## RESEARCH

# Noun complement clauses as referential modifiers

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A number of recent analyses propose that so-called noun complement clauses should be analyzed as a type of relative clause. In this paper, I present a number of complications for any analysis that equates noun complement clauses to relative clauses, and conclude that this type of analysis is on the wrong track. I present cross-linguistic evidence showing that the syntactic behavior of noun complement clauses does not pattern with relative clauses. Patterns of complementizer choice and complementizer drop as well as patterns involving main clause phenomena and extraction differ in the two constructions, which I argue is unexpected under a relative clause analysis that involves operator movement. Instead I present an alternative analysis in which I propose that the referentiality of a noun complement clause is linked to its syntactic behavior. Following recent work, I claim that referential clauses have a syntactically truncated left-periphery, and this truncation can account for the lack of main clause phenomena in noun complement clauses. I argue that the truncation analysis is also able to accommodate complementizer data patterns more easily than relative clause analyses that appeal to operator movement.

## 1 Introduction

A number of authors have recently advanced the claim that so-called Noun Complement Clauses (NCCs) are actually Relative Clauses (RCs) in disguise (Kayne 2008; 2010; Arsenijević 2009; Haegeman 2012; among others). While each of these authors implements their proposals differently, they all share the general claim that NCCs like (1) should be analyzed as a type of RC construction as in (2).

(1)　　a.　　the fact that it is raining
　　　　b.　　the claim that the government monitored phone conversations

(2)　　a.　　the fact that the scientists discussed
　　　　b.　　the claim that the inventor made

The goal of this paper is to present some empirical challenges to existing NCC as RC proposals and to propose an alternative non-RC analysis for NCCs that avoids some of the pitfalls of the RC analyses. I show that NCCs behave syntactically differently from RCs in a number of cases cross-linguistically, making it unlikely that there is a universal RC structure for NCCs. Patterns of complementizer choice, the availability of complementizer drop and agreement patterns are presented that show that NCCs syntactically pattern more closely with complement clauses to verbs than with RCs, which is an unexpected result if NCCs were indeed a type of RC. Instead, I propose a truncation analysis for NCCs along the lines of de Cuba & Ürögdi (2009), who propose that referential complement clauses are structurally smaller than non-referential complement clauses, as in (3).

(3)    a.    **Referential CP:**        [CP]
       b.    **Non-referential *c*P**:    [*c*P    [CP]]

The structures in (3) were proposed to account for restrictions on the appearance of the pronominal element *azt* in Hungarian to non-referential clauses as well as restrictions on Main Clause Phenomena (MCP) to non-referential clauses cross-linguistically. Their proposal is that referential complements lack the *c*P projection, leaving no position for pronominal *azt* in Hungarian or the relevant movements involved with MCP in a number of languages. The main proposals I present here are as follows:

(A)    Embedded clauses come in two sizes, as in (3).
(B)    NCCs are generally referential CPs, regardless of the head noun they are associated with. In this way they differ from clausal complements to attitude verbs, which can vary between referential and non-referential.

The proposal that NCCs are truncated referential CPs can help explain why NCCs uniformly block MCP like argument fronting, while complements to attitude verbs vary on this point, as illustrated in (4).[1]

(4)    Examples based on Hooper & Thompson (1973: 486)
       a.    *John regrets that on the wall hangs a picture of Mao.
       b.     John claimed that on the wall hangs a picture of Mao.
       c.    *The regret that on the wall hangs a portrait of Mao weighs heavy on John.
       d.    *The claim that on the wall hangs a portrait of Mao is still unsubstantiated.

I claim that all NCCs are referential because of the nature of the construction itself – in examples like (1), content nouns like *fact* and *claim* are co-referential with their associated CP clauses, much in the way that two nominals have been argued to share the same referent in cases of *close nominal apposition* (see Keizer 2007 for an overview). I argue that this rather simple proposal allows for an analysis that accounts for more data than the RC analysis.

   The paper is organized as follows. Section 2 briefly summarizes the NCC as RC proposals in Arsenijević (2009), Kayne (2008; 2010) and Haegeman (2012). Section 3 first presents the main empirical evidence put forward in the literature in favor of the relative clause analysis and then presents a number of cross-linguistic counterexamples involving morphological markers of relativization appearing in RCs but different morphological markers appearing in NCCs and verb complement clauses (VCCs). I argue that these counterexamples weaken the force of the main empirical evidence that has been presented in favor of a general NCC as RC analysis. Section 4 presents more problematic data for the NCC as RC view from Scandinavian and Basque, where relative markers show up in typical relative operator movement contexts like RCs, clefts and embedded questions, but do not show up in NCCs, which proponents of the NCC as RCC view claim share the same type of relative operator movement. Section 5 shows that RCs and NCCs also pattern differently with regard to when they allow or do not allow complementizer drop, yet another way in which these types of clauses differ. Section 6 adds more data to the discussion, showing that in addition to the complementizer patterns between NCCs and RCs, NCCs also differ from VCCs in extraction patterns and in whether or not they allow Main Clause Phenomena (MCP). These are patterns that previous NCC as RC analyses do not present an account for. In Section 7,

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[1] For discussion of potential counterexamples to the claim that all MCP are blocked in NCCs and the possibility of parametric variation, see Section 7.4.

I present a truncation proposal to account for the properties of NCCs which does not involve RC-style operator movement. I argue that the referential status of the complement clause is tied to the structural size of the complement clause. I also compare the truncation account to Haegeman's (2012) operator movement account, which unlike Arsenijević's (2009) and Kayne's (2008; 2010) proposals, does discuss MCP differences between NCCs and VCCs and provides an account. However, I argue that the truncation account has certain advantages over the operator movement account. I end the section discussing some potential counterexamples from the literature where MCP do appear to occur in some NCCs, and provide some speculation on how to account for these facts. Section 8 concludes the discussion.

## 2 Previous NCC as RC analyses

In this section I briefly summarize the NCC as RC analyses proposed in Kayne (2008; 2010), Arsenijević (2009) and Haegeman (2012). While these analyses differ in the amount of details provided and the details of implementation (all three are speculative to some degree), they all share the intuition that all NCCs should be analyzed as variants of relative clause constructions.

### 2.1 Kayne (2008; 2010)

Kayne (2008; 2010) proposes that nouns differ fundamentally from verbs in that they do not take complements. In other words, for Kayne, nouns enter the derivation with no unvalued features, as he states in (5).

(5)     Kayne (2008: 7)
        An element can 'denote' only if it enters the derivation with no unvalued features.

If this is the case, then phrases like (6a) must not be noun complement constructions. In order to account for apparent noun complement cases like these, he proposes that they are actually relative clause constructions like (6b). For Kayne, (6a) is derived from (7a) with a silent *in*, and its object *fact* relativized, as in (7b).

(6)     a.    the fact that they're here
        b.    the fact that you mentioned

(7)     a.    they're here in fact
        b.    the fact$_i$ that they're here ~~in~~ t$_i$

In this way, the fact that there is no obvious gap in NCCs like (6a) is explained: *fact* is relativized from a silent adjunct PP. Since for Kayne, nouns can never take a complement, all NCCs are assumed to receive the analysis in (7).

### 2.2 Arsenijević (2009)

In a related analysis, Arsenijević (2009) proposes that constructions like (8a) (in which nouns like *claim, belief, doubt* and *question* take clausal complements) involve relativization of the contents of the specifier of a Rizzian (1997 *et seq*.) *Force* projection. Specifically, the specifier of ForceP contains a syntactic element with a variable feature, as in (8b).

(8)     Arsenijević (2009: 41)
        a.    the claim that John kissed Mary
        b.    [$_{DP}$ the claim$_{[force:claim]}$ [$_{ForceP}$ [$_{SpecForceP}$ [Var]] that$_{[\Lambda]}$ [$_{IP}$ John kissed Mary]]]

The possible values for the variable feature in the force head are [assert], [question] and [imperative].[2] The nominal head of the NCC also involves a force feature, and in the case of *claim* it is [assert], as in (9a). Arsenijević proposes that the nominal expression saturates the lambda-abstracted force of the complement clause in the same way the DP head in a relative clause saturates the abstracted reference value of the relativized element of a RC, as in (9b).

(9)     Arsenijević (2009: 42)
    a.    [the … [$_{ForceP}$ [assert] claim [$_{ForceP}$ [[assert] [Var]] $x_{[\Lambda]}$ that John kissed Mary]]]
        →[the … [$_{ForceP}$ [assert] claim $\lambda$([$_{ForceP}$]) [$_{ForceP}$ [ that John kissed Mary]]]]
    b.    [$_{DP}$ [def $_D$] . . . [$_{NP}$ claim [$x_{[\Lambda]}$ that you defended [$_{DP}$ [Var] [$_{NP}$ claim]]]]]
        →[$_{DP}$ [def $_D$] . . . [$_{NP}$ claim $\lambda$([$_{DP}$]) [that you defended [$_{DP}$]]]]

Thus, NCCs are defined as restrictive relative clauses with ForceP as the relativization site.

### 2.3 Haegeman (2012)

The hypothesis for the potential analysis of NCCs presented in Haegeman (2012) is more programmatic, thus it does not involve a detailed proposal. Haegeman briefly explores the possibility that her intervention analysis of main clause phenomena (MCP) restrictions in conditionals, adverbial clauses and certain clausal complements to verbs could also apply to complements of nouns. For Haegeman (2012) (see also Haegeman & Ürögdi 2010), MCP are blocked in clauses involving operator movement from a TP-internal position (tentatively labeled F(unctional)P) to a CP position as in (10).

(10)    Haegeman & Ürögdi (2010: 115)
        [$_{CP}$ OP$_i$ C… [$_{FP}$ t$_i$ [$_{TP}$… ]]]

Haegeman & Ürögdi (2010) propose that in factive clauses, intervention effects due to event operator movement block MCP like topicalization, as in sentences like (11). Non-factive clauses do not have this event operator movement, so no intervention takes place and topicalization is fine, as in (12).

(11)    a.    Haegeman (2012: 257), citing Maki et al. (1999: 3)
            *John regrets that this book Mary read.

    b.    Haegeman (2012: 257), citing Hegarty (1992: 52, note 19)
            *Mary realizes that this book, John read.

(12)    a.    John believes that this book Mary read.
    b.    Mary claims that this book, John read.

As Haegeman (2012: 258) notes, clausal complements of nouns are also generally reported as being incompatible with MCP, as in (13).[3]

(13)    a.    Haegeman (2012: 258), citing Hooper & Thompson (1973: 479)
            *I resent the fact that each part he had to examine carefully.

    b.    Haegeman (2012: 258), citing Emonds (2004: 77, note 3)
            *A promise that defective sets the company will fix has been made by John.

    c.    Hooper & Thompson (1973: 486)
            *The claim that on the wall hangs a portrait of Mao is still unsubstantiated.

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[2] Arsenijević does not discuss what possible Force feature or variable would be involved with *the fact that* NCCs, which arguably do not involve illocutionary force. For more discussion on the status of Force in NCCs, see Section 7.2.

[3] For discussion of potential counterexamples to this generalization, see Section 7.4.

Haegeman (2012) cites the RC-type analyses for NCCs in Arsenijević (2009), Kayne (2008) and Nichols (2003) as raising the possibility that a similar intervention analysis to (10) can account for the lack of MCP in NCCs.[4] She posits (Haegeman 2012: 284) that the "nominal character" of NCCs can be captured through operator movement, much in the way that it is captured in Haegeman & Ürögdi's (2010) analysis of factive clauses, which she also sees as having a nominal character (following Aboh 2005).

### 2.4 *Summary of previous analyses*

What Kayne (2008), Arsenijević (2009) and Haegeman (2012) share is that they all propose RC-type analyses involving operator movement for NCCs.[5] As shown above, each has a different technical formulation for the proposed RCs, as summarized in (14).

(14)   a.   Kayne (2008)
            the fact$_i$ that they're here ~~in~~ t$_i$
       b.   Arsenijević (2009)
            [$_{DP}$ the claim$_{[force:claim]}$ [$_{ForceP}$ [$_{SpecForceP}$ [Var]] that$_{[Λ]}$ [$_{IP}$ John kissed Mary]]]
       c.   Haegeman (2012); structure from Haegeman & Ürögdi (2010)
            [$_{CP}$ OP$_i$ C… [$_{FP}$ t$_i$ [$_{TP}$… ]]]

In addition to the differences in technical implementation, there is another important difference between these analyses. Kayne (2008: 27; 2010: 216) and Arsenijević (2009) share the intuition that not just NCCs but all declarative complements are RC-type constructions, while for Haegeman (2012), non-factive clauses do not involve relativization. I return to this difference in Sections 6 and 7.[6]

If all or some declarative complement constructions are RC-type constructions, we might expect NCCs and VCCs to display morphosyntactic similarities to RCs. Concentrating now on NCCs, we might expect them to behave in a similar manner to garden-variety RCs. In the next section I present complementizer choice data which shows that that in a number of languages, NCCs do not clearly pattern with RCs.

## 3 A cross-linguistic look at NCCs and RCs

In this section I first present some of the data that has been used to argue for parallelisms between NCCs and RCs. In these cases, the same morphemes appear in NCCs and RCs across a number of languages, providing evidence that these types of clauses may be structurally similar. However, I then present cross-linguistic data where the opposite is the case: in many languages that have distinct relative and declarative clause markers, the declarative marker,

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[4] Nichols (2003) proposes a relative clause construction for NCCs involving an "event argument" (*e*), as in (i).

(i)   (Nichols 2003: 157)
      [$_{DP}$ The claim$_i$ [$_{CP}$ Ø$_i$ [that [$_{IP}$ Sonia [e$_i$ [had bought the lottery ticket]]]]]]

[5] A reviewer worries that by putting these three proposals together, I am creating a straw man argument by both overexaggerating and oversimplifying elements of both the Kayne and the Arsenijević proposals discussed here. I should make clear that both of these proposals are attempts to unify the analysis of complementation structures, and both proposals acknowledge and present analyses attempting to account for many of the surface differences between RCs and other clausal complement structures. Each of these proposals (as well as Haegeman 2012) should of course be independently examined on its own merits. Arsenijević (2009) in particular, as the most fleshed out of the proposals discussed here, proposes an analysis that has the potential to cover many of the phenomena that I discuss below. However, I will argue below that the proposed analysis put forth here covers the data in a simpler manner and covers more data than all three of the previous analyses that I discuss.

[6] Haegeman (2012) does not commit to a general FCC as RC analysis, as for her, operator movement does not occur in a number of finite clauses (non-referential/non-factive clauses and peripheral adverbial clauses, for example). She is however open to the possibility of a general NCC as RC account, which she briefly discusses (Haegeman 2012: 272–275).

not the relative marker, shows up in NCCs. I argue that this weakens the main empirical evidence that has been provided in the literature in favor of the NCC as RC analysis, and also makes any universal claim that NCCs are a type of RC more difficult to maintain.

### 3.1 Empirical evidence presented for the NCC as RC view

While Kayne (2008; 2010) focuses mostly on data from English, Arsenijević (2009) and Haegeman (2012) present cross-linguistic evidence for a parallel between relative clauses and NCCs: Arsenijević (2009) cites the following data as evidence that NCCs are a type of RC. In each case an element that appears in relative clause constructions also appears in NCCs: the same complementizer in (15), *wh*-word in (16) and adnominal in (17).

(15)　*Brabant Dutch* (Arsenijević 2009: 46)

    a.　een　　gezin　　**dat**　　drei　　kinderen　heft
    　　　a　　　family　COMP　three　kids　　　has
    　　　'a family that has three kids'

    b.　het　problematische　puntje　**dat**　hij　drei　kinderen　heft
    　　　the　problematic　　　point　COMP　he　three　kids　　　has
    　　　'the problematic point that he has three kids'

(16)　*Serbo-Croatian* (Arsenijević 2009: 46)

    a.　to　**što**　me　　　plaši
    　　　that　wh　me-ACC　frightens
    　　　'the thing that frightens me'

    b.　to　**što**　me　　　(on)　　plaši
    　　　that　wh　me.ACC　he.NOM　frightens
    　　　'(the fact) that he frightens me'

(17)　*Korean* (Arsenijević 2009: 46, citing Cha 1998)[7]

    a.　John-i　　　sakwa-lul　　kkak-**un**　　khal
    　　　John-NOM　apple-ACC　peel-ADN　knife
    　　　'the knife with which John peeled an apple'

    b.　John-i　　　sakwa-lul　　mek-**un**　　sasil
    　　　John-NOM　apple-ACC　eat-ADN　fact
    　　　'the fact that John ate an apple'

Haegeman (2012: 273, citing Nichols 2003) provides similar examples from Burmese showing that like relative clauses (18a), NCCs contain the relative marker *t*é (18b,c).

(18)　*Burmese* (Soe 1999, reported in Nichols 2003: 162)

    a.　hou　　thou　　thaw　**té**　　we?　thà　hin
    　　　that　rancid　go　　**RelM**　pork　　curry
    　　　'that pork curry which has turned rancid'

    b.　[[ thu　chàn tha te ]　　hsou　**té** ]　　　　　ʔəthi
    　　　　　he　rich　　REALIS　EVAL　**RelM**.REALIS　NOM-know
    　　　'the knowledge of the fact that he is rich'

    c.　[[ thu　nei　mə　kàun　hpù ]　hsou　**té** ]　　　　kauláhalá
    　　　　　he　stay　NEG　good　NEG　EVAL　**RelM**.REALIS　rumor
    　　　'the rumor that he is/was ill'

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[7] Note that Cha (1998) argues that constructions like (17a) and (17b) differ in a number of syntactic and semantic properties, and that the adnominal *–un* should be analyzed as having two lexical entries, one as a relativizer as in (17a) and one as a complementizer as in (17b).

In all of these cases, the fact that the same morphological marker appears in both RCs and NCCs is taken as evidence that they share the same type of structure. However, I show in Section 3.2 that there is also plenty of cross-linguistic evidence that points in the opposite direction.

### 3.2 Empirical evidence against the NCC as RC view

In contrast to the data presented in Section 3.1, in this section I show that there are a number of languages where NCCs do not seem to behave like RCs in regards to the choice of relative vs. declarative clause markers. This evidence raises some questions for the claim that universally all NCCs are a type of RC. At minimum, any universal NCC as RC analysis would need to account for the patterns here, which I argue are unexpected under a RC view.

#### 3.2.1 Scandinavian

Kayne notes in a footnote (2008: 15, fn. 37) that the *som* vs. *att* contrast in Scandinavian languages needs to be elucidated. Indeed, as we will see in this section, complementizer data from Scandinavian does not fit as neatly with the relative clause analysis as the data in Section 3.1. Unlike English *that*, Scandinavian relative complementizers and declarative complementizers have different morphological forms. As seen in (19) and (20), relative clauses in Scandinavian take a relative complementizer (*som* in Swedish, *sem* in Icelandic), while declarative complements take a declarative complementizer (*att* in Swedish, *að* in Icelandic).[8] Since Kayne (2008; 2010) argues that NCCs pattern with relative clauses, one might expect the relative complementizer *som/sem* to appear, as opposed to *att/að*. As (21) and (22) show, this is not the case.

(19)  *Swedish*
    a.   den    bok   **\*att/som**    Erik   köpte
         the    book   **DeclC/RelC**   Erik   bought
         'the book that Erik bought'

    b.   Janne sa   **att/\*som**    Erik   köpte   en   bok.
         Janne said  **DeclC/RelC**   Erik   bought   a   book
         'Janne said that Erik bought a book.'

(20)  *Icelandic*
    a.   Thráinsson (2007: 362)
         Maðurinn **sem**   hringdi í   gærkvöldi  er  kominn að  hitta þig.
         man-the   **DeclC**  called  in  last-night  is  come  to  see  you
         'The man that called last night has come to see you.'

    b.   Thráinsson (2007: 407)
         Þetta  er   maðurinn  **sem**   hitti  Maríu  í gær.
         this  is   man-the   **DeclC**  met  Mary   yesterday
         'This is the man that met Mary yesterday.'

(21)  *Swedish*
    a.   det   factum   **att/\*som**   Johan  var  här
         the   fact    **DeclC/RelC**   Johan  was  here
         'the fact that Johan was here'

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[8] Note that *som* in Swedish behaves the same as *that* in English when it comes to complementizer drop in that the complementizer is obligatory in subject relatives and optional in object and adjunct relatives. See Sections 5 and 7.3.4 for relevant discussion on complementizer drop.

      b.    rycktet      **att/\*som**    Johan    var     här
            rumor-the    **DeclC/RelC**   Johan    was    here
            'the rumor that Johan was here'

(22)    *Icelandic* (Thráinsson 2007: 362)
         Sú     staðreynd  **að**      jörðin     skuli    vera   hnöttótt   er    merkileg.
         that    fact       **DeclC**     earth-the   shall    be     round     is      interesting
         'The fact that the earth is round is interesting.'

### 3.2.2 Basque

These patterns are not limited to the Scandinavian languages. Basque complementizers pattern the same way: In RCs, the relative complementizer *-(e)n* appears (23), while in declarative complements the complementizer is *-(e)la* (24).[9] As is the case in Scandinavian languages, the complementizer in noun complement clause structures is the same as in declarative complement clauses, not relative clauses (25).[10]

(23)    *Basque* (de Rijk 2008: 472)
       a.    Zaintzen   nau**en**     frantsesa    alboko       gelan    dago.
            Guard     AUX-**RelC**   French      neighboring   room    is
            'The Frenchman who is guarding me is in the neighboring room.'

       b.    Hor     daramazu**n**    agendatxoa     behar    dugu.
            There    carry-**RelC**    notebook-little   need    AUX
            'We need that little notebook you are carrying there.'

(24)    *Basque* (de Rijk 2008: 451–2)
       a.    Badakizu   oso       emakume    ederra       nintz**ela**.
            know      very      woman      beautiful   be-**DeclC**
            'You know that I was a very beautiful woman.'

       b.    Antzematen   da       euskalduna   zar**ela**.
            notice       ITR     Basque      be-**DeclC**
            'One notices that you are Basque.'

       c.    Ez    al     duzu   ikusten   janzten   ari    naiz**ela**?
            not    INT   see      get       dressed   be     busy-**DeclC**
            'Don't you see that I am getting dressed?'

       d.    Uste    dut     alkatea    ez    d**ela**       etorri.
            think    AUX    mayor    not    AUX-**DeclC**    come
            'I think that the mayor has not come.'

(25)    *Basque*
       a.    de Rijk (2008: 462)
            Jainkoa   bad**ela**ko       froga    bat
            God       AFF-is-**DeclC**-RPT   proof   one
            'a proof that God exists'

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[9] Hualde & Ortiz de Urbina (2003) refer to *-(e)n* as "the interrogative complementizer", as it appears in a wider distribution than just relative clauses (see the discussion in Section 4 below). I will continue to call it the "relative complementizer" here, but nothing rests on this choice.

[10] Note that the NCC examples in (25) differ from the verb complement clause examples in (24) in the presence of the adnominal *-ko*, which Hualde & Ortiz de Urbina (2003: 144–148) analyze as a "relational marker" (glossed "RPT" for "relational particle" here). In Basque, complementizers are attached to the finite verb and can take a variety of suffixes. For my purposes here, the main point remains that the NCC examples take the declarative complementizer *-(e)la*, not the relative complementizer *-(e)n*. For details on complex complementizers in Basque, see Hualde & Ortiz de Urbina (2003), de Rijk (2008) and Artiagoitia & Elordieta (2016).

   b.  de Rijk (2008: 462)
       adiskide    gar**ela**ko        ezaugarritzat
       friend      are-**DeclC**-RPT   sign
       'as a sign that we are friends'

   c.  Hualde & Ortiz de Urbina (2003: 147)
       hil    dut**ela**ko           kontua
       kill   AUX-**DeclC**-RPT      report
       'the report that he has been killed'

### 3.2.3 Bulgarian

In Bulgarian, the declarative complementizer *če* appears in declarative clauses (26a) while the relative complementizer *deto* appears in RCs (26b). As with Scandinavian and Basque, Bulgarian NCCs feature the declarative complementizer, not the relative complementizer (27).

(26)  *Bulgarian*
   a.  Yana   kaza   **če/\*deto**      Erik   kupi     kniga.
       Yana   said   **DeclC/RelC**     Erik   bought   book
       'Yana said that Erik bought a book.'

   b.  knigata   **deto/\*če**        Erik   ja   kupi
       book      **RelC/DeclC**       Erik   it   bought
       'the book that Erik bought'

(27)  *Bulgarian*
   a.  faktat      **če/\*deto**       Ivan   beshe   tuk
       fact.DEF    **DeclC/RelC**      Ivan   was     here
       'the fact that Ivan was here'

   b.  sluhat      **če/\*deto**       Ivan   beshe   tuk
       rumor.DEF   **DeclC/RelC**      Ivan   was     here
       'the rumor that Ivan was here'

   c.  Faktat      **če/\*deto**       Zemjata     e    kragla   e    interesen.
       fact-DEF    **DeclC/RelC**      Earth.DEF   is   round    is   interesting
       'The fact that the Earth is round is interesting.'

However, there is an interesting difference in Bulgarian, namely that the relative complementizer *deto* can appear in some declarative contexts, as in (28).

(28)  *Bulgarian*
       Petar   sazhaljava   **če/deto**       Ivan   vidja   Maria.
       Petar   regrets       **DeclC/RelC**    Ivan   saw     Maria
       'Petar regrets that Ivan saw Maria.'

Krapova (2010: 1266) classifies the set of predicates that can take *deto* complements as "[…] a subset of 'true' factives, including emotives". In fact, Haegeman (2012) cites Krapova's (2010) data and analysis as support for her operator movement account of MCP restrictions in factive clauses.[11] Krapova (2010) analyzes these declarative *deto* clauses as "hidden" RCs headed by the pronoun *tova*, as in (29).[12]

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[11] I return to a discussion of MCP restrictions in factive clauses in Section 6.
[12] See Simeonova (2013) for arguments against Krapova's (2010) relative clause analysis for *deto* complements in Bulgarian.

(29)    Krapova (2010: 1267)
        Sazhaljavam/jad me e/machno mi e... [PP za/Ø [DP [ tova/Ø  [CP deto …]]]
        I regret/I am angry/I am sad                    for            this           RelC

If Krapova's analysis of the Bulgarian facts is correct, we might expect *deto* to appear in Bulgarian NCCs, especially ones with a factive head noun. However, as we see in (27a) and (27c), this is not the case. Here we have a language that actually allows the relative complementizer to appear in a set of some complements to verbs, yet it uniformly fails to appear in any NCCs.

### 3.2.4  Durban Zulu

In Durban Zulu, a relative marker appears in relative clauses (30) and a declarative complementizer appears in declarative complements (31).[13],[14] Example (32) shows that in NCCs, the declarative complementizer appears, not the relative marker.[15]

(30)    *Durban Zulu*
        a.    Halpert (2012: 46), citing Buell (2005)
              a-    ng-   azi   isikhathi  **o-**   ku- cula nga- so     uSipho.
              NEG- 1SG- know  AUG.7time **RelM-** 17S- sing 1SG- 7DEM  AUG.1Sipho
              'I don't know (the time) when Sipho sang.'

        b.    Halpert (2012: 239)
              a-    ngi- bon- e     abantu      **a**bagqoka           izigqoko
              NEG- 1SG- see   NEG  AUG.2people  AUG.**RelM**.2.wear    AUG.8hat
              ezibomvu.
              AUG.**RelM**.8.red
              'I don't see the people wearing red hats.'

(31)    *Durban Zulu*
        a.    Halpert (2012: 19)
              ku-   bonakala [ **ukuthi** uZinhle      u- zo- xova ujeqe ].
              17S- seems       **DeclC** AUG.1Zinhle 1S- FUT make AUG.1steamed.bread
              'It seems that Zinhle will make steamed bread.'

        b.    Halpert (2012: 92)
              a- ngi- cabang- i    [ **ukuthi** uSipho      u- bon- e   muntu/lutho].
              NEG 1SG- think-   NEG  **DeclC** AUG.1Sipho 1S- see- PFV 1person/13thing
              'I don't think Sipho saw anyone/anything.'

(32)    *Durban Zulu* (Halpert 2012: 246)
        a.    [**indaba**      y-**okuthi** w- a-   thatha umhlala phansi] **y-** a-   ngi-
              **AUG.9news** 9-**DeclC**  1- PST- take    AUG.1sit down    **9S-** PST- 1SG.O
              mangaza.
              surprise
              'The news that he retired surprised me.'

        b.    [**indaba**      y-**okuthi**-w- a-  thatha umhlala phansi] **kw-** a-   ngi-
              **AUG.9news** 9-**DeclC**  1- PST- take   AUG.1sit down    **17S-** PST- 1SG.O
              mangaza.
              surprise
              'The news that he retired surprised me.'

---

[13] Thanks to Claire Halpert (p.c.) for pointing out these facts to me.
[14] Note that the difference in the form of the complementizer (*ukuthi* vs. *okuthi*) has to do with the presence or absence of *yo-* (which Halpert 2012 analyzes as an "associative marker") on the complementizer.
[15] Halpert (2012) analyzes complex noun constructions like those in (32) as appositive constructions.

Note additionally in (32) that Durban Zulu NCCs generally show optional agreement with between the subject *indaba* "news" and the predicate *mangaza* "surprise". In (32a), the agreement marker *y-* (class 9) agrees with the subject *indaba* (class 9), while in (32b) the default agreement marker *ku-* (class 17, realized here as *kw-*) appears in the predicate. Halpert (2012) argues that *kw-* actually signals agreement with the CP, as it also shows up in raising constructions. If NCCs were RCs in Durban Zulu, we might also expect the agreement pattern to be the same. However, in Durban Zulu RCs, agreement is mandatory, as shown in (33b) where *ku-* agreement (class 17) is ungrammatical.

(33)  *Durban Zulu* (Halpert 2012: 248)
a.  [**indaba**       **e-**           wu-    yi-   bhal-  e    phansi izolo
    **AUG.9news**     **RelM-**        2ndSG-9O- write- PST  down  AUG.5yesterday
    ekuseni           esikoleni]      **y-**    a-    ngi-  mangaza.
    LOC.15morning  LOC.7school  **9S-**     PST-1SG.O-surprise
    'The news that you wrote down yesterday morning at school surprised me.'

b.  *[**indaba**       **e-**           wu-    yi-   bhal-  e    phansi izolo
    **AUG.9news**     **RelM-**        2ndSG- 9O- write- PST down  AUG.5yesterday
    ekuseni           esikoleni]      **kw-**   a-    ngi-  mangaza.
    LOC.15morning  LOC.7school **17s-**    PST- 1SG.O- surprise
    'The news that you wrote down yesterday morning at school surprised me.'

As we saw in (32) and (33), the relative complementizer does not show up in NCCs and NCCs display a different agreement pattern from RCs. Both of these facts suggest that the syntax of NCCs differs significantly from the syntax of RCs, something that we might not expect if they share the same type of structure. In addition to coming up with a story for why the relative complementizer does not show up in NCCs, proponents of the NCC as RC analysis would also need to explain why agreement patterns differ between NCCs and RCs.

### 3.2.5 Finnish and Hindi

Finally, Finnish and Hindi display similar behavior to the other languages in this section when it comes to complementizer choice. In Finnish, *joka* is the relative complementizer and *että* is the declarative complementizer. We find *joka* in RCs (34) and *että* in declarative complements (35).[16] Declarative *että* appears in NCCs (36).

(34)  *Finnish*
      kirja,  **jonka/*että**   Erkki   osti
      book   **RelC/*DeclC**   Erkki   bought
      'the book that Erkki bought'

(35)  *Finnish*
      Janne    sanoi,  **että/*jonka**   Erkki    osti       kirjan.
      Janne    said    **DeclC/*RelC**   Erkki    bought    a book
      'Janne said that Erkki bought a book.'

(36)  *Finnish*
a.  se,   **että/*joka**   Johannes   oli      täällä
    it,   **DeclC/RelC**   Johannes   was    here
    'the fact that Johannes was here'

---

[16] Note that *joka* is the nominative case form and *jonka* the genitive case form.

b.  huhu,      **että/*joka**    Johannes   oli      täällä
    rumor      **DeclC/*RelC**   Johannes   was      here
    'the rumor that Johannes was here'

In Hindi, *jo* is the relative complementizer and *ki* is the declarative complementizer. We find *jo* in RCs (37) and *ki* in declarative complements (38). Declarative *ki* appears in NCCs (39).

(37)    *Hindi* (Kachru 1980: 29)
        rām    ne     **jo**    kitab   xarīdī   vah    bahut   mahangī   thī.
        Ram    agent  **RelC**  book    bought   that   very    expensive was
        'The book that Ram bought was very expensive.'

(38)    *Hindi* (Kachru 1980: 38)
        kamal   ne      kahā   **ki**    use    nīd    ā      rahī      hai.
        Kamal   agent   said   **DeclC** her    to     sleep  come-ing  is
        'Kamal said that she feels sleepy.'

(39)    *Hindi* (Kachru 1980: 28)
        uskā    yah   dāvā   **ki**    munīsh   ghũs    letā    [hai bilkul sahī hai].
        His     this  claim  **DeclC** Munish   bribe   takes   [quite correct is]
        'His claim that Munish takes bribes is quite correct.'

### 3.3 Summary

In this section we have seen that across a number of unrelated languages, the morphological form marking a relative clause does not match the morphological form marking NCCs. This distribution is not as clean a fit for the general RC analysis for NCCs, as NCCs in Swedish, Icelandic, Basque, Bulgarian, Durban Zulu, Hindi and Finnish and all take the declarative complement clause marker, as illustrated in Table 1. This poses some complications for analyses that argue that NCCs are always RCs, since in a number of unrelated languages NCCs do not behave like RCs in complementizer choice. If they were indeed RCs, the fact that the relative complementizer is not selected in NCCs these languages would need further explanation from the proponents of the NCC as RC account.

We also saw that in Bulgarian, a language that sometimes allows the relative clause marker *deto* to show up in certain declarative complements to verbs, the relative marker still never shows up in NCCs. In addition, in Durban Zulu NCCs and RCs do not share the same agreement patterns. Thus, the general picture we get from the data presented in this section is that in some languages RCs and NCCs share similar morphosyntactic properties (Section 3.1), while in other languages they do not (Section 3.2). While none of these facts rule out the NCC as RC account, they do suggest that there are significant

|  | Basque | Bulgarian | Durban Zulu | Finnish | Hindi | Icelandic | Swedish |
|---|---|---|---|---|---|---|---|
| **RC** **Marker** | *-(e)n* | *deto* | *e-* | *joka* | *jo* | *sem* | *som* |
| **Declarative** **clause marker** | *-(e)la* | *če*[17] | *ukuthi* | *että* | *ki* | *að* | *att* |
| **NCC marker** | *-(e)la* | *če* | *(y-)okuthi* | *että* | *ki* | *að* | *att* |

**Table 1:** Clause markers for relative clauses, declarative clauses and noun complement clauses.

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[17] Except of course for the factive cases from Krapova (2010) discussed above where *deto* appears. Crucially for the present discussion though, *deto* never appears as an NCC marker.

morphosyntactic differences that exist between NCCs and RCs in a large number of languages that remain to be explained, especially if the view is that NCCs are a type of RC universally.[18] The point to be made here is that the main empirical evidence in favor of the NCC as RC account that has been presented thus far in the literature comes in the form of examples like (13–16), namely cases where the RC complementizer/marker shows up in NCCs. The examples this section remove much of the force of the empirical evidence presented in Section 3.1.

## 4 Complementizer choice and left-peripheral operators

As we saw in Section 3.2, in Swedish the relative complementizer *som* appears in RCs and the declarative complementizer *att* appears in declarative complements and NCCs. The same situation is found in Basque, where the relative complementizer *-(e)n* appears in RCs and the declarative complementizer *-(e)la* appears in declarative complements and NCCs. In this section I show that in both of these languages, relative complementizers, not declarative complementizers, also appear in clefts and embedded questions, constructions that are typically associated with operator movement to the left-periphery. Following the work of Vikner (1991), Stroh-Wollin (2002) and Franco & Boef (2015) for Scandinavian, and Artiagoitia & Elordieta (2016) for Basque, I assume the generalization that complementizer choice in these languages correlates directly with the presence or absence of an operator in the left-periphery: the relative complementizer shows up when an operator is present and the declarative complementizer appears in the absence of an operator. Given this generalization, the fact that the relative complementizer does not show up in NCCs in these languages casts some doubt on the claim that there is operator movement involved in these constructions.

### 4.1 Relative complementizers and operator movement in Swedish

In Swedish, the relative complementizer *som* can appear in embedded questions, as in (40). *Som* also appears in cleft sentences, as in (41).

(40)   *Swedish*
 a.   Johan   undrade   vem   **som/*att**   hade   öppnat   dörren.
       Johan   wondered   who   **RelC/DeclC**   had   opened   door-the
       'Johan wondered who has opened the door.'

 b.   Lisa   vet   vem   **som/*att**   köpte   kakor.
       Lisa   knows   who   **RelC/DeclC**   bought   cookies
       'Lisa knows who bought cookies.'

---

[18] For more ways that NCCs differ syntactically from restricted RCs, see Krapova & Cinque (2015), who instead analyze NCCs as reduced non-restrictive RCs, as in (i):

(i)   (Krapova & Cinque 2015: 12)
       The story [$_{CP}$ ~~which~~ is [$_{CP}$ that Fred didn't report his income.]]

Their non-restricted RC analysis actually correctly predicts that the relative complementizer *deto* should not appear in NCCs (c.f. (25)), since the complementizer that appears in these constructions heads a declarative phrase. However, the proposal that NCCs are non-restricted relative clauses is not without its problems. Platzack (2000) notes that non-restrictive relative clauses differ from restrictive relative clauses in that only non-restrictive relative clauses allow speaker-oriented adverbs like "by the way" or "incidentally", as in (ii).

(ii)  a.   The man who (*by the way) arrived yesterday (*incidentally) is tired.
       b.   The man, who (by the way) arrived yesterday (incidentally), is tired.

These adverbs can appear in the full restricted relative forms like (i), but are degraded in NCCs. The relevant reading for the examples in (iii) involves the speaker-oriented adverbs modifying the embedded clause, not the main clause.

(iii) a.   John spread a rumor that Bill (*incidentally) was in town (*by the way).
       b.   Jason came to the conclusion (*by the way) that Gwen ate the cupcake (*incidentally).

(41)   *Swedish*
    a.   Det   var   min   idé   **som/*att**   vann   priset.
       it    was   my    idea  **RelC/DeclC**  won   prize-the
       'It was my idea that won the prize.'

    b.   Det   var   han   **som/*att**   hade   öppnat   dörren.
       it    was   he    **RelC/DeclC**  had    opened   door-the
       'It was he that had opened the door.'

Depending on one's analysis of relative clauses, embedded questions and clefts, it is certainly plausible to conclude that *som* appears when some sort of relative operator resides or moves into the specifier of CP (relativized elements in RC constructions, *wh*-words in embedded questions and the clefted phrase in clefts). In fact, this analysis is provided by Vikner (1991: 120–123), who assumes that it is a lexical property of *som* in Danish that it requires an empty relative operator in its specifier, Franco & Boef (2015), who argue that *som* in Swedish and Norwegian, "lexicalizes a C head that bears an OP feature: [OP]." (Franco & Boef 2015: 67), and Stroh-Wollin (2002: 301–305), who describes *som* in Swedish as appearing in various clauses when there is some visible or invisible constituent in Spec,CP (with these pre-complementizer constituents appearing in relative clauses, clefts and embedded wh-clauses).[19] The embedded *wh*-questions in (40) clearly each have a displaced *wh*-operator (*vem*) directly to the left of the complementizer *som* and a gap in subject position. Clefts are often analyzed as being a type of restrictive relative clause with a relative operator in CP, as in Reeve's (2007) proposal, shown in (42).[20] In (41), the clefted constituents (*min idé* and *han* respectively) are also directly to the left of the complementizer.

(42)   Reeve (2007: 158)
    $[_{VP}\ [_{VP}$ it was $[_{DP}\ [_{DP}$ the snake$]_i\ t_j]]\ [_{CP}$ OP$_i/t_i$' that the mongoose caught $t_i\ ]_j$

On the other hand, *att* appears in declarative sentences where no operator appears in the specifier of CP. If NCCs in Swedish were indeed RC constructions with operator movement to the left-periphery, we might expect them to behave in the same manner as other types of constructions with operator movement and have the relative complementizer *som*. However, as shown in (21), repeated here in (43), this is not the case.

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[19] Note that there is some variation among the Scandinavian languages when it comes to the appearance of *som/sem* in embedded questions. The Swedish pattern is the same in Norwegian, as shown in (i).

  (i)   *Norwegian* (Thráinsson 2007: 448)
     Han   spurte   hvilken   buss   **som/*Ø**   gikk   til   sentrum.
     he    asked    which     bus    **RelC/Ø**   went   to    centre-the
     'He asked which bus went to the centre of town.'

Holmberg & Platzack (1995: 73) also report that in several Norwegian dialects, *som* can also appear in matrix questions.

  (ii)   Vad   som   ikke   er   sandt?
      what  that  not    is   true
      'What is not true?'

The facts in Danish and Icelandic differ from Swedish and Norwegian. In Icelandic, the relative complementizer *sem* cannot appear in these constructions. As shown in (ii), the complementizer must be null.

  (iii) *Icelandic* (Thráinsson 2007: 449)
     Ég   veit   ekki   hver   **\*sem/Ø**   kemur.
     I    know   not    who    **RelC/Ø**    comes
     'I don't know who will come.'

In Danish, *som* cannot appear when the relative operator is overt. For details on Danish see Vikner (1991), for details on Icelandic see Thráinsson (2007) and for an overview of the Scandinavian languages see Stroh-Wollin (2002) and Thráinsson (2007).

[20] For arguments that clefts are a type of restrictive relative clause, see Reeve (2007: 160–161).

(43)  *Swedish*

    a.  det    factum  **att/\*som**    Johan  var  här
        the     fact     **DeclC/RelC**  Johan  was  here
        'the fact that Johan was here'

    b.  rycktet     **att/\*som**    Johan  var  här
        rumor-the  **DeclC/RelC**  Johan  was  here
        'the rumor that Johan was here'

More evidence that these clauses do not involve relative operator movement comes from a NCC in Swedish that actually does take *som* instead of *att*, namely an interrogative complement of the noun "question". In (44), we have a clear case of an operator moving overtly to the left periphery, and in this case the relative complementizer *som* appears. If indeed we had operator movement in all NCCs, we might expect *som* in all cases, counter to fact.

(44)  *Swedish* (example from *IGLO,* Socrates LINGUA network project on Germanic syntax, accessed at http://www.hum.uit.no/a/svenonius/lingua/flow/co/gram/rfgrsv/rfgrsv.html)
    Frågan       [ vem  **som**  har    vunnit]  besvaras    senare.
    question-the  who  **RelC**  has    won      is-answered  later
    'The question of who has won it is answered later.'

### 4.2  Relative complementizers and operator movement in Basque

Basque follows the same pattern as Swedish in regards to complementizer choice in relative clauses, embedded questions, and clefts. Embedded questions take the relative complementizer as opposed to the declarative complementizer (45), and the same goes for clefts (46). As in Swedish, Basque NCCs take the declarative complementizer (47).

(45)  *Basque*

    a.  de Rijk (2008: 442)
        Ez    dakit    ezagutzen  duzu**n**.
        not   know    know       AUX-**RelC**
        'I don't know whether you know him.'

    b.  de Rijk (2008: 448)
        Hazaeiek  galdetu  zion    ea        zertako  negar    egiten  zu**en**.
        Hazael    ask      AUX    wh-CONJ  what    crying  do      AUX-**RelC**
        'Hazael asked him why he was crying.'

(46)  *Basque* (Hualde & Ortiz de Urbina 2003: 802)

    a.  Oteiza da [ bere obrak Bilboko    museoari utzi      nahi lizkioke**en**a ].
        Oteiza is    his    works Bilbao.RPT museum  bequeath want AUX.**RelC**.DET
        'It is *Oteiza* who would like to bequeath his works to the Bilbao museum.'

    b.  Obra hori da [ Oteiza Bilboko    museoari utzi      nahi lioke**en**a ].
        work that is    Oteiza Bilbao.RPT museum  bequeath want AUX.**RelC**.DET
        'It is *this work* that Oteiza would like to bequeath to the Bilbao museum.'

(47)  *Basque*

    a.  de Rijk (2008: 462)
        Jainkoa  bad**ela**ko         froga  bat
        God      AFF-is-**DeclC**-RPT  proof  one
        'a proof that God exists'

b.   de Rijk (2008: 462)
adiskide   gar**ela**ko        ezaugarritzat
friend     are-**DeclC**-RPT   sign
'as a sign that we are friends'

c.   Hualde & Ortiz de Urbina (2003: 147)
hil   dut**ela**ko         kontua
kill  AUX-**DeclC**-RPT    report
'the report that he has been killed'

I take this pattern as evidence that complementizer choice correlates with the presence or absence of a relative operator in the left-periphery in Basque, and thus that there is no evidence for relative operator movement in Basque NCCs.[21] This analysis is in line with Artiagoitia & Elordieta (2016), who correlate the *-(e)n* complementizer in Basque with the presence of a left-peripheral operator. They state, "[…]-*en* generally spells out a complementizer that agrees with an operator in its specifier; this operator may be a wh-phrase in the case of indirect questions and wh-exclamatives, or a null (wh) operator in the case of yes/no indirect questions, relatives and comparatives." (Artiagoitia & Elordieta 2016: 396–397). Finally, the Basque example in (48) behaves the same as the Swedish example in (44).

(48)   *Basque* (Hualde & Ortiz de Urbina 2003: 524)
[Nor ettori ez   d**en**        galderari] ez    diot   erantzunik emango.
 who come  not  AUX-**RelC**   question    not   AUX   answer-PRT give-FUT
'I won't provide any answer to the question of who didn't come.'

---

[21] A reviewer objects to my taking the lack of the presence of the relative complementizer in NCCs as evidence that there is no operator movement in these constructions. The reviewer states, "the entire model involving operator movement is a theoretical construct, a model, which has empirical predictions, but cannot be immediately empirically measured or identified […] no clear argument is provided that operator movement does not take place in NCCs." I would certainly agree that I have not presented any definitive evidence here against the possibility of there being operator movement in NCCs. Much like trying to disprove the existence of God, it is impossible to disprove the existence of a covert operator in NCCs. I am relying on the previous literature (Vikner 1991; Stroh-Wollin 2002; Franco & Boef 2015 for Scandinavian; Artiagoitia & Elordieta 2016 for Basque), where it has been independently argued that there is a correlation between the presence or absence of operators in the left-periphery and the choice of complementizer, and using this indirect evidence to suggest (not prove) that operators are not involved in NCCs. With that said, it is impossible to rule out that a very special type of relative operator exists that, unlike other relative operators, syntactically leaves no gap and has no effect on the form or presence of complementizers. However, the analysis I present below also makes the correct predictions for the complementizer data in Swedish and Basque complement clauses (as well as main clause phenomena data discussed in Section 6) without any special stipulations, while an operator movement account would need extra machinery to get the same results.

On this last point, the reviewer goes on to state, "Another model may be proposed which does not postulate operators, or movement, or operator movement in the first place, or which does, but does not use them to derive any clausal constituent. And such an account might as well be simpler and with a broader empirical coverage than the operator movement account. The author's argument, however, accepts the adequacy of the operator movement model for relative clauses, but rejects it for NCCs. There is a clear reductionist advantage of the approach which assumes a general operator movement in subordinate clauses, as it says: clausal subordination is the surface effect of the modeling notion of operator movement and operator movement may be joined by different structural peculiarities to derive different types of subordinate clauses." Thus, the reviewer argues that by accepting operator movement in one type of sentential complementation and not another, that, "This renders subordination a non-uniform phenomenon, which makes the theory more complex." I am sympathetic to the theory that there are operators involved in relative clauses, mainly because there is empirical evidence for this in the form of *wh*-words appearing overtly in the left periphery in many cases presented in the literature, as well as gaps left behind in the positions where many of these operators are postulated to move from. On the other hand, I have yet to see any convincing evidence (direct or indirect) presented in the literature in favor of operator movement in NCCs. The question of the relative complexities of competing theories is an interesting one, but I will leave a comparison of the relative complexity of each of the proposals discussed here to the reader. I will say that if subordinate clauses vary as to whether or not they contain operator movement, then this brings them in line with matrix clauses, where it is widely believed that some matrix clauses have operator movement (say *wh*-questions) and others don't (say simple declarative sentences).

### 4.3 Summary

In this section I have I have shown (following Vikner 1991; Stroh-Wollin 2002; Franco & Boef 2015 for Scandinavian; Artiagoitia & Elordieta 2016 for Basque) that there is a generalization regarding complementizer choice in Swedish and Basque. The relative complementizers *som* in Swedish and *-(e)n* in Basque appear in contexts where there is a relative operator in the left-periphery (relative clauses, indirect questions, clefts). Given this generalization, NCCs in Swedish and Basque do not behave like typical constructions with operator movement (i.e. RCs) in these languages since the relative complementizer does not show up in NCCs.

## 5 Complementizer drop

In this section I examine how NCC as RC analyses handle complementizer drop (C-drop) facts, and argue that it is not clear how proposal in Kayne (2008; 2010) would adequately explain the different C-drop patterns in these constructions. Arsenijević (2009) does provide a story for the patterns of complementizer drop in English, but I argue that the nature of his proposal forces him into a rather complex technical solution for the different patterns in NCCs and RCs, and leaves questions on C-drop patterns in Verb Complement Clauses (VCCs) (I leave an alternative analysis of C-drop until the main proposal in Section 7).[22] As was the case in previous sections, NCCs display different behavior than RCs with operator movement.

### 5.1 Complementizer drop in English RCs

It's a well-known fact that relative complementizers can be optionally dropped under certain conditions in English. Specifically, the complementizer is obligatory in subject relative clauses (49a), but optional in non-subject relative clauses (49b-c).

(49)    a.    I saw the man *(that) __ ate the pizza.
          b.    I saw the pizza (that) the man ate __.
          c.    I like the way (that) they solved the problem __.

I leave aside a full analysis of this pattern of C-drop and simply use it here as a diagnostic for RC constructions. Since this is the general pattern of C-drop for RCs in English, if NCCs were indeed RCs, we might expect NCCs to behave in the same way with respect to C-drop.

### 5.2 Complementizer drop and Kayne (2008; 2010)

Recall from Section 2.1 that in Kayne's (2008; 2010) proposal, *fact* is a relativized complement to a silent *in*, as in (7), repeated here as (50).

(50)    a.    the fact that they're here
          b.    the fact$_i$ that they're here ~~in~~ t$_i$

Kayne proposes that (50a) derives from (51a). In addition, Kayne (2008: 14, fn. 35) proposes that other possible placements for *in fact*, as in (51b-c).

(51)    a.    They're here, in fact.
          b.    They're in fact here.
          c.    In fact, they're here.

---

[22] Haegeman (2012) does not consider complementizer drop in her brief proposal. However, Haegeman's proposal analysis shares certain properties with the analysis that I will propose below, and these properties could plausibly make her analysis amenable to the complementizer drop facts. See Section 7 for details.

Wherever *in fact* originates, it is clear that it is not subject position: the subject is occupied by *they* in all of the sentences in (51). Given that Kayne argues that phrases like (50a) are relative clauses, we would expect them to behave in the same manner with respect to C-drop. However, the data in (52) do not bear this out, as the complementizer is obligatory.

(52)    a.    The fact *(that) John is here infuriates Mary.
        b.    I resent the fact *(that) Mary left.

In other words, RCs allow C-drop with non-subject relatives, but NCCs do not. This is unexpected under Kayne's analysis, as what is being relativized is 'in fact' a non-subject.[23] It is also unexpected for Haegeman's (2012) proposal, where the relativized operator originates in a functional projection in the TP-field and moves to CP. Neither of these relativized items are subjects, so we would expect C-drop to be licit, counter to fact (52).

### 5.3 Arsenijević (2009) on complementizer drop

Arsenijević (2009) does take up the issue of C-drop, and he provides a speculative analysis. As he notes, in addition to RCs (53a), C-drop is also possible in verbal complement clauses (VCCs), as in (53b), but not NCCs (53c).

(53)    (Arsenijević 2009: 43)
        a.    John saw the cup (that) Mary bought yesterday.
        b.    John said (that) Mary was ill.
        c.    The fact ??(that) Mary was ill surprised them all.

In his discussion, Arsenijević refers to NCCs and VCCs both as FCCs (finite complement clauses), a point I will return to below in Section 6. In his system, both VCCs and NCCs are types of RC, with the contents of the Spec,ForceP relativized. For the availability of C-drop in VCCs, Arsenijević appeals to a version of Bošković & Lasnik's (2003) C-drop

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[23]  There are other issues in Kayne's proposal, two of which I note here. The first has to do with the interpretation of *in fact* vs. *the fact*. To my ear, when we use *in fact*, there is an assumption that the proposition being commented on is not presupposed. To me, it's much like *by the way*. These modifiers are degraded in *the fact that* clauses (i) and relative clauses in general (ii). Note that the relevant reading is with *in fact* and *by the way* modifying the embedded clause, not the main clause.

(i)    a.    The fact that [John is here, *in fact/*by the way] infuriates Mary.
       b.    I resent the fact that [Mary *in fact/*by the way left].

(ii)   a.    I saw the man that [*in fact/*by the way Mary likes].
       b.    I saw the man that [likes Mary *in fact/*by the way].

In essence, in Kayne's analysis the original position of *in fact* is not a position where *in fact* is allowed. Another issue left unclear is the status of other noun complement constructions involving nouns other than *fact,* like *rumor, news, story* or *reason*, as in (iii), if they indeed correspond to the sentences in (iv).

(iii) the rumor/news/story/reason that Elvis left the building

(iv)   a.    They're here, in fact.
       b.    They're in fact here.
       c.    In fact, they're here.

If these are relative clause constructions analogous to *the fact that* constructions, we might expect derive from sentences like the ones in (v).

(v)    a.    *Elvis has left the building, in rumor.
       b.    *Elvis in story has left the building.
       c.    *Elvis has in news left the building.
       d.    *In reason, Elvis left the building.

Kayne's (2008) analysis relies on sentences like those in (v), which are ungrammatical on their own, to be the source of the RC constructions.

analysis where *that* is argued to undergo affix-hopping to a position adjacent to the verb. In Arsenijević's analysis, incorporation of the nominal head into the verb (and the absence of any other intervening material) is a precondition for affix hopping, and thus *that*-deletion. For him, VCCs involve incorporation of a light nominal object marked by a [Force] feature, so a sentence like (54a) derives from (54b) (in the spirit of Hale & Keyser 1993).

(54)   Arsenijević (2009: 43)
    a.   John claimed that Mary came late.
    b.   John [$_{VP}$ made [$_{DP}$ claim [$_{FCC}$ that Mary came late]]]

Since for Arsenijević, NCCs do not involve nominal incorporation into a verb, there is no affix hopping and thus no *that*-deletion.

   The affix hopping analysis of NCCs (no C-drop) vs. VCCs (C-drop) does not translate straightforwardly to RCs, which allow C-drop but do not appear to involve nominal incorporation to a verb. Arsenijević proposes that the relevant difference between NCCs (no C-drop) and RCs (C-drop) lies in the differing featural makeup for the lexical item *that* in each type of construction. The complementizer *that* in NCCs has only a [Force] feature, while the complementizer *that* in RCs has features from the nominal domain (number, gender, case, thematic role, etc.).[24] Arsenijević proposes that RCs can undergo affix hopping to a noun while NCCs cannot and that this is due to their differing feature matrixes.

### 5.4  Problems for Arsenijević (2009)

There are a few potential problems for Arsenijević's *that*-deletion analysis. First, the combination of affix-hopping for *that*-deletion along with the proposal that there are different feature makeups for *that* in NCCs and RCs that allow or disallow affix hopping is rather stipulative. Arsenijević is forced into this move as his claim is that NCCs and RCs are variants of the same construction, and thus one would expect the complementizer in both constructions to behave the same.

   A second potential problem for Arsenijević's (2009) C-drop analysis is that the analysis glosses over important differences within the class of what he refers to generally as finite complement clauses (FCCs). Within this class there are subclasses that display different behavior from each other. In the domain of VCCs, non-factive complements generally allow C-drop, while emotive factives complements (55) and manner-of-speaking complements (56) are much more resistant to it.

(55)   a.   John said (that) Mary was ill.
    b.   John regretted *(that) Mary was ill.
    c.   John resented *(that) Mary was ill.
    d.   John hated *(that) Mary was ill.

(56)   a.   John said (that) Mary was ill.
    b.   John whispered *(that) Mary was ill.
    c.   John groaned *(that) Mary was ill.
    d.   John shouted *(that) Mary was ill.

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[24] Note that this featural difference between complementizers proposed by Arsenijević (2009) could potentially be exploited to trigger the different morphological forms of the relative and declarative complementizers in RCs and NCCs respectively that were presented in Section 3.2. However, non-trivial details would need to be worked out for such an account to be successful, given the diversity of complementizer choice and complementizer drop patterns in different FCCs cross-linguistically. On the other hand, an account that does not involve operator movement in NCCs would make no predictions that the complementizer patterns should be similar to RCs. I present such an analysis in Section 7.

In the case of emotive factives and manner-of-speaking verbs it is not clear why C-drop should not happen, given Arsenijević's analysis of FCCs and the fact that we could plausibly provide the same type of analysis proposed in (54) to (55b) or (56c), as illustrated in (57).

(57)    a.    John regretted that Mary was ill.
        b.    John [$_{VP}$ held/had [$_{DP}$ regret [$_{FCC}$ that Mary was ill]]]
        c.    John groaned that Mary was ill.
        d.    John [$_{VP}$ made [$_{DP}$ groan [$_{FCC}$ that Mary was ill]]]

Ruling out C-drop in (55b-d) and (56b-d) in Arsenijević's system would require adding more machinery to an already complicated system. I take up a third potential problem for Arsenijević's system with regards to main clause phenomena and extraction next in Section 6.

### 5.5 Summary

In Sections 3 and 4 we saw that the distribution of relative clause markers vs. declarative clause makers in a number of languages does not provide clear support for a RC analysis of NCCs. In this section we have seen that NCCs in English do not have the same properties of C-drop as RCs. This data provides yet another case of NCCs and RCs diverging in their syntactic behavior. These facts suggest at minimum that equating NCCs to RCs creates the need for a number of non-trivial explanations for the empirical differences between these constructions. This leaves the door open for an alternative analysis of the NCC facts presented thus far, which I will discuss in Section 7. Before this though, I widen the scope of inquiry to main clause phenomena and extraction in NCCs, VCCs and RCs.

## 6 Two accounts for main clause phenomena and extraction in clauses

In this section I explore at the availability of main clause phenomena (MCP) and extraction in NCCs, RCs and verb complement constructions (VCCs). The proposals in Kayne (2008; 2010) and Arsenijević (2009) do not focus on MCP and extraction restrictions in these constructions, but aspects of their proposals make certain predictions for these structures that are not borne out. On the other hand, the proposals of Haegeman (2012) (following Haegeman & Ürögdi's 2010 analysis of VCCs) and de Cuba & Ürögdi (2009) both account for the MCP and extraction differences between types of VCCs (referential and non-referential). In Section 7, I present my analysis for NCCs and conclude that a truncation analysis in the spirit of de Cuba & Ürögdi (2009) has certain advantages over the operator movement account of Haegeman (2012).

### 6.1 Main clause phenomena and extraction

Returning to the discussion of Arsenijević's (2009) from Section 5.4, a third potential problem for his system is that it treats NCCs, factive VCCs and non-factive VCCs as the same animal, namely Finite Complement Clauses (FCCs). However, there are some important syntactic differences between these constructions. As Haegeman (2012: 284–285) notes, NCCs, factive VCCs and non-factive VCCs differ from each other in extraction patterns and the availability of Main Clause Phenomena (MCP), a fact that general FCC as RC accounts like Arsenijević (2009) and Kayne (2008; 2010) do not fully address. In English, NCCs are strong islands (58) and resist MCP (59); factive VCCs are weak islands (60) and resist MCP (61); and non-factive VCCs are not islands (62) and allow MCP (63).

(58)    *NCC: Strong Island*[25]
   a.  *Who does Mary believe the claim that John saw *t*?
   b.  *When did Mary believe the claim that John saw Phil *t*?

(59)    *NCC: Resists MCP*
   a.   Haegeman (2012: 258), citing Hooper & Thompson (1973: 479)
        *I resent the fact that each part he had to examine carefully.

   b.   Haegeman (2012: 258), citing Emonds (2004: 77, note 3)
        *A promise that defective sets the company will fix has been made by John.

   c.   Hooper & Thompson (1973: 486)
        *The claim that on the wall hangs a portrait of Mao is still unsubstantiated.

(60)    *Factive VCC: Weak Island*
   a.   Who does Mary regret that she saw *t*?
   b.  *When did Mary regret that John saw Phil *t*?

(61)    *Factive VCC: Resists MCP*
   a.   Haegeman (2012: 257), citing Maki et al. (1999: 3)
        *John regrets that this book Mary read.

   b.   Haegeman (2012: 257), citing Hegarty (1992: 52, note 19)
        *Mary realizes that this book, John read.

(62)    *Non-factive VCC: No Island effects*
   a.   Who does Mary think that she saw *t*?
   b.   When did Mary think that John saw Phil *t*?

(63)    *Non-factive VCC: MCP allowed*
   a.   John thinks that this book Mary read.
   b.   Mary claimed that this book, John read.

Neither Arsenijević (2009) nor Kayne (2008) focused on MCP or extraction, and it is therefore not entirely clear how they would extend their systems to address these asymmetries.[26] However, if all of these constructions were RCs, we might expect them to behave similarly to RCs in being strong islands for extraction and not allowing MCP. On the other hand, the operator movement account of Haegeman & Ürögdi (2010) and Haegeman (2012) and the truncation analysis of de Cuba & Ürögdi (2009) both provide accounts for

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[25] A reviewer suggests testing NCC extraction via extractions of complement PPs rather than complement DPs, for reasons discussed in Chomsky's *Barriers* (Chomsky 1986):

(i)   (Chomsky 1986: 31–32)
   a.  Who does Mary believe the story that John was speaking to?
   b.  To whom does Mary believe the story that John was speaking?

For me, the extraction in (ia) is less deviant than (ib), matching the judgment for extraction from other adjunct examples presented by Chomsky (1986):

(ii)  (Chomsky 1986: 31)
   a.  Who did they leave before speaking to?
   b.  To whom did they leave before speaking?

I have nothing interesting to say about this contrast, but in terms of the present analysis, in Section 7 I analyze NCCs as adjuncts, so the fact that the same pattern holds in (i) and (ii) fits in with the general picture.

[26] Kayne (2008; 2010) does not address extraction or MCP restrictions. Arsenijević (2009: 45) briefly discusses extraction from FCCs, claiming that extraction out of FCCs is normally possible, but is blocked in NCCs when there the head noun (*claim, fact,* etc.) does not incorporate, as in the case of NCCs, or when a demonstrative is present. He does not address MCP restrictions.

the factive VCC vs. non-factive VCC asymmetries. I discuss these analyses in the Sections 6.2 and 6.3 and eventually conclude in Section 7.5 that the operator movement account, while accounting for the factive vs. non-factive VCC extraction pattern, has more of a challenge handling NCCs than the truncation account does.

### 6.2 Operator movement: Haegeman & Ürögdi (2010)

Haegeman & Ürögdi (2010) do not take up NCCs, but they do provide an analysis for the VCC data in (60–63). They claim that VCCs that resist MCP and are weak islands for extraction are *referential*. They propose that only factive VCCs (referential clauses in their system, following de Cuba & Ürögdi 2009) have event operator movement, and this operator movement causes intervention effects that block MCP and create weak islands for extraction. Since non-factive VCCs (non-referential clauses in their system) do not have event operator movement, there are no intervention effects and thus no restrictions on MCP or extraction.[27] Haegeman & Ürögdi (2010) propose that the event operator is a null *wh*-operator which moves from a TP-related position to a position in the left periphery. Their structure is repeated here in (64).

(64)    Haegeman & Ürögdi (2010: 115)
        $[_{CP} OP_i C… [_{FP} t_i [_{TP}… ]]]$

Haegeman & Ürögdi claim that referentiality is tied to this event operator movement, and that this movement causes intervention effects that block extraction and MCP movements. Following de Cuba & Ürögdi (2009), they define referential and non-referential CPs as follows.

(65)    (Haegeman & Ürögdi 2010: 137; definitions to be revised below)
        a.  **Referential CP:** a referential entity that denotes a proposition without illo-
            cutionary force (a sentence radical in the sense of Krifka 1999); a semantic
            object encoding a proposition/question which the complex sentence (the
            embedding context) positions in the dynamics of conversation. As such, an
            RCP in itself does not constitute a speech act and cannot be used as an ut-
            terance. RCPs can be embedded under both factives and non-factives.
        b.  **Non-referential CP:** a non-referential semantic object denoting a speech
            act with illocutionary force, i.e., one which involves a conversational move.
            An NCP can thus be a matrix sentence, or an embedded clause subject to
            various restrictions. Factive verbs cannot embed speech acts due to conflict-
            ing semantic requirements.

### 6.3 Truncation: de Cuba & Ürögdi (2009) and the motivation for truncation

Although their analysis also claims that referentiality (which they define similarly) is the important distinction, de Cuba & Ürögdi (2009) implement a different analysis from Haegeman & Ürögdi (2010) for blocking MCP and extraction in referential VCCs. They propose that referential complement clauses are truncated structures as opposed to non-referential complement clauses, as in (67).

(66)    a.  **Referential CP:**        V          [CP]
        b.  **Non-referential *c*P:**   V    [*c*P    [CP]]

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[27] I have oversimplified the discussion here for expository purposes. Haegeman & Ürögdi (2010) and de Cuba & Ürögdi (2009) do not claim that non-factive VCCs = non-referential VCCs. To the contrary, they claim that referentiality is the relevant notion that correlates with syntactic differences, not factivity. For details, see Haegeman & Ürögdi (2010) and de Cuba & Ürögdi (2009).

Variants of the truncation analysis have been widely employed in the last decade to account for the availability of MCP as well as the availability of certain complementizers in complements to different classes of verbs (see Haegeman 2006; McCloskey 2006; Bentzen et al. 2007; de Cuba 2007; Basse 2008; de Cuba & Ürögdi 2009; 2010; de Cuba & MacDonald 2013; among others). Although these analyses differ in the details of implementation, they all share the intuition that there is a structural difference between different classes of clausal complements that tracks with a semantic difference tied to the illocutionary force of the clausal complement. For example, McCloskey (2006) shows that in Irish English dialects, embedded T-to-C movement (not normally allowed in complement clauses) can occur under *wonder*-type predicates. In (67), subject auxiliary inversion (SAI) is available under non-factive *wonder* but not under factive *found out*.

(67)    *Irish English* (McCloskey 2006: 88–89)
      a.   I wonder what should we do.
      b.  *I found out how did they get into the building.

McCloskey proposes that factive verbs select a single CP structure, while *wonder*-type predicates select a recursive CP.[28] McCloskey claims that the availability of the complex structure under a predicate like *wonder* (and its unavailability under a predicate like *find out*) derives from the fact that the complement of a question predicate like "wonder" is a different semantic object from the complement of a resolutive predicate like "find out", albeit both are realized as embedded questions. For the particulars of the analysis, I refer the reader to McCloskey's paper. What is important for us here is that semantic complexity corresponds to syntactic complexity on this analysis.

   As McCloskey notes, his proposal is reminiscent of the CP-recursion analysis of embedded verb-second (EV2) constructions in Scandinavian languages (Iatridou & Kroch 1992; Watanabe 1992; Holmberg & Platzack 1995; Vikner 1995; among others; see Heycock 2006 for a summary). In Mainland Scandinavian, clausal complements of 'bridge verbs' can optionally exhibit verb-second (V2) word order (indicated by the post-verbal position of negation), which is not generally allowed in an embedded clause. Typically, EV2 order is impossible under a factive (68b), but available under a non-factive (69b).[29, 30]

(68)    *Swedish*

| | | | | | | |
|---|---|---|---|---|---|---|
| a. | Rickard | ångrade | att | han | **inte** | **var** | hemma. |
| | Rickard | regretted | DeclC | he | not | was | home |
| b. *Rickard | ångrade | att | han | **var** | **inte** | hemma. |
| | Rickard | regretted | DeclC | he | was | not | home |

        'Rickard regretted that he was not home.'

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[28] In an earlier version of his 2006 paper, McCloskey (2005) also presents declarative non-factive examples with SAI from Belfast English, citing Henry (1995).

  (i)  (McCloskey 2005: 40)
     a.  They wouldn't say which candidate they thought [$_{CP}$ should we hire].
     b.  I'm not sure which one I think [$_{CP}$ should we buy].

[29] Examples from de Cuba (2007).

[30] Note that factivity does not correctly predict where EV2 occurs. As far as I know, Hegarty (1992; extending the analysis of Cattell 1978) was the first to tie the availability of EV2 to the "novelty" vs. "familiarity" of the complement clause, as opposed to the factivity of the selecting predicate. Hegarty's analysis shares with the present analysis the elimination of the direct connection between verb types and complement types. For more detailed discussion, see Section 6.

(69)    *Swedish*
   a.  Rickard    sa      att     han    **inte**   **var**    hemma.
       Rickard    said    DeclC   he     not        was        home

   b.  Rickard    sa      att     han    **var**    **inte**   hemma.
       Rickard    said    DeclC   he     was        not        home
       'Rickard said that he was not home.'

The CP-recursion analysis allows for verb-movement to (the lower) C in the presence of an overt complementizer (69b), but since factives do not license CP-recursion, (68b) is ruled out. As with McCloskey's account, the CP-recursion analysis postulates a more complex syntactic structure associated with non-factives as opposed to factives. [31]

Haegeman (2006) also argues for a more articulated CP structure under non-factives. In a discussion focusing primarily on adverbial clauses, she adopts (and adapts) a Rizzi (1997) style CP-field, with "peripheral adverbial clauses" and non-factive complement clauses having a full left periphery (like root clauses), and "central adverbial clauses" and factive complements having an impoverished left periphery.[32]

(70)    a.  Peripheral adverbial clause:
            [Sub  Top   Focus   Force   Fin]

        b.  Central adverbial clause:
            [Sub                        Fin]

This structural difference is exploited to account for the fact that peripheral adverbial clauses allow Main Clause Phenomena (MCP) such as topicalization and speaker oriented adverb placement, while central adverbial clauses do not; the positions designated for these phenomena are present in (70a) and missing in (70b). Haegeman then speculates that factive complements, like central adverbial clauses, are structurally impoverished. She cites data from Hooper & Thompson (1973) and Maki et al. (1999), showing that factives are also resistant to MCP like topicalization.

(71)    a.  Maki et al. (1999: 3), their (2c)
            *John regrets that this book Mary read.
        b.  Hooper and Thompson (1973: 479), their (109)
            *I resent the fact that each part he had to examine carefully.

Bentzen et al. (2007) adopt Haegeman's (2006) proposal and apply it to EV2 in Mainland Scandinavian languages. Bentzen et al. propose that Topic and Force are the loci of EV2 movement, ruling out EV2 in factive clauses like (68b).[33]

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[31] Biberauer (2002) claims that the choice between the two options (Embedded V2 vs. not embedded V2) for a clause embedded under the same predicate (in examples like (69)) is influenced by information structural concerns. She states, "Without exception, native-speakers who were asked to assess the acceptability and significance of MSc embedded V2 clauses responded by making reference to considerations of informational salience." (Biberauer 2002: 46). She reports that EV2 clauses emerge when the speaker wants to express "a strong assertion". She reports the same pattern for Modern Spoken Afrikaans (MSA) EV2. Biberauer's claim that "considerations of heavy informational salience" condition the acceptability of EV2 in MSc and MSA support the claim that semantic complexity corresponds to syntactic complexity in these cases.

[32] Note that Haegeman (2006) replaces "Force" with "Speaker Deixis".

[33] Note that Bentzen et al. (2007) do not characterize the semantic differences in predicate types as factive vs. non-factive. Instead, they appeal to a Hooper & Thompson (1973) division between clauses selected by assertive and semifactive predicates (Class A, B and E for Hooper & Thompson), which have the structure in (70a), and clauses selected by non-assertive and factive predicates (Class C and D for Hooper & Thompson), which have the structure in (70b).

De Cuba & Ürögdi (2009) argue that Hungarian sentential embedding constructions also exhibit different syntax depending on the information structure of the complex sentence, but this time with the availability of an extra morphological element. They present a robust pattern that surfaces under non-factives and one under factives. In a neutral sentence (i.e. a sentence without contrastive focus or negation), non-factive verbs feature *azt* in the preverbal position, while factive verbs are not possible with *azt*.

(72)  *Hungarian*
a.   Péter   (\***azt**)   sajnálja   hogy   havazik.
       Peter   Dem-ACC   regrets   COMP   snows
       'Peter is sorry that it's snowing.'

b.   Péter   **azt**   mondta   (hogy)   havazik.
       Peter   Dem-ACC   said   COMP   snows
       'Peter said that it's snowing.'

Following the intuitions of the other truncation accounts discussed above, they propose that the unavailability of *azt* in neutral factive complements is a result of truncation – the position that houses *azt* is unavailable in truncated clauses.[34] They also argue that MCP restrictions and extraction facts can be captured by appealing to the presence or absence of the *c*P structure in (66): the extra structural position is argued to provide a landing site for MCP, and the referential character of referential CPs disallows non-specific *wh*-phrases from extracting through a referential CP (accounting for weak island effects in referential complements).

The key difference between the analyses in de Cuba & Ürögdi (2009) and Haegeman & Ürögdi (2010) is that for Haegeman & Ürögdi (2010), referentiality is a result of event operator movement, while for de Cuba & Ürögdi (2009) CPs are referential by default and non-referentiality is signaled by the merger of additional structure. As for MCP and extraction, Haegeman & Ürögdi block MCP and extraction through intervention effects caused by operator movement, while de Cuba & Ürögdi (2009) block MCP and extraction through truncation.

To sum up, there is a large body of work that ties clausal truncation to a semantic/pragmatic contrast in embedded clauses (Holmberg 1986; Platzack 1986; Suñer 1991; Iatridou & Kroch 1992; Watanabe 1992; Holmberg & Platzack 1995; Vikner 1995; de Villiers 1999; Krifka 1999; 2014; Grewendorf 2002; Lahiri 2002; Benincá, & Poletto 2004; Haegeman 2006; McCloskey 2006; Bentzen et al. 2007; de Cuba 2007; Basse 2008; de Cuba & Ürögdi 2009; 2010; Demonte & Fernández-Soriano 2009; de Cuba & MacDonald 2013; among others; for the view that non-factive type clauses are the truncated ones, see Kiparky & Kiparsky 1971 and a host of papers that followed it). The present analysis will follow in this tradition of tying semantic/pragmatic differences to syntactic differences between embedded clause types. Following de Cuba & Ürögdi (2009), I claim that the semantic/pragmatic difference here is in the referentiality of the clause. I modify the definitions for referentiality in the next section.

### 6.4  A modified definition for referentiality

A reviewer points out that there is a potential problem with the definitions for referential and non-referential CPs provided in de Cuba & Ürögdi (2009) and above in (65) from Haegeman & Ürögdi (2010). In both sets of definitions, ±referentiality can

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[34] See also de Cuba & MacDonald (2013), who tie the availability of an extra *que* ('that') in Spanish in certain complement clauses to the presence or absence of *c*P.

be seen as being tied to ± factivity. One potential problem with this characterization lies in behavior differences between complements to "semifactives" and "true factives". Unlike true factives, semifactives can lose their factivity in questions, if embedded in the antecedent of a conditional, and under certain modals (Karttunen 1971). As discussed by Hooper and Thompson (1973), semifactive complements (their class E predicates) pattern with assertions (classes A & B) in allowing embedded main clause phenomena (MCP). True factives (class D) do not allow MCP. This has also been demonstrated more recently for other languages. For example, Wiklund et al. (2009) show that in Scandinavian languages embedded V2 (both non-subject topicalization and V-Neg word order) is possible in Hooper and Thompson's strong assertions (Class A), weak assertions (class B) and semifactives (class E), but disallowed in non-assertions (class C) and true factives (class D). Most relevant to the present discussion, semifactive predicates are demonstrated to be factive and presupposed even when they display embedded MCP, as shown by Wiklund et al. (2009) in the Swedish examples in (73). (73a) shows a clause with non-V2 word order embedded under semifactive *discover* and (73b) shows a V2 clause (non-subject topicalization) under the same verb. Both sentences presuppose the truth of (73c). This presupposition remains under negation (73d), even with a V2 embedded clause (73e).

(73)    *Swedish* (Wiklund et al. 2009: 1924–1925)

    a.   De     upptäckte  att   han  läste  den   bloggen varje dag,  #men det
        they  discovered that  he   read  that  blog-the every day     but  that
        gjorde han        inte.
        did    he        not
        'They discovered that he read this blog every day #but he didn't.'

    b.   De     upptäckte att   den  bloggen läste  han   varje dag,  #men det
        they  discovered that  that  blog-the read  he   every day    but  that
        gjorde han        inte.
        did    he        not
        'They discovered that this blog he read every day #but he didn't.'

    c.   Han läste  inte  den  bloggen  varje   dag.
        he   read   not    that  blog-the  every   day
        'He didn't read this blog every day.'

    d.   Vi  upptäckte  faktiskt inte att  han  inte läste  den bloggen varje dag.
        we  discovered  actually not  that he   not read  that blog-the every day
        'We actually didn't discover that he didn't read this blog every day.'

    e.   Vi  upptäckte  faktiskt inte att  den bloggen läste han inte varje dag.
        we  discovered  actually not  that that blog-the read he   not  every day
        'We actually didn't discover that this blog he didn't read every day.'

This provides further evidence that factivity is not the relevant distinction for whether *that*-clauses allow embedded V2.

   In order to fully capture these patterns, the definitions for referentiality needs to be refined. In a discussion of referentiality at the phrasal level, Cinque (1990: 16) defines referentiality in regards to *wh*-phrases as "the ability to refer to specific members of a set in the mind of the speaker or pre-established in the discourse". Based on this, and along

the lines of de Cuba & Ürögdi (2009), I propose the following modified definitions for referential CPs and non-referential *c*Ps.[35]

(74)　a.　**Referential CP:** an accepted (or pre-established) proposition in the existing discourse which has no illocutionary force.

　　　b.　**Non-referential *c*P:** a speech act which introduces a proposition (or an open question) which is not yet accepted (or pre-established) in the existing discourse.

By removing any discussion of factivity from these definitions, it removes the expectation that all complement clauses with factive interpretation should behave similarly, which is certainly in the spirit of de Cuba & Ürögdi (2009). In addition, as noted by the reviewer, the definition in (74) has similarities to the notion "main point of the utterance" proposed in Wiklund et al. (2009; following Simons 2007). This allows semifactives like *know* and *discover* to be both factive and non-referential at the same time. The difference then between semifactives (class E predicates) and true factives (class D predicates) then is that while both are factive, only semifactives can introduce a new proposition into the discourse.[36]

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[35] A reviewer worries that the definitions in (74) do not correctly pick out all of the relevant CPs in the two groups, specifically Hooper & Thompson's (1973) Class C predicates (non-assertive, non-factive predicates like *doubt* and *deny*, which block MCP) and Class E predicates (semi-factives, which do not block MCP). I'll briefly discuss each of these in turn.

First, the reviewer states that Class C predicates don't have illocutionary force, which is in line with the definition, but they are *not* accepted or pre-established propositions in the discourse. However, the status of Class C as a separate class is not entirely clear to me. As noted in Heycock (2006: 192–3), in Mainland Scandinavian, "inherently negative verbs (doubt, deny, regret) or verbs taking irrealis complements do not license embedded V2; and again, even the subset of bridge verbs that allow embedded V2 do not license it when negated or modalized." She also notes (2006: 190) that Andersson (1975), based on his investigation of Swedish MCP, proposes that the non-negative predicates in Class C should actually be in Class B, while negated Class B predicates should be in Class C. In other words, the presence of matrix negation/irrealis is what blocks MCP both in Class C and in negated/irrealis Class A and Class B. So for me the issue is, why does negation/irrealis generally block MCP with predicates we would otherwise expect MCP to occur? There are some previous analyses that propose solutions for the negation/irrealis blocking effects, such as Iatridou & Kroch (1992) and de Cuba (2007), both of which follow the idea of negative complementizers proposed in Laka (1990). For my purposes here I will assume that these types of analysis are on the right track and leave negation/irrealis MCP blocking in non-referential CPs as a separate issue which certainly deserves more attention.

Second, the reviewer points out that semi-factive Class E predicates, which are presupposed, allow MCP, despite the fact that they are "accepted/pre-established" in the discourse. For me, there is a clear difference between Class D true factives (*regret, resent, hate, love,* etc.) and Class E semi-factives (*discover, notice, know, realize,* etc.) in that semi-factives can much more easily present new information that is not part of the common ground. For example, while (i) is completely natural out-of-the-blue, (ii) is only natural if the hearer already knows about the labyrinth.

(i)　Guess what? I discovered/noticed that there is a secret labyrinth under our building!

(ii)　Guess what? I regret/love that there is a secret labyrinth under our building!

In other words, semi-factives can introduce CPs that are "not yet accepted or pre-established in the discourse". Thus, even though the speaker presupposes the truth of the embedded CP, there is no necessary commitment from the speaker that the information is known by the hearer. By separating speaker presuppositions of truth from speaker beliefs about what is in the common ground, I believe that the definitions provided can still capture the data. For more discussion of MCP occurring in factive contexts, see Section 7.6.

[36] It might be the case that even true factives can sometimes introduce a non-referential complement. I'm thinking specifically of the oft discussed example of a complement of *regret* unexpectedly allowing topicalization, a MCP, as discussed by Haegeman (2006):

(i)　Haegeman (2006: 1666)
　　　I regret that those details, I cannot reveal to non-members.

### 6.5 More on the nature of referentiality

In this section, based on de Cuba & Ürögdi (2009) and de Cuba & MacDonald (2013), I provide examples from discourse contexts and *do so*-replacement in English, as well as sentential referential properties of *it* in English to support the idea that referentiality is important to morphosyntax. The definition in (74a) describes a referential CP as a proposition that is accepted in the existing discourse. In other words, it forms part of the common conversational ground (i.e. the ground shared by the speakers). Consider the following discourse contexts and felicitous and infelicitous uses of referential and non-referential complements in light of this characterization (discussion based on de Cuba & MacDonald 2013: 129–132).

In the first discourse context, a parent and a teacher discuss a theft of lunch money that occurred at school. The teacher states (75a) and the parent responds with (75b).

(75)  a.  Teacher:  *Your son stole the lunch money.*
      b.  Parent:  *I regret that my son stole the lunch money.*

The parent's response uses the verb *regret*, which typically embeds a referential CP. A referential CP refers back to a resolved proposition, one that forms part of the common ground, which in this case is the proposition introduced by the teacher; namely, the sentence in (75a). By contrast, in the same discourse context and with the same original statement from the teacher from (75a), if the parent responds as in (76), the result is infelicitous.

(76)  Parent:  *#I think that my son stole the lunch money.*

In this case, *think* embeds a non-referential complement. Thus, it cannot refer back to the proposition introduced (under normal intonation) by the teacher. The result is infelicity. Stated differently, *think* introduces a proposition for acceptance into the common ground, and it is odd to introduce a proposition if it is already accepted as part of the common ground shared by the speakers.

In out-of-the-blue discourse contexts, we find the inverse patterns of felicity with respect to referential and non-referential clauses. In a context in which a parent walks up to a teacher and initiates a discourse where there is no previous mention of stealing lunch money nor that the parent's son is involved, the parent's out-of-the blue statement in (77) is infelicitous.

(77)  Parent to teacher:  *#I regret that my son stole the lunch money.*

Here the proposition *my son stole the lunch money* is not part of the common ground shared between the speakers. This conflicts with the nature of the embedded sentential complement of *regret*, since *regret* typically requires a referential complement. However, assuming the same out-of-the blue discourse context as above, there is no infelicity when the verb *think* replaces *regret*, as in (78). This is because *think* can typically take a non-referential complement.

(78)  Parent to teacher:  *I think that my son stole the lunch money.*

In addition to cases of felicitous and infelicitous complements, we see other correlations between the referential status of a sentential complement and the availability of different morphosyntactic phenomena. de Cuba & Ürögdi (2009) provide syntactic arguments for the differing referential status of some English embedded clauses. Observe in (79a) that *do-so* replacement targets the VP, a predicational element, while *it*-replacement targets referential arguments, as illustrated in (79b).

(79)  a.  Bill tried the cake, and John did [$_{VP}$ so] too
      b.  Bill tried the cake, and John tried [$_{DP}$ it] too

Now consider the contrast exhibited between factives and non-factives in (80), provided by Kiparsky & Kiparsky (1971: 362). Under a non-factive verb, as in (80a), the phrase *that Bill had done it* can be replaced with *so* (just like the VP *ate a cake* in (80a)), or with *it*.[37] However, only *it* is available under the factive verb in (80b).[38]

(80)  a.  John supposed [that Bill had done it], and Mary supposed [it/so] too.
      b.  John regretted [that Bill had done it], and Mary regretted [it/*so] too.

Another piece of evidence for treating CPs as referential expressions comes from the observation (den Dikken 2013, citing Reeve 2007) that in English *it*-clefts, only specific clefted XPs are compatible with the *wh*-pronoun *which*. Factive complements, interestingly, are also acceptable with *which*.

(81)  a.  It's this book which I want to read.        (referential)
      b.  *It's a doctor which I want to become.      (predicative, non-referential)

(82)  a.  It's that John didn't show up which I resent.    (referential CP)
      b.  *It's that John didn't show up which I believe.  (non-referential *c*P)

The evidence here suggests that the embedded CP here patterns with referential DPs (rather than predicative elements).

### 6.6 Summary

In this section I introduced MCP and extraction data into the discussion of NCCs and VCCs and noted that the general FCC as RC analyses of Arsenijević (2009) and Kayne (2008; 2010), which did not focus on MCP and extraction, nonetheless do not provide an obvious account for the syntactic differences between referential and non-referential VCCs. At minimum, these analyses would need non-trivial modifications to cover the MCP and extraction data. On the other hand, the analyses of VCCs in Haegeman & Ürögdi (2010) and de Cuba & Ürögdi (2009) both account for the referential/non-referential asymmetries in VCCs. I also introduced the idea that referentiality is the relevant notion for dividing the behavior of so-called factive and non-factive complement clauses, and provided some motivation for linking referentiality to a structural difference in referential and non-referential clauses. In the next section I extend the referential analysis to NCCs, and argue that while both the truncation approach of de Cuba & Ürögdi (2009) and the operator movement account Haegeman & Ürögdi (2010) can reasonably handle the MCP and extraction facts in NCCs, the truncation account has advantages over operator movement.

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[37] Note that for some speakers, *so* is the only grammatical option in (80a).

[38] As noted by Moulton (2015), Bhatt (2010) shows there are naturally occurring examples of semifactive *know* selecting *so*:

(i)  (Bhatt 2010: 177–178)
     a.  I knew you would be angry enough about that madam, or I should have told you before; and he knew so too… (from 'Mysteries of Udo lpho', AnnRadcliffe, 1794: 554)
     b.  Rooney knew he was special from a young age. And those who nurtured a talent that comes along rarely in any sport knew so too. (www.dailymail.co.uk/sport/article-389647/Walking-miracle.html, 2006)

Given the revised definitions for referentiality in (74), this data is not surprising. As discussed, factivity is not the relevant notion, so it is unsurprising that semifactives like *know* can occur with non-referential *c*P and thus allow *so*-replacement. As discussed above, *know* and other semifactives can also allow embedded V2 and other MCP. The difference between semifactives and true factives then would be that semifactives allow new information clauses more freely than true factives.

## 7  A simple proposal: NCCs are truncated referential clauses

Given the potential complications discussed throughout this paper for previous analyses of NCCs (Kayne 2008; 2010; Arsenijević 2009), it seems that there is room for an alternative analysis. Table 2 summarizes the types of complement clauses discussed and the properties they have.

In this section I propose that the truncation analysis for VCCs presented in de Cuba & Ürögdi (2009) can be extended to account for the patterns in Table 2, including the behavior of NCCs.

### 7.1  The proposal

One important difference between NCCs and VCCs is that NCCs always have an antecedent in the discourse, unlike VCCs. In other words, the content noun (*claim*, *fact*, etc.) and its associated CP refer to the same entity. Thus, my claim is that in this sense all NCCs are referential since they are co-referential with their content noun.

(83)  a.  the $[_N$ fact$]_i$ $[_{CP}$ that it is raining$]_i$
      b.  the $[_N$ claim$]_i$ $[_{CP}$ that the government monitored phone conversations$]_i$

The content noun in NCCs (*claim, fact, idea,* etc.) can be thought of as the antecedent for the NCC. I follow Hawkins (1978) in claiming that NCC constructions like those in (83) are "referent-establishing" and involve "close apposition". Under this type of analysis, all NCCs are referential, as opposed to the split that exists between referential and non-referential VCCs. Syntactically, I adopt the truncation analysis of de Cuba & Ürögdi (2009) for referential CPs, as in (66) above. Despite the terms "noun complement clauses", "NCCs" and "complements of N" that are often used for these structures, I treat these CPs as modifying adjuncts.[40] In the next section I present some motivation for treating all NCCs as referential CPs.

### 7.2  The referential status of NCCs

In a discussion of Danish NCCs, Mikkelsen (2014: 6), following Hankamer & Mikkelsen (2012), notes that what she calls "direct structure" constructions like (84b) have an intuitive similarity to "close nominal apposition" constructions like (84b).[41]

|  | Argument extraction | Adjunct extraction | Main Clause Phenomena[39] | Complementizer drop |
|---|---|---|---|---|
| **RCs** | No | No | No | Yes (in non-subject relatives) |
| **NCCs** | No | No | No | No |
| **Referential VCCs** | Yes | No | No | No |
| **Non-referential VCCs** | Yes | Yes | Yes | Yes |

**Table 2:** Finite complement clauses and their properties in English.

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[39] I return to some exceptions to the generalizations made here regarding MCP in NCCs and VCCs in Section 7.4.
[40] See Stowell (1981: Ch. 3, Section 7) for arguments that so-called "Complements of N" are not in fact complements.
[41] Mikkelsen (2014), following Hankamer & Mikkelsen (2012), divides Danish NCCs between "relational structures", which involve a preposition (i) and "direct structures", which do not (ii).

(i)  (Mikkelsen 2014: 1)
    a.  [Relational structure: N P CP]
    b.  [Direct structure: N CP]

For Hankamer & Mikkelsen (2012), relational structures are anaphoric, and direct structures are referent-establishing. A discussion of the differences between relational structures and direct structures would take us too far afield here. For details the different properties of these constructions in Danish and English, see Mikkelsen (2014) and Hankamer & Mikkelsen (2012).

(84)  a.  the physicist Melissa Franklin
      b.  the fact [$_{CP}$ that everyone participates]

She notes that in (84a) the second element is a proper name that identifies the referent and the common noun labels that referent with a particular property. For her, direct structure NCCs are very similar in that a CP like *that everyone participates* in (84b) provides the primary semantic content of *the fact*. Mikkelsen (2014: 10), following Hankamer & Mikkelsen (2012), proposes that direct structure NCCs are "referent-establishing" (in the sense of Hawkins 1978: 130–149). Content nouns with NCCs have the unusual property of being able to be felicitously uttered with a definite article at first-mention (without previous introduction with an indefinite article). Interestingly, content nouns cannot be used as a first-mention without the CP. Thus, under this view one can certainly argue that the CP in (84b) has referential properties.[42]

Keizer (2007: 22–60) provides an extensive discussion of close appositions and notes that in most analyses of close nominal apposition (e.g. Haugen 1953: 169; Hockett 1955: 101; Sopher 1971: 27), both parts of the construction are taken to refer to the same entity. Keizer also notes that Hawkins (1978: 146) finds the constructions in (85) to "have a lot in common with" the NCC constructions in (86).

(85)  a.  I don't like *the color red.*
      b.  I can't stand *the name Algernon.*
      c.  *The number seven* is my lucky number.

(86)  a.  Bill is amazed by *the fact that there is so much life on earth.*
      b.  The philosophic aphasic came to *the conclusion that language did not exist.*

According to Hawkins (1978: 147), one way in which they are similar is that in both constructions the success of definite reference depends on the presence of the modifier. In other words, in (85) *the color, the name* and *the number* fail to refer when used as a first-mention (without previous indefinite descriptions) if they appear without the "modifiers" *red, Algernon* and *seven* respectively (87). The same situation holds for *the fact* and *the conclusion* in (86); they cannot be used as a first-mention without the CP modifiers in (88).

(87)  a.  I don't like *the color.*
      b.  I can't stand *the name.*
      c.  *The number* is my lucky number.
          (all decidedly odd if used as a first-mention in a discourse)

(88)  a.  Bill is amazed by *the fact*
      b.  The philosophic aphasic came to *the conclusion*
          (both decidedly odd if used as a first-mention in a discourse)

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[42] Moulton (2015: 6) provides a related analysis for these structures. He analyzes content nouns like *idea, story, myth, rumor* and *fact* as denoting "individuals with propositional content". Following Kratzer (2006), Moulton suggests that *that*-clauses are predicates that spell out propositional content and that complementizers mediate the relationship between these "individuals" with propositional content and the propositions themselves. In other words, in a phrase like *the idea that Bob is a fraud,* the proposition *Bob is a fraud* represents the propositional content of the content noun *idea*.

Hawkins argues that in both of the sets of constructions in (85) and (86) the modifier "takes over the role of previous discourse, and enables the hearer to identify some set of objects within which he is to locate the referent." (Hawkins 1978: 148). [43]

Keizer (2005) also discusses the discourse functions of close appositions. Among these uses is the *descriptively identifying use* in which "[…] the descriptive element provides information which allows the hearer to relate the referent of the construction as a whole to her 'knowledge base', or, more specifically to anchor the referent in the discourse situation" (Keizer 2005: 449). In regards to close apposition in general, Keizer (2007) concludes that, "[…] the whole point in using an apposition consists in the fact that through the combination of a proper noun and a descriptive element one can produce a referring expression which is felicitous in a given context" (Keizer 2007: 60). Under the present analysis, I take this as evidence in favor of the idea that the "modifying" CP in NCC constructions is referential.

The referential view of NCCs I am taking here is differs from the view taken by Arsenijević (2009) with regard to the presence of illocutionary force. Recall that that in his system, the possible values for the variable feature in the Force head in NCCs are [assert], [question] and [imperative], and that the nominal head of the NCC is also argued to involve a force feature. Arsenijević provides the sentences in (89), with the proposed contents of Spec,ForceP.

(89)     Arsenijević (2009: 42)
         a.    the claim that John comes ([assert])
         b.    the belief that John comes ([assert])
         c.    the uncertainty whether John comes ([question])
         d.    the doubt whether John comes ([question])
         e.    the false claim that John comes ([assert], further modified as false)
         f.    the order that everyone leaves ([imperative])

In looking at the propositions in (89), it is not clear that they have illocutionary force. Typically, an assertion is defined as a speech act in which the speaker puts forth a proposition as being true (i.e. to be included in the common ground). For example, Krifka (1999; 2014) takes the view that in an assertion, the speaker takes on the social commitment that the content of the assertion is true. By this definition, the NCCs in (89a-b) and (89e) are not asserted, since they can be uttered felicitously by a speaker without any commitment to the truth of the proposition. Krifka argues that there is a speech act operator ASSERT added to what he calls a *sentence radical*, which for him is a proposition without illocutionary force. Along the same lines, a question is usually seen as a speech act that obligates the addressee to respond with an answer. Krifka (1999; 2014) sees the illocutionary act of questioning as going beyond the denotational

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[43] A reviewer worries about claims of referentiality, given that the content noun in an NCC construction can be indefinite, as in (i).

(i)    a.   a claim that MMR is a defective product
       b.   a statement that the earth is flat

However, in the nominal domain indefinite NPs can be antecedents to anaphors without problem:

(ii)   A man shot himself.

Likewise, the antecedent in the NCCs in (i) need not be in the previous discourse. The important part in the present analysis is the referentiality of the CP modifier, not the content noun. Hawkins (1978) actually analyzes sentences like those in (86) as deriving from sentences with the indefinite article (*a fact, a rumor*) and the modifier S (CP in current terms) introduces the referent.

meaning a question. He takes the view of Hamblin (1973) that questions denote sets of propositions, namely the set of possible answers. But for Krifka, this is simply the denotational meaning of questions, which for him is a sentence radical. In order for such sets of propositions to be used to ask a question, the illocutionary operator QUEST must be added. Again, the sentences in (89c-d) do not seem to be question speech acts, as they are not explicit requests for information. Finally, an imperative is generally seen as a speech act in which there is an obligation expressed by the speaker for the addressee to perform some act. Krifka claims that the illocutionary operator DIRECT is involved in these speech acts. Once again, (89f) can be uttered felicitously without any imperative force from the speaker.

In sum, Krifka (1999; 2014) claims that there are sentence radicals, which denote propositions, and *speech acts*, which are formed when illocutionary operators are applied to sentence radicals. He argues that speech acts are distinct from regular semantic objects and that this greatly restricts (but does not completely rule out) the embedding of speech acts. For Krifka, sentence radicals do not involve illocutionary force. He also notes that sentence radicals have more syntactic restrictions, citing examples of MCP being restricted to contexts following predicates which typically allow associated clauses with illocutionary force operators. He also notes that the three speech act operators he discusses (ASSERT, QUEST and DIRECT) are often grammaticized in languages.[44]

In contrast to the proposal in Arsenijević (2009), my definition for referential CPs explicitly states that they do not have illocutionary force, which is in the spirit of Krifka (1999; 2014). I believe that this characterization fits the data in (89) better, as arguably none of these NCC constructions involve illocutionary force in the sense discussed above.

### 7.3 How the proposal handles the data
#### 7.3.1 Relative Clauses

Unlike the previous accounts discussed in this paper, I do not tie the structures of NCCs to the structure of RCs. Specifically, I claim that NCCs to not universally involve relative operator movement. Thus, I make no prediction that the kinds of morphosyntactic behaviors that are related to operator movement in RCs should occur NCCs and VCCs, as for me these clauses do not involve operator movement. Given the numerous examples of NCCs and VCCs not behaving like RCs that I have provided throughout this paper, I see this as an advantage for the referential truncation account over a NCC as RC account. Since the present proposal focuses on NCCs and does not involve RCs, I leave aside any analysis of the complementizer drop, complementizer choice, extraction and argument fronting properties of RCs.[45]

On the other hand, Arsenijević (2009) and Haegeman (2012) do provide examples (see Section 3.1) that show some similarities between RCs and NCCs (i.e. the same morphological items showing up in both constructions). To explain these similarities, I appeal to an obvious similarity in my analysis of NCCs and most analyses of RCs: the presence of a CP. Given the fact that complementizers and *wh*-phrases are commonly found in

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[44] As discussed by Heycock (2006: 190), Andersson (1975) argues that the relevant semantic distinction between embedded clauses that allow MCP in Swedish and those that do not is that MCP clauses make a statement, ask a question, or give a command (Andersson's class of 'semantically main clauses') and non-MCP clauses perform none of these functions (Andersson's 'semantically subordinate clauses'). This characterization of the facts fits well with Krifka's (2014) semantic analysis.

[45] See Taraldsen (1986) and Stroh-Wollin (2002) for discussion of C-drop in relative clauses.

left-peripheral positions in CP, it is not surprising that there may be overlap between morphological items in both types of construction (as well as VCCs).[46]

### 7.3.2 Extraction

NCCs are strong islands for extraction, disallowing both argument and adjunct extraction as shown above in (58). If they are adjoined modifiers, as I claim, we would expect them to be strong islands, as other adjuncts are. As for referential VCCs (weak islands, see (60)) and non-referential VCCs (non-islands, see (62)), the truncation account of de Cuba & Ürögdi (2009) that I adopt here can account for these facts. The referential status of truncated CP disallows extraction of non-referential *wh*-phrases. Non-referential *c*Ps are not referential by definition and therefore are not subject to the restriction against extraction of non-referential *wh*-phrases.[47]

### 7.3.3 MCP

I analyze all NCCs as being referential clauses, so they should always have the truncated CP structure. Thus, MCP are correctly predicted to be banned from all NCCs (59) given the lack of the *c*P projection which provides a position for MCP (66a). Referential VCCs are obviously also analyzed as being referential, so they also have the truncated structure and block MCP (61). Non-referential clauses have the full structure (66b) and thus allow MCP (63).

### 7.3.4 Complementizer drop

I pointed out some of the problems the NCC as RC account might have with the C-drop facts in Section 5. Here I sketch out a plausible analysis that has the advantage of being simpler because I do not tie the RC C-drop facts to the FCC C-drop facts, given the fact that for me, they are structures with different properties.[48] This avoids some of the complications facing Arsenijević's (2009) C-drop account which I discussed in Section 5. That leaves us with the FCC C-drop facts: NCCs (which I have argued are referential) and referential VCCs resist C-drop, while non-referential VCCs allow it. This is a clean division in that referential clauses as a class resist C-drop while non-referential clauses as a class allow C-drop. Thus, complementizer drop is yet another morphosyntactic difference (like

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[46] As for adnominals like Korean *-un* presented by Arsenijević (2009) (example (17) above), it is not so clear what their status is. In the source paper for the Korean data presented, Cha (1998) argues that constructions like (17a) and (17b) differ in a number of syntactic and semantic properties, and that the adnominal –*un* should be analyzed as having two lexical entries, one as a relativizer as in (17a) and one as a complementizer as in (17b). In addition, Kim (2015) claims that many languages, including Japanese and Korean have what are called "generalized noun-modifying clause constructions" (GNMCC). Kim argues that Korean NCCs are among these constructions, and that Korean also has RC constructions with a different syntax from NCCs. In addition to RCs and NCCs, Kim's "Perception or Event-Related Clauses" (phrases like "smell of fish grilling") also take the adnominal. Finally, note in the Basque examples the adnominal *-ko* appears in the NCCs in (25) but not the RCs in (23). Additionally, *-ko* in Basque appears with other phrases, "converting postpositional phrases into adjectival ones." (de Rijk 2008: 90). This fits with the general picture presented here of the CP in NCCs being a modifier.

[47] See Szabolcsi & Zwarts (1993), who argue that there can be no variable left unbound within a referential complement, ruling out extraction of non-referential extractees and giving "factive" complements (referential complements in the present proposal) their weak island status. See also Szabolcsi (2006) for discussion of referentiality and weak islands.

[48] A reviewer asks about the status of so-called "subject contact relatives" as illustrated in (i).

(i)  a.  My friend's got a brother Ø used to be in the school.
     b.  There's a train Ø goes without stopping.

It is clear is that the pattern of C-drop here is different from NCCs, which generally resist C-drop. Therefore, such structures are outside the scope of the present analysis. For discussion of subject contact relatives, see den Dikken (2005). Interestingly, den Dikken analyzes these constructions as topic-comment structures which do not involve relative operator movement (and he argues that they should not be called relatives at all).

the availability of MCP and extraction possibilities) that tracks along the referential/non-referential division.[49]

### 7.3.5 Complementizer choice

As seen in Section 3, there is a great deal of variation in complementizer choice cross-linguistically. Some languages use the same complementizer for relative clauses and NCCs (Section 3.1), some languages use the same complementizers for declarative clauses and NCCs (Section 3.2), and some languages, like English, use the same complementizer for all three of these constructions. The truncation account proposed here does not makes any general predictions as far as complementizer choice goes. However, it crucially does not make the wrong prediction for languages like Swedish and Basque that have a relative complementizer that appears when a relative operator is present in the left-periphery.[50] I return to this point below in Section 7.5 in a comparison of the truncation account and the operator movement account.

### 7.4 Extending the proposal to it-complement clauses

In this section I present another construction that seems to share some behavior with NCCs. Note that *it*-complement clauses (ICCs) can be analyzed in the same way as NCCs.[51] Like NCCs, ICCs are degraded with complementizer drop, as in (90).

(90)　　a.　　I regret it *(that) I overslept yesterday.
　　　　b.　　Eddie resents it *(that) his brother bet against him.
　　　　c.　　The bosses noticed it *(that) John left early.

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[49] A reviewer points out that Hooper & Thompson's (1973) semifactives (class E) seem to pattern with their true factives (class D) in resisting complementizer drop:

(i)　a.　He said (that) he would leave.　　　　　　(class A)
　　b.　I thought (that) he would leave.　　　　　(class B)
　　c.　He denied *(that) he had done it.　　　　　(class C)
　　d.　He regretted *(that) he had done it.　　　　(class D)
　　e.　He discovered *(that) she had done it.　　(class E)

However, to my ear the facts are not so clear. While some semifactives do seem to resist complementizer drop, this is not always the case: for example the sentences in (ii) seem fine to me with the complementizer omitted.

(ii)　a.　I notice (that) you are wearing your class ring today.
　　b.　You know (that) I always like to wake up early.
　　c.　I was in my bedroom when I discovered (that) my wallet was gone.

The fact that semifactives are less resistant to complementizer drop than true factives mirrors the difference in the availability of MCP between the two classes. Of course I have argued that referentiality is the relevant notion for different syntactic behavior between the classes of complement clause, not factivity, so a difference in behavior between true factives and semifactives is not unexpected. The prediction made by the present analysis would be that MCP like EV2 would be allowed in non-referential semifactive contexts, which has been confirmed by Wiklund et al. (2009). As for complementizer drop, the prediction would be that non-referential semifactives would be less resistant to complementizer drop than referential semifactives. I leave a comprehensive examination of the complementizer drop facts to future work.

[50] A reviewer suggests that I should say more about examples where NCCs and RCs do share a morphological marker, as in the examples in Section 3.1. On the subject of complementizer choice and examples of RCs and FCCs sharing morphological markers, Krapova & Cinque (2015: 12) make the following remarks: "Note that for languages such as Italian, French, and Bosnian-Croatian-Serbian, which use the same subordinator for both declarative and ordinary relative clauses, it can be maintained that this subordinator neutralizes the difference found in languages like Bulgarian, which distinguish the two. The only real counterexample would be to find a language which distinguishes the subordinator used in clausal complements of verbs from the relative subordinator, and uses the latter also in the clausal complements of Ns, as in an imaginary variety of Bulgarian where only the relative subordinator *deto* were to appear in clausal 'complements' of nouns." I have presented numerous cases where the complementizer for NCCs and VCCs differs from the complementizer of RCs. However, in my (admittedly incomplete) investigation of languages thus far, I have yet to run into a language with the complementizer properties of the "imaginary variety of Bulgarian" described by Krapova & Cinque, where the complementizer of the RC and the NCC are consistently the same but the complementizer for VCCs is consistently different.

[51] Note that ICCs are sometimes referred to as "object extraposition" structures in the literature.

ICCs are also strong islands for extraction like NCCs but unlike referential VCCs (91).

(91)  a.  *Who does Mary regret it that she saw *t*?          (ICC)
      b.  *Who does Mary regret the claim that she saw t?     (NCC)
      c.   Who does Mary regret that she saw t?               (referential VCC)

It is interesting to note that in English, ICCs are typically selected by predicates that typically select referential complements, as shown in (90). Predicates that typically take non-referential complements tend to avoid ICCs, illustrated in (92).

(92)  a.  *I think it that I overslept yesterday.
      b.  *Eddie supposes it that his brother bet against him.
      c.  *The bosses claimed it that John left early.

It is tempting then to analyze ICCs in the same manner as NCCs, since they share similar properties.[52]

### 7.5  Operator movement vs. truncation

As mentioned above, Haegeman (2012) does not provide a fleshed-out proposal for operator movement in NCCs, but one could imagine some form of operator movement being proposed to block MCP and extraction from NCCs.[53] In addition, she might come up with a similar story to mine for the C-drop facts where it is operator movement that blocks C-deletion. If one accepts my claim that all NCCs are referential, she could claim that operator movement would occur in all NCCs. This raises the question as to whether or not one of these referential accounts has any advantages over the other. However, I will suggest here that the truncation analysis has certain advantages over a potential operator movement account.[54]

Recall that Haegeman's operator movement proposal for NCCs is a RC-style account in the spirit of Arsenijević (2009) and Kayne (2008), repeated here in (93).

(93)  a.  Kayne (2008)
          the fact$_i$ that they're here ~~in~~ t$_i$
      b.  Arsenijević (2009)
          [$_{DP}$ the claim$_{[force:claim]}$ [$_{ForceP}$ [$_{SpecForceP}$ [Var]] that$_{[\Lambda]}$ [$_{IP}$ John kissed Mary]]]
      c.  Haegeman (2012); structure from Haegeman & Ürögdi (2010)
          [$_{CP}$ OP$_i$ C… [$_{FP}$ t$_i$ [$_{TP}$… ]]]

I presented evidence in Section 4 that Swedish and Basque are languages where the morphological form of the relative complementizer is specifically tied to the presence of a relative operator in the left-periphery of the clause (since the relative complementizer shows

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[52] Complements clauses to manner-of-speaking verbs are also a class that could potentially fall under a similar analysis, as they are resistant to C-drop in the same way as NCCs and ICCs (see Section 5.4). Manner-of-speaking verbs have been claimed to involve cognate objects, as in John *whispered a soft whisper* (see Zwicky 1971). One could imagine an analysis of manner-of-speaking CCs similar to that of NCCs and ICCs where a relationship of close apposition holds between a null cognate object and the manner-of-speaking CC, with the manner-of-speaking CC being a referential CP that resists C-drop. I leave the details of this speculative analysis to future work.

[53] Though this operator would need to be different from the event operator she proposes for VCCs, since only factive/referential VCCs have the event operator in her system, not non-factive/non-referential VCCs. In addition, the event operator only causes weak island effects, and NCCs are strong islands. See discussion below.

[54] Haegeman (2012: 189–193) provides a series of general arguments against the truncation account for central adverbial clauses, and claims that these also apply to truncation accounts for factive/referential *that*-clauses such as de Cuba & Ürögdi (2009). However, de Cuba (2014) argues that Haegeman's stated problems for truncation analyses in general are specific to her (2006) truncation account and do not necessarily rule out other truncation accounts for factive/referential *that*-clauses.

up in relative clauses, indirect questions and clefts in these languages: all constructions that have been widely analyzed as involving a relative operator in the left periphery). Given that the declarative complementizer, not the relative complementizer shows up in NCCs in these languages, the operator movement account, which specifically proposes that there is relative operator movement in NCCs, makes the incorrect prediction that the relative complementizer should appear. In contrast, since the truncation account does not propose relative operator movement, it makes no prediction that NCCs should behave like RCs. Since there is no operator movement proposed, the Basque and Swedish data can be explained: there is no operator movement to the left periphery of NCCs, so the declarative complementizer should appear, not the relative complementizer. For this reason, despite the fact that both operator movement and truncation accounts can potentially handle the referential/non-referential distinctions in VCCs, the truncation account fares better, at least for NCCs, since it handles the complementizer choice facts in Swedish and Basque better.

In addition, the present proposal is more general regarding different types of structures than the operator movement account. One notion, referentiality, is proposed here to account for the behavior of different types of embedded clauses. In contrast, different types of operators have been proposed for operator movement in different types of embedded clauses. Haegeman (2012: 273) cites Nichols (2003) in support of her RC proposal for NCCs. Nichols proposes that NCCs are actually adjuncts, not complements, and that they are formally RCs. Nichols argues that these structures involve event operator relativization, as in (94).

(94)    (Nichols 2003: 157)
        $[_{DP}$ The claim$_i$ $[_{CP}$ Ø$_i$ [that $[_{IP}$ Sonia [e$_i$ [had bought the lottery ticket]]]]]]

For Nichols, all attitude nominals, both factive and non-factive, involve event operator relativization.[55]

On the other hand, Haegeman (2012) cites as predecessors to the event operator movement account in VCCs both Aboh (2005), who claims that movement of an event operator results in factivity, and Melvold (1986; 1991), who claims that complements of factive predicates are "event arguments" that contain an operator in CP licensed by the functional element definiteness which binds "an open event-position". There seems to be a mismatch here between when we see an event operator in NCCs vs. VCCs. The interpretation of NCCs is not factive or definite in the complement of N examples in (95), given the non-factive/non-referential nature of the head nouns *claim* and *story*.

(95)    a.    Many people have made the claim that the earth is flat.
        b.    Other people believe the story that vampires walk the earth.

In other words, in order to block MCP in NCCs we would need to follow Nichols and propose operator movement for all attitude nominals, including non-factives. However, in order to account for the MCP facts in VCCs we would need to propose event operator movement in factive VCCs to block MCP but no event argument movement in non-factive VCCs which allow MCP. Of course one could propose that there are two different operators at work in NCCs and VCCs that appear for different semantic reasons, but this would need to be spelled out. On the other hand, the referential truncation account presented

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[55] Nichols provides the following examples of factive and non-factive attitude nominals:

(i)    a.    Factive: *fact, regret, discovery, knowledge, realization*
       b.    Non-factive: *rumor, claim, notion, story, belief, fear, opinion, hunch, assertion. hope*

here appeals to the same thing in both of these cases, the referential status of the NCC itself. The more general coverage of the concept of referentiality can be seen as another advantage over the operator movement account.

### 7.6 Potential counterexamples and variation

In the literature, it has been claimed that NCCs generally block MCP, as was shown in the English examples in (59), repeated here as (96).

(96)  a.  Haegeman (2012: 258), citing Hooper & Thompson (1973: 479)
          *I resent the fact that each part he had to examine carefully.

      b.  Haegeman (2012: 258), citing Emonds (2004: 77, note 3)
          *A promise that defective sets the company will fix has been made by John.

      c.  Hooper & Thompson (1973: 486)
          *The claim that on the wall hangs a portrait of Mao is still unsubstantiated.

The same seems to hold for Swedish, where 10 out of 10 of my native informants rejected NCCs with embedded verb-second order (another MCP), indicated by the verb placement with respect to negation, as in (97b).[56,57] They also all rejected argument fronting in the NCC in (98b).

(97)  *Swedish*
      a.  John   spred   ryktet      att   Mary   inte   hjälpte   Paul.
          John   spread  rumor-the   that  Mary   not    helped    Paul
          'John spread the rumor that Mary did not help Paul.'

      b.  *John  spred   ryktet      att   Mary   hjälpte   inte   Paul.
          John   spread  rumor-the   that  Mary   helped    not    Paul
          'John spread the rumor that Mary did not help Paul.'

(98)  *Swedish*
      a.  Marias   upptäckt   att   Christer  gillar   bönor    var   en   överraskning.
          Maria's  discovery  that  Christer  likes    beans    was   a    surprise
          'Maria's discovery that Christer likes beans was a surprise.'

      b.  *Marias  upptäckt   att   bönor    gillar   Christer  var   en   överraskning.
          Maria's  discovery  that  beans    likes    Christer  was   a    surprise
          'Maria's discovery that beans, Christer likes was a surprise.'

However, while the general picture of NCCs in the literature is that they are claimed to block MCP, a number of potential counterexamples to this generalization have turned up. For example, Green (1976) considers the examples in (99) to be grammatical, and Maki et al. (1999) report that while (100) is ungrammatical for their American informants, it is grammatical for their British informants.

(99)  Green (1976: 391)
      a.  The idea of up popping your boyfriend just then is too much for words.
      b.  We can support the claim that standing in the corner was a black umbrella.

(100)  Maki et al. (1999: 3)
       %John believes the rumor that this book, Mary read.

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[56] All 10 informants grew up and live in Närke Province in South Central Sweden.
[57] Note that embedded verb-second (a MCP) in Swedish VCCs follows the same pattern as MCP in English, with non-referential VCCs allowing embedded V2 and referential VCCs not allowing it.

Other examples come from Germanic, where Heycock (2006) provides an embedded verb-second (as opposed to verb-final) NCC example from German in (101), and Julien (2010) provides an embedded verb-second (finite verb preceding negation) NCC example from Norwegian Bokmål in (104).

(101)   *German* (Heycock 2006: 194, citing Beatrice Santorini, p.c.)
        der      Glaube,   die    Erde   sei       flach
        the      belief     the    earth  is(SBJ)  flat
        'the belief that the earth is flat'

(102)   *Norwegian Bokmål* (Julien 2010: 14)
        Så       trekker han   konklusjonen   at    annet  er  ikke  å     vente.
        then    draws   he     conclusion-the that  other is  not  to    expect
        'Then he draws the conclusion that nothing else is to be expected.'

The existence of these types of examples is obviously unexpected for my analysis of NCCs, given my claim that all NCCs are truncated referential CPs.

   Here I will present some speculation on how to account for these types of examples. One possibility is that in languages that generally allow MCP in NCCs (i.e. the British speakers in Maki et al. 1999 who allow examples like (100)) there is dialectal variation as to whether or not NCCs are seen as co-referential with the head noun. In varieties where NCCs are not treated as co-referential with the head noun, the possibility of MCP in NCCs would open up. However, this availability can still be constrained by the referential status of the particular NCC. One thing to note about the MCP examples in (99–102) is that in all of these cases the head noun is non-factive as opposed to factive, mirroring the behavior regarding the availability of MCP in factive and non-factive VCCs discussed in Section 6. Discussing example (102), Julien (2010: 15) reports that, "the nouns that take V2 clauses as complements are morphologically and semantically related to verbs of saying and of cognition, and their complements represent assertions in the same way as complements to the related verbs."[58] Thus, in varieties that do not treat NCCs as co-referential with the head noun, NCCs will pattern the same as VCCs in terms of MCP.

   Another important thing to note here is that there is also some reported variation on the possibility of MCP in factive VCCs. Twelve out of fifteen of Bianchi & Frascarelli's (2010) English informants accepted (103), Maki et al.'s (1999) British informants, who accepted (100), also accepted (104), and Kiparsky & Kiparsky (1971: 348, note *a*) report that for some speakers, even NCCs with "fact" as a head noun can allow non-presupposed NCCs.

(103)   Bianchi & Frascarelli (2010: 10)
        I am glad that this unrewarding job, he has finally decided to give up.

(104)   Maki et al. (1999: 3)
        %John regrets that this book, Mary read.

Additionally, Green (1976) reports that MCP in factives are better with a first person subject than those with a third person subject, as in (105).

(105)   Green (1976: 388)
       a.   I regret that never before has such a proposal been made.
       b.   *But Bill regrets that never before has such a proposal been made.

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[58] In addition, Engdahl (1986: 138–141) provides examples of extraction out of some Swedish NCCs. In the examples she provides, extraction is bad out of a "fact" NCCs but allowed out of a "rumor" NCC. She equates the asymmetry to pragmatic factors unrelated to the proposal here.

This kind of variation (and many other examples) lead Green (1976: 397) to the conclusion that, "[…] the embedability of so-called MCP is influenced not only by syntactic forms and semantic functions, but also by pragmatic functions, by what a speaker is trying to do in using a particular syntactic form to express something." The referentiality proposal in this paper is undeniably pragmatic in nature, with the speaker of an utterance having the power to present an embedded clause as referential or non-referential. Under the current proposal this choice is implemented syntactically, with non-referential complement clauses having a full left-periphery and referential complement clauses a truncated left periphery. While the presence of different types of head nouns in NCCs and head verbs in VCCs (factive or non-factive) often signal the referential status of a complement clause, this is not achieved by syntactic selection. The referential status of the complement clause itself (as decided by the speaker) is what matters.[59] If this is the case, we would expect to see some of the variation discussed in this section. For example, the speakers who allow (103) and (104) could consider the embedded clause to be factive, but not referential in a pragmatic sense (giving a "regret to say" or "regret to inform" reading, as discussed by Haegeman 2006: 1666). For the speakers who generally allow non-presupposed clauses in "fact" NCCs (discussed by Kiparsky & Kiparsky 1971), a similar explanation can be given. For these speakers, "fact" can introduce a non-referential clause. The contrast in (105) could be tied to the fact that in (105a) the speaker is both the utterer of the sentence and the subject of the sentence, and in this case the speaker has the flexibility to mark the embedded clause as non-referential, thus allowing topicalization.

## 8 Conclusion

In this paper I've presented arguments against the NCC as RC analyses presented in Kayne (2008; 2010), Arsenijević (2009) and Haegeman (2012) and indeed any other analysis that proposes that NCCs generally involve operator movement cross-linguistically. Instead, I've proposed an analysis of NCCs that argues they are referential clauses with a truncated left-periphery (in the spirit of de Cuba & Ürögdi 2009), equivalent to referential complement clauses to verbs (referential VCCs) and different from relative clause structures. I have argued that the analysis presented here is more amenable to cross-linguistic NCC data than the NCC as RC approach regarding complementizer choice facts in languages like Swedish and Basque, which tie complementizer choice to the presence or absence of an operator in the left-periphery, and complementizer drop facts from English. In addition, it covers the MCP and extraction facts that were not touched on by Kayne (2008; 2010), and Arsenijević (2009). Given the many cases presented here and elsewhere where the morphosyntactic behavior of RCs and NCCs differ significantly, an analysis which treats them as different structurally avoids the many complications that arise in trying to treat them as the same animal.

As for Kayne's (2008) general claim that nouns do not select clausal complements, I remain agnostic here. I treat NCCs as adjuncts but leave open to future research the adjunct vs. complement status of NCCs. The claim here is simply that however these clauses are syntactically associated to the head noun or head verb, it is not by a hidden relative clause structure, at least not as a universal property of human language. The relatively simple alternative referentiality proposal for NCCs that I have presented avoids the problematic claim that NCCs involve relative operator movement while remaining amenable to the data I have presented here.

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[59] Julien (2010) presents a number of examples of embedded V2 occurring in contexts where the clauses are not selected by verbs, providing evidence that strongly suggests that the availability of MCP in embedded clauses is not controlled by the selecting predicate.

## Abbreviations

ACC = accusative, ADN = adnominal, AFF = Affirmative sentence particle, AUG = augment, AUX = auxiliary, COMP = complementizer, CONJ = conjunction, DeclC = declarative complementizer, DEF = definite, DEM = demonstrative, DET = determiner, EVAL = evaluative, FUT = future, INT = interrogative sentence particle, ITR = intransitive auxiliary, LOC = locative, NEG = negation, NOM = nominative, O = object agreement, PFV = perfective, PRT = partitive, PST = past, RelC = relative complementizer, RelM = relative marker, RPT = relational particle, S = subject agreement, SG = singular

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## Competing Interests

The author has no competing interests to declare.

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