

Lexicalism, Incorporated (or Incorporation, Lexicalized)*¹

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1 The Nature of Incorporation

The topic of this paper is a kind of morphological structure that looks as if it might be formed within the syntax: Noun Incorporation. This is a feature of a wide range of languages, including (in its purest form) Mohawk, Chuckchee, Southern Tiwa, Classical Nahuatl, and many others; and it has attracted attention for quite some time. Adopting a classical formulation, Noun Incorporation is a construction in which, on the surface, a verb stem and a Noun stem constitute a single word, with the Noun stem representing an argument of the verb. The most typical incorporated Nouns correspond to the direct object of a transitive verb.

(1) Southern Paiute (Sapir 1911, p. 263)

- a. qām'ú- yaai- num- puḡa'
jackrabbit- hunt- usitative- remote past
He used to hunt jackrabbits
- b. cū'q'uc'^u qām'ú- v^{ax}qa- q'a'
one jackrabbit- kill- COMP (SS)
Having killed one jackrabbit,...

Notice that the appearance of the incorporated noun within the verb word is not mutually exclusive with the occurrence of some other overt representation of the corresponding argument elsewhere in the sentence.

In some languages, the underlying object/derived subject of an unaccusative verb can incorporate; in other languages, unergative subjects can incorporate too. In a few cases, the incorporated Noun appears to be some sort of adjunct, like an instrumental or a locative. Noun Incorporation has been an important topic for a long time. In the early years of this century, it was argued by some to constitute a particularly characteristic feature of North American languages. Kroeber (1909), in an attempt to rebut that notion, went a bit too far in arguing that in fact there was no such thing as Noun Incorporation, but in a classic

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paper Sapir (1911) provided the first reasoned analysis of Noun Incorporation in a variety of languages.

1.1 Incorporation as syntax

There are two basic stories about how Noun Incorporation works, and they have both been around for a very long time. One of them, the “syntactic” story, treats Noun Incorporation as a syntactic process, by which an argument of the verb (or at least part of that argument) is actually moved from its syntactic A-position to adjoin to the verb. What this has going for it *a priori* is the natural account it offers of how the incorporated stem comes to fill the semantic (T) role of a corresponding unincorporated noun. Proponents of this view in the recent literature include Mark Baker (1987, 1995), and in a rather different framework, Jerry Sadock (1980 and elsewhere); they have argued, from the apparent need to form words in the syntax by moving a noun into the same word as a verb, that the Lexicalist prohibition against syntactic manipulation of the internal form of words must be wrong.

Actually, the construction discussed by Sadock in Eskimo is one that several other authors (Sapir 1911; Mithun 1984, 1986; Gerdts 1997) prefer to distinguish from Noun Incorporation. From the morphologist’s point of view, classical Noun Incorporation involves combining two stems, each of which is (in principle) a distinct lexical entry. In languages like Eskimo-Aleut or the Wakashan languages, the construction at issue involves the addition of one of a large inventory of bound affixes to a stem. Morphologically, this is derivation, not compounding, because the affixes involved never occur independently as stem; and that is what causes authors like Mithun to resist grouping the two constructions together. On the other hand, as Sadock puts the issue, both raise the same problem for syntax-morphology interactions, at least if you accept the possibility that bound morphological material could be syntactically autonomous. It would surely be unreasonable to say that Mithun and others do not have the question right — they are entitled to be interested in what they want — but on the other hand any consideration of the limits of syntax and morphology has to pay equal attention to both types.

One version of the ‘syntactic’ position is developed by Mark Baker, who has explored it at some length in one book (1987, *Incorporation*) and made considerable use of it in another (1995, *The Polysynthesis Parameter*). Baker certainly maintains that nouns move in the syntax to take up their incorporated positions inside of verbs, but his theory of the kind of movement involved goes much farther, and in fact is the basis of the rather more general notion of ‘head movement’ in syntax. This, in turn, is at the technical heart of much contemporary theorizing about clause structure, because it is head movement that is central to the notion that the inflectional content of a clause is composed of a large number of functional heads that move around syntactically. If head movement were not an established notion, much of the ‘split-INFL’ account of clause structure would have rather less plausibility; and if Noun Incorporation were to turn out not to involve syntactic movement, the original (and empirically richest) support for head movement would disappear. This makes it clear that the proper analysis of Noun Incorporation is not at all a minor issue in the theory of grammar.

1.2 Incorporation as a lexical rule

The alternative to such movement and other syntactic accounts is the “lexical” story of Sapir, Mithun and others, which says that the noun plus verb combinations are built in the lexicon, not in the syntax. Now of course we have to be able to build such combinations in the lexicon anyway in the case of “synthetic” compounds: duck hunting ($[_V[_N\text{duck}][_V\text{hunt}]]$) is built from $[_N\text{duck}]$ and $[_V\text{hunt}]$. The possibility of building all lexical compounds in the syntax was tried out in the early days of generative grammar (Lees, 1960), but that was largely *faute de mieux*: at the time, there was not really any theory of the lexicon to oppose to the syntactic view. Nowadays, however, nearly all theories treat the formation of compounds as taking place in the lexicon, not the syntax.

Of course, compounds like *duck hunting* involve a relation between the noun and the argument structure of the verb which is like the one we find in Noun Incorporation constructions. Indeed, in both cases the noun most typically corresponds to an argument of the verb that would fill the syntactic direct object position and the T-role of theme.

In other compounds like *earthquake*, *sunrise*, *landslide*, etc., the noun apparently represents the subject of an intransitive verb. In these examples, we might invoke the Unaccusative hypothesis and say that the argument in question represents an underlying Direct Object. Such an account is less plausible, though, for cases such as *crybaby*, *flashlight*, *workman*, *playboy*, etc., where the verb appears to be of the ‘unergative’ persuasion. What does seem constant about all of these forms is the fact that the associated noun consistently corresponds to the verbal T-role of theme.

There are other compounds, though, that correspond to the other non-thematic Noun Incorporation types: e.g. *hand laundry*, *cottage industry*. Once we admit the possibility that all of these verb-argument(/adjunct) relations can be established by lexical rules, as must be the case to deal with true compounds, the initial motivation for a syntactic account of Noun Incorporation disappears. Sapir (1911) was actually the first to propose that Noun Incorporation constructions are simply instances of lexical compounding. Since the possibility of a ‘syntactic’ analysis in the modern sense wasn’t really open, though, his argument for this was mostly from the formal consideration that incorporated structures involve a combination of two stems, like compounds; and indeed, given his sense of what “Noun Incorporation” was, we should probably see his claim as more definitional than empirical.

The lexicalist view accommodates the thematic restrictions on Noun Incorporation rather straightforwardly: lexical rules often refer to the relation of THEME, and compounding in particular does so. If Noun Incorporation is simply a form of noun-verb compounding, this is exactly what we would expect. As we know, the incorporated noun is not always a theme: sometimes it is a locative or an instrumental. But this is again quite parallel to the facts about compounds, and supports the view that there is a single kind of regularity at work in the two cases. The syntactic view derives this result in a way that is, at a minimum, rather less direct: some might find Baker’s account of why only the Direct Object position is accessible somewhat tortuous, but for the sake of discussion we will assume that such an account is at least possible.

2 Two sets of (putative) arguments for the syntactic view

As mentioned above, there have been primarily two extended, serious attempts in the modern syntactic literature to distinguish between the syntactic and the lexical accounts and claiming to find evidence in support of the former. One of these is the work of Mark Baker (1987, 1995), based largely on evidence from Mohawk. The other is found in Jerry Sadock's (1980, 1986, 1991) work on Greenlandic. Since both the theoretical contexts and the concrete arguments are rather different in the two cases, I will address them separately below. As will quickly become evident, I do not find either line of reasoning ultimately persuasive, and I believe the lexicalist account should ultimately be adopted.

2.1 Incorporation, 'polysynthesis' and lexicalism

Baker's work has focused for some time on an account of syntactic incorporation and its generalization from the core cases of Noun Incorporation to other head-movements. It is quite important for him, then, that syntactic Noun Incorporation be at least possible (even if other sorts of Noun Incorporation exist too). On the other hand, if you want to believe that **The syntax neither manipulates nor has access to the internal form of words**, as most versions of the Lexicalist Hypothesis require, it is quite important not to allow syntactic rules to put words together in this way. The choice of analyses for Noun Incorporation constructions therefore has a good deal of importance for our theory of how morphology and syntax are related.

Baker's primary evidence for syntactic Noun Incorporation comes from Mohawk, for which an analysis is developed at length in *The Polysynthesis Parameter*. He suggests that a lexical noun can be generated (as the exhaustive content of a NP) in argument position, and that it then moves to adjoin to the governing verb. Why does this movement take place? According to an argument that he supports in great deal, overt NP's are not licensed in A-positions in Mohawk: they only appear in adjunct, appositive expressions. If the [_{NP}[Noun]] with an overt head were generated in an A position, it would be ill-formed. In order to get T-marked, a NP has to be co-indexed with an element in the verb (by what he calls the Morphological Visibility Condition, a requirement characteristic of exactly the set of languages he regards as truly 'polysynthetic'). If the verb-internal co-indexed element were agreement, the agreement would (on Baker's hypothesis) absorb the Case assigning property of the verb, so the overt NP would be ill formed by virtue of not bearing abstract Case. But if we move the noun to adjoin it to the verb, the Morphological Visibility Condition is satisfied (since the trace of the noun is co-indexed with its overt form, now internal to the complex verb), and the otherwise Case-less NP no longer has phonetic content. So everyone is happy.

We might then ask: which languages have (syntactic) Noun Incorporation? The answer: those that have to. That is, in Mohawk, incorporation is forced, as above, by the Morphological Visibility Condition. In English, on the other hand, as in most languages, the Morphological Visibility Condition does not hold, and so movement is not forced. But on minimalist assumptions, if you are not required to do something, you are required not to do it. So Noun Incorporation is impossible in (non-'polysynthetic' languages like) English.

Now in fact many languages have constructions that look like Noun Incorporation (i.e., cases where noun plus verb together seem to form a single word, and the noun is interpreted

as an argument of the verb). They differ quite a bit from one another, though. For one thing, in many Noun Incorporation languages, the incorporated noun is always interpreted as non-specific, indefinite and/or generic. This is comparable to the interpretation of nouns in English lexical compounds: if you say *She's a truck-driver*, that means she drives trucks, not (just) some specific truck. Thus, you cannot say **She's a truck_i driver, which is why it_i's parked in her driveway*.

In contrast, in Mohawk, an incorporated noun can refer to something that's referentially specific or definite.

(2) Mohawk (Baker 1995, p. 288)

- a. Thetáre' wa'-ke-nakt-a hnínu-'
 yesterday FACT-1sS-bed- \emptyset -buy-PUNC
 I bought a bed yesterday
- b. Í-k-ehr-e' Uwári Δ -ye-núhwe'-ne'
 \emptyset -isS-think-IMPF Mary FUT-FsS-like-PUNC
 I think Mary will like it (the bed)

This is just what would be expected if the incorporated noun had come from an NP in an A-position, since such an NP can perfectly well be specific or possibly even definite, even though it has a phonetically null head.

If the lexicalist were to propose an account of all Noun Incorporation constructions as exactly parallel to noun-verb compounds of the sort found in English, this would be quite unexpected, since (as we have seen) the nouns in such compounds do not have the kind of independent reference we see in (2). To accommodate this possibility, it looks like the right thing to do is to allow the lexically formed verb plus noun to take arguments. The most common view to be found in the literature probably is based on the assumption that when a noun is compounded with a verb, the noun satisfies the corresponding argument in the verb's argument structure; and that is what results in the noun's being interpreted generically or indefinitely. Assuming that nouns themselves have an external T-role to discharge (the "R-role," connected with the noun's possibility of referring), this generic interpretation corresponds to a certain sort of binding of the noun's own external T-role. To the extent that role is internally bound, the possibility of independent referentiality is precluded.

To accommodate the facts of languages where an incorporated noun is potentially referential, we need to revise this story. Let us say that in some languages, at least, noun-verb compounding is an operation that "unifies" the semantics of the noun with the argument position of the verb, but without saturating the argument itself. That is, in such a language, *bed-buy* is a transitive verb [_V[_Nbed][_Vbuy]] meaning "X buys Y, Y a bed."

$$(3) \quad \textit{bed} \quad + \quad \textit{buy} \quad \Rightarrow \quad \textit{bed-buy}$$

$$\left[\begin{array}{c} \overline{\text{R}} \\ \text{BED} \end{array} \right] \quad \text{BUY} \left[\overline{\text{Agent}}, \left[\overline{\text{Theme}} \right] \right] \quad \text{BUY} \left[\overline{\text{Agent}}, \left[\begin{array}{c} \overline{\text{Theme}}, \text{R} \\ \text{BED} \end{array} \right] \right]$$

This verb can still take a THEME argument (perhaps just *pro*) which can bear independent reference. So on this story, the formation of Noun Incorporation structures in Mohawk differs from, e.g., English compounding not in being syntactic *vs.* lexical), but rather in the fact that the Mohawk lexical Noun Incorporation rule does not “saturate” the argument position.

The semantic operations here are of a sort that we need independently, to deal with lexical operations of compounding and also with things like the lexical suffixes of Wakashan and Salish languages, and the de-nominal verbs of e.g. Eskimo-Aleut (constructions often conflated with Noun Incorporation). Aleut, for example, has a class of ‘moveable’ suffixes. These can appear on nouns, where they modify the semantics of the noun. They can also appear on verbs, however, and when they do so their semantics applies to one or another of the arguments of the verb:

(4) Aleut (Bergsland 1997)

- a. hla-kucha- \hat{x} hila-ku- \hat{x}
 boy-little-ABS read-FIN-3
 The little boy is reading
- b. hila-kucha-ku- \hat{x}
 read-little-FIN-3
 He (the little one) is reading
- c. taya \hat{g} u- \hat{x} siida- \hat{x} sa \hat{g} a-ku- \hat{x}
 man-poor-ABS sleep-FIN-3
 The poor guy is sleeping
- d. sa \hat{g} a- \hat{x} siida-ku- \hat{x} hama
 sleep-poor-FIN-3 DEM(up there, invisible)
 He is sleeping, the poor one
- e. kida-kucha-ku-ng
 help-little-FIN-1sg/3sg
 I am helping him (the little one) *or* I (the little one) am helping him

Kwakw’ala similarly has lexical operations that result in combining the semantics of one element with a position in an argument frame:

(5) Kwakw’ala (Anderson, 1992)

- a. la-i hoq^wəwəls-ida q’isq’asde- χ a k’əlx-i q’isina
 aux-they go out-dem eat currants-obj raw-dem currants
 ‘those who have been eating the raw currants go out’
- b. la-i k’əlxk’ax-su[?]-əm- χ at’-ida q’isina
 aux-they eat raw-passive-really-also-dem currants
 ‘raw currants are also eaten’

- c. k'əlɬk'axa-ʔaxa-ida bak'wəma-ɬa t'əmɬw'ali
 eat raw-also-dem Indians-obj gooseberries
 'The Indians also eat raw gooseberries'

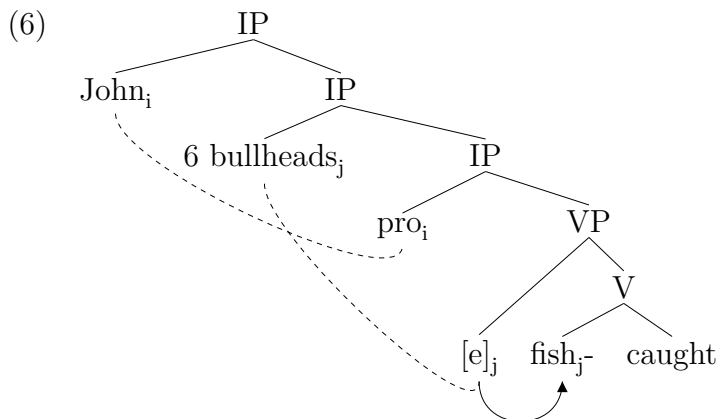
In this case, the denominal formation takes the form of reduplication: the particular pattern of reduplication seen in (5) converts a stem into a verb meaning 'eat STEM' and it is this derivational process that contributes the argument frame, where the base noun or adjective provides a semantic interpretation to be combined with the THEME argument position.

Notice that both in Aleut and in Kwakw'ala, the head movement analysis of the apparent 'Incorporation' is not available, since the element that would have to move is sometimes a non-head. At least on Baker's account, that would seem to entail the conclusion that some sort of lexical operation is involved rather than head movement in the syntax.

The notion that Noun Incorporation involves a lexical operation that unifies the semantics (and perhaps other properties, as we will see below) of a lexical base with those of a thematically characterized position in the argument structure of another base is quite close in spirit to the analysis offered by Malouf (1999) for Greenlandic. While Malouf's analysis is presented within the framework of HPSG, its essential claims are quite parallel (*mutatis mutandis*) to those of the present account.

We turn now to an additional typological difference among languages with respect to Noun Incorporation. In some languages an incorporated NP can be doubled by an external NP whose content also specifies the corresponding A-position. There are potentially two cases here: (a) where the external NP consists only of modifier material, as in *I bed-bought a new (one)*, and (b) where there is an overt head noun in the corresponding A-position as well, as in *I fish-caught six bullheads*.

The first case is straightforward for Baker's original head-movement account: you just say that the head alone moves. The second case was much more problematic, of course, because how could the head have moved if it is still in place? This is especially true where the incorporated noun is different from the overt head. The response is to say that in these sentences, the doubling NP is actually an adjunct, related to a separate (phonetically null) NP occupying the argument position. And of course, on the analysis presented in Baker 1995, that is the case for all overt NP's in 'polysynthetic' languages, where they are treated as adjuncts in an appositive-like relation to phonetically unrealized A-positions. The structure posited is roughly as in (6)



In this structure, the two higher IP layers are where the overt NP's *John* and *six bullheads* are adjoined to the main clause. The subject of the main clause is an empty *pro* (in apposition to the adjoined NP *John*). The Object position within the VP is similarly empty, but represents the trace of the moved head *fish*, which has been incorporated. The object position is also in an appositive relation to the adjoined overt NP *six bullheads*.

How does the lexicalist describe the corresponding situation without syntactic movement? On that view, when an incorporated N is doubled, we can say essentially the same thing as Baker: the A-position is filled by an empty category, and the overt (adjunct) NP forms a chain with that position in the same way as other overt argument expressions. But notice that that follows not from anything about Noun Incorporation, but rather from Baker's independent arguments about the position of overt NP's in Mohawk. Without those, we could also just say that the overt NP is in the expected argument position. Since the incorporated noun was not originally generated there, there is no syntactic reason why some other expression could not be there, given the possibility that even verbs with incorporated nouns can still take arguments.

In the case of the apparently head-less (but still overt) NP's, where it looks as if head movement has taken place leaving the non-head parts of the NP as residue, we can note that the expressions which are found overtly in these A-positions are themselves independently well-formed NP's in the language. In Mohawk, as in most languages, there is no overt correspondent of English *one*, so the object phrase in *I want a [new] one* consists of just the Adjective *new*. Thus the headed and headless cases of doubling NP's fall together at least in most cases.

We still need to be able to distinguish, within the class of Noun Incorporation languages, between those that do and those that do not allow 'doubling' of the incorporated noun by an overt expression. Taken together with the distinction between languages that allow free reference for an incorporated noun, this gives at least the following three possibilities.

The first and simplest case is that of a language in which incorporated nouns are always interpreted as indefinites or generics, and cannot be doubled by an overt expression. Here we assume that the incorporation operation saturates the relevant argument position of the verbal element with the semantics of the noun, and binds its R T-role with a generic (or in-

definite) operator. The representation of a verb *bed-buy* in such a language would be roughly as in (7), where ‘GEN_X’ is a logical operator binding the variable ‘X’.

$$(7) \text{ GEN}_X (\text{BUY} [\text{Agent}], \left[\begin{array}{c} \text{X} \\ \text{Theme} \\ \text{BED} \end{array} \right])$$

Note that since there is only one remaining free variable position in this argument structure, the verb should be structurally intransitive.

A second case is that of a language in which incorporated nouns can have free reference, and can also be doubled. This is sometimes called “Classifier incorporation” following Rosen 1989. On the lexicalist analysis this is the case where Noun Incorporation does not bind (i.e., saturate) the argument, but where the semantics of the noun unifies with it, as in (3) above. Such a verb has two unbound arguments, and can be syntactically transitive, with each A-position having the possibility of establishing independent reference. Restrictions on the relation between the incorporated noun stem and the material in the A-position reduce to a semantic ‘informativeness’ constraint, requiring that the external expression supply information which is not merely a proper subset of that already supplied in the semantics of the (derived) verb but which is still consistent with the verb-internal semantics.

The third and final possibility to be considered here is that of a language where incorporated nouns allow free reference but no doubling. This must be the case where the N unifies with an argument position, but the resulting verb has some property that is incompatible with an overt NP. What could that be? Of course, if the NP’s had to actually be in A-positions, whatever we have to say for languages with “dis-agreement” phenomena in order to exclude overt expressions in association with agreement (whether in terms of Case or of binding), it could be the same. Baker’s own account of a language like Southern Tiwa, where doubling is excluded but non-generic reference in association with an incorporated noun is allowed, is that the condition licensing adjuncts in association with A-positions only allows them to be licensed by *pro*, and not by a trace (of head-movement).

The lexicalist account does not posit traces in argument positions associated with incorporated nouns, however, so this distinction is not available within that picture. What account of the difference between doubling and non-doubling languages is then available on lexicalist assumptions? Apparently, argument positions corresponding to an incorporated noun have some property such that their occupancy by an overt expression is incompatible with the verb derived by Noun Incorporation. I suggest the following: suppose that Noun Incorporation in Mohawk (a ‘doubling’ language) not only unifies the semantics of the noun with that of the corresponding argument within the semantics of the derived verb, but also merges the noun’s external R T-role with the T-role assigned to that argument. In Southern Tiwa, on the other hand, the incorporated noun’s R T-role is identified (rather than merged) with the T-role of the argument. That means that if the A-position contains an expression headed by a noun that assigns its own R T-role, there is a T-criterion violation.

By and large, up this point, the syntactic and lexical stories are “tied” in that each can account for roughly the same range of phenomena the other can. Baker is quite fair: he

considers the lexical account (though not with all of the details I have supplied here), and says essentially the same thing. In fact, he says not only that some languages have lexical/morphological Noun Incorporation rather than syntactic Noun Incorporation but that even Mohawk has both. This makes the theory rather close to unprovable: any fact that appears to argue against the syntactic story is dealt with by saying that in that case, the incorporation is lexical.

But Baker also discusses some phenomena which he feels argue for the syntactic account over the lexical one. As I have elaborated the syntactic and lexical stories above, they converge to a great extent as far as the representations they assume. But there is one outstanding difference: for Baker, as remarked above, the empty category present in A-position in association with a verb that has undergone syntactic Noun Incorporation is a trace, while it is a *pro* within the lexicalist picture of Noun Incorporation. As a result, any way we can tease these two empty category types apart could give us a way of discriminating between the syntactic and lexical views. On this basis Baker offers three arguments that at least some cases of syntactic Noun Incorporation exist.

The first of these concerns agreement. He argues that in general, there is no agreement with the position corresponding to the source of Noun Incorporation. In this respect, he differs explicitly from Postal, who claimed (in his thesis, Postal 1979) that there IS agreement with an incorporated noun. For Baker, agreement is with a *pro*, while syntactic incorporation ought to leave not a *pro*, but a trace. Absence of agreement with Noun Incorporation verbs, as opposed to its presence with simple *pro*, would then argue for the kind of syntactic difference he assumes.

One might expect that it would rather easy to decide this issue: just look at Noun Incorporation structures and see whether agreement with the incorporated position is present or not. But things are not so simple as that. Languages tend to be devious and evasive at just the points where you really want them to commit themselves, and Mohawk is no exception. To evaluate Baker's argument, we have to consider where Noun Incorporation can take place. In fact, it is almost exclusively inanimates that are incorporated; and Mohawk has the property that agreement with an inanimate object is formally indistinguishable from no agreement at all. That is, transitive agreement where the object is inanimate is identical with intransitive agreement.

Incorporation of animates is generally disfavored, and regarded as pejorative (perhaps resulting from the implication of inanimate agreement, thus treating a person as an object, e.g.). Why should this restriction obtain? Baker admits to not having an account of why incorporation of animates should be avoided. I suspect that it is a consequence of the fact that it is precisely in this case that the speaker can "fudge" the issue of whether there is or isn't agreement, a situation similar to the use of modal constructions in English in those cases where no particular agreement seems right.

(8) Neither Fred nor I (??am/??is/??are coming)/(will come) to the party.

The tension in Mohawk Noun Incorporation structures might be described as follows: where the verb contains an incorporated noun referring to an overt argument NP, that seems like "enough" to a speaker, and so the presence of a separate agreement element

seems superfluous, even though it would be produced by the normal morphosyntactic rules of the language. Where the transitive object is inanimate, however, the agreement marker is ambiguous as to whether it contains explicit reference to the object or not, so no surface discomfort results.

The bottom line is that in most cases of Noun Incorporation, it is impossible to tell whether agreement is present or not, because of the formal similarity between Sbj/InanimateObj markers and intransitive markers. In addition, as Baker notes, in cases where there is no external ‘doubling’ NP we can always say that the lexical operation has constructed an intransitive verb (by saturating the argument) as in (8).

- (8) Tu-t-a-yako-kétoht-e’ ts-e-wir-Λháwi
 DUP-CIS-FACT-FsO-appear-PUNC ITER-FsS-baby-carry/STAT
 She appeared carrying a baby.

But in some cases, there is clearly an animate noun incorporated, and there appears to be no agreement with it. An example of this is provided by (9).

- (9) Ra-wir-a-núhwe’-s thíka (owirá’a)
 MsS-baby-∅-like-hab that (baby)
 He likes that baby

On the other hand, it seems that with animate incorporated objects, agreement is at least optional:

- (10) a. Uwári ye(-ruwa)-kstΛ-hser-Áhaw-e’ ne rake-’níha
 Mary FsS(/MsO)-old.person-nom-carry-impf prt my-father
 Mary is holding my father
- b. Wa’ke (-hi)-kstΛ-hser-áhset-e’
 fact-1sS (/MsO)-old.person-nom-hide-punc
 I hid the old person (the old man)

And in fact Baker (1995, p. 336) observes in a footnote that “when the doubling material makes explicit the gender of the argument in question, the Noun Incorporation plus agreement construction is preferred where possible.” This would appear to be a strike against his analysis, since we appear to have both agreement and an incorporated noun stem in the same verb in such examples.

So how do we get the result that overt agreement and Noun Incorporation do not generally co-occur? The facts are obviously rather complicated. There appears to be a preference for avoiding a situation in which both overt agreement material and an incorporated noun refer to the same participant. One way to resolve this tension is to treat the agreed-with position in a Noun Incorporation construction as if it were actually, despite appearances, inanimate, in which case no overt marker appears: that is the basis of the preference for inanimates, and of the sense that non-agreeing incorporation of animates is somehow pejorative. If this

could be maintained, we could say that Noun Incorporation constructions do indeed have morphosyntactic agreement, consistent with the claim that the corresponding A-position is occupied by *pro*.

Actually, Baker notes that in some languages which are otherwise syntactically like Mohawk (Tanoan languages like Southern Tiwa and Gunwinjguan languages like Mayali), overt agreement does appear with positions that are also associated with an incorporated NP. In Ainu, which he puts in his class of polysynthetic languages (incorrectly, as shown in Kaiser 1997), some dialects have agreement with the NP position associated with Noun Incorporation and some do not. Wherever we find agreement with an incorporated position in a ‘polysynthetic’ language, that will be a problem for Baker’s analysis. On the other hand, the lexicalist account derives these cases with little difficulty.

In fact, very similar conclusions can be drawn, I think, about Baker’s two other arguments. One of these is based on the fact that the object position associated with a Noun Incorporation verb cannot be questioned with a general-purpose question word. For Baker, this follows on the syntactic analysis from the fact that the A-position cannot simultaneously contain a N to be incorporated and a question word.

- (11) a. Úhka wa’- $\left\{ \begin{smallmatrix} *ke \\ khe \end{smallmatrix} \right\}$ ksá-ht-a-ya’k-e’?
 who FACT- $\left\{ \begin{smallmatrix} *1SS \\ 1sS/FsO \end{smallmatrix} \right\}$ CHILD-NOM- \emptyset -HIT-PUNC
 Who (a child) did I slap?
- b. *NahótΔ wa-ha-’wáhr-a-k-e’?
 what FACT-MsS-meat- \emptyset -eat-PUNC
 What did he meat-eat?

Consider first the case of *who*-questions. In (11a), we see that if we have agreement, the sentence is acceptable. But the badness of the sentence without agreement is due simply to the agreement conflict: the question word *who* makes it explicit that the object is animate, which conflicts with apparently inanimate agreement. For *what*-questions the story is a bit different. Here the badness follows from the requirement that an overt argument has to be informative. But *what* adds nothing to the semantics of *meat-eat*, so it fails for that reason. Again, the lexical account accommodates these facts without syntactic movement.

Baker’s other argument is based on condition-C effects, and again the facts cited seem susceptible of a lexicalist account. As in the case of other facts considered above, apparent agreement conflicts will exclude the ungrammatical sentences Baker cites without invoking conditions on coreference that would motivate the claim that A-positions related to incorporated nouns contain trace rather than *pro*. For additional details and discussion, see Anderson 2000. In essence, the lexicalist account of Noun Incorporation is consistent even with the phenomena Baker treats as the strongest evidence for a syntactic treatment, perhaps indeed to be preferred both for empirical and for theoretical reasons.

2.2 De-nominal verb formation in Greenlandic

The Mohawk constructions that form the basis of Baker’s analysis are of the type that all analysts agree are core instances of Noun Incorporation. The denominal verbs in ‘Eskimo’

languages like West Greenlandic, which have been cited extensively by Sadock as (further) evidence for a syntactic view of Noun Incorporation are a bit more controversial, as remarked above, but as he shows, they pose exactly the same issues for the morphology-syntax interface. That is, in these structures as well we appear to have a syntactic relation between part of a (complex, derived) word and a position in syntactic structure that at least at first glance appears to be best expressed by a movement relation. Sadock has argued in a number of papers that the suffixes in Greenlandic that derive verbs from noun stems as in (12) necessarily involve composition of surface words in the syntax, a view similar to Baker's and anathema to the Lexicalist:

- (12) a. Sapanngamik kusanartumik pisivoq
 bead-INST beautiful-NOM-INST thing-get-INDIC-3sg
 He bought a beautiful bead
- b. Kusanartumik sapangarsivoq
 beautiful-NOM-INST bead-get-INDIC-3sg
 (*Idem.*)

Sadock 1986 provides a list of points in support of the notion that parts of such words participate in the external syntax of the structures they head:

- (13) • Incorporating Verbs alone can have external possessors in the ergative case.
- Incorporating Verbs alone may impose restrictions on the formal plurality of an external NP.
- Incorporating Verbs alone may have an additional absolutive NP associated with them which follows the Verb and is not understood as a modifier of the subject.
- Greenlandic displays psoradic instances of “the polysynthetic equivalent of gap-ping” in which the second of two conjuncts consists simply of an absolutive NP with no suffix.
- Greenlandic (though *not* the otherwise similar Yup'ik) disallows an external occurrence of the same nominal that has been ‘incorporated’ with a denominal verbal affix.

These are certainly very significant points, and any account of the morphology-syntax interface has to come to terms with them. I can not take up all of these matters in the detail they deserve, but I will try to provide enough commentary on these matters to substantiate my optimism with respect to the lexical account, even as it extends to Greenlandic. I first take up Sadock's second point (13b), which has become particularly well known in the literature:

- (14) a. Ataatsinik qamuteqarpog
 one-INST.PL sled.PL-have-INDIC.3sg
 He has one sled

- b.*Ataatsimik qamuteqarpog
 one-INST.SG sled.PL-have-INDIC.3sg
 He has one sled

The point of this example is that the noun *qamut* ‘sled’ in (14) is a *pluralia tantem* form in Greenlandic, and appears as grammatically plural even when its referent is semantically singular. I suggest that this behavior follows relatively naturally from the account proposed above, though. The verb *qamuteqarpoq* ‘he has sled(s)’ is built on the noun *qamut*, and thus presumably inherits the lexical idiosyncrasies of that word, including its otherwise unmotivated number.

$$(15) \quad \overline{sled} \quad - \quad \overline{have} \quad \Rightarrow \quad \overline{sled-have}$$

$$\left[\begin{array}{c} \overline{} \\ +\text{Pl} \\ \text{QAMUT} \end{array} \right] \quad -\text{QAR} \left[\overline{\text{Agent}}, \left[\overline{\text{Theme}} \right] \right] \quad \text{HAVE} \left[\overline{\text{Agent}}, \left[\overline{\text{Theme}}, +\text{Pl} \right]_{\text{SLED}} \right]$$

In this structure, the derived complex verb inherits the grammatical idiosyncrasy of its base noun in the form of a grammatical restriction on the Object NP, without requiring that the base noun itself move in the syntax. To satisfy this restriction, the presumed null head in the external NP must be assigned the feature [+PL], and the modifier agrees with that.

With respect to the first point (13a), Sadock notes that a NP consisting only of an ergative modifier of a presumably null head cannot in general appear outside of incorporation structures:

- (16) a. Kunngip panippassuaqarpoq
 king-ERG daughter-many-have-INDIC.3sg
 The king has many daughters
- b.*Kunngip takuvunga/takuara
 king-ERG see-INDIC.1sg/1sg.3sg
 I saw the king’s

Since some NP types consisting only of modifiers (quantifiers, e.g.) apparently do occur in other contexts, we want to know why stranded possessors do not have this property. We can note that the object associated with ‘incorporated’ noun stems is always and necessarily indefinite in Greenlandic. We might take this to be a property of the null head, consistent with the inherited semantics of unmodified basic nouns (which are, of course, the lexical source of the ‘incorporation’ structures). Null-headed NP’s do not appear in positions where they should exhibit agreement, because the null head is indefinite, which shows us why the transitive form of (16b) is excluded. Suppose the verb is inflected intransitively, however, as in the first variant of (16b). Its infelicity might then follow from the fact that the null head is only acceptable where some information is available to specify some of its semantic properties). Some modifiers (e.g., quantifiers or adjectives) might be argued to

have this effect, but not possessives. The distribution of null-headed NP's in Greenlandic remains to be explored in more detail, but a difference in this regard between possessed expressions and others does not seem implausible. The restriction of such possessed phrases to incorporation structures—where, of course, the incorporated stem does indeed provide some semantic specification—would then follow from a more general informativeness requirement that cannot be satisfied by null heads alone.

Sadock's third point (13c) is illustrated by the contrast in (17).

- (17) a. Joorut palasinngorpoq tusaamasoq
 Jørgen priest-become-INDIC.3sg famous-NOM
 Jørgen became a famous priest
- b. ??Joorut toquvoq tusaamasoq
 Jørgen die-INDIC.3sg famous-NOM
 The famous Jørgen died

I suggest that copulative structures such as those based on 'be,' 'become,' etc. are syntactically "quasi-transitive," and thus admit of another argument position. 'Famous' in (17a) thus occupies the position of the second argument, where it further specifies the argument 'a priest' of the basic verb. The infelicity (17b) follows from a more general problem with having parts of the same NP separated by the verb: in this example there is only a single NP, whose parts are non-contiguous, while in the superficially similar (17a) the two parts correspond to two separate phrasal constituents. Predicate nominatives are of course non-referential, as argued by Kuno (1970) long ago, and this accounts for the fact that both NP's in (17a) are nominative.

Sadock's fourth and fifth points do not directly imply the syntactic nature of incorporation. While it might of course be possible to derive the apparent 'gapping' structures by syntactic deletion, it seems quite likely that ellipsis of the sort referred to in (13d) is a matter of semantic interpretation rather than of syntactic deletion or reconstruction. And the fifth point (13e) simply shows that Greenlandic does not regard identical nominals as mutually 'informative' in the sense suggested above, while Yup'ik does.

As mentioned above, Sadock's own view of the syntax of incorporation constructions differs from Baker's in that it does not involve movement of the nominal head *per se*, but rather a mechanism that allows parts of complex words to be interpreted as syntactically autonomous elements: on this picture, (14a) is not formed by moving *qamut* 'sled' out of the NP and into the verb, but rather by allowing the verb-internal noun stem to be treated as the head of the NP *in situ*. Malouf (1999, p. 61) has observed that this presents a particular difficulty for the analysis: "Within the noun phrase, the possessor must precede the head noun and any modifiers must follow it (Fortescue 1984, p. 117). Under Sadock's analysis, examples like [(18)], where a nominal modifier precedes an incorporated nominal, violate the linear precedence constraints for noun phrases."

- (18) Fortescue 1984, p. 83:

kissartu-mik kavvi-sur-put
hot-INST coffee-drink-3PLINDIC
They drank hot coffee

Sadock must thus allow the word order constraints within the NP to be relaxed exactly when the head of the NP is part of an incorporation structure. If we treat the NP in (18) as having a null head, distinct from the stem that appears as part of the (lexically formed) denominal verb, however, no such proviso is necessary. Of course, an analysis such as Baker's, on which the nominal head moves into the verb in the syntax, also avoids this difficulty, though we have already seen other reasons to doubt the motivation for either of these accounts as opposed to the lexicalist one.

3 Conclusions

So where are we left with respect to the choice between syntactic and lexical analyses of Noun Incorporation? With respect to Baker's account, it appears that even he agrees that much Noun Incorporation is in fact lexical, not syntactic, even in the language for which he feels the strongest syntactic case can be made (Mohawk). But in fact, the limited sets of facts for which the syntactic account is said to be necessary can also be accommodated within the lexical account, without invoking mechanisms that have no precedent elsewhere. And as Sadock (1986) puts it, "by now the null hypothesis surely must be that any individual word-building process does not interact with the syntax," which surely requires us to generalize the lexicalist conclusion for Mohawk. If the remarks above about Greenlandic can be further substantiated, that means that this language, too, falls within the scope of non-syntactic analyses, and thus a purely lexical account of Noun Incorporation without syntactic movement, is probably possible in general. But that, in turn, means that the best putative support for an operation of syntactic head-movement may be non-existent—a conclusion with extensive consequences for many areas of contemporary syntax, especially the split-INFL analysis with its proliferation of functional heads.

In his 1965 paper, Sadock suggested that denying the existence of syntactic Noun Incorporation would be comparable to denying the existence of flight-less birds in New Zealand. We can agree that such a denial is not supported by any number of citations of New Zealand birds that fly, or by redefining birds, or flight, so as to be consistent with the existence of kiwis (as well as penguins, I should note, another flightless bird found in New Zealand). But I am not sure this is the right comparison. I would not go so far as to compare syntactic Noun Incorporation with the unicorn, a beast which figures prominently in a certain literature and whose properties are well known, but which is generally agreed to be mythical in the absence of any confirmed sightings. Perhaps a better comparison is with UFO's. Again, these are widely discussed in the literature, criterial properties clear and well-defined, and it would be incredibly interesting if their existence could be established. In essentially every case where it has been possible to examine the facts in some detail, though, it has turned out that the properties of the events in question were in fact consistent with somewhat more pedestrian explanations, such as weather phenomena or terrestrial aircraft. I am not convinced that it is a violation of scientific standards to deny the existence of UFO's, and at least for the

time being, I am not going to be much more ashamed of denying the existence of syntactic incorporation.