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Buske

On the nominal nature of propositional arguments

Linguistische Berichte

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Linguistische Berichte
Sonderheft 33

Herausgegeben von
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Introduction

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The linguistic properties of so-called propositional arguments – broadly understood as arguments expressing events, propositions, or situations, usually realized as finite, non-finite, or gerundival structures – have been the subject of extensive research from different perspectives. The syntactic structure and grammatical category of such propositional arguments, especially of finite complement clauses, have been a major topic of debate in the syntactic literature in the last 50 years.

One central aspect of the discussion concerns the question of whether some or potentially all complement clauses should be treated as noun phrases. The details of such a noun-phrase analysis range from assigning complement clauses a silent nominal head or a functional D-layer to considering the complementizer (*that* in English) to be part of the nominal category. The nominal status of embedded clauses has also been proposed to be part of the structure of these clauses, suggesting that these are underlyingly relative clauses. From a semantic perspective, clauses have been considered to be propositional contents or properties of individuals (see, among others, Kratzer 2006, 2013; Moulton 2015), which partially corresponds to a relative-clause analysis. A result of some of these discussions is that 'propositional argument' can be kept as a merely descriptive term with both the status of these clauses as arguments and their content as propositions no longer being a part of the understanding of such clauses.

The papers collected in this volume take up these issues on the basis of recent developments in the theoretical literature, explore their consequences for the analysis of complement clauses, and integrate insights on the basis of cross-linguistic data including German (with dialectal variants such as Bavarian and Alemannic), English, Dutch (also Brabant Dutch), Old and Modern Greek, Jula (Niger-Congo), Swedish, and Basque, as well as a number of other genetically and typologically diverse languages.

The topic of this volume was discussed at the workshop 'On the nouniness of propositional arguments' organized by the editors of this volume as part of the 43th annual DGfS conference held online via the Albert-Ludwigs-Universität Freiburg in March 2021. Most of the contributions were presented at the workshop.

The chapters of this book cluster around four recurring topics in the discussion, namely: Why should complement clauses be considered relative clauses and what are the advantages and challenges of the relative-clause analysis? (Section 1); What are the syntactic underpinnings of analyzing complement clauses as nominal phrases? (Section 2); What are the semantic consequences and challenges when treating complement clauses as nouny?

(Section 3); And what does the possibility of dependent verb-second tell us about the nominal status of such clauses? (Section 4).

1   Complementation as relativization

In the last two decades, various analyses have been proposed that treat apparent complement clauses syntactically as relative clauses. The syntactic research has been flanked by semantic proposals that argue against the traditional conception of propositional arguments and instead suggest an analysis as semantic predicates, i.e., as properties of individuals (Moltmann 2013; Kratzer 2006, 2013; Moulton 2015). On the empirical side, it has been observed that in many languages complementizers and relative markers are formally related. English and the Romance languages show complementizers based on demonstratives (Engl. *that*, Germ. *dass*) or on interrogatives, i.e., *wh*-pronouns (French *que*, Italian *che*), which both also occur in relative clauses. In historical and dialectal varieties of Germanic, a type of complementizer is not uncommon that is based on equative particles and which is used in both complement clauses and relative clauses (Axel-Tober & Brandner accepted). Many researchers have thus suggested taking the complementizers as what they "look" like, i.e., as relative pronouns. For example, Manzini & Savoia (2003, 2011) argue that Italian *che* is also a *wh*-item in contexts where it is standardly analyzed as a declarative complementizer. Arsenijević (2009) points to the cross-linguistic tendency that even in genetically unrelated languages, lexical elements from different classes (e.g., *wh*-pronouns, complementizers, adnominal markers) are systematically employed to introduce both relative clauses and complement clauses. He sees this as a reflex of deep syntactic and semantic parallels between both clause types and essentially argues that sentential complementation is a form of relativization. In "complement" clauses the relativization site is high up in the clause, namely the projection of sentential force (= ForceP). What is abstracted over is the specifier of the Force projection, whose head is assigned the values [assert], [question], and [imperative]. In noun-related clauses, the nominal head also contains a force feature which is assigned one of these values, for example *the claim that the earth is round* [assert]. Arsenijević also bases the structure for verbal complementation on this and argues that it contains a hidden nominal structure as in *claim* = 'make claim', *believe* = 'hold/have belief', *ask* 'ask/make a question'. Likewise, Kayne (2010: 212–216) proposes a relative-clause analysis for noun-related complementizer clauses such as *the fact that you're here*. His claim is that they are derived from clauses like *they are here in fact*, with *fact* being relativized and the preposition becoming silent. Evidence for a silent preposition is seen in analogous structures involving *which*. Thus, both *the way in which they solved it* and *the way that they solved it* are supposed to be derived from *they solved it in a certain way*, where the preposition remains overt only before *which*. Building on Kiparsky & Kiparsky (1970), Kayne generalizes this analysis to verb-related

complement clauses that are factive. Thus, sentences such as *we're sorry that you are here* 'have a deleted or silent FACT (based on IN FACT)' (ibid. 216). Accordingly, Kayne (2008, 2010) also takes English *that* as a relative pronoun in clauses traditionally analyzed as complement clauses. In "complement" clauses *that* is a relative determiner associated with a silent NP as the raised head of the relative clause. Kayne (2010: 227) even goes so far as to claim that 'no determiner-like element that introduces a clause is ever a complementizer in the standard sense of the term.'

In this volume, **Carlos de Cuba** contributes a chapter with the title ***Relatively nouny?***, in which he provides an overview of the syntactic arguments for the relative-clause analysis of complement clauses to nouns as suggested in Kayne (2008). Based on previous work (de Cuba 2017), he shows that the arguments in support of the relative-clause analysis as presented are weak. First of all, while there are languages in which relative clauses and complement clauses share the same complementizer (e.g., Brabant Dutch, Serbo-Croatian, Burmese), this does by no means hold cross-linguistically. Additionally, he shows that the general details of Kayne's analysis are problematic in the sense that the source for the relative clause is in many cases ungrammatical. Finally, there are systematic differences between complement clauses and relative clauses in English which case remain unaccounted for, most prominently the lack of complementizer drop with complement clauses, but its optionality with object relatives. So while there might be good arguments for considering complement clauses to nouns to be modifiers, this paper argues that their syntactic representation is unlikely to be the same as garden-variety relative clauses containing a gap.

Gisela Zifonun's contribution entitled ***Sind Komplementsätze nominal? Positionen der Grammatikschreibung*** explores the question of whether current reference grammars of German address the issue of the nominal character of propositional arguments. The result is largely negative, which according to the author is explained by the lack of morphosyntactic evidence which would justify any attribution of nominal properties to clausal complements. Furthermore, Zifonun argues against a relative-clause analysis of complement clauses, as advocated in Axel-Tober (2017). Following Zifonun, Hoffmann & Strecker et al. (1997), she proposes instead a gradual notion of nominality with respect to finite complement clauses and an arrangement of the types of complement clauses she distinguishes in a "nominality hierarchy". Within it, so-called object-founded *wh*-clauses (*Das Publikum genoss, was da gespielt wurde.* 'The audience enjoyed what was played.') rank highest, followed by proposition-founded *wh*-clauses (*Das Publikum fragte sich, was da gespielt wurde.* 'The audience wondered what was played.'), and – in third place – *dass/ob*-clauses (*that/whether*-clauses). Verb-second complement clauses form the lower end of the hierarchy. Crucially, as Zifonun argues at some length, factivity plays no role in the gradual notion of nominality she adopts.

2   Complement clauses and nominal structures

Theories that treat complement clauses as relative clauses, notably also apparent complement clauses of verbs, are a relatively recent development. Other strands of research have a much longer tradition.

For example, the idea has been advocated from early generative linguistics that the so-called complement clauses themselves are not (bare) CPs, but of a nominal nature. In the 1970s and 1980s, analyses were put forward according to which complement clauses are embedded in a silent NP-shell – in general or with certain types of predicates (Ross 1967; Kiparsky & Kiparsky 1970; Chomsky 1973; Perlmutter & Soames 1979, and – more recently – Müller 1995: Ch. 3.5). Alternatively, it has been argued that the complementizer itself is nominal. In some languages, complementizers can or must be accompanied by determiners. As already shown in Roussou (1991) for Modern Greek, declarative complement clauses (with the complementizers *óti*, cf. (1), *pos*, or the particle *na*) have to be nominalized in certain syntactic configurations, for example when they occur in a case-marked position. Nominalization is achieved through prefixing of the definite singular article *to*:

(1)   To   oti prospathises poli tha   metrisi
        the-NOM   that tried-2SG   a lot FUT   count
        'That you tried hard will count…'   (Roussou 1991: 77, ex. (1a))

Even for English complement clauses, which never overtly display a determiner, it has been argued that they must be headed by silent determiners in certain syntactic environments. For example, a silent D has been proposed for cases where a DP is coordinated with an apparent CP:

(2)   You can depend on my assistant and [DP D [CP that he will be on time]]
                                            (Bruening & Al Khalaf 2020)

Takahashi (2010) points to well-known distributional differences in English complement clauses of predicates that alternatively select for a DP ("*capture*-class" à la Grimshaw 1982; cf. *This formulation of the rules captures the relevant facts*) and those that do not allow a DP ("*hope*-class"). He argues that these differences follow from the requirement that a gap created by movement of a clausal complement must be parsed as a DP. In English, the DP-hood is thus only reflected in special distributional characteristics such as the ability of the complement clause to topicalize; cf. (3a) vs. (3b). The determiner itself can never be lexicalized. Only predicates of the *capture*-class select a DP with a covert head; see (3b).

(3)	a.	*That the Giants would probably win the World Series, most baseball fans reasoned.

	b.	That these consonants behave exceptionally, we can attribute to the fact that they are coronals.

	→ [*capture*-class V [DP THE [CP …]]]

				(Takahashi 2010: 354, ex. (34b), (35b), (36b))

Richard Faure builds on these analyses and extends them to the precursor of *óti*-clauses in Classical Greek. In his contribution *(H)óti-clauses from DP to NPhood. The life of a Greek nouny clause*, 'nominalized CP' stands for structures with a determiner as a nominalizer, i.e., structures that are equivalent to DPs (and not to NPs). In Modern Greek, the DP-status of *óti*-clauses accompanied by *to* (as in (1)) is uncontroversial. Referring to the above-mentioned work on English by Takahashi (2010) and Bruening & Al Khalaf (2020), Faure argues that Modern Greek *óti*-clauses have a parallel structure with a silent D. However, in Greek the nominalization is semantically/pragmatically driven and not primarily syntactically: *óti*-clauses are endowed with a silent weak definite article if they have a factive interpretation (à la Kastner 2015) and are newly introduced in the discourse (first mention). *To-óti*-clauses (i.e., with an overt D), by contrast, are licensed in anaphoric or topic-continuative contexts. In Classical Greek, the complementizer was different: it incorporated the D-element (= *h-óti*). Faure argues for a bimorphemic decomposition of *hóti*, the initial *h*-morpheme being a weak definite marker. Since *hóti*-clauses were DPs in Classical Greek, they did not co-occur with the definite article *tó*, which could nominalize any category except for *hóti*-clauses. Faure goes on to argue that diachronically, the loss of the *h*-morpheme led to a re-arrangement of these three nominalization structures. The rise of the overt nominalization with *to* was one syntactic consequence of this morphological change. The three constructions differ in their interpretative and discourse-referential properties, but the need to make a distinction between factive/first-mention clauses and anaphoric/topic-continuity clauses has remained diachronically constant. While the former type of clause is realized by nominalizations with a weak definite determiner (as a morpheme within the complementizer in Classical Greek *h-óti* or in the form of a silent D in Modern Greek *óti*-clauses), the latter type is strongly definite and makes use of overt heavy material (definite article *to*). As Faure points out, this could result from iconicity: the stronger the definiteness, the heavier the linguistic material.

A further strand of research specifically relates to apparent complement clauses of so-called propositional or content nouns, i.e., nouns like *belief*, *claim*, or *expectation*, many of which are de-verbal. It was already observed by Tim Stowell in the 1980s that such clauses behave more like appositions semantically and show adjunct-like behavior in their syntax (see also Higgins 1973). Referring to examples as in (4), Stowell notes that in contrast to nouns that take infinitival complements (e.g., *Andrea's attempt/pretense/refusal to tell a lie*), nouns like *guess*, *claim*, and *explanation*, which are appended by finite clauses, do not refer to the action of guessing, claiming, or explaining, but rather seem to describe the

content of the noun. What we find, even in nouns derived from verbs, is more like an "identity relation" than a predicate-argument relation (cf. Stowell 1981: 200). This is also reflected in the fact that the apparent clausal "complement" can be predicated of the noun in copular clauses (*Andrea's guess was that Bill was lying*).

(4) a. Andrea's guess [that Bill was lying]
     b. John's claim [that he would win]
     c. Paul's explanation [that he was temporarily insane]
                                    (Stowell 1981: 200, ex. (156a–c))

More recently, various studies have highlighted the problem of different types of content nouns. Even within the class of those appended by finite clauses, there are different types of relations (Fabricius-Hansen & von Stechow 1989; Moulton 2009; Krapova & Cinque 2016; Elliot 2020; cf. already Higgins 1973).

In the present volume, **Kalle Müller** re-addresses the issue of apparent nominal complementation. In his contribution with the title ***On noun-related complementizer clauses***, he argues that in English and German (at least) two types of semantic constellations have to be distinguished. In the type that Stowell described, the noun and the clause refer together to the same object (e.g., *John's claim that he would win* (4b)). Müller proposes analyzing this type as a close apposition. In the other type, the noun and the clause can refer to two objects. This becomes clearly visible in constructions with two *that*-clauses like in *That we don't fall off is the proof that the earth is flat* (see also Moulton 2015). Müller argues that in this case the noun and the clause refer to two different entities, one of which indeed has an argumental function. It is, however, not the complement of the noun, but of a preposition, which is in turn not syntactically selected by the noun. The reason why the role of prepositions has been overlooked is that English often does not allow their overt realization. German provides an ideal testbed for this structure as it permits and sometimes even requires prepositions to be overtly realized as part of pronominal correlates (*der Beweis da**für** dass die Erde flach ist* lit. 'the proof there**of** that the earth is flat'). Regarding the nominal status of the two types of constructions, Müller argues that both are "nouny" as in both cases the CP is enshelled by a silent dummy DP.

The role of correlates is a further issue that deserves attention when dealing with the clauses-as-DPs hypothesis, or, more specifically, with questions like whether verbs can subcategorize for CPs just like they do for DPs and whether bare finite CPs can indeed act as syntactic complements. Since Rosenbaum's (1967) seminal work on the English correlate construction with *it*, cf. (5), much research has centered on Germanic (e.g., Pütz 1986; Askedal 1985, 1999; Fischer 1997; Zifonun, Hoffmann & Strecker et al. 1997; Sudhoff 2003; Axel-Tober 2012, 2017; Angelopoulos 2022; see also most of the contributions in Frey, Meinunger & Schwabe 2016; for prepositional correlates, see Breindl 1989, 2013; Gunkel & Hartmann 2020 on Germanic and 2021 for a comparative overview of Germanic vs. Romance).

(5)   They doubt [NP [N it] [S that you will go]]

(adapted from Rosenbaum 1967: 63, ex. (4a))

Den Dikken (2017) looks at correlate constructions (he calls them 'proleptic' constructions) from a cross-linguistic perspective and argues that they are important avoidance strategies for direct clausal integration.

    In the present volume, **Alassane Kiemtoré** discusses various types of complement clauses in the West African language Jula. In his contribution entitled *A syntactic account of clausal complementation in Jula*, he shows how this language makes frequent use of correlates. Complement clauses only occur to the right of the matrix verb even though the language only exhibits OV-order with non-clausal complements at the surface. Kiemtoré proposes a unified analysis in which all types of complement clauses are associated with a (potentially silent) correlate. The correlate construction is syntactically analyzed as a predication phrase with a null head. The correlate is the specifier of this predication phrase and the complement clause its complement. Semantically, the content of the complement clause is predicated of the correlate. The correlate is subject to rightward movement as in Jula case is assigned in the specifier position of a head.

3   Semantic aspects

From early on the nominal syntax of complement clauses has been the subject of discussions about whether or not nominal syntax corresponds to nominal semantics and vice versa. An early proposal along these lines is Kiparsky & Kiparsky (1970: 156–159), who propose that the complement clause of factive verbs has a nominal head 'the fact' preceding the *that*-clause in their deep structure. In this way, factive clauses are analyzed as being nominal, in contrast to non-factive clauses. This explains a number of differences between factive verbs and non-factive verbs and their complements, such as the availability of nominal complements (e.g., gerunds or pronominal *it*) as well as the semantic interpretation of the complement clause as being presupposed to be true. The distinction of different types of predicates selecting different types of complements has been proposed to be more fine-grained (see, e.g., Hooper & Thompson 1973; Cattell 1978). Cattell (1978) introduces a more articulate semantic distinction between the verbal predicate classes of response stance, non-stance (= factive), and volunteered stance predicates. Haegeman & Ürögdi (2010) differentiate between what they call 'referential' and 'non-referential' clauses. Referentiality arises by an operator binding the event variable of the embedded verb. This operator moves from a functional projection located above the embedded VP to SpecCP. Referential clauses are thus analyzed as relative clauses. Following Cattell's (1978) classifications, Kastner (2015) argues in a similar vein that the relevant difference is whether or not the complement clause is presuppositional or not. Differing from Haegeman & Urögdi (2010) though, he proposes that the presuppositionality is associated with a property of a silent D.

Factive predicates in Kastner's analysis are a special case of presuppositional clauses as they are not just presupposed to exist, but presupposed to be true. Presupposed clauses all contain a silent D-head from which the presupposition is argued to derive, while non-presuppositional clauses (Cattell's volunteered stance predicates) are just CPs.

Moulton (2015) in contrast to these analyses takes as a starting point the distribution of *so-* and *as*-clauses, which both are possible with predicates occurring with CPs but not following nouns. He concludes that so-called CP proforms are arguments of verbs, but CPs are not and are semantically not even propositions. Instead, CPs are properties that combine with predicates via predicate modification. See already Kratzer (2006) for this idea.

Vesela Simeonova in her contribution ***Definitely factive*** follows the line of reasoning in Kratzer's and Moulton's work, but adds to it a new perspective on how to keep this uniform analysis of CPs but still differentiate factive predicates. Simeonova proposes that factivity and non-factivity of embedded clauses can be treated uniformly for the nominal and verbal domain. Crucial to her analysis is the assumption that it is the semantic structure of the embedded clause itself that triggers factivity or non-factivity. As for non-factive clauses, following the analysis of Moulton (2015), the embedded clause is analyzed as a predicate of content, which is defined as having an individual with propositional content as one of its arguments. Semantically, non-factive clauses are compositionally linked to their verbal or nominal head via predicate modification. Factive clauses, in turn, are taken to be definite descriptions, which, following Kratzer (2012), denote situations that "exemplify" propositions. With verbal heads, they combine via functional application. As for nominal heads, noun and complement clause are supposed to combine via a special composition rule, according to which the denotations of two expressions are identified. Thus, the individual denoted by the clausal complement (a definite description) is identified with the denotation of its head noun.

Jürgen Pafel proposes an alternative view to the Moulton/Kratzer perspective. He argues in his paper ***(Argument) clauses and definite descriptions*** for analyzing *all* argument clauses as *definite descriptions* denoting (pluralities of) propositions or types of (pluralities of) propositions. Crucially, the notion of *definite description* is understood in a purely semantic sense, the relevant point being that they are modeled by using the iota operator. Therefore, the usual diagnostic tests for referential terms apply: Argument clauses are sensitive neither to negation nor to quantification. The assumption that argument clauses behave like definite descriptions in that they can denote *the same proposition under different descriptions* is made plausible with respect to two cases, viz. coreferential *that*- vs. *whether*-clauses on the one hand and *that*-clauses vs. direct quotations on the other. Pafel further shows that a wide range of argument clauses which are known to be semantically difficult to analyze can be accounted for in his approach with the help of four distinct kinds of definite descriptions. Accordingly, argument clauses qua definite descriptions can denote not only (i)

propositions, but also (ii) smallest pluralities of propositions (understood as plural objects), as well as (iii) types of propositions and (iv) smallest types of pluralities of propositions. In a concluding outlook, Pafel extends the basic idea of semantically relating clauses and definite descriptions to adjunct clauses and main clauses.

Patrick Brandt approaches the question of the nominality of propositional arguments from the opposite perspective. The topic of his paper ***The real semantic value is propositional: German particle verbs and state change*** is the question whether certain nominal arguments must be interpreted as propositional structures, not the nominal character of propositional arguments. In fact, according to Brandt, this is true for the arguments of German transitive verbs such as *abändern* 'alter', *umwandeln* 'convert', *versetzen* 'transfer', and others. What is characteristic of these verbs is that the referents of their arguments are not "well-distinguished individuals", but entities that overlap. Since this violates a fundamental semantic condition for the interpretation of transitive verbs, part of the responsible logical form must be reinterpreted as referring to a different state of the same object, i.e., a pre-state of a change of state. Having temporal character such states are eventually represented by propositional structures. Crucially, the interpretational variation between the denotations of nominal and sentential expression is supposed to be grounded in Frege's view that both types of expression denote (saturated) entities, i.e., individuals and truth values, which are both taken to be "objects" ('Gegenstände').

4   Aspects based on dependent verb-second

When discussing the nouniness of clauses, both from syntactic and semantic perspectives, the focus is usually on finite *that*-clauses (and variants thereof in a range of different languages). However, in some languages there are predicates that in addition to *that*-clauses may combine with root-like clauses. One of the issues is the phenomenon of dependent verb-second in Germanic (Reis 1997; Meinunger 2004; Gärtner & Eyþórsson 2020; Woods 2020). Dependent verb-second clauses are interesting because they are normally root clauses and as such are not open to a nominal analysis syntactically and correspondingly to a semantic analysis as predicates or definite descriptions, yet they appear with a restricted set of clause-embedding predicates. They come in two guises: declarative dependent verb-second and conditional verb-second. In the current volume, two contributions take up dependent verb-second clauses in German and investigate their properties in relation to the nouniness of propositional arguments.

Andreas Blümel & Nobu Goto investigate why verb-second clauses in German occur neither as complements to nouns as in *die Behauptung Maria ist krank* lit. '*the claim Mary is sick' nor with pronominal correlates as in *dass es$_i$ komisch ist Maria ist krank* lit. '*that it strange is Mary is sick' and behave similarly in the corresponding cases in English. In their contribution

Reconsidering the syntax of correlates and propositional arguments, they argue that the reason for this ungrammaticality is that verb-second clauses lack a category label and therefore cannot be selected by nouns and correlates. Their analysis is implemented in the minimalist labeling theory (Chomsky 2013 and follow-up work) and is based on the assumption that there is indeed a selection relationship between the head noun or correlate and the complement clause. However, they claim that a slight adjustment of the proposal might be feasible for it to be compatible with modification / relative clause analyses of dependent clauses.

In the article ***On the conditional nature of V2-clauses in desire reports of German***, **Frank Sode** discusses dependent verb-second clauses in German that are non-declarative, that is, examples like *Ich wünschte Du kämst alleine.* 'I wished you came alone'. They differ from declarative verb-second clauses (discussed in Blümel & Goto) with respect to the required subjunctive marking on the finite verb and their special conditional semantics, which includes both a conditional and evaluative component, with the evaluative component having scope over the conditional component. Sode provides a syntactic analysis of these clauses in which the verb-second clause is adjoined to the VP and related to a silent argument selected by the predicate – in line with Reis's (1997) analysis of declarative verb-second clauses. These clauses are required to be licensed by an evaluative predicate which scopes over a modal conditional operator. Thus, the syntactic selection is satisfied by a silent proform, which presumably is a nominal element. At the same time, Sode proposes that the subjunctive features of the non-declarative verb-second clauses need to be licensed under sisterhood within the VP to ensure the selectional restrictions present with these clauses.

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Part I:
Complementation as relativization

Relatively nouny?

Carlos de Cuba

Abstract

This paper focuses on the claim that all complement clauses are relative clauses as proposed by Kayne (2008, 2010). The current interest in the nouniness of propositional complements has led many researchers to adopt the relative clause analysis in their work. While the idea of unifying all complement clauses under one analysis is an attractive one, I argue in this paper that in its present form the RC analysis is not tenable. Though I do not rule out the possibility that some complement clauses can be analyzed as relative clauses, I present evidence that shows it cannot be the case that all of them are. I present a number of examples where the RC analysis makes incorrect predictions, is unable to account for data, or causes us to lose existing analyses of data.

1 Introduction*

In an effort to reconcile Kayne's (1994) Linear Correspondence Axiom with Chomsky's (1995) Bare Phrase Structure, Kayne (2008), following Guimarães (2000), proposed that a head x can merge with itself, yielding the singleton set $\{x\}$. This solved a projection problem that occurs when merging two heads that would otherwise be in a symmetrical c-command relationship, causing a linearization problem (with mutual c-command it would be unclear which head should project). An upshot of the proposed analysis in the paper is the claim that nouns do not project.

Given that nouns have traditionally been analyzed as taking a number of different types of complements, the onus was then on Kayne to show that what we have been calling complements of nouns are not in fact complements. Kayne's solution was to propose that instead of clausal complements, we were dealing

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with relative clause structures (RCs), which are adjuncts (see Arsenijević 2009 for a related proposal). Kayne (2010) extended this hypothesis to complements of verbs as well. The RC analysis has gained a lot of attention over the years and Kayne continues to actively support and defend it (see for example Kayne 2021), but in this paper I will present a number of problematic issues that arise. Some of the arguments I present here first appeared in de Cuba (2017), but in the intervening years I have discovered even more arguments from the literature including contributions from this volume (Kiemtoré, Müller, Simeonova) that add to the case against the RC analysis. I will show that the evidence that has been put forth in favor of the RC analysis in the literature is generally weak, and that cross-linguistic evidence, including from experimental studies, points strongly away from a uniform treatment of complement clauses as RCs.

The paper will be organized as follows. Section 2 provides an overview of Kayne's (2008, 2010) RC analysis, Section 3 reviews some of the evidence provided in the literature in favor of the general RC analysis, Section 4 presents problems specific to Kayne's *"in fact"* RC derivation. Section 5 presents counterevidence to the morphological matching of relative and declarative markers, Section 6 presents more problems for the RC analysis in the form of left-peripheral operators in Swedish and Basque, and Section 7 presents more independent arguments against the RC analysis from Boef (2013) and Jónsson (2017). Section 8 concludes the discussion.

2   Kayne's RC analysis: Kayne (2008, 2010)

Kayne (2008) 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.

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

If this is the case, then sentences like (2a) must not be Noun Related Clauses (NRCs).[1] In order to account for apparent noun complement cases like these, he proposes that they are actually relative clause constructions like (2b). For Kayne, (2a) is derived from (3a) with a silent *in*, and its object *fact* relativized, as in (3b).

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

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

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[1]   What I am calling 'Noun Related Clauses' have been referred to as 'Complements of N' and 'Noun Complement Clauses' in the literature. I use the term NRC to avoid presupposing an analysis (I among many other researchers do not consider them to be complements).

In this way, the fact that there is no obvious gap in NRCs like (2a) is explained: fact is relativized from a silent adjunct PP. Since for Kayne, nouns can never take a complement, all NRCs are assumed to receive the analysis in (3). Kayne (2010) goes further, making the claim that all complement clauses are actually RCs – specifically, both NRCs and Verb Related Clauses (VRCs) are really RCs (see Arsenijević 2009 for a related proposal). The RC hypothesis has gained momentum over the years – in the next section I'll briefly discuss some evidence that has been put forth to back up the RC hypothesis.

3 Evidence provided for the RC analysis

The main empirical evidence in favor of the RC analysis provided in the literature involves examples showing matching relative markers and sentential complement markers. In each case an element that appears in relative clause constructions also appears in NRCs: the same complementizer in (4), *wh*-word in (5) and adnominal in (6).

(4) a. een gezin   dat   drie kinderen heft   [Brabant Dutch]
        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'

                                                    (Arsenijević 2009: 46)

(5) a. to **što** me   plaši   [Serbo-Croatian]
        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'

                                                    (Arsenijević 2009: 46)

(6) a. John-I   sakwa-lul kkak-**un**   khal   [Korean]
        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'

                                    (Arsenijević 2009: 46, citing Cha 1998)

(7) a. Hou thou thaw **té**   weʔ thà hin   [Burmese]
        that rancid go   REL.M pork   curry
        'that pork curry which has turned rancid'

                                    (Soe 1999, reported in Nichols 2003: 162, (23a))

b. [[thu chàn tha te]   hsou **té**]   'əthi
   he rich   REALIS EVAL REL.M-REALIS NOM-know
  'the knowledge of the fact that he is rich'   (Nichols 2003: 162, (20a))

c. [[thu nei   mə kàun hpù] hsou **té**]   kauláhalá
   he stay NEG good NEG   EVAL REL.M-REALIS   rumor
  'the rumor that he is/was ill'   (Nichols 2003: 162, (20b))

The fact that the same morphological marker appears in both RCs and NRCs is taken as evidence that they share the same type of RC structure.

Aboh (2005) is also often cited as providing evidence in favor of the RC analysis. The relative clause in (8a) and the factive clause in (8b) both use the relative complementizer, as in the examples above. In addition, Aboh proposes that factive complements are derived by leftward movement of a functional head, accompanied by argument fronting (8b) or V-fronting (8c) to the relative C or SpecCP.

(8)   a. Kòfí wɛ̌ xò àgásá ɖàxó [**ɖɛ̌**   mí wlé] ló lɛ́.
      Kofi FOC buy crab big   that[REL] we catch DET NUM
     'KOFI bought the [aforementioned] big crabs that we caught.'

    b. **Àgásá** ɖàxó ló lɛ́   [**ɖɛ̌**   mí wlé] vɛ́ ná Kòfí.
      crab   big DET NUM that[REL] 1PL catch hurt for Kofi
     'The fact that we caught the aforementioned big crabs hurt Kofi.'
     *'The aforementioned big crabs that we caught hurt Kofi.'

    c. **Wlé** [**ɖɛ̌**   mí wlé àgásá ɖàxó ló lɛ́] vɛ́ ná Kòfí.
      catch that[REL] 1PL catch crab big DET NUM hurt for Kofi
     'The fact that we CAUGHT the [aforementioned] big crabs hurt Kofi.'
          (Aboh 2005: 266, 279, as cited in Haegeman 2012: 268–269)

This data is often taken as evidence for RC-like operator movement given the apparent movement and the presence of the relative complementizer. Note that even if we accept Aboh's analysis, it would only provide evidence in favor of factives being RCs. Overall, the empirical evidence provided in favor of the RC analysis has remained thin as far as I have seen. Anecdotally, the majority of papers and presentations that I see citing the RC analysis do not provide many details on the syntax of these RC constructions. As mentioned in the introduction, the main motivation has been theory internal. Next, I begin critically examining Kayne's proposed RC analysis, starting with his proposed *in fact* derivation.

4 Problems for Kayne's RC derivation

As presented in Section 2, Kayne (2008, 2010) sketches out the details of his RC analysis. In this section I raise some empirical problems for this derivation regarding complementizer drop, the derivation and interpretation of *in fact*, and the appeal to silent categories to make the analysis work.

4.1   Complementizer drop

Relative complementizers can be optionally dropped under certain conditions in English. The complementizer is obligatory in subject relative clauses (9a), but optional in non-subject relative clauses (9b–c).

(9)   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 ___

Leaving aside an analysis of C-drop, it is a diagnostic for RC constructions. If NRCs are RCs, we would expect NRCs to behave in the same way with respect to C-drop. Recall Kayne's proposal.

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

In addition, Kayne (2008: 14, Fn. 35) other possible placements for *in fact*, as in (11b–c).

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

Wherever *in fact* originates, it is clear that it is not the subject position: the subject is occupied by *they* in all of the sentences in (11). Given that Kayne argues that phrases like (10a) are relative clauses, we would expect them to behave in the same manner with respect to C-drop. However, the data in (12) do not bear this out, as the complementizer is obligatory.

(12)   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 NRCs do not. This is unexpected under Kayne's analysis.

4.2   More questions about *in fact*

In this section I present some additional issues with Kayne's *in fact* proposal, including problems with the derivation of nouns other than *fact*, the interpretation of *in fact* and the appeal to silent categories.

4.2.1   Derivation with nouns other than *fact*

Another issue left unclear is the status of other NRCs involving nouns other than *fact,* like *rumor*, *news*, *story* or *reason*, as in (13), if they indeed correspond to the sentences in (14).

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

(14)   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 them to derive from sentences like the ones in (15).

(15)   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 (15), which are ungrammatical on their own, to be the source of the RC constructions. We are left to wonder how derivations with these other nouns should proceed.

4.2.2   Interpretation of *in 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 (16) and relative clauses in general (17). Note that the relevant reading is with *in fact* and *by the way* modifying the embedded clause, not the main clause.

(16)   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]

(17)   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. For similar arguments against Kayne's RC approach having to do with the interpretation of factive complements, see Kastner (2015).

4.2.3   Arguments against silent categories

Finally, in a related analysis, Manzini & Savoia (2011: 19) take issue with the silent category approach of Kayne (2008):