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Mark C. Baker, *Incorporation. A Theory of Grammatical Function Changing*, The University of Chicago Press, Chicago and London, 1988, pp. viii-543.

The variety of the topics addressed in Baker's book makes it very difficult to adequately characterize its empirical and theoretical scope. It could be said that the author is primarily interested in clarifying the long-standing issue concerning the interplay between syntax and morphology, and the position of the latter within the grammar; but the book could as well be conceived in terms of a highly structured answer to the empirical challenge represented by polysynthetic and agglutinative languages. On the other hand, some readers might find out that the book hinges rather on genuine theoretical concerns such as the nature of government and case, or even on more abstract issues such as the role of the Projection Principle in the current model of Grammar, or the existence of a level of representation (D-structure) at which thematic relations are represented (recently disputed even within GB). It would thus be better to follow Baker himself in pointing at the grammatical function changing phenomena as the conceptual core of the book; the peculiar solution offered to this problem relies in turn on the firm refusal of the *Strong Lexicalist Hypothesis*, according to which syntax "neither manipulates nor has access to the internal form of words" (Anderson (1988), p. 165; Anderson underlines the fact that "while the original proposal in Chomsky (1970) was limited to the narrow claim that, in English, the 'base rules might be extended to accomodate derived nominals directly', this was widely interpreted as the proposal that morphologically complex words ought in general to be treated syntactically as atoms, and assigned their structure in some other component of the grammar (the lexicon)" (pp. 164-165)).

More precisely, Baker's efforts are aimed to show that the concept of grammatical function is not a primitive one (a familiar idea in the GB framework) and that grammatical function changing phenomena can be directly accounted for by the hypothesis that affixation of X^0 -level items receiving a thematic role at their original structural position yield sensible changes in the government (hence case) relations within the clause.

As is well-known, polysynthetic languages represent an apparent problem for the traditional view of the relation between morphology and syntax, in that "many of the thematic relationships that the latter [isolating languages like English] express by combining words into phrases seem in the former [polysynthetic languages such as

Mohawk and Greenlandic] to be expressed by combining morphemes into words" (p. 430).

Baker's thesis is that this apparent difference masks an underlying similarity: identical *thematic* relationships are projected into identical *structural* relationships at the level of representation prior to S-structure (*Uniformity of Theta-Assignment Hypothesis*). The difference is explained by assuming that in polysynthetic languages the heads of certain bearers of a Q-role are (either optionally or obligatorily) assigned morphological subcategorization features enabling (and in some cases compelling) them to affix into another X^o-element. All the processes commonly viewed as GF changing phenomena (passive, antipassive, applicatives, causatives and possessor raising) are therefore explained on the grounds of movement of an X^o-element to another Y^o-element governing the XP headed by X^o; for example, in causative and applicative constructions a verb and a preposition are respectively adjoined to the matrix verb. The extension of syntactic movement to such X^o-elements leads not only to the creation of complex words as the effect of syntactic operations, but radically changes, as observed before, the government relations inside the clause, determining new case-assignment relations (hence the apparent change in grammatical function). Consider the case of possessor-raising from Chichewa shown in (1) (p. 11):

- (1) a. Fisi a-na-dy-a nsomba za kalulu
 hyena SP-PAST-eat-ASP fish of hare
 'The hyena ate the hare's fish'
- b. Fisi a-na-dy-er-a kalulu nsomba
 hyena SP-PAST-eat-APPL-ASP hare fish
 'The hyena ate the hare's fish'

The possessor of the 'patient', appearing in a postnominal PP in (1a), is immediately after the verb in (1b), counting as an *object*, in that it can be moved, for example, to the subject position in passive constructions (in other cases of possessor-raising the 'new' object also triggers object agreement). The systematic correlation between morphological affixation and syntactic changes in grammatical function showing up in constructions such as passives and causatives is immediately derivable from Baker's approach, since the affixes themselves are assigned to argumental positions at D-structure, and then moved to X^o-positions in order to satisfy their morphological subcategorization features. Such an approach is therefore perfectly compatible with a strong interpretation of the so-called *Mirror Principle* (see Baker (1985)), according to

which the order of the affixes in a complex word not only reflects the order of the processes in its *lexical* derivation, but also the order of the *syntactic* processes to which they correspond. Namely, the defense of the 'Atomicity Thesis' (i.e. the *Strong Lexicalist Hypothesis*, according to which words are inaccessible to syntax) requires that the changes in grammatical function be characterized in terms of lexical operations affecting the argumental structures of verbs, so that the Mirror Principle be arguably reducible to nothing more than a compositionality requirement. In Williams and Di Sciullo (1987) it is proposed, for example, that morphological causatives amount to the introduction of a new Q-role, qualified as *external*, into the thematical grid of the verb, with the consequent internalization of the previous external argument. As underlined by the authors, it is obviously essential to the empirical significance of the Atomicity Thesis that only the argument structure of the verb into which affixation (i.e. incorporation) is performed be affected.

It seems to me that several arguments can be developed against the *Lexicalist Hypothesis*, i.e. in favor of Baker's approach to morphology.

Notice first of all that we have to complicate the morphosyntactic representations in unpredictable (and anyway merely descriptive) ways in order to account for the different deployments of thematic roles in many processes corresponding to GF changing phenomena. Consider for example the applicative constructions, where a thematic role usually realized as a PP becomes an object (triggering object agreement and becoming the subject of the clause when the verb is passive). Other cases in point are the examples of possessor-stranding exemplified in (1). The advocates of the Atomicity Thesis should explain how the argument of a lexical head distinct from V ('fish') comes to occupy the syntactic object position, usually associated to the 'patient' Q-role of V. If incorporation were a lexical process, it should not have, as underlined by Williams and Di Sciullo, any effect on the expression of the syntactic arguments; in other words, I do not see how it could be claimed, in cases like (1b), that the peculiar syntactic expression of the argument corresponding to the possessor Q-role of the 'patient' NP in (1a) is *independent* from the process of incorporation ("covert" incorporation in the case (1b)).

It could certainly be argued that the expression of 'hare' as a direct object is a consequence of peculiar selection properties assigned to the lexical compound N+V ('fish-ate'); notice however that such a move would provide an apparent counterexample to much of Williams and Di Sciullo's theory of morphology, in that the possibility for the non-head ('fish' in our case) to contribute to the argument structure of

the whole complex word is rather a property of *affixation* than of *compounding* in their theoretical framework.

The difficulty for the view according to which the word internal structure is indicated by constituency relations among the component morphemes (with the notion *head* playing a central role) in dealing with the incorporation phenomena appears in effect to be more general. *Affixation* and *compounding* do not seem indeed to represent a principled bipartition in the realm of morphology, corresponding to distinct ways in which the relation between the morphological processes and the selectional features of a complex word can be articulated. Namely, the relation between the head morpheme and the non-head one is not uniformly interpreted according to different semantic principles in affixation and compounding. The affix -PASS in passive constructions is treated for examples as having its own argument (the *by-phrase*), which is assumed to *bind* the external argument of the whole word, in order to explain its apparent "absorption". Apart from the optionality of the *by-phrase* in many languages, which makes its treatment as a full argument quite implausible, such an approach appears to exploit the general principle of morphology stating that the argument structure of the non-head *composes* with that of the head in affixation (cf. Williams and Di Sciullo (1987), p. 36).

However, it is worthwhile noticing that the AGR affix has to be treated as satisfying the external Q-role in Breton, where the verb is known to agree only with *null* subjects (cf. Williams and Di Sciullo (1987), pp. 70-71). Such a move appears to be needed insofar as one wants to prevent syntactic rules from applying directly to the component morphemes, but risks making the interpretive principles applying to affixation in the lexicon quite arbitrary.

All these problems do not arise in Baker's framework, where the argumental status of the -PASS affix allows it to be assigned the external Q-role, making it possible to explain how such a Q-role can bind an anaphor in the VP, control the null subject of an embedded infinitive (PRO) and provide the required subject of a secondary predicate, quite independently of the presence of the *by phrase* (cf. chapter 6). Nor is it difficult to account for the agreement facts in Breton, provided we give up the Atomicity Thesis (cf. Anderson (1982) for a possible account).

Summarizing, it seems that the apparent correlation between morphological processes and syntactic structure cannot be easily accounted for (at least as far as we extend our analysis from the traditional domain of inflectional morphology, whose boundaries are often claimed to be obscure, to the class of morphological processes

usually related to GF changing phenomena), unless we give up the assumption that syntax be not allowed to have access to the components of the words.

Baker's approach is on the other hand perfectly compatible with the common view of morphology as the class of principles pertaining to X^0 -level categories. However, morphology is now conceived as a modular subcomponent of the grammar, constraining not only lexical, but also syntactic representations. This obviously amounts to depart from the Atomicity Thesis: principles of morphology are allowed to apply after a complex word has been built up by syntactic movement. A case in point is the prohibition of N+V compounds in English; this rule of morphology is assumed to apply after a noun-head has incorporated into the governing verb from its original D-structure position. The ambiguous nature (both morphological and syntactical) of noun-incorporation phenomena such as possessor-stranding is explained by Baker by means of the assumption that syntax has direct access to the components of the words, so that it feeds, so to speak, morphology.

According to Baker traditional theories of morphology (see among others Williams (1981), Selkirk (1982), Lieber (1983)) share a fundamental limit with the view of GF changing phenomena developed by both Relational Grammar and Lexical-Functional Grammar. The changes in grammatical function are for instance explained by Bresnan by means of lexical rules mapping certain subcategorization frames into other subcategorization frames, and preceding the process of lexical combination. Every GF rule thus corresponds to a descriptive generalization. A fundamental problem any explanatory theory must face has however to do with the set of principles constraining the class of GF changing operations; the theoretical frameworks mentioned above propose in effect no principled account of why certain *a priori* conceivable GF changing processes are not actually found in any language of the world; nor propose they any true explanation of the gaps which are found in the composition of different grammatical functions: it is not clear at all, for instance, why there should not be constructions corresponding to passives of applicatives.

The kind of answer Baker is able to provide to these open questions consists in exploiting general constraints on syntactic movement of X^0 -level elements. Important work by Marantz (1984) has already tried to show that causative and applicative constructions amount to moving an X^0 into another Y^0 (incorporation); Baker's aim is to extend such an analysis to other GF changing processes (passive, antipassive, possessor-raising), arguing that they represent instances of noun-incorporation.

However, he radically departs from Marantz in that he tries to show that both the range of variation and the gaps present in GF changing phenomena can be derived from general principles of UG (with ECP playing a central role). It has been proposed, for example, that incorporation processes are subject to the so-called *Head Movement Constraint*, according to which an X° can only be moved to another Y° properly governing it. Now, ECP can be reduced to the requirement that X° govern its own trace as far as X° -movement is concerned, since non-maximal projections cannot be Q-marked. Such a requirement is in turn fulfilled if and only if X° is adjoined to a Y° governing the XP headed by X° ; namely, government is blocked both in structures in which XP is not selected by Y° and in structures containing another lexical head Z closer to the trace than Y° is (the *Minimality Condition* of Chomsky (1986b)). The *Head Movement Constraint* is thus reduced to ECP (cf. chapter 2).

Many of the known constraints on incorporation can be thus easily reduced to the application of ECP. Consider for instance the fact that only the objects of transitive verbs and the subjects of inaccusative verbs can incorporate (cf. chapter 3 on noun-incorporation) and the fact that incorporated verbs must be contained in sentential objects (cf. chapter 3 on verb incorporation). Another striking case has to do with the prohibition on *acyclic* incorporations, where the presence of a closer governor corresponding to a previously incorporated X° determines an ECP violation, with the result of strongly constraining the class of the possible composition of the GF changing operations (cf. chapter 7). Apart from its empirical merits Baker's approach reveals therefore important similarities between the two cases of syntactic movement, involving respectively minimal and maximal projections.

Other important theoretical consequences are drawn with respect to Case Theory, whose application seems able to explain important aspects of the incorporation phenomena. The leading idea is that incorporation corresponds to one of the possible realizations of abstract case-indexing, so that an incorporated noun need not receive case from a case assigner (cf. chapter 3). The *rationale* for Case Theory is namely represented by a broader *Visibility Requirement* (cf. Chomsky (1986a)), according to which argumental NPs must be identified at the surface level in order for the thematic relationships to be reconstructed. Abstract case-indexing is thus compatible with different ways of PF-identification (morphology on the verb, i.e. AGR, morphology on the NP, adjacency, etc.); it is not unreasonable to assume that the coindexation between

the verb and the incorporated noun count as a form of PF-identification, hence as a form of abstract case-indexing.

Important properties of certain GF changing phenomena are immediately derived by these general principles. Consider the case of the applicative constructions, where an oblique seems to become a direct object (the so-called 3 to 2-Advancement in the framework of Relational Grammar). As already mentioned, such GF changing phenomena are analysed as cases of preposition incorporation (cf. chapter 5). Cross-linguistic evidence clearly indicates that the accusative case can be assigned both to the applied and the basic object only in languages whose verbs can be shown to be able to assign two *structural* cases on the grounds of independent evidence; in languages which lack such an idiosyncratic property, the basic object is forced to incorporate; this possibility has on the contrary to be ruled out for the applied objects (cf. chapter 5 and chapter 7).

These facts are derived in a principled way from the set of assumptions sketched above: full NPs have to be assigned abstract case in order to be licensed; the applied object can receive accusative case from the V+P complex, for a lexical category with an item incorporated into it is assumed to govern everything that the incorporated item governed in its original structural position (*Government Transparency Corollary*, cf. chapter 2 and *passim*); the basic object can be abstractly case-indexed by being incorporated, since incorporation count as a form of PF-identification; finally, incorporation of the applied object is not allowed, since the latter counts as a direct object as far as Case Theory is concerned, but is the object of a preposition in structural terms (under the strong version of the Projection Principle assumed by Baker): the trace of P counts as a closer governor of the NP headed by the incorporated item, yielding a *Minimality* (hence ECP) violation.

The impossibility of incorporating two distinct nouns is furthermore easily derived by the natural assumption that distinct arguments cannot be made *visible* by exploiting the same form of PF-identification (incorporation in this particular case).

As can be seen, no ad hoc rule is used in order to account for the properties of these complex morphosyntactic phenomena, which are rather derived by the application of very general principles of syntactic theory.

Another important phenomenon that can be explained by the principles of Case Theory has to do with the observed range of variation of the grammatical functions in morphological causatives (cf. chapter 4). Cross-linguistic inspection reveals that there

are two fundamental typological varieties: (i) languages in which both the *causee* and the object of the embedded clause behave as syntactic objects, in that they are able to induce object agreement and to be moved to the subject position whenever the -PASS affix is added; (ii) languages in which the object of the embedded clause surface as an object and the causee as an oblique.

According to Baker's theory, only two processes are *a priori* conceivable in order to avoid an ECP violation: either the embedded V is moved to the matrix V through I and C, or the whole embedded VP is moved to the SPEC of CP. Both types of movement should however produce a violation of the *Visibility Requirement*. Baker's theory makes thus the important prediction that only languages which can be independently shown to assign *two* structural cases have *true* double objects in morphological causatives; the reason is that only languages in which adjacency is not required for case-assignment to take place can exploit V-movement in order to enable the matrix V to assign case to both NPs. As a matter of fact, causatives with double objects are only found in languages containing *triadic* verbs with the two internal NPs acting as *true objects*. On the contrary, languages in which verbs are allowed to assign only one structural case require the whole embedded VP to move in order for the Visibility Condition to be satisfied; the embedded object is thus governed by the embedded V, whereas the causee has to be governed by a preposition (hence the oblique form of this argument).

The conclusion that Baker's framework fits very well the observed data is strengthened by its capacity of making even subtler predictions concerning the structures in which two embedded NPs surface as direct objects. Baker notices that in underived constructions containing triadic verbs both the object NPs can trigger object agreement and be moved to the subject position in passive constructions, whereas in similar causative constructions only the causee acts as a *true* object. The difference is immediately accounted for by the observation that the causee, while counting as an object with respect to Government Theory and Case Theory, is structurally (i.e. with respect to X-bar Theory) a subject in determining the Governing Category of the embedded object. As a consequence, movement of the embedded object to the subject position of the matrix clause will produce a violation of Principle A of the Binding Theory (given the anaphoric nature of NP-traces).

It is worth noticing that such an explanation crucially relies on the theoretical ambiguity of the notion of grammatical function; in other words, the above difference

could not be easily explained on the grounds of the assumption that morphological causatives be *underived*. Although they cannot be interpreted as a conclusive argument, these facts seem to me rather compelling evidence against the Atomicity Thesis and in favor of Baker's approach to morphology. As underlined by the author, they also confirm the merits of a formal approach with respect to a functional one; it is namely rather difficult to imagine what a functional explanation of these and similar facts (as for instance the lack of idiosyncratic cross-linguistic variation in the causatives of intransitive verbs) could amount to.

According to Baker, the advantages of a syntactic approach based on the *Uniformity of Theta-Assignment Hypothesis* and a strong version of the *Projection Principle* are also evident with respect to the extraction phenomena involving the *causees* of intransitive and transitive verbs (cf. chapter 4, section 4.4.2). The relevant observation has here to do with the fact that extraction of *transitive* objects in causative constructions turns out to be perfectly grammatical, whereas extraction of intransitives (and transitive) *causees* seems to give rise to clear Subjacency violations. Baker's hypothesis is that the SPEC of CP-position cannot be used as a landing site for the causee, since such a position is filled with the moved VP; therefore "extraction of the causee [...] must go in one step, out of two bounding nodes: the embedded IP and the superordinate IP" (cf. chapter 4, p. 220).

A full evaluation of these facts is however made rather difficult by the assumption of a dated version of Subjacency (based on Rizzi (1982)). Furthermore, the argument does not seem to be sound; as noted by Baker in one of the preceding sections "since the verb has no object that needs Case, there is no reason it must take the VP along; nor is there any reason why it cannot" (p. 199). On the other hand, if V-movement to I and C positions is allowed, the SPEC of CP-position turns out to be available as a landing site for the extracted NP, so that no Subjacency violation should be expected.

There are other important points in which the conclusions arrived at by Baker do not seem to be fully warranted by the data. One of these points has to do with the observation that a verb governs the possessor of its object only if the verb has incorporated the head-noun of that object (on the basis of the *Government Transparency Corollary*; see chapter 3, section 3.3.2). The analysis of these possessor-stranding phenomena leads Baker to strong conclusions about the principles of Government Theory, suggesting that "[...] the Minimality Condition on government must single out as barriers maximal projections like NP, rather than (only) intermediate projections like

N'; this result confirms the "broader" formulation of the Minimality Condition in Chomsky (1986b) rather than the "narrower" formulation which Chomsky tentatively adopts (Chomsky (1986b), 44-48)" (p. 102). Now, there is clear evidence that some accessibility of the SPEC-position of a maximal projection must be allowed. As a matter of fact, recent work by Cinque and Longobardi has suggested that extraction from NPs are mediated by previous NP-internal movement to SPEC in Romance languages. More complex formulations of the Minimality Condition are thus required, in order to attain a better level of empirical adequacy. Baker's data on polysynthetic languages seem for instance compatible with Longobardi's hypothesis that a head-noun acts like a structural governor (thus preventing government of its specifier from outside the maximal projection) only if it assigns or transmits Case to categories filling the SPEC position.

Another fundamental point concerns the nature of proper government. As observed in the preceding pages, one of the most striking results obtained by Baker is that the same principles seem to apply to X^0 and XP movement: chapter 2 is for instance devoted to the reduction of the *Head Movement Constraint*, applying to X^0 movement, to ECP. However, the discussion of some data concerning the possible combinations of different GF-changing processes, leads Baker to modify such an assumption; the conclusion cannot be escaped that different definitions of ECP are needed in order to account for the different properties of the movement of minimal and maximal projections.

The relevant data concern the possible interactions between passive and preposition-incorporation. It is shown that the only acceptable structure is that exemplified in (2), where "the PI [preposition incorporation] takes place first and the NP thematically dependent on the incorporated P becomes the subject of the passive" (p. 407):

- (2) Mbdizi zi-na-gul ir-idw-a nsapato ndi kalulu
zebras SP-PAST-buy-APPL-PASS-ASP shoes by hare
'The zebras were bought shoes by the hare'

The fact that the *applied* object cannot be moved to the subject position *before* the preposition has incorporated is immediately derived in Baker's framework: an ECP violation can be avoided only if the preposition, being incorporated, does not count as a *closer governor* of the moved NP.

This does not explain, however, why the *applied* object *must* move to the subject position; namely notice that ECP should not be violated if the applied object

incorporated into V: the *Government Transparency Corollary* should apply to such a structure, since the preposition has previously incorporated into V. Incorporation of the head of the applied object into V can be excluded only on the grounds of stronger conditions on proper government; these conditions should not however apply insofar as the applied object itself is moved outside PP, otherwise movement to subject would be incorrectly ruled out. Baker is therefore forced to introduce a new Minimality Condition, by requiring that a potential closer governor be the same type of category as the governee (cf. chapter 7, 366-67), in order to make P an *actual* closer antecedent only insofar as incorporation into V is concerned. Such a move is namely equivalent to the assumption that the *Government Transparency Corollary* do not apply to instances of X^0 -movement such as the process of noun-incorporation discussed above. Now, although Baker claims that these differences between X^0 and XP movement can be explained on the grounds of the observation that "[...] ECP is known to require a narrower notion of government than case-theory and binding-theory do, the notion of PROPER GOVERNMENT" (p. 366), it seems more reasonable to conclude that proper government itself is defined in a different way with respect to the movement of minimal and maximal projections. Nor can it be argued that a preposition do not block NP-movement for the reason that it cannot qualify as a possible antecedent of NP (cf. p. 369), since it is not more natural to assume that P can qualify as the antecedent of N. On the other hand, it is worth noticing that Baker tries to provide independent evidence in favor of his definition of Minimality, by showing that it also affect XP-movement (cf. fn. 2, p. 481, where it is suggested that the so-called Superiority violations may be derived by the application of Baker's formulation of ECP).

A final observation I want to make has to do with the impersonal *si* in Italian (cf. chapter 6). As is well-known, *si* constructions clearly violate the 1-Advancement Exclusiveness Law of Relational Grammar, in that they are compatible with verbs lacking the external Q-role such as inaccusatives. Baker treats the impersonal *si* on a par with the impersonal passives of inaccusative-type intransitive verbs showing up in Turkish and Luvianian, by assuming that the -PASS morpheme is categorially specified as a N, hence generated in an argumental position internal to VP (and then moved to I).

However, recent work by Cinque has convincingly shown that *si* can be assumed to have an argumental value only with transitive and inergative verbs in finite clauses; in contexts where personal AGR and personal inflection markers are not found *si* has to be interpreted as a mere syntactic marker identifying the empty pronominal *pro* as arbitrary

in reference. This approach provides a principled explanation of the different distribution of *si* in finite and nonfinite clauses, in particular of the impossibility of impersonal *si* with inaccusative, psych-movement, copulative, passive, and raising verbs in nonfinite clauses (cf. Cinque (1988) for a full discussion).

The fact that further refinement seems to be needed on this and other specific points does not diminish the merits of Baker's analysis. Baker has taken into consideration a large amount of linguistic material about polysynthetic languages belonging to different linguistic groups. He has unified phenomena usually studied under different perspectives, developing an original theoretical insight about the relationship between syntax and morphology. Both the empirical and theoretical scope of the book extend quite beyond any too specific domain of facts and any particular subcomponent of the grammar. Apparently unrelated facts are shown to be derivable by the same set of principles, and very different principles (belonging to distinct subcomponents of the grammar) are shown to interact and yield the observed phenomena. The book must be considered not only a milestone in the current trend of linguistic studies, but also a fundamental work of reference for every scholar seriously interested in the nature and shape of the system of linguistic knowledge. Many important problems are formulated and solved, and new important questions are raised; therefore, "[...] while each answer raises even more questions, significant progress has been made on those we had when we began" (p. 439). The main purpose of any serious scientific work has thus been brilliantly attained.

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