North East Linguistics Society

Volume 20 Proceedings of NELS 20 -- Volume 2

Article 17

1990

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James Hye-Suk Yoon University of Illinois, Urbana-Champaign

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Yoon, James Hye-Suk (1990) "Theta Theory and the Grammar of Inalienable Possession Constructions," *North East Linguistics Society*: Vol. 20, Article 17. Available at: https://scholarworks.umass.edu/nels/vol20/iss2/17

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Theta Theory and the Grammar of Inalienable Possession Constructions

James Hye-Suk Yoon

University of Illinois, Urbana-Champaign

1. Introduction

This paper offers an analysis of Inalienable Possession Constructions (IAC hereafter) of the type illustrated in (1) in three languages - Korean, Mandarin and French.

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(1) Korean
John-i Mary(PO)-lul phal(BP)-ul ttayryessta
  NOM
               ACC arm-ACC
                               hit
John hit Mary on the arm
Mandarin
Wo ba Lisi(PO) dashangle shou(BP)
I BA Lisi
              hurt
                         hand
I hurt Lisi's hand
French
Je lave les cheveux(BP) à Pierre(PO)
I wash the hair
                        to Pierre
I wash Pierre's hair
Je lui(PO) lave les cheveux(BP)
Ι
  him
          wash the hair
  wash his hair
Ι
```

This type of IAC is characterized by the fact that both the Body-Part (BP hereafter) and the Possessor (PO) expressions are nominal categories - either NPs or clitics. Both NPs occur inside

VP. The BP-NP occurs in direct object position while the Possessor NP occurs in various verb-governed positions within the VP.

Although inalienable possession is expressed differently in the three languages, I will argue that there are fundamental similarities that cut across the superficial differences. A related question I will seek to answer is why languages like English do not possess this type of IAC and must resort to other ways of expressing inalienable possession as shown in (2).

(2) I hit John (PO) on the arm (BP)
 vs.
 *I hit the arm (to) John

2. Some Properties of IACs:

IACs studied in this paper exhibit the following properties.

1. As the name implies, the nominals must stand in a relation of inalienable possession (1 vs. 3).

(3) *John-i Mary-lul cha-lul ttayryessta NOM ACC car-ACC hit
*Je lui ai déchiré le livre I him have ripped the book
*Wo ba Lisi dale gou I BA Lisi hit dog

2. Although only one of the NPs (the BP-NP) is a subcategorized argument of the verb, both NPs are required for IA construal. In other words, both NPs (or, in the case of Korean as many NPs as are there) act as though they are selected.

(4)a. Je lui lave les cheveux vs.
b. *?Jean lave les cheveux
c. John-i meli-ul calassta NOM hair-ACC cut
d. Zhangsan dashangle shou hurt hand

A complication arises in Korean and Mandarin since these languages allow null objects. However, (4c,d) are obligatorily interpreted as implying a possessor. It is impossible to get a reading of (4c) in which one cannot posit a null possessor. This would be the case if it were used to describe a situation where John is honing his barber skills on a lock of dismembered hair. In such a case, a different lexical item ("melikhalak") is used.

3. As noted by Gueron (1985), the BP-NP and PO-NP must belong to the same argument complex, or CFC.

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4. There is also a restriction that the possessor NP c-command the body part NP or its trace (in case the BP-NP can be extracted - which is possible in French but not in Mandarin or Korean).

(6)*John-un son-ul Mary-lul capassta TOP hand-ACC ACC caught
*Wo ba shou dashangle Lisi I BA hand hurt Lisi
*Les cheveux ont été lavés par Jean The hair have been washed by John

5. The BP-NP resists non-restrictive modification even though restrictive modification is allowed.

(7)*?John-un Mary-lul yeppun son-ul capassta TOP ACC pretty hand-ACC caught
vs.
John-un Mary-lul oyn son-ul capassta TOP ACC left hand-ACC caught
*?Je lui ai cassé le beau bras
I him have broken the beautiful arm
vs.
Tu lui ai photographié la jambe droite (Y.J. Kim 1989)
You him have photographed the leg right

6. There is a restriction on the predicates in this construction. Only those verbs that take "affected" objects are allowed.

(8)*Je lui ai admiré le bras I him have admired the arm *Wo ba juzi wenle pi I BA orange smelled skin *Na-nun Mary-lul phal-ul po-ass-ta I-TOP ACC arm-ACC see-PST-DECL

8. In Korean, only the PO-NP (or the outermost of the possessor NPs when there are multiple NPs) has canonical direct object properties. Only it can undergo passive or be the recipient of object honorification.

In Mandarin too, only the possessor can be passivized, although in French, passivization of the BP-NP is permitted.

(10) *Pi bei wo buole juzi/ba juzi buole Skin by me peeled orange/BA orange peeled Les cheveux lui ont été lavés The hair him have been washed

The BP-NP resists other types of syntactic extraction in Mandarin and Korean.

(11)*John-i Mary-lul cap-un son (Relativization) ACC catch-REL hand NOM *?Son-un John-i Mary-lul capassta (Topicalization) Hand-TOP NOM ACC caught *?Son-ul John-i Mary-lul capassta (Scrambling) ACC NOM ACC caught *Wo dashangle Zhangsan de shou (Relativization) I hurt REL hand *?Shou, wo dashangle Zhangsan (Topicalization) Hand, I hurt

10. In contrast to French and Mandarin where at most two NPs are possible, Korean allows multiple NPs as long as each pair stands in a possessor-body part (part-whole) relation.

(12)?John-un namwu-lul kaci-lul kkut-ul chyessta TOP tree-ACC branch-ACC end-ACC trimmed

3. The Problem:

IACs pose problems for both Theta theory and Case theory. With regard to Theta theory, the problem is that while only one NP (BP nominal) is a subcategorized argument, both NPs seem to be required for IA construal. The theta-theoretic problem is confounded in Korean since the pair of NPs that can be interpreted as possessor-body part is not limited to one in principle, although acceptability degrades with multiple NPs. Case-wise, since the number of NPs is greater than the number of internal arguments selected by the verb, a Case-marking problem arises since simple transitive verbs usually are limited to assigning one verbal Case crosslinguistically.

4. Analysis:

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4.1. The theta theoretic problem:

I propose to account for the theta theoretic paradox posed by IACs by utilizing the suggestion of Higginbotham (1985) that theta role assignment, or "thematic discharge", should be expanded beyond the commonly acknowledged relation of theta-marking to include other relations. In particular, Higginbotham proposes that thetaidentification, theta-binding, and autonymous theta-marking should be added to the inventory of theta relations available to the grammar. The relation of interest here is theta-identification. Roughly put, while theta-marking (TM) and other modes of discharge correspond to Functional Application in categorial terms, thetaidentification mimics the effects of Functional Composition (plus Type Raising)¹. TM has the effect of "cancelling out" unsaturated arguments of the predicate, thus reducing its valency by one. TI. on the other hand, does not reduce valency. Instead, the unsaturated role of the argument of the predicate composes with the open position in the predicate's argument structure to form a "complex predicate" with the same valency as the original predicate. Higginbotham (1985) characterizes the semantics of identification as modification of one theta role by another.

My answer to the theta-theoretic problem raised by IACs is as follows: As is clear, only the BP-NP in an IAC is the thetaselected argument of the predicate. The predicate, however, does not discharge its role to it via TM, but via TI. Thus, the BP-NP, instead of cancelling out the internal argument, qualifies it by modification. Crucially, therefore, the V' dominating the BP-NP and V is still transitive, meaning that there is still a role to be cancelled out before the verbal projection can become saturated (VP). I take it to be the Theta Criterion which requires the VP to be closed off/saturated with respect to the internal arguments of the verb. When a V' with an unsaturated internal argument thetamarks the possessor NP, the VP can be saturated.

(13) ...VP(<u>x</u>)
 / \
 PO-NP V'(<u>x</u>,y) (theta-marking)
 / \
 V(<u>x</u>,y) BP-NP (theta-identification) <u>x</u> = ext argument

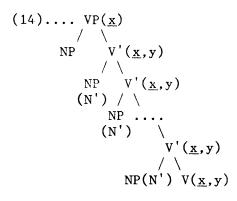
Notice that if the conditions are right for TI at the V' level, TI may take place again, yielding another V'. All that is

¹. Strictly speaking, my analysis does not rely on the operation of Type Raising in the sense it is used in Steedman (1989), for example. In Steedman's analysis, Type Raising is applicable to any NP regardless of semantic saturation. In my analysis, the difference in semantic type is tied to the lexical semantics of nouns, so that only relational nouns can be used predicatively even when they occur in an argument position.

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required is that there be an NP that is ultimately theta-marked which will close off the verbal projection. This, I claim, is the source for multiple NPs found in Korean IAC. The structure involving iterative application of TI is represented schematically below. In the structure, only the topmost NP is TMed while all other NPs are TIed.



4.2. Some Questions:

The proposal I have outlined immediately raises some conceptual and empirical questions.

Since TI at V' level is potentially recursive, why don't more languages allow multiple NPs in IACs?
 What is the explanation for the fact that body part nouns can be TIed by verbs while other common nouns cannot?
 What is the source of the argument at the V' level. It is clearly not lexically selected by V. So, then, where does it come from and why must it bear a part-whole relation with regard to the body part N that is sister of V?

I will attempt to answer these questions one by one in the next sections.

4.3. The Answers:

4.3.1. Question 1:

The answer to the first question makes use of Case theory. I would like to claim that while the mechanisms available in Theta theory (namely, TI) allow <u>in principle</u> for multiple NPs to enter into possessor-body part relation in any language, such structures will be attested only when the language has the Case theoretic resources to assign Case to all such "extra" NPs.

Transitive verbs in all languages normally have the capacity to assign one verbal Case to its one internal argument. However, the hallmark of IAC is that a dyadic verb takes not one but two (or more) NPs as arguments. I have presented the theta-theoretic

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mechanism which make this possible. But if a language has no special provisions for assigning Case to "extra" NPs created by the application of TI within the VP, it could not have IACs of this type.

There are a couple of ways of making "extra" Cases available to a verb which lexically assigns only one Case. According to Baker (1988), noun incorporation is one such device. We thus expect certain languages to resort to NI to get out of the Casetheoretic bind created by IACs. There are indeed languages that do just that as the following example from Blackfoot illustrates.

(15) Blackfoot (from Mithun 1984:858)
nit-ssik-o'kakin-aw oma ninaawa
lsg-break-back-3sg that man
'I broke the man's back'

In Blackfoot, the BP noun incorporates into the verb, and since NI is one way to make an NP visible with respect to the Case Filter, it frees the verb to assign its one (structural) Case to the possessor NP.

I argued elsewhere (Yoon 1989) that Mandarin responds to Case-theoretic dilemmas such as this by splitting its inherent and structural Cases which are assigned in opposite directions in this language. I argued that BA is the realization of inherent Case assigned to internal Theme arguments. Without going into the details of the analysis, we can see that this splitting up of I-Case and S-Case would make an extra Case available within the VP. In Mandarin, the PO-NP is assigned the verb's inherent Case while the BP-NP takes up its structural Case. Therefore, because it has the necessary Case resources, Mandarin allows IACs.

In French, the PO-NP occurs either as a clitic or flanked by a dummy preposition. Assuming clitics not to need Case, the verb is free to assign its Case to the BP-NP. Likewise, the empty preposition does not use up the verb's Case, making it available to the PO-NP.

In all of these languages, however, the various resources conspire to create only one extra Case within the VP. This is so because a verb has only one inherent Case to assign. Furthermore, two identical clitics cannot occur on a single verb. The insertion of a dummy preposition is also restricted to one per predicate. Multiple NI is generally disallowed because incorporating the possessor of a possessor runs afoul of the ECP, being what Baker termed an "acyclic" incorporation.² This is the reason why

². Of course, the incorporation involved is "acyclic" only if the BP must incorporate into the verb first (forming an N-V compound), and then the PO incorporates into this complex

languages such as Blackfoot, Mandarin, and French allow only a single pair of NPs to stand in a possessor-body part relation.

Let me now turn to Korean. As is well-known, Korean allows multiple nominative and accusative Cases in the domain of a single predicate. The question of why it does so is not the concern here. Suppose we assume that in Korean all internal arguments of nonstative V and V-bar may be assigned Accusative Case. If so, not only the subcategorized argument of the verb but all the NPs within the VP could be assigned Case. Thus, because of its special Case-theoretic resource, Korean stands alone as a language that allows more than a single pair of NPs standing in a possessor-body part relation in the domain of a single verb.

Chickasaw (Munro and Gordon 1982) is one of the few non-East Asian languages that allow multiple Case assignment. As predicted, it allows multiple "possessor ascension" in part-whole constructions.³

(16) Chickasaw (Munro and Gordon 1982:96)
Bonnie-at in-chokk-at aboh-at talhlha'pi
 SUB 3III-house-SUB room-SUB five
'Bonnie has a five room house'

In contrast to all the above languages, English lacks any special Case theoretic means to assign Case to extra NPs within VP. The closest thing to a default Case is "of-insertion", but this is restricted to [+N] categories, i.e., N and A, and is not available to V. Therefore, English disallows this type of IAC.

A cyclic derivation would involve the following steps: 'tree' incorporates into 'branch' forming an N-N compound, which then incorporates into 'end', which in turn incorporates into the verb. Presumably, not all languages have this option.

³. Note that "possessor ascension" is from subject position here. Korean, Japanese, and Mandarin also allow multiple "possessor ascension" from subject position. However, only Korean allows multiple PA from object position. This is doubtless due to Case theoretic differences.

predicate (forming an [N [N-V]] compound). However, if a language allows N-N-V compounds to be formed cyclically, multiple NI would be possible. This seems to be the case in Korean where the following is possible.

John-i namwu-kaci-kkut-ul calassta NOM tree-branch-end-ACC cut

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4.3.2. Question 2:

Let me turn now to the second question: the question of why only BP nominals can be TIed while other common nouns cannot - a fact which must be responsible for the contrast in (17) below according to the text proposal.

(17)John-i Mary-lul pol-ul ttayryessta NOM ACC face-ACC hit vs. *John-i Mary-lul cha-lul ttayryessta NOM ACC car-ACC hit

In order to answer this question, we need to consider the nature of different types of theta role assignment proposed by Higginbotham a little closely. The following is Speas (1986)'s characterization of these relations.

(18)a. <u>Theta-marking</u>: Given sisters X and Y, if X has an unsaturated theta grid and Y has a saturated theta grid
(i.e., is a maximal projection syntactically), then X theta-marks Y.
b. <u>Theta-binding</u>: Given sisters X and Y, if Y has a theta grid with an open position, X theta-binds a position in the grid of Y.
c. Given sisters X and Y, if both X and Y have unsaturated theta grids, then X and Y are in a modification relation (read: theta-identification or autonymous theta-marking).

According to the above characterization, the answer must lie in the peculiarity of the theta-structure of body part nouns. Namely, while other common nouns always need to be saturated, body part nouns must have the option of being either saturated or unsaturated. When a verb, which inherently has open positions, enters into a theta relation with a saturated nominal constituent, the relation can only be theta-marking. This is the case with most nouns. On the other hand, when it does so with an unsaturated nominal constituent, specifically a body part nominal, the relation is theta-identification.

Let us consider the question of why this may be the case. One possibility is that BP nouns are predicates, in particular, secondary adjunct predicates. This is the position of Cheng and Ritter (1988) and Y.J. Kim (1989). But this is problematic since selectional restrictions and subcategorization point to the BP nominal being the argument of the verb rather than the PO. Treating it as an unselected adjunct does not capture this obvious fact.

An alternative is to exploit the context-dependent typeshifting behavior of relational nouns, including body-part nouns,

noted in de Jong (1987). She suggests that while both BP nouns and non-BP nouns are both classed as count nouns, the setdenotation normally assigned to the latter is inappropriate for one type of use to which the BP nouns can be put. In particular, in contexts expressing inalienable possession (among others), BP nouns are interpreted relationally - i.e., relative to the denotation of objects they are being interpreted as an integral part of (cf. 19b). Of course, in other contexts, a functional (set theoretic) interpretation is more natural (cf. 19a).

(19)a. This picture shows the ten warts that I want to have removed

b. John has two arms

I suggest that the reason only BP nouns can be TIed is because they alone allow a relational as well as a functional interpretation. I suggest further that in their relational use, BP nouns are unsaturated, while in their functional interpretation, they need to be saturated as any other CN. This appears quite reasonable if we take saturation to be a prerequisite for reference which the BP nouns lack in their relational usage. This lack of reference will be held accountable for some of the syntactic restrictions on BP nouns in subsequent sections.

4.3.3. Question 3:

The next question to be addressed concerns the status of the argument of the V' which is clearly not lexically selected. The question is this: where does the NP, metaphorically speaking, "come from", and why does it appear to bear a possessor relation to the body part noun?

(20) John-i Mary-lul pol-ul ttayryessta NOM ACC cheek-ACC hit

I have already provided an answer to the question of licensing. Although not selected by the verb, they are required to cancel out the internal role of the V inside the VP. Turning to the inalienable restriction, I would like to suggest that this should be explained extragrammatically. I am saying that the syntax of this "construction" should not restrict the arguments of V' to "inalienable possessors" by stipulating that it receive a "secondary benefactive role" (Gueron 1985) or a role of "inalienable possessor" (Choe 1987).

I propose that the apparent restriction to possessor when the argument of the verb is a body-part noun is due to the lexical semantics of the BP expression and our pragmatic understanding. Recall that nouns with relational interpretation depend on the existence of other expressions that they can be interpreted as being an integral part of. For example, "cheek" depends on the animate being who possesses a cheek, as "branch" depends on the

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existence of the bearers of branches. I would like to suggest that this knowledge about the world is what lies behind the inalienable possession restriction. That is, for IACs to be acceptable, the argument of V' must be an expression that the BP noun is interpreted relative to., i.e., an inalienable possessor.

This account naturally lends itself to Korean IACs with multiple NPs where each pair of NPs must be interpretable as bearing a possessor-body part relation.

(21) John-un namwu-lul kaci-lul kkut-ul chyessta TOP tree-ACC branch-ACC end-ACC trimmed

We know that branches possess ends and are in turn possessed by trees and so we can make sense of this sentence. The alternative that invokes special theta roles fails here since multiple identical roles (two secondary benefactive or inalienable possessor roles) would have to be assigned by a single predicate in (21) in violation of the Theta Criterion.⁴

5. Properties of IACs Explained:

We must now make sure that the proposal can adequately deal with rest of the observed properties of IACs listed in section 2. Those that have not received explanations so far are:

- the restriction on modification.
- crosslinguistic differences with regard to extraction.
- the affectedness constraint on predicates.
- the locality and c-command conditions between PO-NP and BP-NP.

5.1. Locality:

It was noted that the possessor expression appears to ccommand the body part expression and that there is a locality restriction on the relation such that the two must belong to the same argument complex.

These results trivially follow from the hypothesized Dstructures. The BP expression is an argument of V while the possessor is an argument of V'. Thus, the PO nominal

⁴. Strictly speaking, this may not be a viable objection, since it appears that TI also "duplicates" the same theta role and I have relied on TI as a crucial component of the analysis of IACs. Therefore, the real issue seems to be whether syntax should be allowed to make reference to or manipulate **specific** theta role labels. My proposed answer (and also that of Belletti and Rizzi 1988) is that reference to specific roles is unnecessary.

asymmetrically c-commands the BP nominal at D-structure (and Sstructure when no movement has taken place). They are also necessarily part of the same argument complex since it is the TI of the body part expression which "makes room" for the possessor NP to become an argument of V'. We also noted that the possessor NP is required for IA construal. The explanation for this is also straightforward. IA construal implies that the BP expression does not saturate the verb's internal argument which is required to be discharged by the Theta Criterion. Thus, there must be an NP that is theta-marked that cancels out this role. The possessor NP fulfills this role.

5.2. Modification and Extraction Differences

I suggested that when body part nouns are used relationally, they lack reference. This is reflected in the fact that they do not allow non-restrictive modifiers, since these presuppose that the reference of the nominal they modify is established in discourse.

Let me turn now to extraction differences. The facts were that the BP noun could not be extracted (under A or A' movement) in Korean and Mandarin, while extraction is possible in French. I want to suggest the following as an answer. Assume that unsaturated nominals in Korean and Mandarin are N-bars (They need not project to NP). Let us suppose that this is due to the fact that these languages have nonconfigurational noun phrases, following Gil (1987). Thus, syntactic category (maximality) parallels semantic saturation (or the lack thereof) in these languages. The restriction on extraction follows if we assume, following Chomsky (1986), that only heads and maximal projections may move.

In French, however, the BP nominal is obligatorily preceded by a determiner even when it is used relationally. The absence of a strict parallelism between syntactic category and semantic saturation in languages like French may also be understood in light of Gil's distinction. That is, French has configurational noun phrases. Thus, as a matter of purely syntactic requirement, all nominal heads project to NP, regardless of semantic saturation. The presence of the determiner - which normally functions to "close off" a nominal projection - with unsaturated nominals is not uncommon. It is found in predicate nominals in English as well. Higginbotham (1987) has proposed that determiners may be theta-identifiers in certain circumstances and we must do the same for the determiner before BP nominals in French. The crucial point is this: since BP nouns are no different from other common nouns in French in projecting obligatorily to NP, one expects them to be extractable. However, BP nominals differ from others nouns semantically. Thus, both French and Korean disallow nonrestrictive modification even when they differ syntactically.

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5.3. Affectedness

Finally. I turn to the "affectedness constraint" that is said to characterize IACs. Whatever the correct explanation of "affectedness" is, it must be independent of IACs. since an affectedness restriction is found in many other constructions besides IACs. It seems, however, that a common thread to all these structures is that affectedness characterizes internal arguments of V'.

(22) IAC: John-i Mary-lul elkwul-ul ttayryessta/*?salanghanta ACC face-ACC hit/loves NOM Quantifier Float: John-i haksayng-ul sey-myeng-ul yatanchiessta/*?coahanta John-NOM student-ACC three-CL-ACC scolded/likes Double Object forms of Dative Verbs: ?John-i Mary-lul chayk-ul ponayssta ACC book-ACC sent NOM vs. John-i Mary-lul chayk-ul ponay-cwu-essta NOM ACC book-ACC send-BEN

We have already established that the PO nominals in IACs are internal arguments of V'. If one takes the "floated" quantifier to be the argument of V and invoke TI for quantifier float constructions in Korean, the nominal associated interpretively with the QP will be the sister of V'. Likewise, the Goal argument of Dative verbs, assuming that they are more prominent that Themes in the thematic hierarchy, will be projected as an argument of V'. All these are subject to "affectedness". This is reflected in the choice of predicates in the former two and in the fact that the addition of the "benefactive" suffix "-cwu" improves the double object versions of dative verbs.

In Mandarin, BA signals affectedness. Therefore, all "constructions" that take BA necessarily take affected objects. I have argued that all "complex" BA constructions take an NP as an argument of V'.⁵ The IAC (traditionally termed the "retained object construction") is one of these constructions and naturally is subject to "affectedness".

(23) <u>IAC (alias Retained Object Construction)</u>
Wo BA juzi buole pi
I BA orange peeled skin

⁵. By this I mean those structures in which the BA-NP and the V are followed by postverbal material. For an analysis of "simple" BA constructions, see Yoon (1989).

Observing a similar affectedness effect quite generally with double object forms of dative verbs even in English, Larson (1988) suggests that this may be due to the fact that the position these objects occupy (Spec of VP) is a canonical direct object position and proposes, following Tenny (1987), that canonical direct objects are always "affected". I have nothing better to offer as an explanation, so I will adopt this tentatively. Blaming affectedness on the status of being an argument of V' is not without problems, though. In French IACs where the possessor noun is either a clitic on the verb or occurs in a PP flanked by a dummy preposition, it is not obvious that the positions they occur in is a Spec of V position. However, I leave this for future research.⁶

6. Concluding Remarks

In this paper, I have shown that a simple and elegant interplay of theta-identification and Case resources of each language account in large part for the similarities and differences among IACs in French, Mandarin, and Korean. While further details need to be worked out, the success of such modular accounts of various "constructions" constitutes an argument in favor of the principles and parameters approach to comparative syntax, showing once again that interesting insights into the nature of grammatical variation can only be unearthed at a certain level of abstraction.

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⁶. Several people have suggested to me that it may be mistaken to treat French IACs in the manner suggested in this paper. It may be that an alternative analysis will overcome this and other unresolved problems about IACs in French. For a recent treatment of French IACs, see especially, Tellier (this volume) who reaches the same conclusion about the argument structure of BP nouns in French, i.e., they are unsaturated.

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