

Squibs and Discussion

HEAD MOVEMENT AND NOUN
INCORPORATION

Michael Barrie

Sogang University

Éric Mathieu

University of Ottawa

Head movement (HM), once a mainstay of generative syntax, has undergone a tumultuous series of overhauls over the years (Baker 2009, Boeckx and Stjepanović 2001, Chomsky 2001, Fanselow 2003, Mahajan 2003, Matushansky 2006, Roberts 2010). The problems with HM have been discussed in the literature just cited, and we do not comment further on them here. Rather, we wish to address the issue of HM and noun incorporation (NI) in light of Roberts's (2010) recent reworking of HM. In a nutshell, we show that the mechanism for HM adopted by Roberts (who uses NI to support his agreement proposal), while well-suited for capturing other properties Roberts discusses such as clitics in Romance and Slavic languages, fails to capture various properties of NI in several languages—notably Fox and Ojibwe (Algonquian) and various Northern Iroquoian languages (Mohawk, Onondaga, and Oneida), though we discuss other languages below. We do not argue that Roberts's approach for HM is on the whole untenable; we merely contend that it cannot be the right analysis of NI.¹

This squib is organized as follows. In section 1, we give some background to HM and NI. In section 2, we outline the mechanics of HM as presented by Roberts, along with Roberts's preliminary analysis of NI in Mohawk. In section 3, we present the relevant properties of NI in the languages mentioned above. In section 4, we discuss the problems facing Roberts's proposal for HM and NI. In section 5, we present our conclusions and the implications of the current discussion for NI.

We wish to thank our speakers, Beatrice Bullshields (Blackfoot) and Philomene Chegahno and Ernestine Proulx (Ojibwe), for their valuable assistance. We also wish to thank Elizabeth Cowper and two anonymous *LI* referees for some helpful discussions on the points made here. We acknowledge the financial support of SSHRC (756-2008-0389 and 410-2005-1781). All errors are our own.

¹Roberts painstakingly shows that the previous approaches to HM noted in the references above are fatally problematic. Thus, we do not consider NI in light of these earlier proposals.

1 Background

One holdover from the Government-Binding era is the distinction between HM and phrasal movement, which persists to this day (Aboh 2004, Baker 2009, Roberts 2010). However, with the demise of any formal distinction between X^0 and XP and the introduction of bare phrase structure (Chomsky 1995), the concept of HM has been called into question (Fanselow 2003, Koopman and Szabolcsi 2000, Mahajan 2003). Chomsky (2000, 2001) suggests relegating HM to PF, but leaves open the possibility that incorporation phenomena may still be part of the overt syntax (Chomsky 2001:37). NI certainly cannot be a purely PF phenomenon given its semantic effects, such as frozen scope (Baker 1996, Van Geenhoven 1998), and syntactic properties, such as changes in argument structure (Sadock 1986). In response to the growing skepticism regarding the existence of HM, Baker (2009) reaffirms that HM indeed is still needed for NI, but he does not address how NI can be implemented in a bare phrase structure framework.

2 Head Movement in Roberts 2010

Roberts (2010) recasts HM as a reflex of Agree between a probe and a defective goal, bringing it in line with mainstream minimalist syntax. He takes a defective goal to be one whose features are a proper subset of the features of the probe. Following Roberts, we illustrate the operation with Romance clitics. Roberts assumes that an active, transitive v^* has an interpretable V-feature, [iV] (to categorize the lexical root), and [$u\phi$]. Following Cardinaletti and Starke (1999) and Déchaine and Wiltschko (2002), he further assumes that a clitic is a bare ϕP devoid of Case features—in other words, a bundle of interpretable ϕ -features, [$i\phi$]. When the V - v^* complex enters into an Agree relation with the clitic, the [$u\phi$] feature set on v^* is valued by the clitic (Roberts 2010: 60, (30)).

- (1) a. *Trigger for Agree*
 v^* [Pers:____, Num:____] ϕ [Pers:*a*, Num:*b*]
- b. *Outcome of Agree*
 v^* [**Pers:*a*, Num:*b***] (ϕ [Pers:*a*, Num:*b*])

Roberts argues that there is no formal difference between Agree that exhausts all the features of the goal, on the one hand, and Move/internal Merge of the goal to the probe, on the other. In other words, the outcome of (1b) Agree(v^* , ϕ) is indistinguishable from Merge(v^* , ϕ) precisely because the set of features on ϕ is a subset of the features on v^* . Contrast the two structures in (2). In both cases, the same set of features appears on v^* after either Agree or Move.

- (2) a. *Outcome of Agree*
 $[_{vP} v^* [\mathbf{Pers:a, Num:b}] [_{\phi P} \phi [Pers:a, Num:b]]]$
- b. *Outcome of Move*
 $[_{vP} [_{v^*} \phi [Pers:a, Num:b]_i v^*] [_{\phi P} t_i]]$

Finally, HM fails with a full DP object because it contains features that are not part of v^* (such as D and Case).

Roberts reviews Baker's (1996) properties of polysynthetic languages and proposes that NI can be captured under the same rubric as cliticization, thus following the tradition started by Baker (1988) in treating NI as HM. Roberts considers the following example of NI in Mohawk (Baker 1996:12, (9)):²

- (3) wa'- ke- nákt- a- hnínu- '

FACT- 1SG.S- bed- EPEN- buy- PUNC

'I bought the/a bed.'

The relevant probe in Mohawk (and, we assume, in all languages with NI) is a v^* endowed with a D-feature, which Roberts argues is present because of rich object agreement (just as T has a D-feature for languages with rich subject agreement). NI, then, proceeds as follows. The nominal root incorporates into a nominalizer head (N-n), just as V raises to v , endowing the nominal expression with an N-feature.³ Roberts further makes the reasonable assumption that a D-feature entails an N-feature. Thus, the set of features on the goal, $\{[N]\}$, is a subset of the features on the probe, $\{[D], [V], [\mu\phi]\}$, given that $[D]$ entails $[N]$. Roberts suggests, leaving various questions unanswered, that once the v^* probe enters into an Agree relation with the goal (the incorporated nominal), the goal necessarily incorporates since its features are a subset of the probe's. This is because, as with clitic movement above, once v^* enters into the Agree relation with the N-n complex, the result is indistinguishable from actual movement, so incorporation ensues.

We have sketched Roberts's analysis of HM and how it applies to NI. In the following section, we describe some further properties of NI and then continue to explain how they are problematic for Roberts's proposal.

3 Noun Incorporation

We briefly describe the facts of NI relevant to the current discussion, concentrating mainly on Ojibwe (Algonquian) and Northern Iroquoian;

² List of abbreviations: ADV = adverb; AG = agent; AN = animate; CISLOC = cislocative; DEG = degree; DET = determiner; DIM = diminutive; EPEN = epenthetic; F = feminine; FACT = factual; IMP = imperfective; INVIS = invisible; LINK = linker; M = masculine; N = neuter; NSF = noun suffix; NZLR = nominalizer; OBV = obviative; PAT = patient; PEJ = pejorative; PL = plural; PROX = proximate; PST = past; PUNC = punctual; S = subject; SG = singular; STAT = stative; TR = transitive; VAI = verb animate intransitive; VIT = verb inanimate transitive.

³ Note that it is this very property of NI in Northern Iroquoian that is problematic for Baker's (2009) HM approach. Baker argues that movement of a lexical head (a root) to a functional head (e.g., n) and then back to a lexical head (e.g., V) is barred. This is precisely the kind of movement that Roberts (2010) argues takes place in NI (the assumption is that n, v, and the like, are functional categories).

however, we do introduce data from other languages where they are pertinent to the discussion (for a fuller discussion of NI, see Gerdtz 1998, Massam 2009). Consider first two examples of NI in Onondaga (Northern Iroquoian).

- (4) a. waʔ- ha- yɛkw- a- hninu- ?
 FACT- 3SG.M.AG- tobacco- EPEN- buy- PUNC
 ‘He bought tobacco.’
 (Woodbury 1975:15, (1.1b))
- b. da- khe- adogw- ʔtsh- ɛ-
 CISLOC.FACT- 1SG.AG:3SG.F.PAT- spoon- NZLR- hand-
 ?
 PUNC
 ‘I handed her a spoon.’
 (Woodbury 2003:73)

(4a) shows a bare root incorporated into the verbal complex, and (4b) shows the incorporated element (*adogw* ‘spoon’, which derives from a verbal base meaning ‘scatter’) with a nominalizer. While in many languages the incorporated nominal (IN) can consist only of a bare root, it is quite common for nominalizers to appear as part of the IN complex. Ojibwe also exhibits NI with overt nominalizers, as shown in (5).⁴

- (5) a. n- gii- beengw- naa- gan- ee
 1SG- PST- dry- dish- NZLR- VAI
 ‘I dried the dishes.’
 (Rhodes 1976:263)
- b. gii- naa- d- bkwenzh- gan- e
 PST- fetch- TR- bread- NZLR- VAI
 ‘He/She went after some bread.’
 (Philomene Chegahno, speaker, 5 May 2008)

Furthermore, the IN in Ojibwe can be modified, as shown in (6).

- (6) n- gii- gichi- gizhebaa- wiisin
 1SG- PST- big- breakfast- eat
 ‘I ate a big breakfast!’
 (Ningewance 2004:127)

Note that this is not simply a lexicalized compound. While it’s conceivable that ‘big breakfast’ might be common enough to be stored as a whole, other modifiers that can incorporate include numerals, which strongly suggests a nonlexical source for these constructions. See Sadock 1980:316 for similar facts in Greenlandic.

In Fox (Algonquian), this type of incorporation can also involve nouns that are possessed, as illustrated in (7).⁵

⁴ In Ojibwe, it is also possible to incorporate simple roots; but when a noun is formed from a verb form, a nominalizer (e.g., *-gan*) is needed.

⁵ A reviewer suggests that this example looks like a serial construction and asks whether possession is allowed only in this context. The answer is no: possession is also allowed in contexts where only one verb appears.

- (7) ne- pyätci- ke- tānes- awâpagā- pen
 1- come.to- your- daughter- see- IMP.PL
 ‘We have come to see your daughter.’
 (Michelson 1917:51)

In Fox, it is also possible for demonstratives to incorporate into the verb, as (8) shows. On the reasonable assumption that demonstratives are Ds, then clearly they are not defective.⁶ They nevertheless can incorporate.

- (8) kici- ini- atcimutci
 after- that- narrate
 ‘After he narrated that, . . .’
 (Michelson 1917:51)

Finally, we illustrate NI into light verbs. This kind of NI has been studied extensively by Johns (2007) for Inuktitut. To illustrate, in Ojibwe (9) the noun *naboob* ‘soup’ merges with the morpheme *-ke*, a verbal form that means ‘make’, ‘build’, ‘hunt’, ‘pick’, ‘do’, and so on. The verbal form has a very general meaning akin to an auxiliary and unlike a lexical verb (see Mathieu, to appear, for a full description of these denominal verbs).⁷

- (9) Eric gii- naboob- ke- w
 Eric PST- soup- VAI- 3SG.S
 ‘Eric was making soup.’
 (Ernestine Proulx, speaker, 19 April 2007)

Ojibwe nominals in such incorporating constructions can also contain diminutive and pejorative morphology, (10), and number (singular)/gender (animate) morphology, (11), both showing again that the incorporated element is much larger than a root or N-n complex.

- (10) gii- [ikwe- zhenzh- ish]- i- w
 PST- [girl- DIM- PEJ]- VAI- 3SG.S
 ‘She was a naughty little girl.’
 (11) gii- [makw- a]- ke- w
 PST- [bear- SG/AN]- VAI- 3SG.S
 ‘He/She was hunting bears.’

⁶ A reviewer questions this assumption and suggests that in many languages, demonstratives behave like Ns rather than Ds—that is, appear in instances where Ns could have appeared. We suggest instead (noncontroversially) that when a demonstrative appears on its own and/or in place of a noun, it is a case of noun ellipsis where the demonstrative is under D and the noun is phonologically empty (in languages such as English where noun ellipsis of this kind is not possible, ‘one’ is used instead of a null noun, as in ‘that one’).

⁷ This type of construction is often called a *denominal verb construction*. However, this term is misleading because the construction is very much like NI. It is very different from denominal verb formation in English (see Mathieu, to appear, for details). It shares many properties with traditional NI (referentiality of the noun, stranding of modifiers, etc.). We therefore side with Sadock (1980, 1986) rather than with Mithun (1984, 1986) and Sapir (1911) in our treatment of denominalization in North American languages.

To sum up, we have shown that NI constructions can incorporate material beyond a nominal root and a nominalizer. In particular, we showed that the IN can be modified by adjectives or can appear with additional inflectional material such as number or possessive markers.

4 Problems with Roberts 2010

Given that Roberts (2010) provides the most viable revision of HM within a bare phrase structure perspective, it behooves us to examine the ramifications of this proposal for NI. As it turns out, Roberts's account of NI faces several problems. Recall that for NI to proceed as HM, it is crucial that the IN not be distinct from the probe, v^* , and that v^* consist of active object agreement to license the incorporation of nominal material. Crucially, we find crosslinguistically that (a) NI involves incorporation of distinct material, and (b) NI often lacks object agreement.

The NI constructions in Algonquian presented in (6)–(8) are problematic because they include material not contained in the feature makeup of the v^* probe. Spencer (1995:481) also discusses data from Chukchi where INs are modified. Moreover, the IN cannot be said to be a clitic (a defective element) since unlike a clitic it is perfectly capable of appearing separately from the verb, as in (12) (Ojibwe) and (13) (Mohawk).

(12) n-gii-naad-in bkwenzh-gan
1SG-PST-fetch-VIT bread-NZLR
'I went after some bread.'

(13) wa'-k-hnúnu-' ne ka-nákt-a'
FACT-1SG.AG-buy-PUNC NE N.SG.S-bed-NSF
'I bought a/the bed.'
(Baker 1996:279)

The case in (14) shows the same result with a different kind of construction. Adverb incorporation (AdvI) is found in a variety of languages, including Greek (Alexiadou 1997, Rivero 1992). Consider the following minimal pair. In the non-AdvI form, the freestanding adverbial is marked with adverbial morphology. In the AdvI form, the lexical root appears with a linking vowel (Ralli 2003).

(14) a. O Janis ferete kal-a.
DET Janis behaves well-ADV
'Janis behaves well.'
b. O Janis kal-o-ferete.
DET Janis well-LINK-behaves
'Janis behaves well.'
(Alexiadou 1997:179)

Ralli suggests that the linking vowel may be a morphological element present in compounds. If so, this root+LINK combination is not a defective goal in Roberts's terms, as it contains whatever features are present on the linker that are not present in the probe, v^* .

A clearer case of AdvI with additional functional material comes from Blackfoot (Algonquian). Consider the following example, where the incorporated adverb appears with a degree word:

- (15) ann-wa John iik-Ikkam-iy-owat-si ann-yi-hka-yi
 DET-PROX John DEG-fast-IY-eat-MOOD DET-OBV-INVIS-SG
 apastaminam
 apple
 ‘John ate that apple very quickly.’
 (Beatrice Bullshields, speaker, 10 August 2007)

If we follow Roberts (2010), we could argue that the nouns in (5) are formed via the merger of a nominal root, N, with *n* and that it is this N-*n* complex that merges with the lexical verb. However, INs in such contexts can be modified as shown in (6), thus endowing the IN with an Adj categorial feature (akin to N and V), which is not present on the *v** probe. The examples of AdvI above also contain features not present on the probe—namely, an Adj categorial feature (assuming adverbs are built out of adjectives), and, in the case of Blackfoot, a Degree feature.

Next, we turn to the issue of lack of object agreement. For Roberts’s proposal it is crucial that object agreement is found on the *v** probe in order to ensure that the goal’s (the IN’s) features are nondistinct from the probe’s. It is well-known that Northern Iroquoian languages have robust subject and object agreement. However, Northern Iroquoian languages typically lack any kind of agreement with inanimate objects (see Koenig and Michelson 2008 for the source of the argument developed here). Transitive forms exhibit both subject and object agreement that does not vary with aspect. Intransitive forms typically have subject agreement with their single argument (although there are many lexical exceptions) in nonperfective aspects and object agreement in the perfective (stative in Iroquoianist terms) (Lounsbury 1949). Consider the following example with NI:

- (16) ak- atənaʔt- shR- a- hninǫ- h
 1SG.PAT- groceries- NZLR- EPEN- buy- STAT
 ‘I have bought groceries.’
 (Woodbury 2003:538)

The fact that the notional subject of the sentence is referenced by patient agreement shows that this sentence is morphosyntactically intransitive. If there were a phonologically null agreement marker referencing the object, then we would see agent agreement on the subject.

Consider finally the Onondaga example of possessor raising in (17) (see Michelson 1991 for more details). Here, verbal agreement references the notional subject and the possessor, but not the IN. Northern Iroquoian languages can reference a maximum of two arguments. Since both agreement markers are used up by other arguments, the IN cannot be referenced by any agreement marker. In other words, *v* has a D-feature (and hence an *n*-feature), but it does not agree with the IN; it agrees with *Mary*.

References

- Aboh, Enoch. 2004. Snowballing movement and generalized pied-piping. In *Triggers*, ed. by Anne Breitbarth and Henk van Riemsdijk, 15–48. Berlin: Mouton de Gruyter.
- Alexiadou, Artemis. 1997. *Adverb placement: A case study in antisymmetric syntax*. Amsterdam: John Benjamins.
- Baker, Mark C. 1988. *Incorporation: A theory of grammatical function changing*. Chicago: University of Chicago Press.
- Baker, Mark C. 1996. *The polysynthesis parameter*. New York: Oxford University Press.
- Baker, Mark C. 2009. Is head movement still needed for noun incorporation? *Lingua* 119:148–165.
- Barrie, Michael. 2010. Noun incorporation as symmetry breaking. *Canadian Journal of Linguistics* 55:273–301.
- Boeckx, Cedric, and Sandra Stjepanović. 2001. Head-ing toward PF. *Linguistic Inquiry* 32:345–355.
- Cardinaletti, Anna, and Michal Starke. 1999. The typology of structural deficiency: On the three grammatical classes. In *Clitics in the languages of Europe*, ed. by Henk van Riemsdijk, 145–233. Berlin: Mouton de Gruyter.
- Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge, MA: MIT Press.
- Chomsky, Noam. 2000. Minimalist inquiries: The framework. In *Step by step: Essays on minimalist syntax in honor of Howard Lasnik*, ed. by Roger Martin, David Michaels, and Juan Uriagereka, 89–156. Cambridge, MA: MIT Press.
- Chomsky, Noam. 2001. Derivation by phase. In *Ken Hale: A life in language*, ed. by Michael Kenstowicz, 1–52. Cambridge, MA: MIT Press.
- Déchaîne, Rose-Marie, and Martina Wiltschko. 2002. Decomposing pronouns. *Linguistic Inquiry* 33:409–442.
- Fanselow, Gisbert. 2003. Münchhausen-style head movement and the analysis of verb-second. In *Syntax at sunset 3: Head movement and syntactic theory*, ed. by Anoop Mahajan, 40–76. UCLA Working Papers in Linguistics 10. Los Angeles: UCLA, Department of Linguistics.
- Gerds, Donna B. 1998. Incorporation. In *The handbook of morphology*, ed. by Andrew Spencer and Arnold M. Zwicky, 84–100. Malden, MA: Blackwell.
- Johns, Alana. 2007. Restricting noun incorporation: Root movement. *Natural Language and Linguistic Theory* 25:535–576.
- Koenig, Jean-Pierre, and Karin Michelson. 2008. Revisiting the realization of arguments in Iroquoian. Paper presented at the annual meeting of the Linguistic Society of America, Chicago, 3–6 January.
- Koopman, Hilda, and Anna Szabolcsi. 2000. *Verbal complexes*. Cambridge, MA: MIT Press.
- Lounsbury, Floyd Glenn. 1949. Iroquoian morphology. Doctoral dissertation, Yale University, New Haven, CT.

- Mahajan, Anoop. 2003. Word order and (remnant) VP movement. In *Word order and scrambling*, ed. by Simin Karimi, 217–237. Malden, MA: Blackwell.
- Massam, Diane. 2001. Pseudo noun incorporation in Niuean. *Natural Language and Linguistic Theory* 19:153–197.
- Massam, Diane. 2009. Noun incorporation: Essentials and extensions. *Language and Linguistics Compass* 3:1076–1096.
- Mathieu, Éric. 2008. Word formation as phrasal movement: Evidence from Ojibwe. Paper presented at NELS 39, Cornell University, Ithaca, NY, 7–9 November.
- Mathieu, Éric. To appear. Denominal verbs in Ojibwe. *International Journal of American Linguistics*.
- Matushansky, Ora. 2006. Head movement in linguistic theory. *Linguistic Inquiry* 37:69–109.
- Michelson, Karin. 1991. Possessor stranding in Oneida. *Linguistic Inquiry* 22:756–761.
- Michelson, Truman. 1917. Notes on Algonquian languages. *International Journal of American Linguistics* 1:50–57.
- Mithun, Marianne. 1984. The evolution of noun incorporation. *Language* 60:847–894.
- Mithun, Marianne. 1986. On the nature of noun incorporation. *Language* 62:32–37.
- Ningewance, Patricia M. 2004. *Talking Gookom's language: Learning Ojibwe*. Lac Seul, ON: Mazinaate Press.
- Ralli, Angela. 2003. Morphology in Greek linguistics. *Journal of Greek Linguistics* 4:77–129.
- Rhodes, Richard A. 1976. The morphosyntax of the Central Ojibwa verb. Doctoral dissertation, University of Michigan, Ann Arbor.
- Rivero, María Luisa. 1992. Adverb incorporation and the syntax of adverbs in Modern Greek. *Linguistics and Philosophy* 15: 289–331.
- Roberts, Ian. 2010. *Agreement and head movement: Clitics, incorporation, and defective goals*. Cambridge, MA: MIT Press.
- Sadock, Jerrold. 1980. Noun incorporation in Greenlandic: A case of syntactic word formation. *Language* 56:300–319.
- Sadock, Jerrold. 1986. Some notes on noun incorporation. *Language* 62:19–31.
- Sapir, Edward. 1911. The problem of noun incorporation in American languages. *American Anthropologist* 13:250–282.
- Spencer, Andrew. 1995. Incorporation in Chukchi. *Language* 71: 439–489.
- Van Geenhoven, Veerle. 1998. *Semantic incorporation and indefinite descriptions: Semantic and syntactic aspects of noun incorporation in West Greenlandic*. Stanford, CA: CSLI Publications.
- Woodbury, Hanni. 1975. Onondaga noun incorporation: Some notes on the interdependence of syntax and semantics. *International Journal of American Linguistics* 41:10–20.
- Woodbury, Hanni. 2003. *Onondaga-English/English-Onondaga dictionary*. Toronto, ON: University of Toronto Press.

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