7]
    she has [the owner [(of) the dog]] sought, who by the police as Struppi baptized was

In each of these sentences, the extraposed relative clause does not relate to the head-noun of the noun phrase but to a noun phrase that is embedded. In (13a-c), the containing noun phrase is a sub-constituent of a PP. There is no reasonable derivational scenario that could dissociate the relative clause and the NP it belongs to by stranding (see Haider 2010: 214-224). In German, which is by no means exceptional in this respect, of course, NPs cannot be moved out of NPs across PPs into the matrix clause.

(14) a. *[Jedes Autos]$_i$ konnte er sich [an [jede Schaube [--$_i$]]] erinnern.
     [each car$_{Gen.}$ could he REFL [of [each screw]] remember

   b.* [Des Mannes]$_i$ wirst du dich [an [den Namen [--$_i$]]] erinnern.
    [the man $_{Gen.}$] will you REFL [of [the name]] remember

2.4 Reduced participial RCs

Since reduced participial attributes are semantically equivalent to RCs, they are expected to display the same order preferences, modulo the syntactic requirements of adnominal attributes.

(15) a. eine [bekanntlich zunehmende] [die Behörden alarmierende] Akzeptanz von Drogen
     a [as-is-well-known increasing] [the authorities alarming]   acceptance of drugs

   b.(?)eine [die Behörden alarmierende] [bekanntlich zunehmende] Akzeptanz von Drogen
     a   [the authorities alarming] [as-is-well-known increasing]   acceptance of drugs

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[4] https://books.google.at/books?id=Vbx1DwAAQBAJ&pg=PT139&lpg=PT139&dq=%22Autos+erinnern,+das%22&source=bl&ots=e-NFy6ImjN&sig=ACfU3U2Etl60q6spWRrtY-zyb9sxznXarw&hl=de&sa=X&ved=2ahUKEwjpvaTor-jmAhVLr4sKHaxmBuMQ6AEwAXoECAoQAQ#v=onepage&q=%22Autos%20erinnern%2C%20das%22&f=false

[5] https://books.google.at/books?id=FHk3DwAAQBAJ&pg=PT294&dq=%22Mannes+erinnern,+den%22&hl=de&sa=X&ved=0ahUKEwi-q4jXsOjmAhVltIsKHYB5BKAQ6AEIQDAD#v=one-page&q=%22Mannes%20erinnern%2C%20den%22&f=false

[6] https://www.google.at/search?hl=de&tbm=bks&ei=krMPXoi2B7WHwPAP3_Sf2A0&q=%22Kindes+erfahren%2C+das%22&oq=%22Kindes+erfahren%2C+das%22&gs_l=psy-ab.12...23324.24629.0.28208.8.8.0.0.0.0.106.760.7j1.8.0....0...1c.1.64.psy-ab..0.0.0....0.8mwI26ZcBOY

[7] https://www.tag24.de/nachrichten/leipzig-verlassener-hund-struppi-valentina-aus-italien-finderin-bundespolizei-tiere-1203365

Cinque (2019: 137) approvingly quotes Rijkhoff (1998: 362), who claims that "[i]*n Dutch (as well as e.g. in German and Frisian) the preposed participial construction follows the demonstrative and the numeral*." It is true that this is a frequent order, but it is not the only admissible order. Nowadays, it is easy to check data claims by searching sizeable text corpora. Had Rikhoff or Cinque consulted one of the easily available corpora, they would not have been misled to formulate a wrong generalization. The following examples document for English (16), for Dutch (17), and for German (18) that a numeral may follow a participial adnominal attribute.

(16) a. the recently completed *two* guided test shots — Link
    b. the recently completed *two* 150 ft. truss spans of this bridge — Link
    c. the specially designed *two* terminal probes — Link
    d. such regulation will stabilize the finally completed *two* states of magnetization — Link

(17) a. de [onlangs voltooide] *twee* private datacentersuites — Link
      the [recently completed] two private data-centre-suites
    b. de [daar wonende] *drie* joodse stammen — Link
      the [there living] three Jewish tribes
    c. de verdwenen *twee* medeverdachten — Link
      the missing two suspects

(18) a. die [[hier *arbeitenden*] [*drei* [jungen [Friseure aus Syrien]]]] — Link
      the here working three young hairdressers from Syria
    b. die [nebenan wohnenden] *drei* Männer — Link
      the next-door living three men
    c. die [in dem Raum darüber arbeitenden] *zwei* Angestellten — Link
      the in the room above working three employees
    d. die [jetzt *ausgewählten*] *zwei* Wirkstoffe — Link
      the now selected two active-ingredients

Of course, if there are two possible serializations, the version will win that is preferable on whatever factor that takes advantage of the choice situation, for instance scoping[8] or parsing. Behaghel's (1909) *Law of Increasing Terms*, for instance, or its present-day rendering in terms of a preference for "*early immediate constituents*" (Hawkins 1994) would suffice for deriving the *statistic* fact that NPs with the order given in (16)-(18) do not outnumber NPs with the inverse order, that is, with the numeral preceding the attributive AP. Whenever there are two phrases that can be freely ordered, the shorter one tends to precede the longer one. This preference even overrides the preference for placing restrictive RCs or reduced, participial RCs close to the NP. In (19a,b), the restrictive attribute is much shorter than the non-restrictive one and precedes. In (19c), the non-restrictive one is the short one and it precedes.

(19) a. die *neue,* [bekanntlich noch nicht ratifizierte]$_{n\text{-restr.}}$ EU-Verfassung
      the new, as-is-well-known not yet ratified EU-constitution

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[8] The orders in (i) and (ii) differ in the scope of the numeral and so does the interpretation. The compositional construction of the meaning of (ii) leads to the construal that a *collection* of three pictures has been confiscated, whereas (i) says that there is a set of recently confiscated pictures with the cardinality of 3.
 i. the [[recently confiscated] [*three* pictures]]
ii. the [*three* [[recently confiscated] pictures]]

    b. die *alte,* [bekanntlich hocheffiziente]$_\text{n-restr.}$ Planwirtschaft

       the old, as-is-well-known highly-efficient command-economy

    c. Jolas, der *ehemalige,* soeben pensionierte bayerische Staatskommissar für die Pfalz

       Jolas, the *former*$_\text{-n-restr.,}$ just pensioned Bavarian for state-commissioner for the Pfalz

3. In sum, given the data discussed above, the observed preferences follow from a modular approach, that is, by superposition of semantic domains on syntactic structures. A syntactic account in terms of structurally unique attachment-sites seems to be dispensable and less promising than the modular approach. The construction of the semantics of NPs is enhanced if the actual order of elements whose serialization is not strictly determined by syntactic structuring is congruent with the semantic domain requirements. This seems to be the source of the preference relations in the serialization of relative clauses.

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