

On Noun Clausal ‘Complements’ and their Non-unitary Nature

Iliana Krapova and Guglielmo Cinque
(Università Ca' Foscari Venezia, Italia)

Abstract In this article, we discuss the status of clausal ‘complements’ of Ns, which have recently been analysed by various authors as restrictive relative clauses. First we argue that they do not constitute a unitary phenomenon. Two types should be distinguished: clausal “complements” that can be predicated of the noun across a copula (with nouns like ‘claim’, ‘news’, ‘idea’, etc.) and those that cannot (with transitive nouns like ‘proof’ and with ‘unaccusative’ nouns like ‘possibility’). While we argue that both types are not genuine complements of the noun, we address some apparent difficulties for an ordinary restrictive relative clause analysis. Using data from English, Bulgarian and Italian we suggest that noun clausal “complements” of the first type are best analyzed as the predicate of a non-restrictive reduced relative clause, ultimately derived from an inverse (specificational) copular structure where the “complement” clause that expresses the content of the N occupies the subject position and the Noun the predicate position ([[CP That he is a spy] Pred° [DP the claim]]). Concerning noun clausal ‘complements’ of the second type we tentatively assume that they involve the relativization of a propositional variable, as suggested by a number of authors.

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Keywords Noun complements. Reduced relative clauses. Inverse predication. Unaccusative nouns.

1 Introduction

Ever since Stowell’s (1981) dissertation, the complement status of the CP clauses apparently selected by nouns like ‘idea’, ‘conclusion’, ‘belief’, ‘story’, ‘rumor’, ‘news’, ‘claim’, etc. (see the examples in (1)), has been called into question.¹ According to Stowell (1981, 200), the relation between the

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clause and the N is one of adjunction rather than of th-role assignment, the adjunct CP being actually in apposition to N. Anderson (1979, 120), following Jespersen (1949), also characterizes the relation between the apparent clausal complement of a noun and the noun as an 'appositive' relation, and so does de Haan (1989, § 2.1.1.2).

- (1) a. the idea that he may stay on for another mandate
 b. the claim that parallel galaxies exist
 c. the excuse that John had left
 d. the question whether John should leave

Grimshaw (1990, 74 ff.) also took the position that the property described by the embedded clause in cases such as (1) is an instantiation of a modification relation, rather than of a complementation relation, in part also because, as Anderson and Stowell suggested, the embedded clause specifies the content of the noun to which it is attached. One crucial piece of evidence that Grimshaw, following Stowell, adduces in favor of a modification type of relation for such apparent complements comes from the possibility of predicating the CP across a copula, as in (2), which is only available in modification relations and not in complement-head relations (we come back to this issue in section 2).²

- (2) a. the idea is that he may stay on for another mandate
 b. the claim was that parallel galaxies exist
 c. the excuse was that John had left
 d. the question is whether John should leave

More recently, Kayne (2008a, 2008b), has motivated the nonexistence of nominal complementation as a consequence of his more general proposal that nouns do not project arguments, and analyses them as (restrictive) relative clauses; a conclusion shared and elaborated in partly different ways by other authors (cf. Manzini & Savoia 2003, 2011; Aboh 2005; Arsenijević 2009, Haegeman 2010; Manzini 2012).

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² That sentences like (1c-d) and (2c-d) should be in a transformational relation is originally suggested in Chomsky (1970, 197-98). Grimshaw (1990, 74 ff.) discusses other arguments in favor of the nonexistence of *that*-clause complements of nouns, but see Pesetsky and Torrego 2004 (§ 18.6 and note 22) for a different view.

The existence of two syntactically different types of noun clausal ‘complements’ (those that can be predicated of the noun and those that cannot), and the existence of certain differences between (both types of) noun clausal ‘complements’ and ordinary restrictive relative clauses, will lead us to propose a partly different analysis; one which may combine the virtues of the modifier analysis and the relative clause analysis.³

The paper is organized as follows. In section 2, we briefly review the typology of noun complement clauses, arguing that two cases should be distinguished. In section 3, we consider some basic differences between the two types of clausal ‘complements’ of Ns and restrictive relative clauses. In section 4, we sketch our proposal concerning the two types of noun clausal ‘complements’. In section 5 we consider the nature of the predication relation between the ‘complement’ clause and the noun for the class of nouns whose clausal ‘complement’ can be predicated of them across a copula. Finally, in section 6, we briefly discuss possible refinements of the analysis and certain questions that remain open, while section 7 summarizes the main conclusions of the article.

2 Two Types of Noun Clausal ‘Complements’ (Those that can and Those that cannot be Predicated of the Noun)

The possibility for a noun clausal ‘complement’ to be predicated of the noun across a copula is a clear indication, as noted, of its modifier rather than complement status. However, not all noun clausal ‘complements’ can be predicated of the noun.

As already observed in Higgins (1973, 140 ff.) (cf. also Safir 1982, 122f.; Pesetsky & Torrego 2004, 527 note 22; Moulton 2008, ch. II, § 5), there is one class of nouns (‘proof’, ‘indication’, ‘demonstration’, ‘confirmation’, etc.) corresponding to verbs taking two clausal arguments, whose apparent internal argument cannot be predicated of the noun.

So, for example, the clausal ‘complement’ of “proof” in (3a) cannot be predicated of the noun preserving the same meaning. See (3b):

- (3) a. This is the best proof that John was not lying
b. #The best proof is that John was not lying

3 By ‘ordinary’ (restrictive) relative clauses we mean relative clauses which relativize one of the arguments or adjuncts of the relative clause. For the time being, we leave open the possibility that noun ‘complements’ which cannot be predicated of the noun are relative clauses of a special kind (for example ones that relativize a sentential variable).

“The proof is that John was not lying” can only mean that ‘his not lying’ proved something else (cf. the discussion in Moulton 2008, 67).

The clausal ‘complement’ of nouns like ‘proof’, ‘indication’, ‘demonstration’, ‘confirmation’ refers to the content of what is proved/indicated/demonstrated/confirmed by the content of the external argument of the related verb, which can be rendered by a clause predicated of the noun across a copula (see (4), from Higgins 1973, 140).⁴

- (4) a. The best proof that John was not lying is that he was here last night
 b. The first indication that anything might be wrong was that the barrel hadn’t been refilled
 c. The reason why I left was that she wasn’t feeling well

As Higgins observes “the complement sentences cannot be reversed without change of meaning or ungrammaticality” (1973, 140). See (5):

- (5) a. #The best proof that he was here last night is that John was not lying
 b. #The first indication that the barrel hadn’t been refilled was that anything might be wrong
 c. #The reason that she wasn’t feeling well was why I left

As Higgins (1973, 136) notes nouns like ‘anger’, ‘insistence’, etc. share the same restriction: “[they] can appear with complements in noun phrases but not in copular sentences”. See the contrast between (6) and (7) (for additional cases, cf. Stowell 1981, 201):

- (6) a. John’s anger that he was not chosen
 b. Mary’s insistence that we should leave
- (7) a. *John’s anger was that he was not chosen
 b. *Mary’s insistence is that we should leave

There is a second class of nouns whose clausal internal argument cannot be predicated of the noun: that of unaccusative nouns like ‘probability’, ‘possibility’, ‘certainty’, etc.⁵ See (8) (at this stage we still refer to

4 As Safir puts it “[i]n all of the examples in [(4)] the post-copular clause acts like the subject of the verb from which the nominals are derived” (1982, 123). Cf. *That he was here last night proves that John was not lying*.

5 We take such nouns to be ‘unaccusative’ (cf. Giorgi 1991, §5), as they correspond to adjectives (‘probable’, ‘possible’, ‘certain’, etc.) which Cinque (1990), Bennis (2000), Meltzer-

such clauses as complements, coming back later to the question whether they are genuine arguments of the noun or not).

- (8) a. *The probability was that he arrived on time (cf. The probability that he arrived on time was remote)
 b. *The possibility is that he wins (cf. The possibility that he wins is unrealistic)
 c. *The certainty is that the goal is reached (cf. The certainty that the goal is reached is inexistent)

It thus appears that two fundamental types of noun clausal “complements” exist. Those that can be predicated of the noun in a post-copular position (which plausibly betrays their modifier relation to the noun even when they follow it immediately) and those that cannot.

Before proposing our analysis of the two types of noun clausal ‘complements’, we discuss in the next section a number of properties which distinguish both of them from ordinary restrictive relative clauses.

3 Differences Between ‘Ordinary’ Restrictive Relative Clauses and the Clausal ‘Complements’ of Both Types of Ns

3.1 The Nature of the Subordinator

The first difference between ordinary relative clauses and the two types of noun clause ‘complements’ distinguished in the previous section regards the nature of the subordinator introducing them.

While there are languages, like Italian, French, English, Bosnian-Croatian-Serbian, which use the same introducer for both relatives and clausal ‘complements’ of Ns (*che/que/that/što*), which we take here for simplicity to be complementizers (but cf. Kayne 2008a, 2008b, 2010; Sportiche 2008, 2011; Arsenijević 2009; Manzini 2012), in other languages clausal “complements” to Ns are introduced by subordinators that can never introduce an ordinary (restrictive) relative clause. In Bulgarian, for example, the finite complementizer *če* ‘that’, which is used to introduce clausal ‘complements’ of Ns and (declarative) complements of Vs (see (9)) can never

Asscher (2011) categorize as ‘unaccusative’ (called there ‘ergative’) adjectives, because their subject behaves like an internal argument. Meltzer-Asscher (2011, § 5.4) attributes the necessary internal argument of such adjectives in Italian, English and Hebrew to the impossibility for propositions, as opposed to facts and events, to be externalized. For an alternative reason, suggested to her by Alexander Grosu, see Meltzer-Asscher 2011, 190, fn. 90.

be used to introduce an ordinary relative clause (see (10)).⁶ The latter is necessarily introduced by a relative pronoun (either one agreeing with the NP, from the *kojto* 'who/which' paradigm, or an invariable one: *deto* 'that'):

- (9) a. *Mālvata, če sa arestovali ministār-predsedatelja,*
rumour.DET that have.3PL arrested prime minister.DET
bārzo se raznese.
quickly spread.PAST.3SG
'The rumour that they have arrested the prime minister spread quickly'
- b. *Mālvi se, če sa arestovali ministār-predsedatelja*
it-is-rumored that have.3PL arrested prime minister.DET
'It is rumoured that they have arrested the prime minister'
- (10) *Mālvata, kojato/deto/*če bārzo se raznese*
rumor.DET which/that.REL/*that quickly refl spread PAST.3SG
po vsički novinarski agencii, beše če...
in all news agencies was that...
'The rumour that spread quickly in all agencies was that...'

Relative clause markers are unavailable also in the second class of noun clausal 'complements' (those that cannot be predicated of the noun). Here too the declarative complementizer *če* is the only admissible subordinator. See (11a-b):

- (11) a. *Naj-dobroto dokazatelstvo *koeto/*deto/če Ivan ne lāže*
most-good.DET proof *which/*that.REL/that John not lies
(e če beše u nas snošti)
(is that was here last night)
'The best proof that John was not lying (is that he was here last night)'
- b. *Verojnostta *kojato/*deto/če toj šte zakāsnee.*
probability.DET *which/*that.REL/that he will be.late.
'the probability that he will be late.'
(cf. **Verojnostta e če toj šte zakāsnee.* 'The probability is that he will be late')

6 A brief look at the history of this subordinator reveals that it is historically causative in meaning, first appearing in written texts around the thirteenth and fourteenth centuries and later accumulating more functions, one of which was a subordinator function of the declarative type. It is only this function that has persisted until the present day (Mirčev 1978, 259).

Thus, there seems to be no way of interpreting *če* in (9a) and (11a) and b. as an ordinary relative complementizer/pronoun.⁷

Romanian is another language where noun clausal ‘complements’ are introduced by subordinators (*că* ‘that’-indicative – *afirmația că va veni* ‘the claim that (s)he will come’ and *ca...(să)* ‘that’-subjunctive – *dorința ca el să vină* ‘the desire that (s)he will come’) which cannot be used as relativizers (Alboiu & Hill 2013, § 2.3.2). This is also noted in Manzini (2012, fn. 3). In Japanese noun clausal complements are also ‘introduced’ (followed) by a special complementizer (of the ‘say’ type), *toiu*, which is not found in either gap or ‘gapless’ relative clauses. See (12), from Sirai and Gunji (1998, 19f):⁸

- (12) a. [Naomi-ga ku-ru] *toiu* *kitai*
 N.-NOM come-PRES COMP hope
 ‘the hope that Naomi will come’
- b. [Naomi-ga koko-ni ki-ta] (*toiu*) *zizitu*
 N.-NOM here-LOC come-PAST (COMP) fact
 ‘the fact that Naomi came here’

To the extent that the CPs in (13a-b) are also clausal ‘complements’ of the N, on a par with ‘that’ clauses, a similar problem may arise in English and Italian, as neither *whether* nor *se* ‘if’ can introduce ordinary relative clauses in these languages. This is shown by the contrast between (13a-b), which feature finite clausal ‘complements’ to the noun ‘question’, and (14a-b), which feature illegitimate relative clauses with the same subordinators:⁹

7 It is curious that even the clausal ‘complement’ of the nominal counterparts of factive verbs, which take a complement introduced by the relative complementizer *deto* ‘that.REL’ is necessarily introduced by *če* ‘that’. See the contrast between (ia) and (ib):

- (i) a. *Radvax se, deto raste umna i dobra*
 rejoice.PAST.1SG that.REL grows.3SG intelligent and good-hearted
 ‘I was happy that she was growing intelligent and good-hearted’
- b. *radostta če/*deto raste umna i dobra*
 joy.DET that/that.REL grows.3SG intelligent and good-hearted
 ‘the joy that she was growing intelligent and good-hearted’

The same facts hold in Modern Greek, which also has a declarative subordinator (*oti*, corresponding to Bulgarian *če*) and a relative/factive one (*pu*, corresponding to Bulgarian *deto*).

8 Only nouns like ‘fact’ can omit *toiu*. ‘Fact’ behaves differently from other nouns taking clausal ‘complements’ also in Korean (cf. Cha 1998, § 4; Kim 2011, § 3) and English (cf. Kayne 2008a, § 12; 2008b, § 10). De Cuba (2014), which we became aware of after writing this article, also argues against taking noun clausal ‘complements’ as ordinary restrictive relatives on the basis of the different subordinator that introduces them in languages like Swedish, Finnish, Basque, Bulgarian and Durban Zulu and of different agreement facts in the latter language.

9 Also see the contrast between *The question who we should invite was not easy to answer* (de Haan 1989, 58, fn 6) and **The question_i who_k we should put t_i to t_k is not easy to answer*.

- (13) a. the question [_{CP} whether intelligent life exists elsewhere in the universe] is legitimate
 b. *la domanda* [_{CP} *se esista una vita intelligente altrove nell'universo*] è *legittima*
 the question whether intelligent life exists elsewhere in the universe is legitimate
- (14) a. *the question [_{CP} whether we may ever solve t].
 b. **la questione* [_{CP} *se potremo mai risolvere t*].
 'the question if we may ever solve.'

3.2 Fronting

Bulgarian shows yet another difference between its ordinary (restrictive) relative clauses and its clausal 'complements' of Ns. As shown by the contrast between (15) and (16), a constituent belonging to the relative clause can be fronted in between the Head N and the relative clause (cf. Krapova 2010 for discussion of this peculiarity of Bulgarian) but no constituent of the clausal 'complement' of both classes of nouns can likewise be fronted in between the N and its clausal 'complement'. So, in (15) material from the relative clause can be fronted between the relative pronoun/complementizer and the Head noun (as is known since Rudin 1985 – see example (28) below), but similar frontings above *če* in noun 'complement' clauses result in ungrammaticality (see (16)).

- (15) a. *novinata* [_s *Ivan*]_i *kojato/deto* *čuxme t_i*
 news.DET with Ivan which/that.REL heard.1PL
 'the news that we heard together with Ivan'
 b. *dokazatelstvoto* [_v *sāda*]_i *koeto/deto* *dade t_i* *advokatāt*
 evidence.the in court which/that.REL gave.3SG lawyer.DET
 'the evidence that the lawyer presented in court.'
 c. *vāzmožnostta* [_s *Ivan*]_i *kojato/deto* *komentiraxme*
 possibility.DET with Ivan which/that.REL discussed.1PL
t_i če toj može da spečeli mnogo pari.
 that he can da to earn3SG much money
 'the possibility that we discussed with Ivan that he can win a lot of money.'
- (16) a. *?*novinata* [_{za} *Ivan*]_i *če šte se ženi* *Maria t_i.*
 news.DET for Ivan that will refl marry.3SG Maria.
 'the news that Maria is going to marry Ivan.'
 (cf. *novinata če Maria šte se ženi za Ivan.* 'the news that Maria is going to marry Ivan')

- b. **dokazatelstvoto* [za Ivan]_i *če se e oženila* Maria t_i.
evidence.DET for Ivan that refl is married.3SG.Fem. Maria.
'the evidence that Maria has married Ivan.'
(cf. *dokazatelstvoto če Maria se e oženila za Ivan*. 'the evidence that Maria has married Ivan')
- c. **verojatnostta* [za Ivan]_i *če šte se oženi* Maria t_i.
probability.DET for Ivan that will refl marry.3SG Maria.
'the probability that Maria is going to marry Ivan.'
(cf. *verojatnostta če Maria šte se oženi za Ivan*. 'The probability that Maria is going to marry Ivan.')

3.3 Stacking

A third difference, noted in the literature, is that unlike ordinary restrictive relative clauses, which can stack, clausal 'complements' of Ns cannot (Moulton 2009, 29). See (17a) and (17b) with (18):

- (17) a. The rumor that Fred made that Jill believed that Bill spread to his friends... (Moulton 2009, (21b))
- b. *The rumor that Fred was happy, that he was in Paris, that he could see ghosts... (Moulton 2009, (21a))

Note that the examples in (17) are to be interpreted not as some form of conjunction, say asyndetic coordination, but as genuine stacking, which involves iterated set intersection, as more evident in (18) ((18) does not mean that John has written just one article, which would have been the case under coordination, but that John is not ashamed of just one of the articles that he wrote). While (17a) can be interpreted as involving stacking, (17b) cannot.

- (18) *Questo è l'unico articolo che ha scritto di cui non si vergogna*
'This is the only article that he wrote of which he is not ashamed'
(cf. %*Questo è l'unico articolo che ha scritto e di cui non si vergogna* 'This is the only article that he wrote and of which he is not ashamed', which, if good at all, implies that he wrote a single article)

Stacking of apparent clausal complements to nouns (as opposed to relative clauses) appears impossible also in Italian (19), Bulgarian (20) and Mandarin, as reported in Yip (2009, 46f). See the contrast between (21a-b):

- (19) **La notizia che Gianni sia stato arrestato che l'abbiano preso mentre fuggiva è falsa*
 'The news that Gianni was arrested that they caught him while he was fleeing is false'
- (20) a. **Novinata, če Ivan e arestuvan, če se go hvanali, dokato e biagal, e falšiva*
 the.news that Gianni is arrested that refl him caught while is fleeing is false
 'The news that Ivan has been arrested that they had caught him while he was fleeing is false'
- b. **Dokazatelstvoto, če e vzela parite, če gi e vložil v smetka, ne e ubeditelno*
 proof.DET that is taken money.DET that them is put in account not is convincing
 'The proof that he has taken the money that he has put it in a bank is not convincing'
- c. **Verojnostta, če toj šte uceli celta, če šte izleze pobeditel v biatlona, e nulleva*
 the.probability that he will hit the.target that will come.3SG first in the biathlon is null
 'The probability that he will hit the goal that he will come first in the biathlon competition is null'
- (21) a. *nei ben [ta ding de] [wo bu xihuan de] shu*
 DEM CL he order DE I NEG like DE book
 'that book that he ordered that I don't like'
- b. **[Zhangsan da Lisi de] [Lisi shoushang de] xiaoxi*
 Zhangsan hit Lisi DE Lisi hurt de news
 '*the news that Zhangsan hit Lisi that Lisi got hurt'

Moulton (2009) attributes the ungrammaticality of stacking of apparent noun complements to a semantic incongruence: attributing more than one content to a single noun would amount to saying that the propositions of the stacked CPs are identical. However, multiple 'complement' clauses are possible with plural nouns, which allow for a distributive interpretation. Therefore examples like (22) (from Bulgarian) should not be considered a proper case of stacking:

- (22) *Sluxovete, če Ivan e izbjagal, če šte se ženi za švedka, če skoro šte ima bebe ...*
 rumors.DET that Ivan is escaped, that will marry for Swede, that soon will has baby ...
 'the rumors that Ivan has escaped, that he intends to marry a Swede, that he will soon have a baby born ...'

Here, every rumor is paired with a single proposition, indicating the uniqueness of the rumor. In relative clauses, on the other hand, stacking the second relative clause modifies the intersection of the Head and the first relative clause, as seen in (18).

4 Toward an Analysis of Clausal ‘Complements’ of Ns

4.1 Nouns Whose Clausal ‘Complement’ can be Predicated of Them

Let us begin with the one type of noun clausal ‘complements’ that can be predicated of the noun (i.e. with nouns other than the ‘proof’ class or the unaccusative class).

This type crucially differs from ordinary relative clauses in that it can be predicated of the Head N, while ordinary relative clauses cannot. So, for example, English (23c) contrasts with (23b) in that the relative clause “that Fred concocted” cannot appear in postcopular position:¹⁰

- (23) a. The story that Fred didn’t report his income...
 b. The story is that Fred didn’t report his income (Moulton 2009, (21))
 c. *The story is that Fred concocted...
 (cf. The story that Fred concocted...)

The same contrast is observed in Bulgarian (24b-c) and in Italian (25b-c):

- (24) a. *Idejata će neutrinite se dvižat po-bărzo ot svetlinata*
 idea.DET that neutrins.DET refl move.3PL faster than light.DET
 ‘the idea that neutrins move faster than light’
 b. *Idejata e će neutrinite se dvižat po-bărzo*
 idea.DET is that neutrins.DET refl move.3PL faster
ot svetlinata
 than light.DET
 ‘The idea is that neutrins move faster than light’
 c. **Idejata e će mi kazaxa*
 idea.DET is that me.DAT told.3PL
 ‘The idea is that they told me’

¹⁰ This impossibility is noted for English in Den Dikken 2006, 309, note 10; and Meltzer-Asscher 2012, 172; for Chinese in Tsao 2010, 94.

- (25) a. L'idea che i neutrini si muovessero più velocemente della luce.
 DET idea that the neutrins move.SUBJ more fast than.DET light.
 'the idea that neutrins move faster than light'
- b. L'idea era che i neutrini si muovessero più velocemente della luce
 DET idea was that the neutrins move.SUBJ more fast than.DET light
 'the idea was that neutrins move faster than light'
- c. *L'idea era che mi hanno comunicato
 DET idea was that me.DAT have communicated
 'the idea was that they communicated to me'

The predication structure seen in the (b)-examples in (23), (24), (25) opens up the possibility that the CP predicate may enter a relative clause as a predicate, just as APs and NPs in predicate position can (a possibility that comes for free).¹¹ In other words, (23b), (24b), and (25b) can give rise to relative structures like (26a-c), corresponding to the three languages exemplified:

- (26) a. The story [_{CP} which is [_{CP} that Fred didn't report his income]]...
- b. *idejata* [_{CP} *kojato e* [_{CP} *če neutrinite se dvižat po-bārzo ot svetlinata*]]...
 idea.DET which is that neutrins.DET refl move.3PL faster than light.DET
 'the idea which is that neutrins move faster than light'
- c. L'idea [_{CP} che era [_{CP} che i neutrini si muovessero più velocemente della luce]].
 DET idea which was that DET neutrins move.SUBJ more fast than.DET light
 'the idea which was that neutrins move faster than light.'

This, in turn, makes it possible to view the clausal 'complements' of the N in the (a) examples of (23), (24), (25) as reduced variants of (26), as shown in (27), where the CP is in the predicate position of a reduced relative clause:¹²

¹¹ This is in fact among the possibilities contemplated in Chomsky: "The analysis as a reduced relative is also possible in the case of [*the question whether John should leave*]. Despite the unnaturalness of relative clauses formed in the usual way with [*The question is whether John should leave. The excuse was that John had left*] as the embedded proposition, one might argue that these are the sources of [... *the question whether John should leave; ... the excuse that John had left*], as reduced relatives" (1970, 197).

¹² For convenience, we give here a kind of 'whiz deletion' representation of clause reduction in the above relative structures. For more detailed discussion of the internal structure and external distribution of reduced relative clauses, see Cinque 2010, ch. 4, § 2.

- (27) a. the story [_{CP} ~~which is~~ [_{CP} that Fred didn't report his income]]
- b. *idejata* [_{CP} ~~*kojato-e*~~ [_{CP} *če neutrinite se dvižat po-bārzo ot*
the idea ~~which is~~ that neutrins refl move.3PL faster than
svetlinata]]
light.DET
- c. l'idea [_{CP} ~~che era~~ [_{CP} *che i neutrini si muovessero più*
the idea ~~which was~~ that DET neutrins move.SUBJ more
velocemente della luce]]
fast than. DET light

4.2 Some Consequences

There are several immediate consequences which follow from the proposal that clausal 'complements' of the first class of nouns ('story', 'news', 'idea', etc.) are reduced relative clauses.

First, the proposal allows us to unify the apparent complement status of the CP following this class of nouns with the property that these CPs can be predicated of the noun across a copula. In other words, it allows us to relate two facts that would otherwise have looked unrelated.

Second, it can account for the fact that in certain languages clausal complements of this class of nouns are not introduced by ordinary relative pronouns/complementizers, as clearly shown by Bulgarian (as well as Romanian and Japanese), because the CPs in question are run-of-the-mill finite declarative or interrogative clauses in predicate position. See the examples in (9) and (12) above from Bulgarian, and (13) and (14) from English and Italian.

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.

Third, our analysis may also explain the contrast noted in (15) and (16); namely the fact that a constituent from the relative CP, but no constituent from the CP 'complement' of a N, can be fronted to a position between the CP and the N. As discussed in detail in Krapova (2010, §4.2) for Bulgarian, in ordinary restrictive relative clauses (of the 'matching' type) the relative pronoun *kojato* 'which' in (28) may raise to a CP lower than TopicP (say, to FinP in Rizzi's 1997 Split-CP analysis, given in (29)), with the result that

the topicalized phrase comes to intervene between the Head N and the relative pronoun/complementizer introducing the relative clause.¹³

- (28) $[_{DP} \text{ženata}]_{ForceP} [_{TopicP} \text{naj-složnīte pesni}]_{FinP} \text{kojato/deto} [_{IP} \text{peeše...}]$
 woman.DET most-complex.DET songs who/that.REL sang.3SG
 'the woman who sang the most complex songs...'
 (Rudin 1985, 127, ex. 9a)

- (29) The CP hierarchy: ForceP TopicP FocusP FinP (Rizzi 1997)

In contrast, to judge most clearly from examples like (30), the complementizer *če* 'that' which introduces the clausal complement of factive verbs appears to have to raise to a CP position higher than TopicP (say, ForceP in Rizzi's 1997 Split-CP analysis). This is shown by (30a) where *če* necessarily precedes the topicalized phrase [ot Evropa]:¹⁴

- (30) a. **Sāžaljavam ot Evropa če ne idva pomošt.*
 regret.1SG from Europe that NEG comes help
 b. *Sāžaljavam če ot Evropa ne idva pomošt.*
 regret.1SG that from Europe NEG comes help
 'I regret that from Europe comes no help'

Given that the relative order of the complementizers is the one shown in (31) (cf. Krapova 2010 for a more detailed discussion of the left periphery in Bulgarian),

- (31) [ForceP *če* 'that' [TopicP [FinP *kojato/deto* 'who'/'that.REL' [...]]]

13 Other languages that permit the fronting of material from the RC between the Head and the relative pronoun, include Latin (Bianchi 1999, 96 f.) and Georgian (Yasuhiro 2009).

14 The *če* introducing the CP complement of bridge verbs can instead target either the lower or the higher C indifferently, possibly via optional raising from FinP to ForceP. See (i) (from Krapova 2002):

- (i) a. *Mislja/kazvam ot Evropa če šte dojde pomošt*
 think.1SG/say.1SG from Europe that will come.3SG help
 'I think/say that from Europe help will come'
 b. *Mislja/kazvam če ot Evropa šte dojde pomošt*
 think.1SG/say.1SG that from Europe will come.3SG help

The modal/subjunctive complementizer *da* appears instead to be lower than TopicP. See (ii), which together with (30a-b) and the generalization in (31), gives the overall order in (iii):

- (ii) a. *Nadeždāta na vsički (e) [[TopicP ot Evropa], [FocusP skoro] [da dojde pomošt t_i]]*
 hope.DET of all is from Europe soon SUBJ.PRT come.3SG help
 b. **Nadeždāta na vsički (e) [[da [ot Evropa], [skoro] dojde pomošt t_i]]*
 hope.DET of all (is) SUBJ.PRT from Europe soon come.3SG help
 (iii) *če* TopicP FocusP *kojato/deto da*
 that which/that.REL subjunctive particle

the ungrammaticality of (30a), where a topicalized phrase is fronted above the complementizer *če* 'that' is, under the present analysis, at the basis of the ungrammaticality of (16a) above, repeated here, where *če* has also failed to raise above TopicP.

- (16) a *?*novinata* [*za Ivan*]_i *če šte se ženi* *Maria t_i*.
 news.DET for Ivan that will refl marry.3SG Maria.
 'the news that Maria is going to marry Ivan.'
 (Cf. *novinata če Maria šte se ženi za Ivan* 'the news that Maria is going to marry Ivan')

Given the fact that in relative clauses a topicalized phrase can intervene between the Head and the relative clause, as we saw in (28) above, one could expect the same possibility to obtain with the class of nouns like 'claim', 'news', 'idea', etc., whose *če* 'complement' is arguably a reduced form of *kojto/deto e če*. 'which is that.'. In principle the higher relative structure should be able to host a phrase between the Head and the relative pronoun/subordinator.

We take the ungrammaticality of (16a) and the like to be due to the islandhood of the *če*-clause in predicate position. Example (32a) gives the (reduced) relative structure corresponding to (16a), and (32b) confirms that a predicative CP indeed is an island for extraction.

- (32) a. *?*Novinata* [_{TopicP} *za Ivan*]_i (*kojato e*) [_{ForceP} *če šte se ženi*
 news.DET for Ivan which is that will refl marry.3SG
Maria t_i]]]
 Maria
 'The news that Maria is going to marry Ivan'
 b. **Ivan, s kojoto_i istinata e* [*če az govoriš t_i*].
 Ivan, with whom the truth is that I spoke-1SG.

In section 5 we will see that the *če*-clause of (32b) is actually in subject position, so that we are dealing here with a subject island.¹⁵

All of these pieces of evidence raise the following question: what type of relative clause do the apparent clausal complements that can be predicated of the noun belong to, given the numerous differences we saw above with respect to ordinary restrictive relatives? Crucially, in terms of inter-

15 Another consequence of the proposed analysis is that it relates the ungrammaticality of embedded topicalization within finite clausal 'complements' of Ns, pointed out to us by Liliane Haegeman (see (i)a), to the ungrammaticality of topicalization within a finite CP in predicate position (see (i)b), and ultimately, to the ungrammaticality of topicalization within a finite subject CP (ic):

- (i) a. *The claim that this film he saw made everybody furious
 b. *The claim was that this film he saw.
 c. *That this film he saw was the claim

pretation, the set provided by the relative clause (see (27), repeated here) does not intersect with the set provided by the Head with the effect of narrowing down the latter to a subset (which is the hallmark of restrictivity):

- (27) a. the story [_{CP} which is [_{CP} that Fred didn't report his income]]
- b. *idejata* [_{CP} *kojato-e* [_{CP} *če neutrinite se dvižat po-bārzo ot svetlinata*]]
 idea.DET which is that neutrins.DET refl move.3PL faster than
 light.DET
- c. *l'idea* [_{CP} *ehe-era* [_{CP} *che i neutrini si muovessero più velocemente della luce*]]
 the idea which was that DET neutrins move.SUBJ more
 fast than. DET light

What the clauses seem to do is rather specify the content of the Head (as originally noted by Jespersen, Anderson and Stowell). In other words, they appear to be a kind of (reduced) non-restrictive relative clauses.¹⁶

This is reminiscent of Jespersen's, Anderson's and Stowell's proposals that noun clausal 'complements' are appositions. However, before considering the second class of nouns (those whose clausal 'complement' cannot be predicated of the noun), we want to distinguish this kind of non-restrictive reduced relative clauses (and non-restrictives, more generally) from appositions.

4.3 Appositions or Non-restrictive Relatives?

The term 'apposition' covers a number of distinct phenomena, as McCawley (1998), Acuña-Fariña (2000), De Vries (2002), Heringa (2011) have shown. Even if various authors treat all appositions as reduced non-restrictive

16 There appear to exist contexts where the clausal complement of the noun seems to have a contrastive (restrictive) import.

(i) A: Which claim that John made did you find so annoying?

B: Definitely the claim that complement clauses are arguments.

which does not seem to be paraphrasable through a (reduced) non-restrictive relative clause:
 #Definitely the claim, (which is) that complement clauses are arguments.

This might suggest that under certain conditions, like the preceding context, the reduced relative clause can be used restrictively:

(ii) Definitely the claim which is that complement clauses are arguments

But this is dubious. Were they genuine (reduced) restrictive RCs they should allow stacking (like in *I prefer events prepared carefully organized much in advance*), but they do not. See (iii):

(iii) A: Which claim that John made did you find so annoying?

B: *Definitely the claim that complement clauses are arguments that they are not relative clauses.

tive relative clauses (transformationally derived from the latter by simply deleting the relative pronoun and the copula) (cf. also Potts 2007, introducing a comma operator), here, we follow Burton-Roberts (1975), McCawley (1998) and Kayne (2008a, 2008b) in reserving the term 'apposition' for those structures which can be introduced by the adverb 'namely', as they differ from reduced non-restrictives. One of McCawley's (1998) main goals was to show that structures which are commonly lumped together under the name 'apposition' can be assigned to two different classes: 'namely'-constructions, which are canonical appositions, and reduced relatives, which, in his account, are only anaphorically related to their hosts. 'Namely' expressions constitute a unique construction, a detached NP, which he labels 'true apposition', and which can be successfully distinguished from non-restrictive reduced relatives.

The first difference is that 'true apposition' do not allow for a full relative clause paraphrase with 'who'/'which' plus a copula.

- (33) a. The recent winner of the Illinois state lottery, Albert Swanson, has announced that he plans to move to Bermuda. (McCawley 1998, 467)
 b. ??The recent winner of the Illinois state lottery, who is Albert Swanson, has announced his plans to move to Bermuda. (Acuña-Fariña 2000, 7)

Additionally, true appositions seem to allow for extraposition.¹⁷ We give here an example from Bulgarian, which is adapted from McCawley's (1998, 468) original example:

- (34) a. *Trima duši, Ivan, Petăr i Maria, prisăstvaxa na săbranieto.*
 Three people, John, Peter and Mary, attended the meeting.
 b. *Trima duši prisăstvaxa na săbranieto, Ivan, Petăr i Maria.*
 Three people attended the meeting, John, Peter and Mary.

Furthermore, as already recalled, true appositions can be introduced by *namely*, as in (35):

- (35) The recent winner of the Illinois state lottery, namely Albert Swanson, has announced that he plans to move to Bermuda

If 'namely' appositions do not allow for a paraphrase with a non-restrictive copular clause, and allow for extraposition, then the nominal 'comple-

¹⁷ However, as (i) shows, this is not always possible with true appositives:

(i) My only brother, namely Peter, is a member of the student council. Cf. *My only bother is a member of the student council, namely Peter.

For other problematic cases see the discussion in Acuña-Fariña (1998, 2000).

ments' we have been discussing do not belong to this group. Thus, we can account for the fact that nominal 'complements' cannot be introduced by 'namely' (cf. Kayne 2010, 175, fn. 32):

- (36) **Idejata, a imenno če zemjata e krāgla, ...*
 idea.DET, namely that earth.DET is flat, ...
 *'The idea, namely that the earth is flat...'

4.4 Nouns Whose Clausal 'Complement' cannot be Predicated of Them

Concerning the second type of noun clausal 'complements', we saw that they behave identically with the first class as regards

- a. selection of the subordinator *če* (cf. (12))
- b. impossibility of fronting a topicalized phrase to the left of *če* (cf. (16b-c));
- c. impossibility of stacking (cf. (20b-c)).

These properties stem from shared constraints on the two types of nouns (non ordinary relative clause status of the noun 'complement' clause; obligatory raising of *če* to ForceP, impossibility of attributing more than one content to a single noun (see § 3.3. above).

Nouns like 'proof', etc. and unaccusative nouns like 'possibility', etc. differ from the class of nouns like 'claim', 'news', 'idea', etc. only in that their apparent complement cannot be predicated of the noun across a copula. Such complements rather seem to represent an internal argument of the noun (the propositional theme of nouns of the 'proof' class, related to the propositional theme of the corresponding verbs, and the internal argument of 'unaccusative' nouns like 'possibility', 'probability').

It is however dubious that even these clausal 'complements' are genuine arguments of the noun. In addition to the theoretical arguments discussed in Kayne (2008a, 2008b) against nouns taking arguments a possible empirical argument that the clausal 'complement' of nouns like 'proof' is not a complement is that differently from genuine complements it does not induce a Condition C violation under reconstruction. See the contrast between (37a) and (37b) given in Moulton (2009, § 5):

- (37) a. Whose proof that John_i was at the scene of the crime did he_i have expunged from the record?
 b. *Whose proving yesterday that John_i was at the scene of the crime did he_i not want his lawyer to hear?

Moulton concludes that "if bleeding of Condition C diagnoses non-argu-

ment status, then we need to find a way to let even the CP object of nominal 'proof' to compose as a modifier" (2009, 74).

A similar conclusion appears to hold of the unaccusative class:

- (38) a. What probability that John_i may lose does (even) he_i think there is?
 b. *How probable that John_i loses does (even) he_i think it is?

For this second class of noun clausal 'complements', we will tentatively assume an adjunct status, along the lines of what has been proposed in different variants in Manzini and Savoia (2003, 2011), Arsenijević (2009), Haegeman (2010), Jenks (2014) in terms of the (headless) relativization of a propositional variable whereby "the probability that John wins." is of the type "the probability of x: x John wins" (cf. Manzini 2012, § 2).

5 The Nature of the Predication Relation Underlying Finite Clausal 'complements' of Ns

The predication relation which we have argued underlies the clausal 'complement' of nouns like 'claim', 'news', 'idea', etc. (repeated here as (39b))

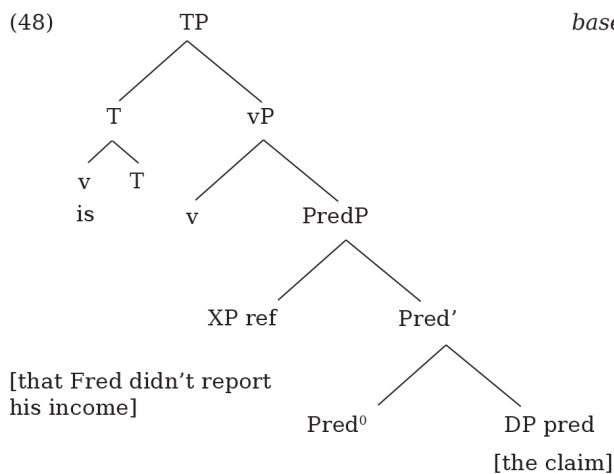
- (39) a. The claim that Fred didn't report his income
 b. The claim is that Fred didn't report his income (adapted from Moulton 2009, 21)

appears not to be a canonical predication but an inverse one (in the sense of Moro 1997). That in (39b) a predicate inversion has taken place, with the DP predicate inverted around the subject (the CP), becomes evident if we apply one of Moro's diagnostics for detecting inverse predications; namely the non-omissibility of the copula if the predication is embedded in a 'small clause' under a verb like 'consider'.¹⁸

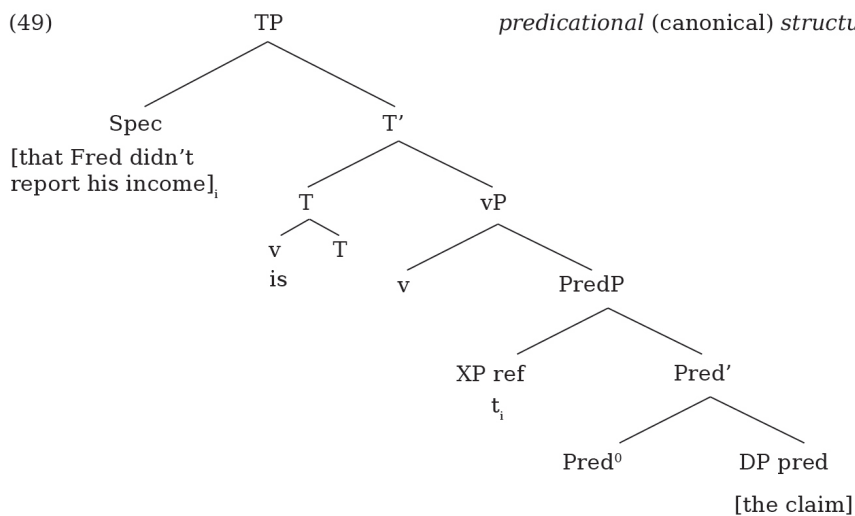
In fact, as also Den Dikken (2006, 244) notes, the copula between the N and its clausal 'complement' cannot be omitted in such a context (40a) just as it cannot in the same context in ordinary inverse predications like (40b):

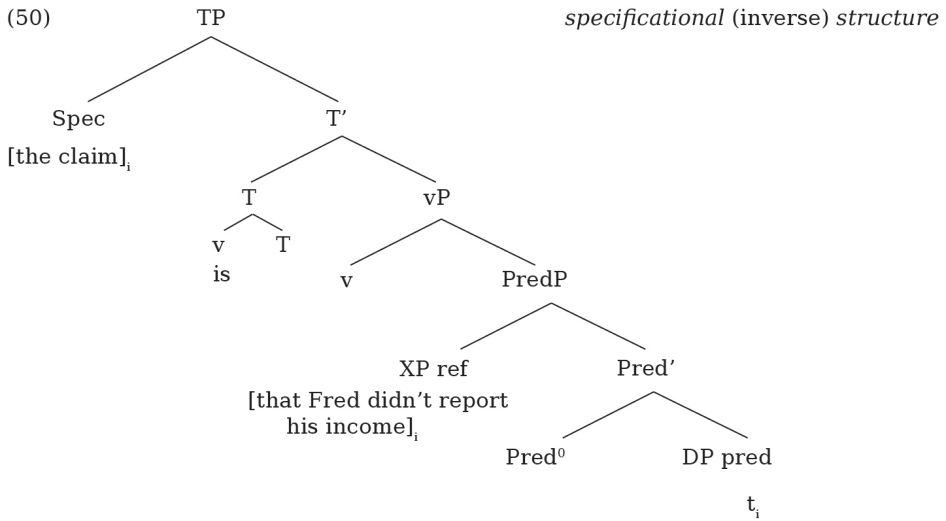
¹⁸ To quote from Heringa, who follows Moro (1997) in using this test to distinguish the canonical from the inverse predication involving two NPs: "Whereas the two NPs in a canonical copular structure can be used in the same order in a small clause complement without *be* for the verb *consider*, this is impossible for the two NPs in an inverse copular clause" (Heringa 2011, 88).

(48) *base structure*



(49) *predicational (canonical) structure*





The entire derivation of a nominal phrase like “the claim that Fred didn’t report his income” could thus be represented informally as in (51):

- (51) a. is [that Fred didn’t report his income] [the claim] = base structure
 b. [the claim] is [that Fred didn’t report his income] = specificational predication
 (obtained through Predicate inversion)
 c. [the claim]_i [which_i t_i is [that Fred didn’t report his income]] = relativization
 d. [the claim] which is [that Fred didn’t report his income] = relative clause reduction

This may account for the fact (cf. Bošković & Lasnik 2003, 534f.; Kayne 2010, 178) that the complementizer introducing the clausal ‘complement’ of a N cannot easily delete (as opposed to that introducing the clausal complement of bridge verbs like ‘believe’):²⁰

- (52) a. The belief *?(that) he is a spy* is certainly false
 b. They believe (that) he is a spy

20 Bowen (2005, 187) reports that in his corpus “ten nouns were found with *that*-omission in the complement-clause”: ‘belief’, ‘doubt’, ‘evidence’, ‘feeling’, ‘hope’, ‘illusion’, ‘misconception’, ‘question’, ‘sign’ and ‘thought’.

For us, the marginality of (52a) (“the belief he is a spy.”) is possibly to be assimilated to that of (53):

(53) ?the belief which is he is a spy.

It could be thought that to derive such N + clausal ‘complement’ cases as “the claim that Fred didn’t report his income” no extra step involving a relative clause configuration (46c-d) is needed in addition to the predication structure (46b) (apart from the deletion of the copula). In Den Dikken (2006, 244), for example, the simpler structure (54) is assumed to underlie such nominal phrases

(54) $[_{DP} D (...)] [_{RP} CP [RELATOR [_{NP} claim]]]$

with subsequent raising of the NP ‘claim’ above RP. Notice, however, that the nominal predicate is a complex DP rather than a simple NP: $[_{DP} Her\ claim]_i$ (copula) $[_{RP} [_{CP} that\ Fred\ didn't\ report\ his\ income] RELATOR\ t_i]$; $[_{DP} the\ claim\ that\ she\ made]_i$ (copula) $[_{RP} [_{CP} that\ Fred\ didn't\ report\ his\ income] RELATOR\ t_i]$. This suggests that the structure underlying these DPs is an inverted predication structure, an IP (or CP – see below) which needs to be embedded in a larger DP to be able to occupy a DP argument position as the object of verbs like ‘circulate’ (see (55)), which cannot take a simple IP/CP object (see (56)):

(55) Weir began to circulate the claim that he had developed a revolutionary technology

This can only be achieved, it seems, if the DP subject of the copula is relativized:²¹

(57) $[_{DP} [_{DP} Her\ claim]_i [which\ copula\ [_{RP} [_{CP} that\ Fred\ didn't\ report\ his\ income] RELATOR\ t_i]]]$

The relativization in (57) can only be non-restrictive as relative clause Heads modified by possessive adjectives are incompatible with restrictive relativization:

- (58) a. *John’s book that you borrowed. (Lyons 1986,123) vs John’s book, which you borrowed.
 b. *Her claim that we heard is preposterous vs Her claim, which we heard, is preposterous)

21 For an analysis of relative clauses, compatible with antisymmetry, under both a ‘raising’ and a ‘matching’ derivation, see Cinque 2013, chs. 13-14, and forthcoming.

6 Refinements and Further Questions

In this section, we discuss certain possible refinements of the analysis sketched in the previous sections suggesting possible solutions that remain to be considered in the future.

One question concerns the selection parallelism between nouns and the corresponding verbs (in those cases where there is a verb corresponding to the noun). Nouns like 'claim', 'proof' or 'belief' appear to select the same clausal complements as the corresponding verbs 'claim', 'prove' and 'believe'. We tentatively propose that where the verbs are denominal this is a consequence of the their derivation via incorporation/fusion of the noun with a light verb to derive the corresponding verb (cf. Hale & Keyser 1993).²² For 'deverbal' nouns like 'argument', 'feeling', or 'suspicion' one possibility is that the corresponding verbs also derive from the incorporation/fusion of a neutral (verbal/nominal) root into a light verb, with the noun then derived from the root through the addition of a suffix.²³

A second question regards the target of the raising of the predicate in the specificational structure in (50). There is some indication that the position targeted by the predicate DP may not coincide with that of the subject of the copula. This is apparently shown by the following colloquial French facts (kindly provided by Marie Christine Jamet, p.c.):

- (59) a. Que Jean soit parti (*c') est un problème
that Jean is left (*it) is a problem
b. Le problème *(c') est que Jean soit part
the problem *(it) is that Jean is left

The obligatory expletive subject, *ce*, which appears in the inverted predication structure (59b), seems to indicate that the predicate "le problème" is in a specifier position above the subject (it should however be noted that not all French speakers find a sharp contrast between (59a) and (59b), which is possible without *ce* in higher registers of French - Claude Muller, p.c.). This may suggest that two distinct structural configurations

22 The question why the noun + clausal 'complement' is an island for extraction while the verb + clausal complement is not may be related to the fact that the incorporation/fusion of the noun with the light verb obliterates the NP/DP barrier.

23 It remains to understand how to account for the fact, pointed out by one of the reviewers, that while the noun can take either an indicative or a subjunctive apparent clausal complement ((i)a.), the corresponding verb can only take an indicative one ((i)b.):

- (i)a L'affermazione che Ida è/sia una ladra.
The statement that I. is (subj.) a thief.
(i)b Hanno affermato che Ida è/*sia una ladra
They.stated that I. is (ind./subj.) a thief

should perhaps be posited (one for each register level), corresponding to the two configurations (specification and inverted predication) argued for Danish in Mikkelsen (2002).²⁴

Another refinement concerns the canonical predication in (49). Quite plausibly, the CP 'subject' in such structures is actually in a Topic position rather than in TP, as an instance of predicate topicalization. This has already been proposed in Koster's (1978) influential paper, which argues convincingly that what appear to be subject clauses do not actually occupy the canonical subject position but are rather located in a peripheral topic position with the canonical subject position bound by a null operator. Accordingly, (60a) does not have the representation in (60b) but rather that in (60c):

- (60) a. That these nouns behave differently is my claim.
 b. $[_{CP} [_{TP} [\text{that these nouns behave differently}]] \text{ is } [_{DP} \text{ my claim}]$
 c. $[_{Topic} [_{CP} \text{ that these nouns behave differently}]] [_{OP}_i [_{TP} t_i \text{ is } [_{DP} \text{ my claim}]]]$

It is also possible that both the canonical and the inverse predication structures involve two DPs, rather than a DP and a CP. In fact cross-linguistic evidence exists for a DP shell analysis at least for subject CPs in the canonical derivation. For example, Roussou (1993, 78; cf. also Roussou 2010) shows that CP subjects in Greek have the distribution of DPs since the overt determiner *to* in such a position cannot be omitted. Comparable facts hold for Bulgarian, except that the determiner there is optional (see (61a) from Greek, and (61b) from Bulgarian).²⁵

- (61) a. $[_{DP} *(\text{To}) [_{CP} \text{ oti efighe}]] \text{ ine to provlima.}$
 It that left.3SG is the problem
 b. $[_{DP} (\text{Tova}) [_{CP} \text{ \u0108e zamina }]] \text{ e problem\u0101t.}$
 this that left.3SG is problem.DET

We have only a partial answer for the fact (apparent problem) that in Modern Greek and Bulgarian the expected **to provlima to oti efighe/*problem\u0101t tova \u0108e zamina* 'the problem that that he left' are bad (the determiner cannot remain overt). Note however that in Bulgarian the determiner cannot

24 On the basis of certain facts in Danish, Hankamer and Mikkelsen (2012) argue for an additional structural ambiguity of DPs like 'the idea that ginger aids digestion' corresponding to what they term 'anaphoric' and 'referent-establishing' nouns with clausal complements.

25 The view that subject clauses are hidden relatives has been integrated by Haegeman (2010) into an overarching proposal according to which clausal subject are dominated by a DP with a definite D. This proposal captures the fact that subject clauses convey familiar information because of their definiteness.

be overt even in the predicate position of the non-reduced relative clause counterpart, which we take to underlie the simple *ideja če izlese* (see: **Ideja kojato e tova če izlese* 'the idea which is that that he.left'). It is thus possible that the determiner can remain overt only when the clause associated with it is presupposed, typically in subject position (*Tova če izlese e problemāt* 'This that he left is the problem'), but not when it is not (see, for example, the case of the object position of non-factive verbs): **Mislia tova če izlese* 'I think this that he left'.

The Greek and Bulgarian examples can thus be taken to show that there is more structure involved in CP clauses. It remains to be seen whether this is indeed the general case, but if it turns out to be so, then one may consider a unified analysis of clausal complements, subject clauses, and factive clauses, which have also been argued, ever since Kiparsky and Kiparsky's (1970) influential paper, to involve a DP complement with a null definite head corresponding to 'fact' or 'it' (but see the references in footnote 8 above for differences between 'fact' and other Ns taking a clausal 'complement').

7 Conclusions

In this paper, we have discussed evidence showing that what appear to be clausal complements of nouns do not constitute a unitary phenomenon. Nouns split into two classes: those whose clausal 'complement' can be predicated of them across a copula and those (unaccusative nouns and nouns corresponding to bisentential verbs like 'prove') whose clausal 'complement' cannot. The clausal 'complement' of the first class of nouns was argued to be derived from a reduced (non-restrictive) relative clause built on an inverse predication structure in which the noun is an underlying predicate predicated of its apparent finite complement, which in fact is its deep subject. The clausal 'complement' of the second class of nouns was (following other authors) more tentatively taken to be a special kind of relative clause abstracting over a sentential variable of the 'complement' clause.

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