

AGAINST THE HEAD MOVEMENT CONSTRAINT

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Abstract

The purpose of this paper is to argue against the Head Movement Constraint (HMC) of Chomsky (1986). The latter puts a severe restriction on movement of head categories in such a way that they can only move to the head position immediately preceding their maximal projection. In this sense movement of head categories is understood to differ from movement of maximal projections (NP's and Wh-phrases) which is governed by the ECP; the locality restriction imposed by the ECP on movement of maximal projections is deemed less severe than the locality restriction imposed by the HMC on movement of head categories. It is argued in this paper that movement of at least some head categories is not restricted in the sense expressed by the HMC. It is demonstrated that there are head categories which move in a way that flagrantly violates the HMC without giving rise to ungrammaticality. It is also demonstrated that the only principle needed to govern movement of head categories is the ECP, i.e. the principle which governs movement processes in general. Insofar as the arguments presented are valid and the conclusions based on them are warranted the HMC is concluded to be invalid even at a descriptive level. The arguments are based on the facts of ne-cliticisation in Italian, preposition-incorporation in applicative constructions in Kinyarwanda (a Bantu language), and clitic-movement in Berber (an Afroasiatic language), Beta (a Kru language) and Romance languages.

1. Introduction

Chomsky (1986) defines the HMC roughly as follows :

- (1) Movement of an X-0 category B is restricted to the position of a head A that governs the maximal projection C of B where A theta-governs or L-marks C.

The HMC can be understood informally to express the restriction that head categories can only move to the head position that immediately precedes their maximal projection (i.e. the head position that immediately governs their maximal projection). The effect of the HMC can be seen in the following examples :

- (2) a. *Where be John AGR/TNS ?
b. [CP Where [C' be] [IP John [I' AGR/TNS [vp t_i]]]]
- (3) a. Where is John ?
b. [CP Where [C' is] [IP John [I' t_i' [vp t_i]]]]

Movement of the verb *be* to the C position in (2a&b) is in violation of the HMC because it has not operated through the I position which immediately precedes the maximal projection VP of the verb as required by the HMC. The consequence that a direct movement of the verb to C has is that the AGR and TNS elements in I are left stranded, hence the ungrammaticality. In (3a&b), however, movement of the verb has operated through the I position, thus yielding a well-formed construction.

It is important to point out that Chomsky (cf. Baker (1988)) insists that the HMC is not to be considered as an independent principle of UG because its effects can largely be derived from the ECP. Movement of the verb directly to C in (1a&b), for example, involves a violation of the ECP since it crosses the VP barrier. Assuming an informal definition of "Barrier" where a maximal projection is a barrier if it is not theta-governed by a lexical category, VP in (1a&b) is a barrier because its theta-governor (I) is a non-lexical category. (2a&b), however, does not involve a violation of the ECP because as a consequence of moving to I the latter becomes lexical, thus voiding the barrierhood of VP. The same applies to IP whose governor (i.e. C) is also a non-lexical category which becomes lexical as a consequence of hosting the verb (I am assuming here that IP is not a defective projection contrary to Chomsky (1986), hence the omission of the reference to IP in (1); for arguments to this effect see Ambar (1987), Kayne (1987) and Ouhalla (1989)). Despite Chomsky's insistence that the effects of the HMC are derivable from the ECP the HMC is considered to be descriptively accurate, so much so that it has been used as a criterion for determining the head status of certain categories. For example, Kayne (1987) concludes that clitics are head categories on the basis of the observation that they move according to the restriction prescribed by the HMC. The task of this paper is to demonstrate that the HMC is inaccurate even at a descriptive level.

2. N-incorporation and ne-cliticisation

Baker (1988) argues extensively that incorporation phenomena (e.g. incorporation of a noun into the verb (4), incorporation of a preposition into the verb (5) and so on) are essentially syntactic processes which involve movement of a head category (N,P) and its attachment to a governing verb :

- (4) a. watesyvts hra-nuhs-nuhwe?-s
 doctor 3ms-house-like-perf
 "The doctor liked the house."
 b. i?i ye-k-kar-hrek-s
 I tl-lsS-bark-push-perf
 "I push the bark."

- (5) a. umwaana y-a-taa-ye igitabo mu maazi
 child SP-past-throw-aspp book in water
 "The child has thrown the book into the water."

- b. umwaana y-ataa-ye-mo amaazi igitabo
 child SP-past-throw-aspp-appl water book
 "The child has thrown the book into the water."

The nouns house and book in the Iroquian examples in (4) are thematic objects of their respective verbs and yet appear incorporated into the verbal complex. In example (5b) from Kinyarwanda the preposition mu which underlyingly is related to the indirect object as illustrated by (5a) also appears incorporated into the verbal complex.

Baker's argument that incorporation processes are essentially syntactic instantiations of Move-alpha, and therefore are subject to the constraints governing it, notably the ECP, is based mainly on the fact that N-incorporation from the subject position does not seem to be attested in natural languages. Apparent counterexamples to this otherwise rigid restriction turn out to involve incorporation of the subject of ergative verbs (in the sense of Burzio (1986)), that is verbs whose surface subject is a D-structure object. Baker argues that this fact follows automatically from the ECP within the context of an analysis which treats incorporation as a process of syntactic movement. To see how consider the following examples which represent the structures underlying constructions which involve N-incorporation from the object position of the verb and the subject position of the clause, respectively :

- (6) a. [IP NP [I' AGR/TNS [VP V+N_i [NP [N' t_i]]]]]
 b. [IP [NP [N' t_i]] [I' AGR/TNS [vp V+N_i (NP)]]]]]

In (6a) the noun has moved from its D-structure position, where it is required to be by the Projection Principle, and attached to the verb governing its maximal projection. In this position the incorporated noun c-commands and consequently antecedent-governs its trace, thus satisfying the ECP. (6b), however, involves a lowering movement of the noun from the subject position in the Spec of IP to the V position inside VP. In this structure the incorporated noun does not c-command its trace and consequently the latter fails to satisfy the ECP. In other words, incorporation of subjects into V is ruled out in principle because it inevitably involves a violation of the ECP given that the movement is a downgrading process. Within the context of this analysis the fact that only subjects of ergative verbs incorporate turns out to be supporting evidence of an interesting nature for the argument that incorporation is a syntactic process of Move-alpha.

Baker (1988) points out further that the process of ne-cliticisation in Italian discussed in Belletti and Rizzi (1981) exhibit properties that are surprisingly similar to those exhibited by the process of noun incorporation. For example, while it is quite natural for ne-cliticisation to take place from the object position of a transitive verb, it cannot take place from the subject position of unergative verbs :

- (7) a. Gianni trascorrerà tre settimane a Milano
 "Gianni will spend three weeks in Milan."
 b. Gianni ne trascorrerà tre t a Milano
 Gianni of-them will spend three in Milan
- (8) a. Alcuni persone trascorreranno tre settimane a Milano
 "Some people will spend three weeks in Milan."
 b. *Alicuni t ne trascorreranno tre settimane a Milano
 some of-them will spend three weeks in Milan

The fact that only subjects of ergative intransitives can undergo ne-cliticisation (cf. Burzio (1986)) is illustrated by the following examples :

- (9) a. Sono passate tre settimane
 have elapsed three weeks
 b. Ne sono passate tre t
 of-them have elapsed three
- (10) a. Hanno parlato tre persone
 have spoken three people
 b. *Ne hanno parlato tre t
 of-them have spoken three

Assuming ne to be an X-0 category which heads the NP from which it is extracted and subsequently incorporated into the verbal complex as is argued in Belletti and Rizzi (1981), there is a clear sense in which N-incorporation and ne-cliticisation are paratically the same phenomenon. The fact that both N-incorporation and ne-cliticisation can only operate from a position inside VP lends significant support to an analysis in terms of a syntactic process of head-to-head movement. This much is largely uncontroversial; the controversy arises when the precise nature of the category which hosts the moved head in each of the two constructions is considered more carefully.

There is a crucial difference between incorporated nouns and the ne clitic in relation to their respective position inside the verbal complex which I think has important theoretical implications for the movement process involved. While

incorporated nouns usually appear inside the inflectional morphology (they are always adjacent to the verb) as illustrated by examples (4a&b) above this is not the case with the ne-clitic which like all clitics in Romance languages (as well as in all other languages that have clitics) appears in a position that is peripheral to the inflectional morphology (cf. Ouhalla (1988)). This difference in position implies that while nouns incorporate into the bare verb (i.e V) before the latter moves to I to attach to the inflectional elements occupying it, the ne-clitic attaches to the verbal complex subsequent to movement of the bare verb to I. In other words, while nouns incorporate into the verb, the ne-clitic incorporates into I. This fact is illustrated clearly in example (9b) which contains in addition to a main verb an inflected auxiliary verb to which the ne appears attached. Assuming this descriptive observation to be essentially correct I will try to demonstrate next that while N-incorporation does not involve a violation of the HMC, ne-cliticisation does.

That the process of N-incorporation does not involve a violation of the HMC is clearly illustrated by the structure in (6a). The head position immediately preceding the NP from which the N is extracted is V. The N moves to this position first forming with the verb a complex which subsequently moves to I to attach to the elements occupying it, thus yielding the correct order exhibited by the examples in (4a&b) where the incorporated N is clearly inside the domain of the inflectional morphology. Assuming the conclusion drawn above that the clitic ne incorporates (directly) into I to be correct the process involves a clear violation of the HMC :

(11) [_iP NP [_i ne_i [[AUX]_j +TNS+AGR]] [_ivp t_j [_ivp V [_iNP t_i]]]]]

The head position that immediately precedes the NP projection from which the clitic has been extracted is the position of the main verb. The ne clitic is required by the HMC to attach to the main verb since the latter is the head category that theta-governs the NP maximal projection of the clitic. The possibility that the clitic could move to V first and form with it a complex head from which it gets extracted and then moved to I is excluded if we assume a general ban on extraction out of (complex) head categories for reasons that have to do with the ECP, in the sense that the ECP cannot make reference to the internal structure of an X-0 category (cf. Baker (1988), Kayne (1987) and Ouhalla (1988)).

On the other hand, the fact that ne-cliticisation does not give rise to ungrammaticality implies, on the assumption that it is movement directly to I, that it does not involve a violation of the ECP. In (11) three maximal projections separate the moved clitic from its trace, NP, VP and VP. NP is not a barrier because it is theta-governed by the main verb which is obviously a lexical category. The VP dominating the main verb is also not a barrier

because it is governed by a lexical category, namely the auxiliary (I am putting aside the fact that the main verb cannot move across the auxiliary to I which could be construed to imply that the auxiliary is not a lexical governor). The VP dominating the auxiliary verb, however, is a potential barrier since its governor (I) is not a lexical category. However, subsequent to movement of the auxiliary to I the latter becomes lexical, thus voiding the potential barrierhood of the first VP. Therefore, the moved clitic does antecedent-govern its trace in satisfaction of the ECP. It should be clear that while *ne*-cliticisation involves a violation of the HMC it does not involve a violation of the ECP. If this conclusion is correct then the HMC is descriptively wrong; not all head categories move according to the restriction it prescribes.

3. P-incorporation

Incorporated prepositions in some applicative constructions illustrated by the Kinyarwanda examples in (5b), like the Italian clitic *ne*, and unlike incorporated nouns, exhibit the property that they appear in positions that are peripheral to (i.e. outside the domain of) inflectional elements. Extending our conclusion above with respect to the clitic *ne* to incorporated prepositions we can say that prepositions in applicative constructions incorporate not into the bare verb (i.e. V) but (directly) into I. The following is a structural representation of the process in question :

(12) [I^p NP [I' AGR/TNS/ASP +[V]_j +P_i [vp t_j [pp t_i NP]]]]

Movements of the verb and the preposition to I operate independently of each other. Subsequent to V-movement to I the AGR and TNS elements are prefixed to it while the ASP element is suffixed to the verb. The fact that AGR and TNS elements appear as prefixes while the ASP element appears as suffixes has to do with their lexical properties, in particular their morphological subcategorisation frames which specify each affix as either prefix or suffix (cf. Lieber (1980), Marantz (1984), Baker (1988)).

Notice, however, that if the two movements are ordered in such a way that the preposition attaches to the bare verb first and forms with it a complex which then moves to I, as required by the HMC, the process would yield an order of the elements which constitute the verbal complex that is different from the order attested, i.e. *SM-past-V-appl-asp where the applicative preposition precedes the ASP element in relation to the verb. Obviously, this problem can be circumvented if we assume the existence of a rule of morphology that would rearrange the elements inside the verbal complex so that only the attested order is derived. However, this rule would amount to nothing more than a mere stipulation. In the context of an analysis which assumes the preposition to incorporate directly into I the peripheral nature of the incorporated preposition follows. I will

therefore conclude that prepositions in those applicative constructions where the applicative preposition appears in a peripheral position incorporate into I and not into V.

Assuming this conclusion to be correct the process in question involves a clear violation of the HMC in practically the same way that the process of ne-cliticisation was shown above to involve a similar violation of the HMC. The head category immediately preceding the PP from which the applicative preposition is extracted is V, which is a lexical category which theta-governs PP (cf. Baker (1988)). The HMC requires the applicative preposition to move to V as a first step, contrary to what we concluded above on the basis of the derived order of the elements which make up the verbal complex. Direct movement to I, however, does not involve a violation of the ECP. The VP and PP projections which separate the moved preposition from its trace are not barriers, assuming that barriers are constraints on representations (cf. Chomsky (1986) and (1988)). PP is not a barrier because it is theta-governed by a lexical category, namely V. VP, though a potential barrier given that its theta-governor is I, a non-lexical category, is not a barrier at the S-structure level where I is filled with the raised verb. The (P,t) chain therefore satisfies the ECP, though not the HMC. It follows that the HMC is descriptively inaccurate with respect to at least the head-movement processes discussed so far. There is more to come.

4. Clitic-movement

Assuming clitics to be head categories in the sense of X-bar theory (cf. Kayne (1987) and Ouhalla (1988)) clitic-movement phenomena offer further evidence that head-movement can operate across head categories, thus casting additional doubt on the validity of the HMC. Kayne and Ouhalla argue that clitics in constructions such as the following examples from French and Berber, respectively, are attached to I :

- (13) a. Jean a lu le livre
Jean has read the book
- b. Jean l'a lu
Jean it-has read
- (14) a. qess-n (ihamoshn) aghrum
cut-3p children bread
"The children/they cut bread."
- b. qessi-n-t (ihamoshn)
cut-3p-it children
"The children/they cut it."

In (13b) the accusative clitic appears attached to the inflected

auxiliary in I. This example is similar to the Italian example in (9b) above in that the clitic is attached to the inflected auxiliary while thematically it is related to the main verb in the sense that it is object. Given the well-known peripheral nature of clitics there is a clear sense in which our conclusion above with respect to (9b) carries on to (13b), namely that the clitic moves directly to I across the main verb. Because clitics in Romance languages appear prefixed to inflected verbs and because AGR and TNS inflection appear suffixed to the bare verb an additional argument on the basis of the order of the clitic with respect to AGR and TNS cannot be constructed. In other words, because clitics and the AGR/TNS inflection appear on different sides of the verb it is difficult to judge which of them attaches to the verb prior to the other.

This is not the case in the Berber example in (14b), however, where both the AGR element and the clitic are suffixed to the verb. Given that the only order attested is the one illustrated by (14b), i.e. the one where the AGR element precedes the clitic, it is only natural (given the discussion above) to conclude that the clitic attaches to the verbal complex subsequent to V-movement to I. In other terms, the clitic incorporates not into the bare verb (i.e. V) but (directly) into I (i.e. {AGR [V]+AGR}). The order of the AGR and the clitic follows automatically from this analysis. A different analysis whereby the clitic moves first to V and attaches to it as required by the HMC would need to appeal to a rule which would reorder the AGR element and the clitic. For reasons discussed above this analysis is to be rejected. Needless to say that direct movement of the clitic to I does not give rise to an ECP violation given the concomitant process of V-movement to I which consequently voids the potential barrierhood of VP. The NP dominating the moved clitic, on the other hand, is not a barrier because it is theta-governed by V.

Remaining with clitics the phenomenon of clitic-climbing (i.e. clitic movement from an embedded clause to a higher clause) offers what I believe is the most telling piece of evidence against the HMC because it shows that contrary to the standard belief (expressed by the HMC) movement of head categories is no less restricted than that of maximal projections. It remains true, however, that movement of both categories is strictly constrained by the ECP. The following are examples from French and Italian, respectively, illustrating the phenomenon of clitic-climbing :

- (15) a. Je ferai téléphoner Jean a Marie
 I will-make telephone Jean to Marie
 "I will make Jean telephone Marie."
 b. Je le ferai téléphoner a Marie
 I him-make-will telephone to Marie
 "I will make him telephone Marie."

- (16) a. Gianni vuole leggere le lettere
 Gianni wants read the letters
 "Gianni wants to read the letters."

- b. Gianni le vuole leggere
 Gianni them-wants read
 "Gianni wants to read them."

In both (15b) and (16b) the clitic appears attached to the matrix verb while thematically it is related to the embedded verb. Assuming the sentences above to have a biclausal D-structure as in (17) below (cf. Kayne (1975), Rizzi (1982), Burzio (1986)) the question arises as to how the clitic moves to its S-structure position, stepwise (i.e. in a manner that would be consistent with the HMC (cf. Kayne (1987)) or in one swoop (i.e. in a manner that would obviously not be consistent with the HMC (cf. Ouhalla (1988)) :

- (17)V [CP C [IP NP [I' I [vp V ...[NP Cl]...]]]

There are three head positions separating the clitic from the matrix verb which, in principle, are all possible landing sites for the clitic.

Notice, however, that while the I and C positions are empty the V position immediately preceding the clitic is filled with the embedded verb. This fact already creates an obvious problem for the stepwise analysis since it would require the clitic to be attached to V, which is the theta-governor of the NP dominating the clitic, and then gets extracted from it and moved higher up. As we saw above this process would give rise to a violation of the principle which disallows extraction out of head categories. A similar problem arises with respect to the complementiser in clitic-climbing constructions where the embedded clause contains a complementiser. Consider the following examples from Italian, Spanish and Betsi (a Kru language (cf. Haverkort (forthcoming))), respectively :

- (18) Lo finisco di fare
 it finished-I that do
 "I finished doing it."

- (19) Lo tengo que hacer
 it have-I that do
 "I have to do it."

- (20) a. wá kĚ -bó zibá pī kà mī
 they FUT-Q fish prepare COMP leave
 "They will go to prepare the fish."
 b. wá kUá -bó pī kà mī
 they FUT-cl -Q prepare COMP leave
 "Will they go to prepare them?"

In addition to what was mentioned above with respect to the embedded verb the stepwise analysis would also require the clitic to attach to the complementiser on its way to the matrix clause. But as in the previous case this step would involve a violation of the ban on extraction out of complex X-0 categories since the clitic would have to be extracted out of the C complex and then moved to the matrix V position. All in all it seems that an analysis of clitic-climbing that is consistent with the HMC runs into serious problems and therefore is to be discarded.

Assuming this conclusion to be correct it follows that clitic-climbing operates in one swoop. This is a surprising conclusion to reach with respect to a head category since the movement is too unbounded judging even by the standards of wh-movement given the common belief that long wh-movement operates through the embedded Spec of CP position (i.e successive cyclically). Notice that if our conclusion with respect to clitic-climbing is correct and if our assumption that clitics are indeed head categories it turns out that movement of head categories is less constrained than that of maximal projections, that is we reach a conclusion where the standard belief about the nature of movement of head categories and maximal projections are reversed. However, this is not the position I would like to argue for. What I would like to argue for is that movement of neither category is more or less constrained than the other; movement of both categories is constrained by one and the same principle, namely the ECP. Heads and maximal projections alike can move any distance provided that the movement is not in violation of the ECP. My next task is to show how direct movement of the clitic in the clitic-climbing constructions above does not give rise to an ECP violation.

To be able to do that, however, I will have to rely on the analysis presented in Ouhalla (1988) for Romance causatives illustrated by the French example in (15b) and the so called restructuring constructions in Italian represented by the example in (16b). It is argued there that both constructions involve, crucially, movement of the embedded verb from its initial position inside VP to the embedded C position through I as illustrated below :

(21) ...V [CP [C' V_i [IP [I' t_i [VP t_i [NP Cl]]]]]]

The effect that this movement process has is that the embedded VP and IP which are both potential barriers since their respective governors (I and C) are non-lexical categories acquire a lexical governor (i.e. the moved verb) and consequently lose their potential barrierhood. A further consequence that this movement has is that it paves the way (by clearing all (potential) barriers) for the clitic to move to the matrix V position in one swoop. Notice that the embedded CP in (21) is not a barrier because its theta-governor, namely the matrix V, is a lexical category.

It should be clear then that although the process of clitic-climbing seems to be too unbounded it does not give rise to an ECP violation. In Ouhalla (1989) it is argued that long-movement of wh-phrases is also unbounded in the sense that it does not have to operate through the embedded Spec of CP position as long as no violation of the ECP is involved. This view strengthens the status of the ECP as the only principle which governs the distribution of traces in relation to their antecedents (cf. Chomsky (1986) and Kayne (1987)). Assuming the conclusion that head categories can move long distance to be correct what we have to explain next is why the verb-movement process illustrated by (3b) and (21), and the N-incorporation process illustrated by (6a) have a very local nature.

5. On the locality of V-raising and N-incorporation

Starting with the process of V-raising, notice that the only way the potential barrierhood of VP in (3b) and (21) can be voided is by V-movement to I as a first step. It should be clear that any process of V-movement to a higher position in the clause or to a matrix clause which does not operate through I is bound to give rise to an ECP violation. Given this conclusion the role played by the HMC is redundant as we concluded earlier. Consider now movement of the heads of the complements of the verb (e.g. ne-clitic, applicative preposition, argument clitic). Movement of these elements does not have to operate through the I position as long as there is a concomitant process of V-raising to I. In other words, the complements of the verb can depend on it to clear the way for them to move uninhibited, while a reverse relation cannot hold given that I is usually filled with elements that require to attach to the verb. It is for this reason that V-movement seems to have a strictly local nature.

There is a clear sense therefore in which the HMC is accurate only insofar as movement of the verb is concerned. This is not surprising given that the discussion in Chomsky (1986) which gave rise to its formulation is mainly centered around the process of V-movement. As a matter of fact the origin of the HMC is to be found in Travis (1984) where the discussion that led to its formulation (in a slightly different form) is also largely dominated by the process of V-movement in the Germanic languages. Movement of the verb is so restricted for the reasons mentioned above. To assume that movement of all head categories should pattern with movement of the verb, as implied by the HMC, is misleading and, given the discussion above, flatly wrong. The only condition on movement needed is the one expressed by the ECP, head and maximal categories can move any distance as long as the movement does not give rise to an ECP violation.

The local nature of the N-incorporation process poses a problem of a different nature. Recall that we observed earlier

that the fact that incorporated nouns invariably appear inside the domain of the inflectional morphology (the arrangements of the elements which make up the verbal complex imply that the noun incorporates into (the bare) V and not into I) makes the incorporation process look consistent with the locality condition expressed by the HMC. By appealing to the HMC Baker (1988) accounts for the fact that the noun incorporates into V and not into I. Notice that our analysis predicts that the noun, just like the ne-clitic and the applicative preposition, can incorporate directly into I without giving rise to an ECP violation, thus deriving an unattested order of the elements which make up the verbal complex, where the incorporated noun would appear outside the domain of the inflectional morphology. Notice also that if we appeal to the HMC as Baker does we would fail to account for the fact that the applicative preposition in (5b) as well clitics in general, can incorporate directly into I. What I would like to demonstrate next is that the fact that nouns incorporate into V but not into I can be accounted for without having to appeal to the HMC.

A plausible account can be formulated in terms of the morphological selectional properties of the incorporated nouns. These nouns can be assumed to be specified so that they can only attach to V, excluding functional categories such as I. Assuming the existence of a principle which disallows the violation of the morphological selectional properties of items (cf. Baker (1988) and Ouhalla (1988)), from this simple specification it would follow that the noun cannot incorporate directly into I despite the fact that the process is not disallowed by the ECP. The morphological specifications in questions are needed quite independently of what is being discussed at the moment. They are needed for a number of reasons that have been extensively discussed in the literature (cf. Lieber (1980), Marantz (1984), Baker (1988)). In relation to the incorporation phenomena they are needed to exclude incorporation processes which are possible in principle/theory but are not attested in individual languages. For example, in a language which allows N-incorporation but not P-incorporation, or vice versa, or a language which does not allow incorporation of either of these categories, the morphological specifications mentioned above are needed to rule out the undesirable instances of incorporation which are otherwise derivable by lawful applications of Move- α . Viewed from this angle the fact that incorporating nouns incorporate into V but not into I does not follow from the HMC or the ECP for that matter. As far as the ECP is concerned the noun might as well incorporate directly into I given the concomitant process of V-movement to I.

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