

Noun Incorporation: Essentials and Extensions

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Abstract

This paper presents an overview of the principal debates in the literature on noun incorporation, citing key examples and references. There has been much discussion about which constructions can rightly fall under the term ‘noun incorporation’; for example, compounding, denominal, deverbal, light verb, conflation, and narrow scope indefinite constructions have all been treated as noun incorporation constructions. In addition, there has been much discussion about where in the grammar noun incorporation should be handled: the lexicon or the syntax. This debate has shifted with the development of theories without a clear lexicon–syntax division. In the early studies, the main focus was on the morphology of noun incorporation, but in recent years, the focus has shifted to understanding the semantics of the construction, including semantic incorporation, pseudo noun incorporation, detransitivizing, and noun stripping constructions. In addition, there have been many empirical studies over the years exploring subject and modifier incorporation, incorporation of larger phrases and other topics. Noun incorporation studies also intersect with other areas such as bare nominals, complex predicates, possessor raising constructions, and classifier systems. These issues are reviewed in this paper.

1. Introduction

This paper provides an overview of the principal themes discussed in the literature on noun incorporation (NI).¹ Other surveys of literature on this topic are also available, such as Gerdtz (1998), Aikhenvald (2007), Van Geenhoven (2001), sections of Haugen (2008), and the introduction to Farkas and de Swart (2003). Aikhenvald and Gerdtz are notable for the overview of the empirical range of NI, while Van Geenhoven and Farkas and de Swart each present a particularly clear summary of recent semantic issues in NI. Haugen presents a thorough overview of the lexicon–syntax debate (see also Baker 1993; Mathieu 2009). This paper will focus on the theoretical issues related to establishing the domain of study, which has dominated much of the literature on NI.

An example of NI in Onondaga (Iroquoian) can be seen in (1a), where the nominal element forms a single word with the verb, in contrast to (1b), in which the noun stands as a separate item from the verb.² This example can be seen as a core example of NI.

has also been narrowed; for example, Baker (1996) argues that only polysynthetic languages can correctly be considered to exhibit true NI.

To start off discussion in this paper, we adopt the broad working definition of NI as a grammatical construction where a nominal that would canonically (either in the given language, or in languages in general) be expressed as an independent argument or adjunct is instead in some way incorporated into the verbal element of the sentence, forming part of the predicate. NI is found in many languages of the world. Gerds (1998) lists the following: languages of the Americas (Algonquian, Athabaskan, Caddoan, Iroquoian, Muskogean, Siouxan, Takelma, Tanoan, Tshimshian, Tupinambã, Uto-Aztecán, Yana), Paleo-Siberian languages (Alyutor, Chukchee, Koryak), Australian languages (Gunwinggu, Rembarngga), a Munda language (Sora), Oceanic languages, and Turkish. To these we can add, still not exhaustively, Austronesian languages (Malagasy, Chamorro), Hungarian, Inuit languages, Mayan, Hindi, for which references appear below in this paper, and arguably, German (Barrie and Spreng 2009), English (Stvan 2009) and French (Mathieu 2005; Hirschbühler and Labelle 2009).

In addition to and shaped by the definitional debates are several other polarities within the NI literature. Linguists have looked at NI from a functional or a formal perspective, considered it to be a lexical or a syntactic process, argued that morphological incorporation is crucial or irrelevant, and that a particular semantic interpretation is key, or unnecessary. In the following sections, we will review these central debates and provide a few examples of the various relevant phenomena. In Section 4, we will briefly outline a range of other contributions to the NI literature. Since not all issues related to the topic can be surveyed in this short paper, an effort is made to include many references to works on the relevant issues.

2. *Setting Boundaries: What Is NI?*

Undoubtedly an important work within the functional, typological, and descriptive traditions is the wide-ranging study of NI by Mithun (1984). Mithun outlines a theory of NI, which comprises four types implicationaly linked to each other. Type I ‘compounding’ is found when a verb incorporates its object to form an intransitive compound verb, usually denoting a habitual or institutionalized activity.

- (2) Yucatec Mayan (Bricker 1978, as cited in Mithun 1984: 857)
 č'ak-č'e'-n-ah-en.
 chop-tree-ANTIPASS-PERF-I(ABS)
 ‘I wood-chopped’ = ‘I chopped wood.’

Type II incorporation involves the manipulation of case, so that the new complex verb is transitive, allowing for another oblique argument, such as

an instrument, possessor or a locative, to become a derived object. In (3a) we see that the object is 'his face', with a pronominal copy 'it' on the verb, whereas in (3b), 'face' has been incorporated and 'him' now appears as a derived object.

(3) Tupinambá (Rodrigues, as cited in Mithun 1984: 857)

- | | | |
|----|----------------------|-----------|
| a. | s-oβá | a-yos-éy |
| | his-face | I-it-wash |
| | 'I washed his face.' | |
| b. | a-s-oβá-éy | |
| | I-him-face-wash | |
| | 'I face-washed him.' | |

Type III involves the use of either of Type I or II to manipulate discourse structure, typically a device found in polysynthetic languages. By this means, a previously discussed noun is backgrounded as old information, as in the following conversation (Foley and Van Valin 1984; Velasquez-Castilla 1995).

(4) Huastla Nahuatl (Merlan 1976, as cited in Mithun 1984: 860)

- | | | |
|----|---------------------------------|-----------------|
| a. | askeman | ti-'-kwa nakatl |
| | never | you-it-eat meat |
| | 'You never eat meat.' | |
| b. | na' ipanima ni-naka-kwa | |
| | I always I-meat-eat | |
| | 'I eat it (meat) all the time.' | |

Type IV is termed classificatory NI. Here an independent object corresponds to an incorporated nominal. The incorporated nominal is less specific, and provides the class of the object. Object nouns are classified by the incorporated elements they appear with, thus this type of NI bears a relation to other noun classification systems.

(5) Gunwinggu (Oates 1964, as cited in Mithun 1984: 867)

- | | |
|---------------------------|----------------|
| bene-dulg-nan | mangaralajmayn |
| they.two-tree-saw | cashew.nut |
| 'They saw a cashew tree.' | |

Mithun argues that the four types stand in an implicational relation to each other such that if a language has Type IV, it will have the other three types, and so on. Her work has a historical dimension as well as a typological one, in that she argues that there is a tendency for NI in a given language to change and develop following the lines of her hierarchy.

Mithun's work has been enormously influential and much literature since her paper has discussed how NI in given languages fits into her typology, how to derive the various types, and whether her implicational hierarchy holds. At the same time, it has proven difficult to fit her classes

of NI into corresponding structural classes, so that her work has been less directly influential for those working on syntactic analyses of NI.

As well as laying the ground for future discussion on the typology and function of NI, Mithun (1984) triggered a renewed debate about the roles of syntax and morphology in NI that became central in the years following her paper. The first development, a direct reaction to her work, dealt with obligatory NI and definitional issues, while the second, removed from Mithun's work, took center stage in NI literature a few years later. The urgency of both debates has been blunted by recent developments in theoretical morphology.

Mithun, like Sapir and Kroeber, limits the purview of NI to compounding; that is, she maintains that the two parts of an NI complex must each exist as an independent word. She also claims that NI derives lexical items and is not a syntactic phenomenon ('... incorporation is a solidly morphological device that derives lexical items, not sentences'). For her then, NI does not include V+N complexes in West Greenlandic Inuit, for example, where the 'incorporation' process is obligatory due to the affixal nature of the verbal element. In (6), *-qar-* is a verbal affix meaning 'have' that cannot stand alone (Fortescue 1983).

- (6) West Greenlandic Inuit (Sadock 1980: 306)
 Qimmeqarpoq
 dog-have-INDIC-3Sg
 'He has a dog.'

Sadock (1986) takes issue with Mithun's domain limitation, arguing that to set aside data such as that outlined in Sadock (1980, 1985) from West Greenlandic is to fly in the face of reality in order to simplify a definition: similar to claiming that 'there are no flightless birds in New Zealand' in order to simplify the definition of bird, by excluding kiwis. For Sadock, both types of processes are NI, with the result that NI necessarily has a syntactic dimension, since West Greenlandic incorporated nouns have a clear syntactic presence, as explored in his 1980 paper (see also Mardirussian 1975). This is contrary to Mithun's claim that NI is purely morphological, and raises serious issues for the widely held view that syntactic processes cannot see inside words. Mithun (1986) counters that Greenlandic 'incorporation' is denominalization rather than incorporation, consisting of a single noun stem with a derivational affix. For support, she cites Sapir, who compares this process to the addition of *-ize* to a noun in English – to create the verb *nominalize*, for example.

Although the debate continues as to the best classification of the various types of putative NI, most linguists working on the topic today include obligatory NI in their discussion, and most linguists working on the languages of the Inuit refer to the process illustrated in (6) as NI (e.g. Bok-Bennema and Groos 1988; Bittner 1994; Van Geenhoven 2001; Johns 2007).

In addition to the incorporation of nominals into verbal affixes, there is a mirror image construction found in languages of the northwestern USA and southwestern Canada such as Salishan languages (Gerds 1998, 2003).

(7) Halkomelem (Musqueam) (Wayne Suttles personal communication to Gerds 1998: 95)

ni	cən	k ^w əs-cəs
AUX	1SUB	burn-hand
'I burned my hand.'		

In these constructions, the incorporated nominal-cəs 'hand' is a suffix without the ability to stand alone, in contrast to *čéləš* 'hand'. Some of these stems have clearly related counterpart freestanding nouns; for others the relation is less clear or non-existent.

For Sapir and Kroeber, such affixal examples are ruled out as NI, but there are nonetheless clear syntactic and semantic parallels with NI including their ability to be used in a classificatory way, as discussed in Gerds (1998). Gerds also points out that the nominal affixes derive historically from nouns, and she suggests that there might be a stronger relation between affixal nominal constructions and NI than is allowed by Sapir and Mithun's strict definitions (see discussion and references in Hagege 1978; Czaykowska-Higgins and Kinkade 1997; Wiltschko 2009).

The two opposing positions on the topic of whether incorporation has a syntactic dimension highlight the central linguistic debate regarding the relation between morphology (canonically adding affixes to stems) and syntax (canonically putting words together), and the difficulty of placing processes like compounding and incorporation, which have properties of both, in this dichotomy. Even Mithun, while maintaining that incorporation is morphological, begins her paper by saying that incorporation is the most nearly syntactic of morphological processes. The debate becomes less polarized in the context of recent theories of morphology and syntax, such as Distributed Morphology (Halle and Marantz 1993), which holds that there is no clear dividing line between syntax and morphology. In this theory, whether a syntactic node is pronounced as a stem+affix, a compound, or a single conflated word can be seen to some extent as being an accident of the vocabulary items a language has available to it. Within Distributed Morphology (and related theories such as the Exoskeletal Theory of Borer (2005), and Haugen's (2008) morphology at the interfaces approach), category labels such as noun and verb are never inherent properties of lexical items, but rather, they are the result of the syntactic position lexical roots find themselves in. Therefore, in these theories, even the simplest of verbs are formed in the syntax, making arguments about the locus of NI obsolete. In highlighting the inter-relatedness of morphology and syntax, these current theories are similar to the Autolexical theory of Sadock (1985, 1991).

The recent work of Johns (2007) on NI in Inuktitut develops an analysis of obligatory NI along these lines. In her analysis, the verbal affixes are seen as light verbs, similarly to abstract light verbs with meanings such as DO and BE argued by linguists such as Hale and Keyser (2002) and Harley (2005) to be present in words like *laugh*. These light verbs take nominal roots as complements so that NI verbs are formed by the juxtaposition of an overtly pronounced light verb and a root. Due to a general constraint in the language that roots move to a leftmost position, the root moves to the left of that verbal affix, deriving the surface word order. No real incorporation takes place. In DM, all verbs originate as light verb+root constructions, so the cross-linguistic issue becomes one of the degree of affixation or conflation involved in the final pronunciation. In this view, NI in Inuktitut is very like other verb-forming processes. That the verbal (or nominal) elements are affixes is quite irrelevant, except at a purely superficial level. For various views on NI in this family of languages, see Woodbury (1981), Rischel (1971, 1972), Fortescue (1984), Denny (1989), Bok-Bennema and Groos (1988), and Bok-Bennema (1991). The idea that the incorporated element is a root, not a noun, might explain the observation that complex nouns cannot be incorporated in some other languages (Gerds 1998), and the non-branching nature of the nominal is a crucial part of Barrie's (2006) dynamic antisymmetry analysis of NI.

This debate demonstrates the tension between descriptive and theoretical work in that while it is true that at the appropriate level of abstraction boundaries blur and two superficially dissimilar constructions can emerge as the same, we still need to know what two constructions are under discussion, hence the need for good descriptive terminology. Mithun, Sapir, and Kroeber are engaged in this clarification, while others are working to understand the connectedness across construction types narrowly defined. In the end, both birds and flighted creatures are useful natural classes.

Mithun overtly states that NI is a lexical process in her abstract. But her data at times defy this position, since she includes 'juxtaposition' cases as in (8), foreshadowing later cases of N-stripping, discord, pseudo NI or semantic incorporation, to be discussed below. Mithun states that in these cases, the noun and the verb remain separate phonologically, but form an especially tight bond.

(8) Tongan (Churchward 1953, as cited in Mithun 1984: 851)

- | | | | | | | | |
|----|------------------------|-------|------|------|------|-----|-------|
| a. | Na'e | inu | 'a | e | kavá | 'é | Sione |
| | PAST | drink | ABS | CONN | kava | ERG | John |
| | 'John drank the kava.' | | | | | | |
| b. | N'e | inu | kava | 'a | | | Sione |
| | PAST | drink | kava | ABS | | | John |
| | 'John kava-drank.' | | | | | | |

The work of Mithun and Sadock established the core empirical domain of NI as including constructions with a special, tight relation between a verb and its object, with one element expressed in reduced fashion. In

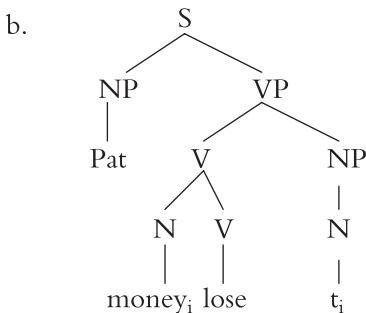
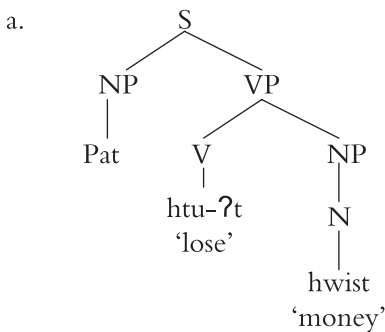
addition, a certain semantic effect was isolated in the core cases: that of number neutrality and conventionalization of the activity. At the same time, their work isolates variation in the ability to support doubling, in what can incorporate, and in the size of the incorporating element. Although it becomes clear in their work that NI is a family of phenomena, with variations in different languages, it is interesting that in the literature on this topic, linguists continue to attempt to restrict the definition of NI, including some, and not other phenomena in its domain (e.g. Baker 1996).

We now turn to discussion of a second wave of debate on the nature of NI, which focuses on the theoretical implications of these parameters within a formal model of grammar.

3. Establishing Derivations: Where Is NI?

Within the formal generative literature, the work that brought NI to center stage was Baker (1988). Baker placed NI in the context of head movement and a whole family of incorporation types and GF changing rules. He analyzes NI as an operation on a base-generated structure of a normal verb phrase containing a verb and an object noun phrase in accordance with the Uniformity of Theta role Assignment. After the verb phrase is formed, the head of the object noun phrase undergoes syntactic movement to adjoin to the verb. His schematic derivation for (1a) is as in (9).

(9) (Baker 1988: 80)



Baker (1988) contrasts this syntactic NI with compounding, such as found in English examples such as berry-picking, stating, like Kroeber (though not cited), that true NI always involves a verb and a structural object. For Baker, this constraint falls out from familiar constraints on movement such as the Empty Category Principle (Chomsky 1981), which, to simplify, prohibits movement from a position other than complement. His research made strong claims about the domain of NI, which are problematic in light of research on incorporation of non-objects, as discussed in Section 5.

A crucial issue for Baker (1988) is that the incorporated nominal can be referential in some languages; that is, it can be referred back to later in the discourse. In this property, the NI cases he focuses on most are like Greenlandic as discussed by Sadock, and contrast with the modificational properties of NI highlighted by Mithun (although both acknowledge that discourse referentiality is variable across languages, a topic of interest to semanticists later on). He argues that this referentiality, in addition to productivity, marks NI as a syntactic process. His analysis is further supported by the theoretical assumption of his Uniformity of Theta Assignment Hypothesis (UTAH), which states that theta roles are always assigned to the same positions. This means that if the incorporated noun receives a patient role, it must have been base generated in object position, the canonical position for the assignment of the patient role. Further evidence for movement is found in the ability in some languages for an adjective (as in (10a)), demonstrative (as in (10b)), or possessor (along the lines of (3b)) to be stranded by the movement of the head noun, which Baker argues supports the existence of a null-headed noun phrase as sister to the verb (see also Baker 2009).

- (10)a. Mohawk (Annette Jacobs personal communication to Mithun 1984: 870)
 Kanekwarúnyu wa'-k-akya'tawi'tsher-ú:ni
 3N.dotted.DIST PAST-1SG.3N-dress-make
 'I made a polka-dotted dress.'
- b. Southern Tiwa (Allen, Gardiner and Frantz 1984, as cited in Baker 1988: 93)
 Yede a-seuan-mū-ban
 that 2s:A-man-see-PAST
 'You saw that man.'

The influence of Baker's (1988) work has been enormous as he provided an elegant structural blueprint for dealing with a wide range of phenomena, and helped give rise to several decades of research on head movement. His book also treats incorporation of verbs, prepositions and affixes, as he sees all these processes as being syntactically the same, but discussion of these goes beyond the topic of this paper. His attempt to account for the full range of NI with a single set of tools became a problem, however, because of the diversity of data across languages. One important typological division is that between NI with referential nouns and NI with non-referential modifier-like nouns. This split has been explored in

the years since Baker (1988), with a prominent contribution being Baker's own later work (Baker 1996), in which he narrows NI to include only the referential type in polysynthetic languages, such as Mohawk. The typologizing of NI on semantic or pragmatic grounds rather than morphologically has led to the inclusion of constructions that are far outside the original parameters outlined by Sapir and Mithun. We will return to this below.

In reaction to Baker, several researchers reiterated that NI should not be viewed as a syntactic operation, but as a lexical process, developing detailed lexical processes to account for the various phenomena. Prominent among these are Rosen (1989) and Di Sciullo and Williams (1987). Anderson (1992, 2001, 2004) also argues for a lexical analysis of NI. These authors argue that NI is a lexical process that affects the argument structure of the stem verb, by linking the content of the incorporated noun to the theta role that the verb assigns. Rosen further argues that the incorporated noun can either undergo compounding, satisfying the thematic requirement of the verb, or act as a classifier by placing a selectional restriction on the object, allowing for a related object to be expressed (as in (5) above). In cases of so-called 'stranding', where a modifier of the incorporated noun appears in object position (as in (10a) above), she assumes, like Baker (1988), that the head of the object is null, but that rather than being a trace, it is a null pronoun. She points out that both the detransitivization often found in NI and the existence of doubling cases are tricky for Baker (1988) to explain so she argues that a lexical analysis for NI is superior (for recent relevant discussion, see Haugen 2009). Other recent formal developments of the lexicalist approach are undertaken within Lexical Functional Grammar (Mohan 1995; Asudeh and Ball 2005; Ball 2005).

A similar approach is developed much later, within type-theoretical semantics, although without the claim that NI is a lexical process, in Chung and Ladusaw (2004) who identify Restrict and Saturate as two possible relations a noun can hold to a theta role (see also Farkas and de Swart 2003). For them, NI is a Restrict relation, so that it delimits the range of the thematic argument without actually saturating the role. Regular objects, on the other hand, saturate the role and are true syntactic and semantic arguments. In some languages, such as Chamorro, both operations can occur, allowing for doubling phenomena similar to (5) in this paper.

One way to combine the benefits of a lexical and a syntactic approach is developed in Van Geenhoven (1998a) and Ghomeshi and Massam (1994), who argue for a base-generated head adjunction structure for the verb and incorporated nominal, thus avoiding the problems of head-movement, and allowing for potential syntactic visibility of the incorporated noun (relatedly, see Toivonen 2003). Van Geenhoven (1998a), studying West Greenlandic, agrees with Baker (1988, 1996) that the referential properties of the incorporated noun argue for syntactic transparency, but she points

out that this is not necessarily an argument for movement. Instead, she develops a formal semantic analysis of how the discourse transparency can work, placing the responsibility on the verb. Also focusing on the verb, Massam (2001, 2009) argues that in Niuean, existential verbs are responsible for creating discourse referentiality for incorporated nouns, in contrast with non-existential verbs, which do not have this property.

As discussed above, recently the force has been taken out of the lexicon versus syntax debates by the collapse in many theories of a clear lexical-syntactic divide. Many of the relevant issues, though, such as the referential status of the incorporated nominal, remain salient today. The debate also remains interesting because it is precisely constructions such as NI, which seem to sit at the edges of these two domains, that led scholars to push the limits of each point of view and led ultimately to the collapse of the distinction that seemed so clear in the early days of Transformational Grammar.

4. Beyond Morphology: The Semantics of NI

There is a recurring observation, highlighted in the early work of Mithun (1984) and Sadock (1980), that in many cases of NI, there are specific semantic effects, for example, the noun is non-referential, modificational, and in some cases classificatory. This has been developed in recent years in several studies of the semantics of NI, which build also on literature on the semantics of noun phrases in general, and of bare nouns in particular (which has a vast literature of its own, just some examples are Carlson 1980; Krifke et al. 1995; Chierchia 1998; Stvan 1998; Ghomeshi 2003; Dayal 2004; de Swart, Winter and Zwarts 2007; Dobrovie-Sorin 2009). These studies cross-cut the morphologically based ones, causing the domain of constructions included under the term ‘noun incorporation’ to shift and to broaden considerably. For example, Farkas and de Swart (2003), working in Discourse Representation Theory, define incorporated nouns as ‘nominals that form a particularly tight unit with the predicate they are arguments of’, allowing for a variety of tight relations to be included, yet (like Kroeber and Baker) they limit the domain of NI to predicate-argument relations. They also require some special morpho-syntactic property to be exhibited, such as the lack of a determiner, the use of a special determiner (as in Chung and Ladusaw 2004), reduced marking for number or case, or the requirement that the nominals be in a special position in the sentence. They do not consider that ordinary narrow scope indefinites should be considered to be the same as incorporated nominals.

A different opinion, that narrow scope indefinites are semantically incorporated, is developed in an important early semantic exploration by Van Geenhoven (1998a,b), mentioned above. In her overview article (2001) she presents a clear summary of the issues arising in the semantics of NI.

Among the core goals have been the attempt to correctly formalize the existential force of the incorporated nominal with some arguing for existential binding (Bittner 1994, Van Geenhoven 1998a,b) and others arguing for other mechanisms (Dayal 2007; Farkas and de Swart 2003; Chung and Ladusaw 2004), and to place incorporated nominals in context with other narrow scope indefinites, either by considering them all to be incorporated (De Hoop 1992; Van Geenhoven 1998a) or not (Farkas and de Swart 2003; Dayal 2007). The role of number and aspect in the interpretation of incorporated nominals has also been a central issue (Dayal 2007). Dayal argues that the number neutrality of incorporated nominals, by which the nominal is neither singular nor plural, can arise through interaction with aspect and that it is not a necessary function of incorporation. A final important issue in the semantic literature concerns whether or not the incorporated nominal can be referred to in later discourse, a troublesome point as there appears to be differences across languages in this regard. In the remainder of this section we focus more on certain structural issues raised by the literature on semantic or pseudo-incorporation; for a more detailed discussion of the semantic issues, see the authors cited and the overviews by Van Geenhoven (2001) and in Farkas and de Swart (2003).

As noted already, defining a subset of NI constructions in semantic terms opens the door to the inclusion of constructions without the morphology of NI, but with the same or similar semantics. Spanning the gap between purely semantic and purely morphological definitions of NI, are cases falling under the juxtaposition category of Mithun (1984). These cases have recently been termed pseudo-noun-incorporation (PNI) (e.g. Massam 2001) or discord or semitransitive structures, as in Margetts (2008) and Sugita (1973), or noun stripping (Miner 1986, 1989; Gerds and Hukari 2008). In such cases, there is no true morphological incorporation, but there is a reduced or stripped nominal object phrase that forms a closer-than-usual relation with the verb. Recently discussed examples are found in Turkish (Öztürk 2004; Kamali unpublished³), Hindi (Mohan 1995; Dayal 1999, 2007), Hungarian (Koopman and Szabolsci 2000; Farkas and de Swart 2003) and in Oceanic languages (e.g. Fijian by Dixon 1988; Aranovich, 2008, and Niuean and Tongan by Seiter 1980; Massam 2001; Asudeh and Ball 2005; Ball 2005). In Chung and Ladusaw (2004), we see another situation intermediate between purely semantic and truly morphological definitions of NI in their account of Māori, where a morphologically special determiner is used, signaling that the object combines with the verb via Restrict, also operative in NI. A Niuean example of PNI is provided in (11), to be discussed below.

- (11) Niuean (Massam 2001)
- | | | | | | | |
|---------------------------------------|----------|---------|-------|------------|-------|-------|
| Ne | holoholo | kapiniu | kiva | fakaeneene | a | Sione |
| PAST | wash | dish | dirty | carefully | ABS.P | John |
| 'John washed dirty dishes carefully.' | | | | | | |

In pseudo incorporation, the ‘incorporated’ nominal has phrasal properties, containing, for example, adjectival phrases as in the Niuean example, number, as in Hindi, or case in Hungarian. In all these instances, however, the nominal phrases are reduced versions of those serving as regular arguments.

Although the incorporated object is larger than a word, it nonetheless in many cases demonstrates a degree of coalescence with the verb, forming part of the predicate rather than acting as an independent argument. This is particularly clear in Niuean, where we see word order changes with PNI. In (11), the noun phrase object forms part of the predicate, appearing before the subject and inside post-nominal modifiers such as *carefully*, in (11). The reduced nominal is non-referential, and the predicate is now intransitive, as evidenced by the absolutive case marker on the agent argument *Sione*, which contrasts with ergative case on transitive agents. NI thus appears as an extreme example of detransitivization, as discussed by Hopper and Thompson (1980).

In Hindi, on the other hand, PNI nominals are not formally part of the predicate as the sentence remains transitive, and the objects can appear separated from the verb. Nonetheless they are argued to be incorporated, due to semantics. The semantic hallmarks of NI are that the nominal takes only narrow scope (Bittner 1994; Van Geenhoven 1998a), the nominal is neutral for number (Dayal 2007), and, as noted by Mithun, the NI predicate frequently must name a conventional activity. This last characteristic has implications for productivity, which can vary across languages. Another characteristic is that in many languages, the incorporated nominal cannot support discourse anaphora, as mentioned above. Dayal (1999, 2007), building on Mohanan (1995), argues that these characteristics are found in Hindi PNI, in contrast with other bare nominals, although she argues that number neutrality actually arises through interaction with aspect.

Hungarian, like Niuean, reserves a particular word order (subject–object–verb) for incorporated noun phrases, being ordinarily subject–verb–object (Farkas and de Swart 2003). On the other hand, Danish is like Hindi in allowing flexibility with respect to verb–object adjacency (Asudeh and Mikkelsen 2000). Notably, most studies of PNI rely on the object merging into the position of sister to the verb. Given that many currently view objects as being merged into specifier position, this issue needs further analysis.

The study of semantic NI demonstrates that there is a rich variety of interpretations, as well as formal characteristics, of NI around the world, which remains relatively untapped. There is some consensus that we need two modes of combination for noun phrases with predicates, as argued by Chung and Ladusaw (2004) and Farkas and de Swart (2003). The standard mode is termed Saturation by the former authors, as mentioned above, and Argument Instantiation by the latter authors,

while a new mode for incorporated nominals is proposed, termed Restriction (Chung and Ladusaw 2004) or Unification (Farkas and de Swart 2003). Unification, in incorporated nouns is related to the interpretation of implicit arguments, with important implications for number interpretation and discourse anaphora. The works cited here, among others, have only begun to describe and formalize the range of possibilities, but nonetheless they have brought the issues into sharper focus.

5. Other Issues in NI

As well as the main NI themes outlined in the previous section, the literature on NI includes other papers that outline in detail theoretically relevant cross-linguistic data. Within this literature, many other issues are touched on. In this section I will mention at least some of these works.

In reaction to the insistence since the very beginning of the central role of objects in NI, there is an interesting body of work on the incorporation of elements other than objects. In particular the nature of subject and adjunct (modifier) incorporation is a focus, since it is virtually predicted not to exist by Baker (1988) among others. In English, we find examples such as *bird-chirping* and *snowfall* (Comrie 1978; Thornburg and Panther 2000), which result in nouns and not verbs, thus falling outside most definitions of NI. Subjects have been noted to incorporate in some languages, most commonly non-agentive subjects of intransitive verbs (see Allen, Gardiner and Frantz 1984, as cited in Baker 1988; Keenan 1984; Mithun 1984; Axelrod 1990; Polinsky 1990; Spencer 1995; Cook and Wilhelm 1998; Aikhenvald 2000; Rice 2000, 2007, 2008; Gerdtz 1998; Cagri 2009, Öztürk 2009). In Turkish, arguably subjects of transitive verbs can undergo incorporation, as discussed in Erguvanli (1984) and Kamali (unpublished). Aikhenvald (2000) notes a case involving the incorporation of a nominal whose possessor is an agent. Alexiadou (1997) is a landmark publication on the incorporation of adverbs in Greek (see also Rivero 1992; Smirniotopoulos and Joseph 1998). These works have been and continue to be important in raising questions for widely accepted analyses of NI, such as Baker (1988), and their status continues to be debated.

In addition to subject and modifier incorporation, we also find other thematic types of incorporated nominals such as locatives and instruments (Seiter 1980; Baker 1988; Cook and Wilhelm 1998; Rice 2008), which can also be construed as problematic for the 'object-only' view of incorporation, with the result that study of these types on NI has been somewhat sidelined. Baker (1988) suggests that in such cases of incorporation, these nominals simply enter the syntax without their preposition, a solution not satisfying to some.

The possibility for modifiers and non-direct objects to incorporate raises questions again about the modificational nature of some cases of NI, and the attempts to restrict NI to verb–object relations. Notably, Sapir points out that it is not really possible to prove that examples such as *I meat-eat* are derived from sentences such as *I eat meat* and not something more like *I feed on or with meat*. The modificational nature of many types of NI connects the literature with other bodies of work on complex and serial verbs.

Several linguists have noted the possibility of the incorporation of phrases larger than NP, such as prepositional phrases. Massam (2009) observes that this seems prevalent in locative incorporation, found in Niuean, Paiwan, and Inuktitut (Chang and Wu 2005; Johns 2009; Massam 2009). Another semantic domain restriction is found with existential verbs in Niuean, which allow the incorporated nominal to be referential, unlike other verbs in the language. (Massam 2009, see also Chung unpublished,⁴ 1988; Sabbagh 2006).

NI is usually taken to be limited to indefinite NPs, thus determiners and proper names are low on the list of possible incorporates. However, Johns (2009) notes that proper names can be incorporated in Inuktitut (contrary to Mardirussian 1975), while Pearce (2001a,b) argues that pronoun and proper name complements in Iaa involve incorporation of a determiner. These facts go against predictions of recent semantic analyses of NI such as Chung and Ladusaw (2004) and Farkas and de Swart (2003) (see also Mathieu 2005; Aranovich 2008). Davis and Sawai (2001) argue that *wh*-movement involves incorporation in Nuu-chah-nulth.

Certain subtypes of NI are particularly prevalent across languages, for example, the incorporation of possessors and body parts is found in languages which otherwise do not permit NI (see Aikhenvald 2000; Paul 2009). The literature on this topic is large enough to effectively constitute a separate body, and space limitations rule out its coverage here. In addition, the relationship between body-part NI and classificatory NI causes NI studies to overlap with the study of classifiers and possessor raising. For some representative discussions, see references in Aikhenvald (2000), Evans (1996), Evans and Sasse (2002), Lichtenberk (2005, 2006), Velasquez-Castilla (1993).

NI is also linked to the study of polysynthesis, and to clitics and pronominal argument incorporation (Sapir 1911; Jelinek 1984; Baker 1996), and there have been a few studies in interface relations with other areas of linguistics, such as acquisition (e.g. Allen 1994; Robinson 1994; Parkinson 1999). Many linguists have also touched on its role in historical linguistics (e.g. Mithun 1984; Rice 2008).

In addition to the literature mentioned here are countless papers, most commonly found in working paper editions and conference proceedings, covering the myriad of typological characteristics of NI constructions around the world.

6. Conclusion

We have seen that for over a hundred years, linguists have been fascinated by the complexities of NI. There has been much discussion about which constructions can rightly fall under this name, and about where in the grammar NI should be handled. In the earlier studies, the main focus was on the morphology of NI, but in recent years, the focus has shifted to understanding the semantics of the construction, both in terms of the meaning of the parts (noun and verb) and the meaning of the whole (noun+verb). In addition to the theoretical debates, there has been a wealth of research on the details of NI constructions in languages around the world. NI has constituted a study on its own, but it intersects with many other research areas, such as the study of bare nominals, implicit arguments, discourse reference, complex predicates, possessive constructions, and classifier systems. NI constructions have also been looked at from the point of view of language change and acquisition. NI studies all by themselves provide us with a microcosm of linguistic theory, demonstrating the struggle by linguists to answer major questions such as what constitutes a construction, what are the differences between words and sentences, and what is the relation between meaning and form.

Short Biography

Diane Massam's research focuses on syntactic theory, in the areas of argument structure, predication, and word order. Her empirical focus is on Niuean, a Polynesian language in the Austronesian family, with verb-initial order and an ergative case system. Alongside her research on Niuean, she has an interest in unusual English constructions. Massam has published papers in many journals such as *Lingua*, *Oceanic Linguistics*, *Natural Language and Linguistic Theory*, *English Language and Linguistics*, and *Syntax*, and she has articles in books from publishers such as Benjamins, de Gruyter, Springer and Oxford University Press. She has also co-edited a book on ergativity with Springer, and edited a *Canadian Journal of Linguistics* volume on Austronesian linguistics. She is an active participant in the Austronesian Formal Linguistics Association and the Canadian Linguistics Association. She has held several research grants from the Social Sciences and Humanities Research Council of Canada, and was co-editor of *Squibs for Linguistic Inquiry* (1998–2002), honorary research fellow at the University of Auckland (2001), and visiting professor at Harvard University (2006). Massam teaches at the Department of Linguistics at the University of Toronto, where she served as Chair from 2002 to 2008. She holds a BA from York University, an MA from the University of Toronto, and a PhD from Massachusetts Institute of Technology.

Notes

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¹ The literature on NI is vast, ranging from major theoretical papers and books to sections of grammars or small sketches of unusual data from particular languages, but while each paper is important in contributing to our overall understanding of the phenomena, not all papers can all be cited here. Instead, I will attempt to provide a sampling of the types of literature on this topic, both theoretical (in various theories, but my focus is generative) and empirical. I would like to thank Rostyslav Bilous, Donna Gerdts, Alana Johns, Yves Roberge, two anonymous reviewers, and David Basilico for helpful comments.

² For many languages, there are multiple names. I use the name used by the authors cited. For space reasons I do not present a lot of examples, so please see sources cited for more examples. Abbreviations used are those of the cited authors. They are: A 'agreement class' (Southern Tiwa), ABS 'absolutive', ANTIPASS 'antipassive', ASP 'aspect', AUX 'auxiliary', CAUS 'causative', CONN 'connective', DIST 'distal', 'ERG 'ergative', INDIC 'indicative', M 'masculine', N 'neuter', P 'proper', PERF 'perfective', PRE 'nominal prefix', s 'singular', S 'subject', SG 'singular', SUB 'subject', SUF 'nominal suffix', 1 'first person', 3 'third person'.

³ I am grateful to Beste Kamali for interesting discussions about Turkish.

⁴ I would like to thank Sandra Chung for allowing me access to her 1987 unpublished paper 'Incorporation and small clauses in Chamorro'.

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