PREPOSITIONAL COMPLEMENTISERS
AND SPLIT CP STRUCTURE IN ENGLISH

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Prepositions do not take that-clauses as complements. They nonetheless seem to take wh-clausal complements, as in her explanation of what (else) happened. However, such an analysis is mistaken both empirically and theoretically. Instead, I present an analysis in which what seems to be a preposition taking a wh-clausal complement is actually a complementiser that is inside the CP system. More specifically, the prepositional complementiser is argued to be in Force in Rizzi's split CP structure. It is also claimed that the complementiser of is a realisation of genitive Case. This leads to the generalisation of the Visibility Condition on Case to the clause.*

Keywords: complementiser, CP, genitive, Case, Visibility Condition

1. Introduction

The issue I would like to raise in this essay concerns the structure of the construction in which a preposition seems to take a clausal complement. This is exemplified by (1a–c):

(1)  a. Look at who spends the money.
    b. his explanation of who manipulated the figures
    c. The truth is dependent on who happens to be reporting.

I will argue that what appears to be a preposition in each of these contexts is actually a complementiser which heads the clausal complement. Based on the premise that clauses must be Case-marked to get

* This is a development of Hamamatsu (2005). I would particularly like to thank Ad Neeleman for his invaluable comments on earlier versions of this paper. I am also indebted to Jeffrey Fryckman and Robert Truswell for their judgements on the English data. Finally but not least, comments from two anonymous EL reviewers are gratefully acknowledged. This research was supported by Senshu Research Grant (2009–2010: The Structure of Noun Phrases) and a grant from Centre for Language and Culture at Senshu University. Needless to say, no error or inadequacy should be attributed to anyone other than me.

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θ-roles, I will further claim that the complementiser of is in fact a realisation of genitive Case assigned by a noun to the clause.

The organisation of this essay is as follows: in section 2 the possibility of a free relative clause involved in the construction will be excluded. It will then be argued that the apparent prepositions should be categorised as C, instead of as P and that the prepositional complementiser should be accommodated in Force0 in Rizzi’s (1997) split CP structure. In section 3 it will be claimed that the complementiser of is a realisation of genitive Case and that the clausal complement is Case-marked. Section 4 concludes the discussion.

2. Prepositions as Complementisers

One might conjecture that the -clause under investigation constitutes a free relative clause, rather than an indirect question. If this were the case, it would be analysed as a DP, in line with Bresnan and Grimshaw (1978). The construction would then include a preposition taking a DP complement.

It seems to be true that some of the -clausal complements appearing in the construction are free relative clauses. For one thing, the phrase in the construction allows attachment of -ever, which is known to associate with free relatives. This is shown by the examples in (2):

\[(2) \text{ a. } \text{Look at whatever happened to them.} \]
\[\text{ b. the acceptance of whatever comes to mind} \]

However, there are other types of -clausal complements in the construction that do function as interrogatives. Fortunately, there is no shortage of syntactic tests that determine whether a -clause is an indirect question or not (Baker (1968), Bresnan and Grimshaw (1978)). Observe the contrast between (3a–c) and (4a–c):

\[(3) \text{ a. I asked them [what else she bought].} \]
\[\text{ b. I have to remember [who is doing what].} \]
\[\text{ c. I know [what it is that you can change].} \]
\[(4) \text{ a. *I bought [what else she bought].} \]
\[\text{ b. *I have to meet [who is doing what].} \]
\[\text{ c. *I want [what it is that you can change].} \]

As each example in (3) indicates, an indirect question is compatible with

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1 This possibility was pointed out to me by Ad Neeleman (personal communication).
else, multiple *wh*-phrases and a cleft sentence. The ungrammaticality of the examples in (4), by contrast, shows that a free relative cannot occur with any of these.

Let us use these tests to decide whether the *wh*-clause under investigation is an indirect question or not. The grammaticality of the triplets in (5)–(7) indicates that each of the *wh*-clausal complements constitutes an interrogative:

(5)  
   a. Look at [who else gets the money].
   b. Look at [who gets what].
   c. Look at [who it is that gets the money].

(6)  
   a. his explanation of [what else the customer wants].
   b. his explanation of [who wants what].
   c. his explanation of [what it is that the customer wants].

(7)  
   a. The truth is dependent on [who else happens to be reporting].
   b. The truth is dependent on [who happens to be reporting what].
   c. The truth is dependent on [who it is that happens to be reporting].

On top of that, Bresnan and Grimshaw (1978) point out that interrogative *wh*-clauses allow pied-piping, whereas free relatives do not. This is shown by the contrast between (8a) and (8b):

(8)  
   a. I’d like to know on which paper John is working.
   b. *I’ll reread on whatever paper John has worked.

(Bresnan and Grimshaw (1978: 342))

The *wh*-clauses in question allow pied-piping, as exemplified by the acceptability of (9a–c):

(9)  
   a. You have to look at in which direction the helicopter is moving.
   b. the explanation of for how long it should be continued
   c. ignorant of for whom the money was intended


The above facts conspire to indicate that the *wh*-clausal complements should be reckoned to be interrogatives. The most straightforward way of analysing the construction in question might be to consider it to involve P taking a CP complement. The structure of (1a), (1b) and (1c) would be schematised as (10a), (10b) and (10c), respectively:

(10)  
   a. Look [PP at [CP who wastes the money]].
b. his explanation \(_{PP}\) of \(_{CP}\) who manipulated the figures\]

c. The truth is dependent \(_{PP}\) on \(_{CP}\) who happens to be reporting\]

However, prepositions generally do not take clausal complements, as is clear from the ungrammaticality of (11a–c):\(^2\)\(^3\)

\[\text{(11)}\]
\begin{align*}
\text{a. } & \text{*Look } \_{PP} \text{ at } \_{CP} \text{ that the government wastes the money].} \\
\text{b. } & \text{*their explanation } \_{PP} \text{ of } \_{CP} \text{ that Sue wrote the letter].} \\
\text{c. } & \text{*The truth is dependent } \_{PP} \text{ on } \_{CP} \text{ that he was reporting].} \\
\end{align*}

If the presumption that P takes a CP complement were true, nothing would prevent a preposition from taking a \textit{that}-clause as a complement.

Although prepositions cannot take CP complements, some prepositions appear to select TP as their complements. Compare (12a) with (12b):

\[\text{(12)}\]
\begin{align*}
\text{a. } & \text{She stayed there after the party.} \\
\text{b. } & \text{She stayed there after they had left.} \\
\end{align*}

Dubinsky and Williams (1995) argue that what appears to be a preposition in sentences such as (12b) should be categorised as a complementiser. The structures of (12a) and (12b) therefore would be schematised as (13a) and (13b), respectively:

\[\text{(13)}\]
\begin{align*}
\text{a. } & \text{She stayed there } \_{PP} \text{ after } \_{DP} \text{ the party].} \\
\text{b. } & \text{She stayed there } \_{CP} \text{ after } \_{TP} \text{ they had left].} \\
\end{align*}

When \textit{after} takes a DP as a complement, on the one hand, it is categorised as P. When it takes a TP complement, on the other, it constitutes a complementiser.

The fact that some ‘prepositions’ can be categorised as complementisers points to close parallelism that exits between PP and CP. Indeed, it has been amply demonstrated in the literature that some prepositions bear close affinity to complementisers (van Riemsdijk (1978), Emonds (1985), Kayne (1997, 1999) and Reuland (1983), among others). For one thing, the similarity between prepositions and complementisers is observed in the contrast

\(^2\) At first glance, \textit{in} might seem to take a \textit{that}-clause as a complement, as exemplified by (i):

(i) He was unusual in that he has been educated at home.

Observe, however, the ungrammaticality of (ii):

(ii) *The difficulty resides in that there is no link between them.

Thus, \textit{in} is similar to other prepositions in being unable to have a \textit{that}-clause complement. The combination of \textit{in that} in (i) should be reckoned to form a conjunction introducing an adjunct clause, rather than P taking a clausal complement.

\(^3\) Spanish allows P to take a finite CP clausal complement, as pointed out by Plann (1986). We shall shortly return to this point.
between (14a) and (14b):

(14) a. The only one who we would favor studying linguistics is John.

b. *John is the one who I’m counting on marrying her.

(Kayne (1984: 28–29))

In both (14a) and (14b) who is extracted from the subject position of the gerundive clause. This movement is legitimate in (14a), but not in (14b). If we take on and the gerundive clause to constitute CP, the structure of (14b) would be schematised as (15):

(15) John is the one who, I’m counting [CP on [TP I marrying her]].

This is reminiscent of a that-trace phenomenon, which is exemplified by (16):

(16) *Who, do you think [CP that [TP I will marry her]]?

Just as that blocks movement of the subject of an embedded clause in (16), the prepositional complementiser on prevents the extraction of who in (15).

Grimshaw (2005) claims that P constitutes N’s extended projection, whereas C makes V’s extended projection. This is a formulation of the idea that P is a nominal counterpart of C, whereas C is a verbal counterpart of P. Specifically, she posits that P, D and N belong to the same category [N], whereas C, T and V share a categorial feature [V]. Also, D and T bear the value [F1], which means that both of them are the lowest level functional projections. Similarly, P and C share the value [F2], since they are above the [F1] categories. This is schematised in (17):

(17) a. PP [+N] F2           b. CP [−N] F2
    P     DP [+N] F1
    D   NP [+N] F0
    N   ...  T   VP [−N] F0
    ... V  ...

Thus, a pair of a categorial feature and a functional feature constitutes the core of the notion of extended projection. Importantly, features involved in an extended projection must be consistent with each other. This is to forestall mismatch of projections exemplified by (18):

(18) *CP [−N] F2
    C   TP [−N] F1
    T   NP [−N] F0
The constraint on categorial mismatch is stated as (19), which is based on Grimshaw (ibid.: 4):

(19) Constraint on Extended Projection
There is no inconsistency in the categorial features of
(i) a head and its projection
and
(ii) all nodes intervening between a head and its projection

In the light of extended projection, let us now examine the triplet in (10), which is reproduced here as (20):

(20) a. Look \([\text{PP at } [\text{CP who spends the money}]]\).
b. his explanation \([\text{PP of } [\text{CP who manipulated the figures}]]\)
c. The truth is dependent \([\text{PP on } [\text{CP who happens to be reporting}]]\).

Obviously, all the instances in (20) violate the constraint in (19); P bears the feature \(+N\), whilst its complement CP carries \(-N\). The two specifications of categorial features do not match.

Thus, P taking a CP complement poses both empirical and theoretical problems. If each of the apparent prepositions constitutes the head of CP, the need for PP in (20) will be dispensed with. Put differently, the ‘prepositions’ in (20) constitute a part of the CP architecture. This replaces the structure in (20a–c) with that in (21a–c):

(21) a. Look \([\text{CP at who } \text{TP spends the money}]]\).
b. his explanation \([\text{CP of who } \text{TP manipulated the figures}]]\)
c. The truth is dependent \([\text{CP on who } \text{TP happens to be reporting}]]\).

Now that the prepositional complementiser constitutes a part of the verbal projection, there is no categorial disparity such as that between P and CP in (20a–c). Also, the structure in (21a–c) straightforwardly accounts for the ungrammaticality of (11a–c); provided that at and of are complementisers, there would be two complementisers in each CP in (11a–c). They would compete for the single head position C, resulting in the deviancy of the examples.

One might suspect that the linear order of the \(wh\)-phrases and the prepositional complementisers in (21a–c) is not compatible with the canonical internal structure of CP. Given that a \(wh\)-phrase occupies the specifier position of CP, the expected word order would be like (22):

(22) \([\text{CP who } [\text{C' [C at/of/on] TP ...]}]]\)

Obviously, the proposed structure does not reflect the correct word order.

This prompts us to revise the structure in (21a–c). Specifically, it ne-
cessitates more articulated structure of the left edge of a clause. Indeed, this is what Rizzi’s (1997) split CP structure provides us with. He argues that the projection of CP is split into several separate projections including ForceP, Foc(us)P and Fin(ite)P. The structure is depicted in (23):

(23) \[
\begin{array}{c}
\text{ForceP} \\
\text{Force}^0 \quad \text{FocP} \\
\text{Spec} \quad \text{Foc} \quad \text{Foc}^0 \quad \text{FinP} \\
\text{Fin}^0 \quad \text{TP}
\end{array}
\] (Rizzi (1997: 297))

He assumes that the proliferation of functional categories occurs only if their presence is motivated. More specifically, it is driven by considerations of economy in derivation, which is similar to the Economy of representations discussed by Chomsky (1991, 1993, 1995). Rizzi dubs it structural economy, which is stated as (24):

(24) Structural Economy
Use the minimum of structure consistent with well-formedness constraints. (Rizzi (2000: 288))

More concretely, the split is forced by the occurrence of topic or focus elements. This is exemplified by (25):

(25) I think \[\text{ForceP} \quad \text{Force}^0 \quad \text{that} \quad \text{TopP next year} \quad \text{Top}^0 \quad \text{FinP} \quad \text{TP John will win the prize}]\].

In (25) the complementiser that is in Force\(^0\), realising the feature [+declarative]. If neither a topic nor a focus element is involved, no split occurs and that represents both Force\(^0\) and Fin\(^0\). This is shown by (26):

(26) I think \[\text{Force/FinP that} \quad \text{TP John will win the prize}]\].

No split of functional categories takes place here because this constitutes the largest structure that does not infringe any constraint on structural well-formedness.

Assuming the split CP structure, I propose that the prepositional complementiser occupies Force\(^0\). The structure in (21b), for example, would be replaced with that in (27):

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\(^4\) The projections can be interspersed by Top(ic)Ps, which I omit here for ease of exposition.
(27) his explanation \[\text{ForceP} [\text{Force'} \text{ of } [\text{FocP} \text{ who } [\text{Foc'} \text{ Foc}^0 [\text{FinP} \text{ Fin}^0 [\text{TP manipulated the figures}]])]]\]

The prepositional complementiser appears in Force$^0$, which is followed by the wh-phrase in [Spec, FocP]. The same is true of (21a, c).

The refined CP structure not merely explicates the linear order of the prepositional complementiser and the wh-phrase but achieves the result with no additional projection. The structure in (27) thus differs minimally in the realisation of Force$^0$ from its sentential counterpart in (28):

(28) He explained \[\text{ForceP} [\text{Force'} \text{ Force}^0 [\text{FocP} \text{ who } [\text{Foc'} \text{ Foc}^0 [\text{FinP} \text{ Fin}^0 [\text{TP manipulated the figures}]])]]\].

The adequacy of the structure in (27) is further confirmed by looking at facts from some languages other than English. In (27) there are two positions available for complementisers, that is, Force$^0$ and Fin$^0$. This means that there could be languages in which Force$^0$ is occupied by a prepositional complementiser and Fin$^0$ by a complementiser that is comparable to the English that. Spanish seems to be one such language. Consider the sentence in (29):

(29) Estoy orgullosa de que te quedabas
I am proud of that you are staying

(Demonte and Soriano (2004: 1065))

In (29) que constitutes a complementiser. In our framework, de, whose English counterpart is of, would also be categorised as a complementiser. In accordance with the revised CP architecture, the structure of (29) would be depicted as (30):

(30) Estoy orgullosa \[\text{ForceP} [\text{Force'} \text{ de } [\text{FinP} \text{ que } [\text{TP te quedabas}]])]]\]

Also, Ad Neeleman (personal communication) points out that Dutch has the construction in (31):

(31) verklaring van hoe dat het proces werkt
explanation of how that the process works

The structure of (31) would be schematised in part as (32):

(32) \[\text{ForceP} [\text{Force'} \text{ van } [\text{FocP hoe } [\text{Foc'} \text{ Foc}^0 [\text{FinP dat } [\text{TP het proces werkt}]])]]\]

It seems that van is comparable to the proposed complementiser of. Thus, it would be a realisation of Force$^0$ and hence marks the left edge of the subordinate clause. On the other hand, dat, whose English analogue is that, can be considered to occupy the lower position, which would be Fin$^0$ in the split CP system. The wh-phrase hoe is thus sandwiched between the two complementisers, occupying [Spec, FocP].

Thus, our line of argument straightforwardly accounts for the facts
concerning multiple complementisers that appear in N’s clausal complement. In contrast with Spanish and Dutch, English does not allow the co-occurrence of two complementisers, as illustrated in (33):

(33) *his explanation [\text{ForceP of } [\text{FinP that } [\text{TP the child was injured}] ]]

The ungrammaticality of (33) independently follows from constraint on the realisation of an overt complementiser. The impossibility of that in (34) indicates that it cannot realise Fin\textsuperscript{0} exclusively:

(34) I think next year, (*that) John will win the prize.

(Rizzi (1997: 313))

If that were able to represent only Fin\textsuperscript{0}, the structure in (35) would be incorrectly allowed:

(35) I think \[ \text{TopP next year } [\text{Top’ Top’ [Fin’ that } [\text{TP John will win the prize}] ] ] \].

It therefore follows that in English that cannot realise Fin\textsuperscript{0} exclusively, although it can represent either Force\textsuperscript{0} or the combination of Force\textsuperscript{0} and Fin\textsuperscript{0}. This in turn accounts for the ungrammaticality of (34) and (35).

Summarising, I have proposed that the putative prepositions taking clausal complements should be categorised as complementisers, which are represented as Force\textsuperscript{0} in the split CP structure. This would solve empirical and theoretical difficulties faced by the structure in which P takes a clausal complement.

3. The Complementiser Of as a Realisation of Case

One might wonder whether the proposed complementiser has anything to do with the force of a clause.\textsuperscript{5} Exactly what does it represent? In order to answer the question, we examine the true nature of the prepositional complementiser of from a Case theoretic point of view. In the generative tradition, of has been reckoned to be a realisation of genitive Case assigned by N (Chomsky (1981, 1986)). Compare (36a) with (1b), which is reproduced here as (36b):

(36) a. his explanation of the figures
    b. his explanation of who manipulated the figures

The of in (36a) is a realisation of genitive Case. No wonder the of in (36b) also manifests genitive Case.

An argument for the Case-theoretic account for of comes from the devi-

\textsuperscript{5} This is a point raised to me by an anonymous EL reviewer.
ancy of instances such as (37):

(37) *his explanation the figures

The ungrammaticality of (37) can be attributed to the lack of Case on the complement DP, if nouns have no ability to Case-mark by themselves. Thus, the instance in (37) violates Case filter. Importantly, omission of P also makes clausal complements ungrammatical, as shown by the degradability of (38):

(38) *his explanation who manipulated the figures

This indicates that clauses too are subject to a Case-theoretic constraint; the clausal complement in (38) lacks Case, which causes the ungrammaticality of the example.

It therefore seems natural to assume that the complementiser of in (36b) is a realisation of genitive Case. It follows that in both nominals and clauses, of is a realisation of Case, the only difference being in the position in which it is realised; within a nominal, it is realised in P, or K(ase) in the terms of Lamontagne and Travis (1987) and Déchaine (1993). In a clause, on the other hand, it appears in Force0. This is illustrated in (39a, b):

(39) a. KP
    b. ForceP

        K
        DP

    | of
    D NP

        Force0
        FocP

        of
        Foc0
        FinP

In both nominal and verbal domains, therefore, genitive Case appears in the left edge of the extended projections. Thus, the force of a clause does not manifest itself morphologically; rather, Case is represented in Force0, which marks the left edge of a clause.

This in turn would mean that the clausal complements under investigation

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6 The acceptability of this example might improve to some extent, if explanation has a non-process reading. Similarly, the instance in (i) seems to allow omission of of, as shown in (ii):

(i) the question of [who manipulated the figures]
(ii) the question [who manipulated the figures]

Presumably, the occurrences in (i) and (ii) may involve apposition. If this is true, the occurrence of of in (i) should be distinguished from a pure Case-marker and could be assimilated to that in (iii):

(iii) the city of London

In what follows, we concentrate on the process or event reading.
are Case-marked. Indeed, there is some evidence that not only nominals but clauses as well are in need of Case. Kitagawa (1986), who attributes his observation to David Pesetsky, argues that clauses need Case when they appear in the subject position of ECM constructions. Observe the contrast between (40a), on the one hand and (40b) and (40c), on the other:

(40) a. ??We consider [that he knows the truth] to be significant.
   b. *It was considered [that he knows the truth] to be significant.
   c. *It seems [that he knows the truth] to be significant.

(Kitagawa (1986: 243))

Neither of the that-clauses in (40b, c) is in the Case position. Despite the awkwardness of (40a), the improvement of acceptability in (40a) compared with (40b, c) can be explicated by assuming that the that-clause is Case-marked by consider.8

The possibility of a clause being Case-marked is further confirmed by the data in (41) and (42), which have been provided to me by Ad Neeleman (personal communication):

(41) a. We believe his innocence to be true.
   b. *We believe firmly his innocence to be true.

(42) a. ??We believe [that he is innocent] to be true.
   b. *We believe firmly [that he is innocent] to be true.

It is known that Case assignment is sensitive to adjacency, as exemplified by the contrast between (41a) and (41b). In (41b) firmly prevents the matrix verb from assigning Case to the DP in the specifier position of the embedded TP. This explanation can be naturally extended to the difference between (42a) and (42b). The deviancy of (42b) originates from the failure of the that-clause to be Case-assigned by believe, which in turn would mean

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7 As one referee observed, it is generally assumed that Case is not morphologically realised on clauses. There is, however, no a priori reason why this should be so, though some morphological factor might account for the fact that Case tends to be represented on noun phrases in most languages. Cole and Hermon (1981: 6) reports that in Imbabura Quechua clauses represent morphological Case:

(i) Juzi ńuca-ta yacha-wa-n Maria-ta juya-j-t
   Jose I-Acc know-1Sg-3Sg Maria-Acc love-Pres.-Acc
   ‘Jose knows that Mary loves me’

8 Kitagawa regards (40a) as grammatical, attributing its awkwardness to the difficulty in parsing.
that the *that*-clause in (42a) carries accusative Case.\(^9\)

I propose that Case assignment to the clause is forced by the Visibility Condition in (43), which was originally put forward by Aoun (1979) and Chomsky (1981):

(43) Visibility Condition

The \(\theta\)-role of an argument is visible only if it is also Case-marked.

Most versions of GB theory seem to assume that only DPs are subject to the Visibility Condition. To my knowledge, however, there has been no reasonable explanation in the literature for the exemption of clauses from the Visibility Condition.\(^{10}\) The presence of clauses Case-marked with the prepositional complementiser *of* paves the way for generalising the Visibility Condition to the clause.

If the premise in (43) is true, clauses can be syntactic complements of N only if they are marked with Case morphology; since nouns always assign Case via prepositions, they can \(\theta\)-mark their arguments only by the mediation of prepositional Case-markers.

One consequence of this presumption is that no nouns can take *that*-clauses as complements, insofar as, unlike *wh*-clauses, they resist genitive Case-marking. This was shown by the ungrammaticality of (33), which is reproduced here as (44) with irrelevant information omitted:

(44) *his explanation of [that the child was injured]

The Visibility Condition dictates that for the *that*-clause to be \(\theta\)-marked, it

\(^9\) Two anonymous reviewers pointed out the contrast between (i) and (ii) to me:

(i) *We believe firmly his innocence
(ii) We believe firmly [that he is innocent]

Unlike the instance in (42b), where *firmly* prevents *believe* from assigning Case to the *that*-clause, Case-assignment is not blocked in (ii). The grammaticality of (ii) could be taken to indicate that unlike DPs clauses are not subject to the Case theory. I assume, however, that the clause in (ii) is Case-marked in the object position of *believe* and then undergoes extraposition. The same seems to be true of (iii), which involves heavy DP shift:

(iii) We believe t_i firmly [the innocence of the five people convicted of the bombing],

In (42b), by contrast, there is no possibility of the *that*-clause being moved from a Case position. I consider the impossibility of movement in (iv) to come from the lack of heaviness of the DP:

(iv) *We believe t_i firmly [his innocence],

\(^{10}\) But see Uriagereka (2008) for a recent attempt to generalise the Visibility Condition to clauses.
should be Case-marked. The only way to satisfy this is to Case-mark the clause with a prepositional Case-marker. This is impossible, though, for the independent reason we observed in section 2.

However, the occurrence in (45) involves an apparent clausal complement:

(45) his explanation that the child was injured

Stowell (1981) argues that the putative clausal complement in (45) is in fact a modifier to the noun. First of all, he points out that nouns followed by *that*-clauses do not mean event. He bases his argument on the contrast such as that between (46a) and (46b):

(46) a. I witnessed his explanation of the child’s injury.
   b. *I witnessed his explanation that the child was injured.

In (46a) *explanation* denotes a process or an event and thus can be a part of the complement of *witness*. This is not the case in (46b), which indicates that the noun with a *that*-clause does not refer to an event. This in turn means that the *that*-clause is not a complement to the noun but its appositive modifier.

Moreover, the head noun and the *that*-clause in (45) can be separated by a copula. Compare the example in (47a) with the one in (47b):

(47) a. *His explanation was (of) the child’s injury.
   b. His explanation was that the child was injured.

This seems to be possible because *explanation* refers to the content of the explanation, rather than the event which its original verb *explain* refers to. Once again, this suggests that the *that*-clause is in an appositive relation to the noun, rather than constituting its complement.

Further, Ormazabal (1995: 139), who attributes his observation to Timothy Stowell, points out the following contrast:

(48) a. Whose explanation of the problem are you referring to?
   b. *Whose belief/claim [that the problem could be solved] are you referring to?

The ungrammaticality of (48b) follows, Ormazabal argues, by assuming that the nominal refers to the content of the same belief or claim. In other words, the nominal does not denote the process of believing or claiming. Instead, it refers to someone’s belief or claim, which cannot be separated from anyone else’s similar belief or claim. By contrast, the sentence in (48a) is possible, provided that one can single out and refer to one of the events of explaining the problem.

Ormazabal also notes the difference between (49a) and (49b):

(49) a. The discovery, (not published yet), that Cantor’s theorem
could be false.

b. The discovery, (??not published yet), of a new cure for AIDS.

The occurrence of *discovery* in (49a) refers to the content of the discovery, whereas the one in (49b) denotes the process of discovering, as its original verb *discover* does. Thus, the gap in the interpretation of the same noun may well originate from the difference between the PP and the *that*-clause: the former is a complement of the noun, whilst the latter is not.

All in all, it seems safe to conclude that the apparent *that*-clause ‘complements’ to N do not pose any threat against the Visibility Condition.\(^{11}\) \(^{12}\)

Nouns also seem to take infinitive clauses as complements, as exemplified by (50a, b):

(50) a. John’s refusal [to respond]
b. her attempt [to gain attention]

In contrast with *that*-clauses, they exhibit all the characteristics of complements. All the data in (51)–(53) conform to indicate that to-infinitives represent events and therefore form complements of nouns:

(51) a. I witnessed John’s refusal to respond.
b. I witnessed her attempt to gain attention.

\(^{11}\) On the other hand, Stowell (1981) asserts that an adjective can have a *that*-clause complement in violation of the Visibility Condition. Specifically, he observes that only a handful of adjectives can take *that*-clause complements and they denote psychological states including emotion and recognition. He then proposes a special rule of \(\theta\)-role assignment which exempts the *that*-clauses selected by those adjectives from the Visibility Condition.

\(^{12}\) As pointed out by an anonymous reviewer, the instance in (i) seems to pose a problem to the Visibility Condition, because, as shown by (ii), it apparently contains an intransitive verb:

(i) John wonders [if the subject should be taken seriously]

(ii) *John wonders the subject

However, the deviancy of (ii) does not necessarily mean that *wonder* is incapable of assigning Case. Instead, the contrast between (i) and (ii) could be attributed to the verb’s c-selection; *wonder* selects a CP instead of a DP as a complement. Pace Pesetsky (1982), therefore, the gap does not follow from Case theory. See Rothstein (1992) for this line of argument. Thus, I assume that the embedded clause in (i) is Case-marked by the matrix verb. The reviewer also referred to the instances such as (iii) and (iv):

(iii) It seems [that the situation has changed]

(iv) It is believed [that the situation has changed]

Although neither of the matrix verbs are Case-assigners, the clauses can receive Case via Case-transmission; the expletive *it* forms a chain with the *that*-clause. The expletive is given nominative Case from T and then transfers the Case to the CP via the chain.
(52)  a. *John’s refusal was to respond.
    b. *Her attempt was to gain attention.

(53)  a. Whose refusal to respond are you referring to?
    b. Whose attempt to gain attention are you referring to?

To-infinitival clauses can appear in complements of verbs (51a, b). Also, they cannot be split from nouns (52a, b). Further, the grammaticality of (53a, b) indicates that nouns with to-infinitival clauses denote events that can be singled out and referred to.

Obviously, the ability of to-infinitives to be N’s complements is at logger-heads with the Visibility Condition. Since arguments need Case in order to be θ-marked, to-infinitives should be Case-marked as well. However, there is no indication that nouns assign Case to the infinitival complements in (50a, b).

In this connection, Reuland (1981) argues that like P the infinitival to acts as a Case-marker. On the other hand, Stowell (1981) claims that argument PPs are intrinsically Case-marked and licensed in the complement position of θ-marking heads. To put it differently, they bear inherent Case in the sense of Chomsky (1986). They are exemplified by (54a, b):

(54)  a. John \[νP put \[VP the book \[V′ V \[PP on the table]\]]\].
    b. John \[νP gave \[VP the book \[V′ V \[PP to Mary]\]]\].

The DPs in [Spec, VP] bear structural accusative Case, which is checked by v. By contrast, there are no functional categories that could check the Case of the PPs. Instead, they bear inherent Case, which is marked by on and to in (54a) and (54b), respectively. The inherent Case of the PPs is licensed by θ-role assignment by the verbs.13, 14

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13 Chomsky (1986) conjectures that genitive is a kind of inherent Case. Radford (2000) argues that this seems to be true, because it is realised as PP. However, it differs from other varieties of inherent Case in that it is semantically transparent. Also, some theorists including Alexiadou (2001) and de Wit (1997) claim that it shares a lot in common with accusative Case and thus can be reckoned as its nominal counterpart. Thus, genitive Case has both characteristics of structural and inherent Case. On the one hand, it has a Case feature checked by a functional category, possibly n, which is a nominal analogue of v. As an inherent Case, on the other, it is subject to licensing by N as well. I will not pursue the issue further here.

14 I assume that the same can be said of the prepositional complementisers in (i) and (ii):

(i) Look \[ForceP at \[FocP who spends the money]\].
(ii) The truth is dependent \[ForceP on \[FocP who happens to be reporting]\].

The ForcePs are inherently Case-marked and the Case is represented by at and on. I thank an anonymous reviewer for bringing this point to my attention.
I would argue for the extension of this assumption to *to*-infinitival clauses. Specifically, *to* appears in the head of a TP, marking the (inherent) Case of a clause. The Case of the TP is in turn licensed by θ-marking by a lexical head. Therefore, the *to*-infinitival clauses in (50) can be θ-marked, since they are inherently Case-marked by the presence of *to* and are thus subject to the Visibility Condition. This seems reasonable, if we consider that historically the infinitival *to* is known to have developed from the prepositional *to*. Pesetsky and Torrego (2004: 510) also claim that the *to*-infinitival clause such as that in (55a) constitutes a PP or a prepositional TP, the same as the bracketed part of (55b):

(55) a. John considers [there *to* be many reasons for this].
    b. Mary kept [there *from* being a riot].

Thus, *to*-infinitival clauses are inherently Case-marked, which enables them to satisfy the Visibility Condition. This in turn dispenses with the help of a Case-marker *of*.

To conclude this section, the complementiser *of* has been argued to be a realisation of genitive Case. The presence of a genitive Case-marker is necessitated by the Visibility Condition, which dictates that clauses should be Case-marked in order to get θ-marked. Two apparent counterexamples to this presumption, *that*-clauses and *to*-infinitival clauses, have been examined: the former have turned out to be appositive adjuncts to N. On the other hand, the latter have been shown to bear inherent Case and hence to be compatible with the Visibility Condition.

4. Conclusion

In this paper I have analysed what seems to be a preposition taking a *wh*-interrogative clause as a complementiser. This means that the preposition forms a part of the CP system. This in turn necessitates the fine structure of the left periphery of the sort that has been put forward by Rizzi (1997). Finally, the complementiser *of* has been argued to be a realisation of genitive Case.

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[received September 20 2008, accepted April 10 2009]

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