

Adjunction of complex heads inside words:

A reply to Piggott and Travis (2013)

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X.1 Introduction

Many concepts in generative grammar have been adopted wholesale from traditional grammar, for example the distinction between inflectional and derivational morphology, the distinction between lexical and functional categories, the distinction between nouns and verbs, etc.¹

However, as it has been shown repeatedly in recent years, it is not clear that these dichotomies are helpful since they do not constitute primitives and are often not as clear-cut as expected. For example, it is not clear whether prepositions are functional or lexical (some evidence points to the former view, some to the latter), the distinction between inflectional versus derivational morphology is often blurred (as shown in the Distributed Morphology framework), and some categories are semi-lexical or semi-functional or simply mixed categories (e.g. gerunds).

Another distinction introduced by traditional grammars and taken up by generative grammar that is problematic is the distinction between words and phrases. Traditionally, the assumption within the Chomskyan paradigm (and the Distributed Morphology of Halle and

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Marantz 1993) has been that, in contrast with phrases, concatenation of heads creates words; that is, head movement is responsible for the building of words (Travis 1984; Baker 1988). However, despite the fact that the distinction is one of the cornerstones of generative grammar, it turns out that many supposedly well-defined distinguishing properties between heads and phrases cut across both words and phrases (Koopman 2012). This casts doubt on the idea that head movement is naturally designed for the building of words and the idea that words are necessarily built via head movement.

Recent developments of the generative enterprise indicate that certain word-internal orderings of morphemes are the result of phrasal movements, for example Kayne (1994), Nilsen (2003), Buell and Sy (2005), Koopman (2005), Julien (2007), Muriungi (2008), Leu (2008, this volume), Noonan (2010, this volume), and Myler (2012). In many cases (although not all), authors generalize their findings and propose that head movement can be eliminated: complexity within a word is viewed as phrasal movement or “roll-up” movement and case, agreement, tense, aspect, etc. morphemes are treated as edge elements (i.e. elements attaching to XPs).

This shift from head-movement to phrasal-movement analyses can be taken as a welcome result, since head movement is problematic for current syntactic theory and the trend has been, following Chomsky (2001), to eliminate it from the narrow syntax and relegate it to the PF interface. The proposal that most of the data once explained in terms of head movement can be recast in terms of phrasal movement has the advantage of not abandoning a syntactic explanation of these facts. In many cases, a PF account is not possible.

A case in point is the case of noun incorporation. Recently, a series of proposals (Lochbihler and Mathieu 2007a, 2007b; Mathieu 2007, 2008a, 2008b; Barrie and Mathieu 2012, 2015) has argued that noun incorporation does not involve head movement of the noun to its verbal host, as proposed by the standard theory (Baker 1988, 1996, 2003, 2009), but phrasal

movement. Traditionally, incorporated nominals are said to be bare roots and to undergo head movement to their verbal host, but it turns out that, contra the received wisdom, incorporated nominals in Ojibwe and other languages are morphologically complex (with prefixes and suffixes, modifiers, as well as a whole range of extended projections of N) and, importantly, incorporated nominals are complex in such a way that a head movement account proves difficult if not impossible to implement. If head movement is not a possible syntactic operation in any case, then these observations support the claim that noun incorporation is not derived by head movement (the idea that noun incorporation is an exception to the generalization that head movement is not syntactic (Chomsky 2001) is ad hoc and should thus be rejected – see Barrie and Mathieu (2015) for details).

The purpose of this paper is to review Piggott and Travis's (2013) (P&T, henceforth) recent arguments in favour of the view that, despite their flagrant complexity, Ojibwe words are not built via phrasal movement but are constructed via traditional head movement with the conclusion that there is no reason to abandon or even relax the Lexical Integrity Principle (Baker 1988). In contrast, we argue that nothing in P&T's account depends on words being formed by head movement. In particular, it is shown that P&T's ideas may be adapted to a phrasal account of Ojibwe word formation, and that this phrasal account is to be preferred on both theoretical and empirical grounds. Accepting P&T's proposal that complex adjuncts must be generated and spelled out in a separate workspace before being merged into the clausal structure, there is nevertheless no need to posit that the constituent thus formed is a complex head. Instead, it is proposed that the constituent is a phrasal category, which adjoins to the VP after being generated and undergoing spell-out.

Section X.2 lays out the two puzzles introduced by P&T, around which the present paper is organized. Section X.2 also presents P&T's account, which allows complex heads to be

externally merged. Section X.3 examines the theoretical difficulties with this idea while section X.4 reviews the empirical problems. Section X.5 shows that the empirical facts P&T introduce can receive a phrasal account without losing any empirical insight. Section X.6 concludes.

X.2 Adjunction of complex heads inside a word

P&T begin by arguing that Ojibwe preverbs such as *gii-* (past tense) and *ga-* (future tense) are not independent words from the verbal stem. The first argument they give in favour of this view is that, while word order in Ojibwe is relatively free, the linear order of a tense morpheme and a verb never changes: tense morphemes always appear before (never *after*) the verbal stem.

Second, an adverb cannot separate a tense morpheme from a verb. Third, when two verbs occur in a coordinate construction, they must be associated with independent tense markers, even when the marked tenses are identical (Valentine 2001:998-999). P&T argue that if the Ojibwe tense morphemes were autonomous words, we might expect that they could be omitted from the second verb in a coordinate structure. We know that in English a word like ‘will’ can have scope over two coordinated verbs (e.g. ‘I will arrive and depart on the same day’).

Further striking evidence for the idea that Ojibwe tense morphemes form a word together with the verbal stem comes from hiatus resolution within words. When morphology creates VV sequences within a word, there are three possible phonological consequences: (i) vowel deletion, as shown in (1), (ii) consonant epenthesis, as shown in (1), or (iii) hiatus tolerance, as shown in (1).

- (1) a. *Vowel deletion*
- giiwese
- giiwe-ose

go.home-walk

‘walk home’

b. *Consonant epenthesis*

nigadaagamose

ni-ga-aagam-ose

1-FUT-snowshoe-walk

‘I will (probably) walk in snowshoes’

c. *Vowel hiatus*

nigiiaagamose

ni-gii-aagam-ose

1-PST-snowshoe-walk

‘I walked in snowshoes’

For Piggott and Newell (2005, 2007) as well as Newell and Piggott (2014), vowel deletion indicates that the two relevant morphemes undergo spell-out within the same domain (typically, inside the verbal stem, i.e. *vP*). On their view, this process applies typically when a lower head is adjoined to a higher head through head movement and both heads undergo spell-out together. For example, the verbal root *giive* ‘go home’ in (1) adjoins to the higher verb final *-ose* ‘walk’.

When vowel deletion does not occur, this means that two domains are created.

When *vP* is spelled out with the consequence that two domains are created, either consonant epenthesis occurs (as in (1b)) or hiatus is tolerated (as in (1c)). The difference between (1b) and (1c) is related to stress. In Ojibwe, the location of stress is determined by exhaustively parsing syllables into feet with a common preference for the foot to be minimally bimoraic. The monomoraic prefix /ga/ in (1) is too small to be assigned foot structure where it is inserted and is

thus forced to undergo Local Dislocation, consequently triggering consonant epenthesis (note that, in Newell and Piggott 2014, the movement operation proposed is not Local Dislocation, but Phonological Merger). In contrast, the past tense morpheme /gii/ in (1) is bimoraic and can be parsed as a stress-bearing unit, explaining why there is no Local Dislocation and thus no consonant epenthesis.

So far, so good. The first puzzle P&T address in their paper is the following: in (2), the modifier /bi/ ‘here’ is monomoraic and is thus expected to undergo Local Dislocation after Vocabulary Insertion and expected to trigger consonant epenthesis, but it does not. Instead, hiatus is tolerated (a solution to this puzzle, that in fact precedes that of Piggott and Travis 2013, can be found in Newell and Piggott 2014).

(2) *Vowel hiatus*

nibiaagamose

ni-bi-aagam-ose

1-here-snowshoe-walk

‘I walk here in snowshoes’

A further complication that P&T note – their second puzzle – is that these modifiers may be complex, as the example in (3) shows.²

² We use the adverb *maji* ‘badly’ instead of *gimoodi* used by P&T, since it appears *gimoodi* is not an adverb (meaning ‘quietly’) in the dialects we are familiar with, but an intransitive verb meaning ‘to steal’ (*gimoodi* acquiring the sense of ‘quietly’ somehow only metaphorically).

- (3) maji-maagozi
 madi-maagozi
 badly-smell
 ‘He smells bad(ly).’

The preverbal element in (3) consists of a root /mad/ and a category-defining suffix /i/ that forms the modifier (palatalization occurs between the two elements as shown in the surface form – first line).³ As pointed out by Piggott and Newell (2007), each component of a (lexical) modifier-verb construction contains a category-defining little-*x* (see also Goddard 1990 and Valentine 2001): every preverb consists of a root and a category-defining head (*-i* being the most common ending for this category). For example, the preverb *waabi* ‘white’ is built from the root *waab-* + category-defining *-i*, which Piggott and Newell (2007) identify as the exponent of *a* (see also Valentine 2001). Other examples are: *nitami* ‘first’, *ginibi* ‘quickly’, *agaachi* ‘small’, *shki* ‘new’, *gichi* ‘big’, etc. (4) gives the structure for *waabi* ‘white’ while (4) gives the structure for *bibaa* ‘around’, which has a zero exponent. From this perspective, Ojibwe modifiers are no different from English or French modifiers, e.g. *quick-ly*, *rapide-ment*.⁴

- (4) a. $\begin{array}{c} aP \\ \wedge \end{array}$ b. $\begin{array}{c} aP \\ \wedge \end{array}$ (Piggott and Newell 2007:13)

³ Note that we are using orthography rather than the IPA.

⁴ Since in Ojibwe (and in other Algonquian languages), there is no formal difference between elements construed as adverbs or adjectives, we follow Piggott and Newell (2007) in viewing the features of *-a* as covering a category that subsumes both adverbs and adjectives.

$\sqrt{\quad}$	<i>a</i>	$\sqrt{\quad}$	<i>a</i>
<i>waab</i>	<i>i</i>	<i>bibaa</i>	\emptyset
‘white’		‘around’	

Piggott & Newell (2007) are happy for the combination of the root and the functional adverbial head to project a maximal projection (the structures in (4) are exactly those given in their paper). However, as pointed out by P&T, although it is customary for modifiers to be viewed as maximal projections that adjoin to maximal projections and not to heads (though see Travis 1988), it is not clear for the case of Ojibwe how a modifier of a verb could become part of a word containing a verb and its inflectional material already built via head movement.

In order to solve the first puzzle, P&T propose, without giving up a restricted view of word formation, that the difference between (1) [their (4b)] and (2) [their (5a)] can be explained through a difference in the syntax of the two structures. In particular, they propose that selecting heads (such as tense heads) are externally merged with their complements directly into the main structure while adjuncts must be spelled out in a different workspace independently of the structure that they adjoin to (this analysis is presaged in Piggott and Newell 2007 and the solution in terms of separate spell-out of adjuncts is originally proposed in Newell 2008).

In (2), /bi/ is a modifier that is adjoined to its sister. As an adjunct, it undergoes spell-out independently of the structure that it is adjoined to (P&T cite Nunes and Uriagereka 2000 for a similar analysis of XP adjuncts). Because of this, even though /bi/ is monomoraic, when it undergoes Vocabulary Insertion, it is in a separate workspace and has no host to Locally Dislocate to. The conditions for hiatus resolution by consonant insertion are, therefore, not available. Constructing adjuncts in a different workspace from the structure they adjoin to is a

traditional assumption in the literature. What is new is that, in the case at hand, adjuncts are heads rather than XPs. It is usually assumed that adjuncts are XPs (although with the advent of Bare Phrase Structure, the distinction between heads and phrases is not so clear – but see below for further discussion).

/ga/ in (1b) works differently: it is an inflectional head that selects a complement and is thus part of the syntactic tree's spine. As a selecting head, it is merged onto the existing structure before it is sent to spell-out along with its complement. Because of its weak form, */ga/* Locally Dislocates to its host *aagamose* after Vocabulary Insertion.

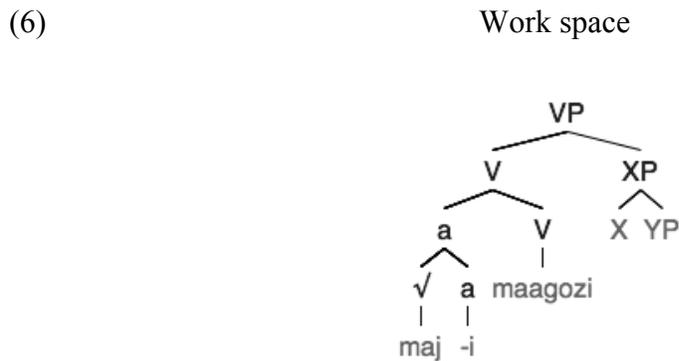
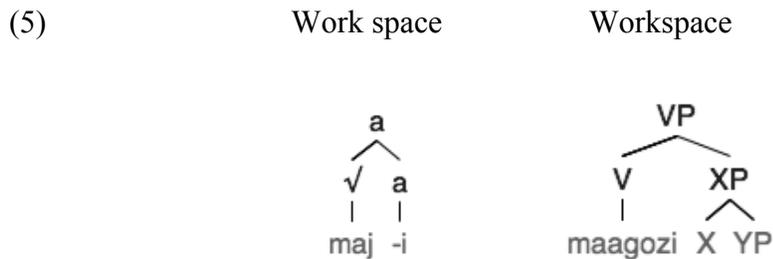
In order to solve the second puzzle, namely that modifiers are morphologically complex yet capable of being inserted inside words, P&T propose that adjuncts are merged as complex heads in the structure and propose to dispense with the traditional idea that, as maximal projections themselves, modifiers necessarily adjoin to maximal projections. On their view, it is possible for adjuncts generated in independent workspaces to be complex heads and to be merged with other heads in the syntax.

P&T's formal account contains three steps – all independently motivated, they claim. The first step is to accept the traditional view of head movement that creates a head adjoined structure through internal Merge, even though they concede this involves waiving the Extension Condition on Merge of Chomsky (1995). (See below for some unforeseen repercussions of this decision.)

As the second step, P&T propose that adjunction, just like Merge, may occur either externally (external Merge) or internally (internal Merge). In external instances of Merge, material from different workspaces is involved, while in internal cases of Merge, material is copied from the structure that is currently being constructed. Since, all things being equal, head movement and phrasal movement should have parallel possibilities, P&T claim that it is not clear how to properly rule out cases of external adjunction of complex heads. Therefore, instances of

such an operation may, in principle, take place.

The third step of the argument allows complex head structures to be created in a separate workspace. These complex heads are not able to select complements because they do not have unsatisfied selectional features. They are only able to act as adjuncts. The derivation in (5)-(6), adapted from P&T – we changed the adjunct, (their (16), p. 168) of (3) illustrates this clearly. The complex head *maji* ‘badly’ is created in the workspace (5). Then this complex head is externally head-adjoined to the verb, as in (6).



To summarize section X.2, we presented two puzzles introduced by P&T and the authors’ solutions to these puzzles. P&T propose that it is possible to attach adjuncts in the structure not as XPs externally adjoining to other XPs but as complex heads externally adjoining to other heads. This proposal, we want to argue, is both unnecessary and undesirable. We introduce the

theoretical problems that such a proposal brings in section X.3 while section X.4 concentrates on the empirical difficulties.

X.3 Theoretical problems

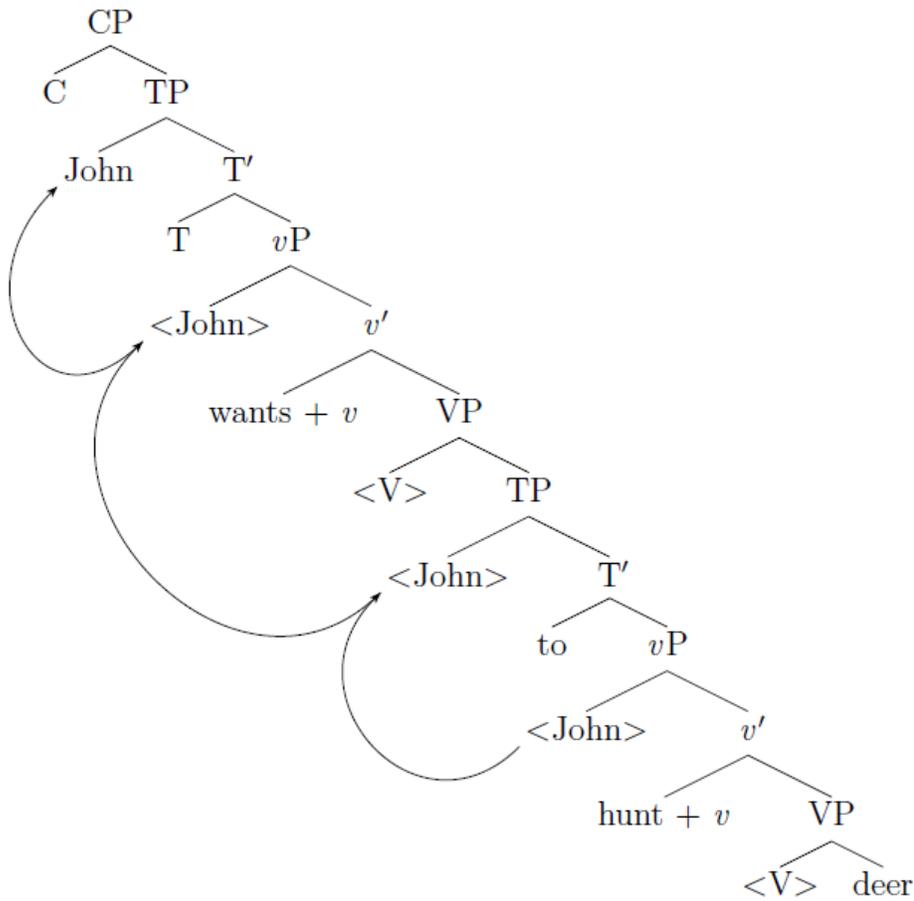
On theoretical grounds alone, there are well-known problems with head movement that distinguish it from (undeniably syntactic) phrasal movement. Head movement is not strictly cyclic; it has no interpretive effects (but see Lechner 2006 and Roberts 2010); head-to-head relations do not seem to involve complementary (matching) features (unlike Agree relations) (but see Roberts 2010); and after raising, the trace or lower copy is not c-commanded by the moved head under a simple definition of c-command (well-known arguments by now; see Fanselow 2003, Mahajan 2003, Matushansky 2006). Therefore, P&T's claim that "head movement and phrasal movement should have parallel possibilities" seems entirely unfounded.⁵

Although P&T do mention that accepting head movement involves waiving the Extension Condition on structure building, dropping the condition has serious unforeseen repercussions. Hornstein (2009) has argued that c-command is not a syntactic primitive (see also Epstein 1999 and Chomsky 2001) but that it is derived from the Extension Condition. For example, if binding and obligatory Control are analyzed as involving movement of a DP and if Merge must respect the Extension Condition, then it follows that the binder or controller must end up in a position from which it c-commands the bindee or controlee if movement is from within a single rooted sub-tree. This is illustrated in (7).

⁵ In fact, this comparison is even more curious, since phrasal movement and head movement are in essence two different operations, the former being a substitution operation (Set-Merge) and the latter, an adjunction operation (Pair-Merge).

(7) John wants to hunt deer.

John <John> wants <John> to <John> hunt deer.

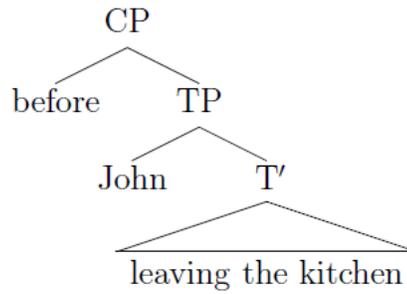
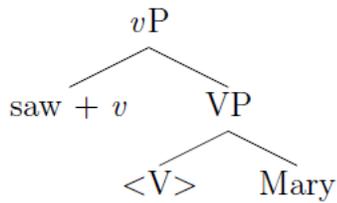


This is an important discovery, since c-command has been a fundamental ingredient in the formulation of the well-formedness conditions on movement, Control, binding, and even linearization. By reducing c-command to an epiphenomenon, many cases of the phenomena mentioned above which do not involve c-command, such as obligatory Control into an adjunct, shown in (8), may be accounted for in the same way as the familiar cases.

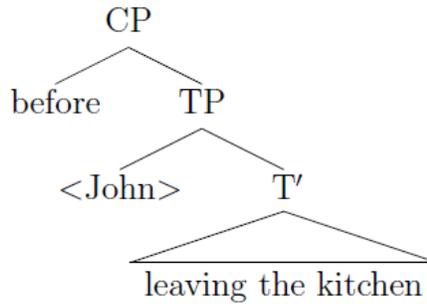
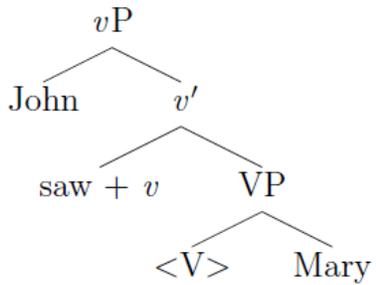
(8) John saw Mary before leaving the kitchen.

John <John> saw Mary [before <John> leaving the kitchen].

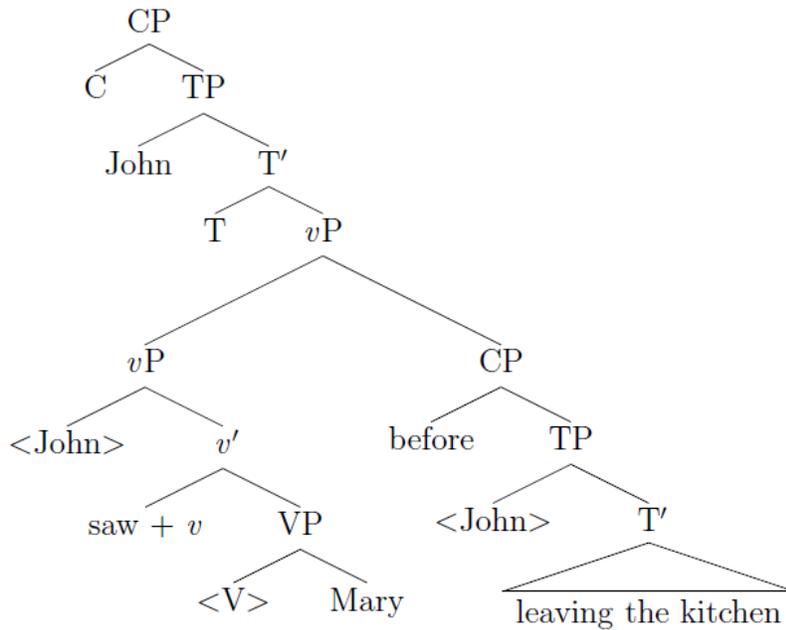
a. Before adjunction



b. Sideways movement (Nunes 2004)



c. After adjunction



Even more seriously, complex heads simply cannot exist under any Minimalist conception of labeling or projection. Given Bare Phrase Structure (Chomsky 1995), an element which does not project is a minimal projection (X^0), while an element which does not project any further is a maximal projection (XP). Since so-called complex heads must be formed by Merge and syntactic objects must have a label to be interpreted, the product is necessarily a phrasal category (XP). This is illustrated for the derivation of the modifier *maji* ‘badly’ in (9).

(9) Workspace (see (6) above)



However, P&T's account requires that instances of Merge may result in either complex head categories or phrasal categories. It is simply not clear how the grammar could possibly determine that the object(s) in (9) is a complex head, since it will have the same internal structure as a phrase: $\{\checkmark, a\}$. There is no information in a label to indicate whether a category is a head or a phrase. This information is strictly relational. Worse still, if labelling is part of Merge, and P&T's account relies on the output of Merge being a complex head, then P&T must posit two distinct Merge operations: one which generates phrases and one which generates complex heads. Since there is little, if any, empirical evidence for this proposal (see section X.4), it appears more theoretically sound to accept a single Merge operation which generates phrasal categories.

The final theoretical issue is one of overgeneration. If complex adjunct heads can be generated in a separate workspace before being merged into the spine, then complex heads that are *selecting* heads should also be able to be constructed in this way. In fact, Bobaljik and Brown (1997) propose that *selecting* complex heads (such as French T^0) are generated in a separate workspace, then cyclically merged with the syntactic spine. P&T must restrict complex head formation in a separate workspace to apply only in the case of adjuncts in order to establish the derivational distinction between selecting and non-selecting heads (to derive the distinction between (1) and (2)), but it is unclear how to do so in a principled manner (but see Stepanov 2002).

To summarize section X.3, there are many theoretical problems with P&T's proposal about the merging of adjuncts as complex heads in the syntax; so much so that it is wiser, we think, not to appeal to such an operation. In the next section, we turn to the empirical problems associated with P&T's account.

X.4 Empirical problems

The first empirical problem is that, as shown in (10), preverbs can be aspectual and take scope not only over the verb but over the verb *and* the object NP, that is over the whole VP. The sentence in (10) means that he started to make sugar (*ziinzibaakwad* being the object of *ozhitood*), not simply that he started to make (something). Compositionally, the whole VP must be under the scope of the modifier. Under the traditional definition of c-command, however, the verb cannot take scope over the object NP if we merge the complex head *maaji* with the verb along the lines of P&T as in (11).⁶

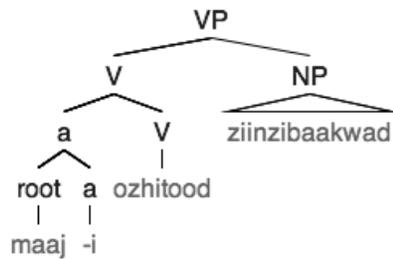
⁶ A reviewer questions this particular argument we are making. They ask: How can one tell the difference between 'start [making sugar]' and '[start making] sugar'? For example, if one repaints a house, they argue that the same house must have been painted before; thus, the semantics of *re-* is not adequately captured by a structure such as *re-[paint a house]*. This is a difficult problem. Our argument, however, is based on the hierarchical structure involved: the structure that head movement gives us versus the structure yielded by that phrasal movement. Empirically, it would be interesting to compare the scope of 'start' in Ojibwe with the scope of an external adverb as in 'John started building a house again.' The adverb 'again' can scope over 'start building a house' giving rise to a meaning such as the following: 'John started building a house the other day (but didn't necessarily finish) and he started building a house again today.'

(10) Mii sa gii-maaji-ozhitood ziinzibaakwad.

and then PST-start-make sugar

‘And then he started to make sugar.’

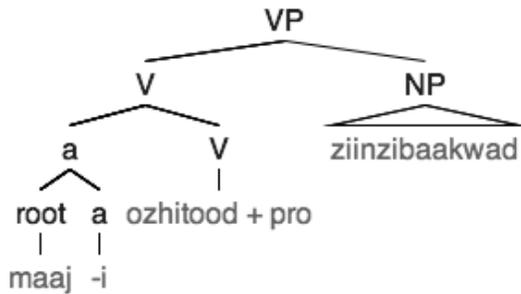
(11)



To play the devil’s advocate, let’s assume that the complex adjunct head does have scope over the verb and its internal argument by way of the verb’s pronominal features. According to the Pronominal Argument Hypothesis, affixes of verbs in non-configurational languages either function as syntactic arguments or identify null pronouns that fill this role (Jelinek 1984, Baker 1991, 1996). Overt NPs then stand as adjuncts to clauses that are formally complete without them and the real arguments of the predicate appear on the verb, suggesting a structure such as (12).

The adverb ‘again’ can also scope under ‘start’ but over ‘building a house’ giving rise to a meaning such as the following: ‘John built a house a while ago and he starting building another one recently.’ Now, if there is a word for ‘again’ in Ojibwe that is uncontroversially a separate word, then we can test this. Unfortunately, we do not have the relevant facts at our hands.

(12)



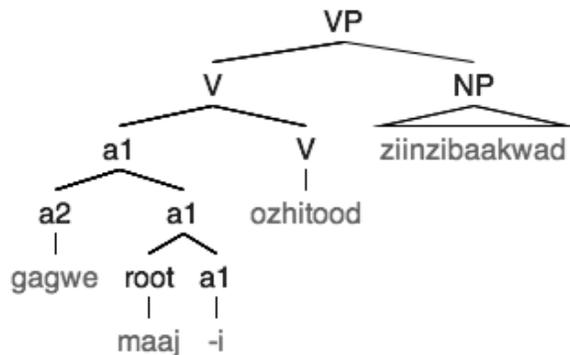
However, the Pronominal Argument Hypothesis is problematic when applied to Algonquian languages. First, although head-marking Algonquian languages do not always have a one-to-one correspondence between affixes and NP referents. Suffixes may overlap and blend together, making it difficult to separate individual affixes (especially in the conjunct order) and two affixes can indicate properties of a single argument (LeSourd 2006 for Maliseet-Passamaquoddy; Tourigny 2008 for Ojibwe). Moreover, not all NP referents are related to affixes: secondary objects are not marked for agreement (LeSourd 2006 for Maliseet-Passamaquoddy; Rhodes 1994 for Ojibwe). Finally, word order is relatively free but not completely unconstrained and can be derived from a complex array of dedicated syntactic focus and topic positions (Reinholtz 1999 for Swampy Cree, Tourigny 2008 for Ojibwe). In sum, we assume subject and object NPs are in argument positions in Algonquian languages.

The derivation in (14) shows that the proposal that preverbs are merged as complex heads is problematic notwithstanding. A second preverb, for example *gagwe* ‘try’, would on P&T’s view presumably be merged as in (14) for the sentence in (13). The aspectual preverb ‘try’ is adjoined to the aspectual verb ‘start’ and the complex head is adjoined to the verb ‘make’. Under this configuration, the first modifier ‘try’ cannot take scope over the object NP *ziinzibaakwad*

‘sugar’ or for that matter over the verb *ozhitood* ‘make’ or any of its person affixes.

- (13) Mii sa gii-gagwe-maaji-ozhitood ziinzibaakwad.
 and then PST-try-start-make sugar
 ‘And then he tried to start to make sugar.’

(14)



The second empirical argument against P&T’s analysis comes from noun incorporation. As shown by Lochbihler and Mathieu (2007a, 2007b), Mathieu (2007, 2008a, 2008b), and Barrie and Mathieu (2012, 2015), Ojibwe incorporated nouns are not simple roots. In (15), the incorporated noun surfaces with the nominalizer *-an* (without the nominalizer, (15) is ill-formed). The noun, through a process of nominalization, also contains the detransitivizer (anti-passivizer) *-ge* that takes a transitive verb and returns an intransitive verb, defocusing the theme (Michelson 1917; Wolfart 1971; Mithun 1984; Mellow 1989, 1990; Hirose 2003). The noun ‘bread’ is made from the transitive verb ‘cut’ that is turned into an intransitive verb, which is in turn nominalized. The nominalizer *-an* surfaces on independent nouns as well, as shown in (15). Following Distributed Morphology, Lochbihler and Mathieu (2007a, 2007b), Mathieu (2007, 2008a, 2008b), and Barrie and Mathieu (2012, 2015) view these nouns as the combination of a root and a

category-defining *n*.⁷

- (15) a. gii-naajibakwezhgane
 gii-naad-(i)-[bakwezhi-ge-**an**]-e
 PST-fetch-i-[cut-VAI-NZLR]-VAI
 ‘He/she went after some bread.’ (PC, 2008-05-05)
- b. nga-naadin bkwezhgan
 n-ga-naad-in [bakwezhi-ge-**an**]
 1-FUT-fetch-VTI [cut-VAI-NZLR]
 ‘I will get bread.’

One could claim that the root first head-adjoints to the nominalizer forming a complex head and then adjoints to the verb. However, there are problems with this view.

First, in (15), it is problematic to derive the merging of the incorporated noun with the verb via head movement since the verb *naad* ‘fetch’ is to the left of the incorporated nominal. Since head movement otherwise proceeds to the left (in Ojibwe), why would it proceed to the right exceptionally in this case?

Second, raising the root noun to the nominalizer and then this whole complex to the verb via head movement violates proper head movement. Consider Baker’s (1996: 284, 2003:53)

⁷ In simple cases, a root combines directly with a nominalizer. When a noun does not surface with a nominalizer we assume there is an empty *n* (except for body parts and classificatory nouns - Ojibwe has cases where nouns, body parts, classificatory nouns are incorporated without nominalizers, i.e. as simple roots, but without being referential).

principle in (16).

(16) *The Proper Head Movement Generalization* (PHMG)

A lexical head A cannot move to a functional head B and then to a lexical head C. (Baker 2003, p. 53)

On Baker's view, it is not possible to move a lexical head to a functional head and then move it again to a lexical head. For him and many others, nominalizers are functional heads. He in fact takes (16) to derive the putative observation that incorporated nominals do not contain nominalizers. However, it is clear that nominalizers incorporate together with roots (including in Iroquoian) and that verbs are lexical heads in Ojibwe, which seems to suggest that raising of the incorporated noun is not achieved via head movement. To maintain a head movement analysis, P&T would have to reject *proper* head movement or claim that nominalizers in Ojibwe are not functional but lexical heads.

Third, P&T take the fact that not all phrases incorporate in Ojibwe as an indication that the phrasal analysis of noun incorporation is flawed. In particular, they use the observation that the higher domains of the noun phrase cannot incorporate as an argument for the complex head analysis. However, a lexical expression can be phrasal without being the highest extended projection in a domain. For example, the extended projections of N all involve XPs in English, *nP*, *NumP*, *AgrP*. Ojibwe noun incorporation involves all those and possibly even *DP*, as shown in (17), on the assumption that possessive morphology heads *DP* in Ojibwe, as it does in English.

(17) *gii-ikwezhenzhishimi*

gii- [ikwe -**zhenzh** -**ish** -**im**] -i -w
 PST- [girl -DIM -PEJ -POSS] -have.VAI -3

‘He/she has a naughty little girl.’

P&T claim that such examples are derivable via head movement. However, as pointed out by Barrie & Mathieu (2015), on traditional assumptions, the example in (17) shows that the derivation cannot unfold via head movement, since we have the merging of an inflectional affix *-im* after the merging of two derivational affixes *-zhenzh* and *-ish*, followed by the merging of a derivational affix *-i*. It is customary to think of inflectional morphology to be outside of derivational morphology. We can understand this result assuming a cyclical derivational model. Although any cyclical model suffices, we explain the derivation in terms of phases (Chomsky 2001, 2008). Under our assumptions, the extended nominal projection, DP, is a phase. Thus, the bracketed portion in (17) forms its own cycle (a DP phase) that merges with the derivational affix *-i* in the next phase. Thus, the derivational affix is added after an inflectional affix, but in a higher phase (cycle).

Fourth, possessive expressions in Ojibwe (like other Algonquian languages, Déchaine 1999) often have two layers of possessor agreement, indicating that Ojibwe stems are phrasal. Consider the example in (18). Possessor constructions with verbal suffix *-i* as in (18) show agreement surfacing not only in relation to the verb’s participant but also in relation to the possessed noun. Incorporated nouns can also surface with modifiers indicating again that they are complex (not shown here, see Barrie & Mathieu 2012, 2015).

(18) omookomaaniw

[o- mookomaan] -i -w

3- knife -have -3

‘He/she has a knife.’

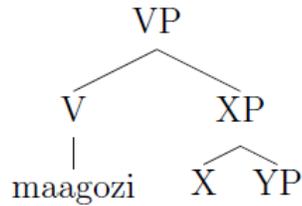
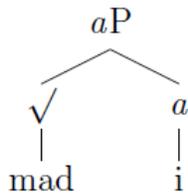
P&T use the observation that incorporated nouns in Ojibwe do not surface with obviative marking as an argument against the phrasal analysis of NI, the idea being that incorporated nominals are not fully phrasal. However, there is a simple reason why obviative marking does not appear on incorporated nouns in Ojibwe. Incorporating constructions are intransitive: the incorporated nominal is no longer strictly an object of the verb, rather it forms a complex predicate with it; therefore, obviative marking is not expected. However, the logic is that a noun does not have to be fully phrasal (i.e. manifest extended nominal projections) to be phrasal. In English, bare nouns are not “fully phrasal” for many, since they do not contain determiners, thus they do not project a DP, but English bare nouns are nevertheless phrasal. Thus, to be “partially phrasal” is good enough and it is thus still possible to entertain the idea that noun incorporation proceeds via phrasal movement and that phrases can appear inside words.

To conclude section X.4, we showed that there are empirical problems with P&T’s account. One problem relates to scope, another to the Proper Head Movement Generalization, and a third to the complexity of incorporated nominals.

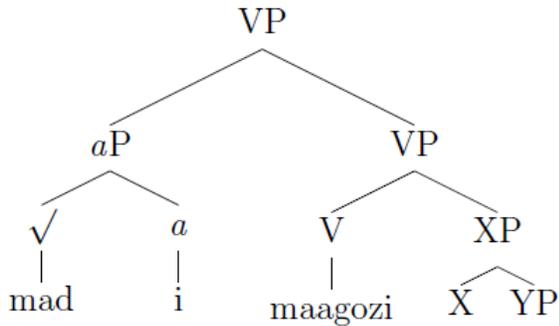
X.5 The alternative: phrasal Merge

Instead of externally adjoining complex heads to create words, we propose simply to adjoin XPs in Ojibwe. This is the most sound and elegant solution to the puzzle at hand and in proposing this, we simply follow Piggot and Newell 2007, Newell 2008 as well as Newell and Piggott 2014). Consider the derivation in (19)-(20) below for illustration and compare it with (5) and (6) above.

(19) Before adjunction



(20) After adjunction



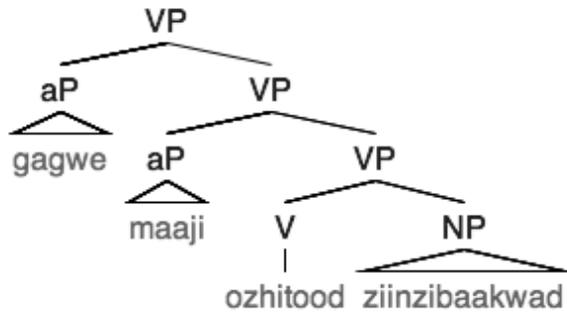
Like P&T, we assume that, because preverbs are specified as bound rather than free elements, the order preverb-verb does not vary (*verb-preverb) despite the fact that the preverb is an adjunct (adjuncts often appear to the left or the right of their hosts).

The unexpected vowel hiatus examples introduced in section 2 are accounted for in a very similar way as in P&T's account: since adjuncts are spelled out independently of the material that they adjoin to, the rule of consonant epenthesis does not apply across the spell out boundary. The difference between our account and P&T's is that complex adverbial material inside the Ojibwe word is XP material rather than complex head material.

Our proposal allows us to account for the scope facts mentioned in section 4. In (21), aspectual preverbs are merged as XPs. *Maaji* 'start', which is the combination of the root *maad*

and an adverbial functional head *-i*, can take scope over the whole lower VP node (direct object included) and *gagwe* ‘try’ takes scope over the lower VP node *and maaji*.

(21)



One consequence of our approach is that morphemes in Ojibwe are edge morphemes, i.e. elements that attach not to heads but to XPs. This means in turn that the agglutinative character of the language is the result of a PF operation such that a “word” in Ojibwe corresponds to a phonological phrase instead of a prosodic word (see also Déchaine 1999, Branigan et al. 2005, and Compton and Pittman 2010).

Edge morphemes are like PF clitics in that they can be set off from the rest of the verbal domain (e.g. French, Kayne 1983; Roberts 2010). However, while PF clitics attach to heads, edge clitics such as tense morphemes and modifiers in Ojibwe attach to XPs (for a similar operation in Nuu-Chah-Nulth, see Wojdak 2008). The edge morphemes can be either complex or simplex.

There is direct evidence for this view. The argument put forward by P&T that nothing can intervene between past tense *gii-* and the verbal stem does not seem to hold. It turns out that there is a special boundary between preverbs and the stem in Algonquian languages that goes much further than the boundary proposed by P&T. Often set aside from the stem by a hyphen in

writing, preverbs can be followed occasionally by intervening independent particles or adverbs.

To illustrate, in (22), the emphatic particle *sa* surfaces between the past tense preverb *gii-* and the verbal stem. Such examples indicate the weakness of the preverb-stem boundary. In (22) the demonstrative *naanda* ‘this’ surfaces between the past tense preverb *gii-* and the verbal stem. The space left by the separation of the modifier and the stem is indicated by ||. It represents an intonational pause.

- (22) a. gye win maaba niikaanis waajnokiimag
 also he/she this 1-friend with-work-1SG/3SG
 gchi-waasa gii-sa || wnji-baa widi giiwednong...
 very-far PST-EMPH there-came over there to the north
 ‘My friend here, too, my fellow worker, has come from far away north...’
- b. ... bjiinag go naaw gii-nanda || naajmotwaawaan Niibaakhomoon
 shortly indeed thus PST-this tell-3SG/3PL-OBV Niibaakhom
 ‘... so they just made up some kind of story to tell Nibakom.’
- (Valentine 2001:62)

A reviewer points out that Valentine (2001) concedes that “such occurrences probably always represent slips of the tongue” (p. 62). However, in his quote, Valentine quickly adds after this that such occurrences “also indicate the relative weakness of the PREVERB-STEM boundary” (p. 62): this is the important conclusion. Even if we view such a phenomenon as a result of slips of the tongue, they nevertheless clearly show a weak boundary between the preverb and the verbal complex.

It turns out, in any case, that there is evidence that such occurrences are not necessarily slips of the tongue. First, the phenomenon of splitting preverbs from the rest of the verbal complex is widespread in Algonquian and has in particular been well documented for Fox. Michelson (1917: 51) and Dahlstrom (1987: 65-71) show that preverbs may be followed by one or more enclitic particles or nonenclitic words that are not part of the verbal complex. Dahlstrom (2000) shows that preverbs and verbal stems can be separated not only by words but also by phrases and embedded sentences. Voorhis (1971: 71-73) shows that preverbs may be pronounced as separate words, with a following pause. In Menominee, it has also been shown that particles can appear between preverbs and verbal stems (Cook 2003, Shields 2008). This systematicity/ubiquity shows a productive rule rather than random slips of the tongue.

Second, the phenomenon can be elicited. When asked whether it was possible to merge an emphatic particle such as *sa* between a modifier such as *gichi* ‘big’ and the following noun, a speaker said “but, of course!”. Examples are provided in (23). *Go* and *naa* are other emphatic particles. These examples show that it is possible to split preverbs, not only in verbal contexts, but also in nominal environments.

(23) a. *gichi-sa* || *amike* (EW, 2009-06-15)

gichi- sa amik-ke

big PRT beaver-

‘He/she was looking for really big beavers.’

b. *gichi-go* || *amike* (BJ, 2009-06-15)

gichi go amik-ke

big PRT beaver-VAI

‘He/she was really looking for big beavers.’

c. gichi-naa || amike (BJ, 2009-06-15)

gichi naa amik-ke

big PRT beaver-VAI

‘He/she was really looking for big beavers.’

Tense morphemes and modifiers are thus proclitics and can thus be grouped with person proclitics in Ojibwe. The idea that person prefixes are proclitics in Algonquian follows a broad consensus in the theoretical literature (e.g. Halle and Marantz 1993, McGinnis 1995, Déchaine 1999, Brittain 2001, Richards 2004, Mathieu 2007, Cook 2008, Oxford 2014). The main evidence for the proclitic analysis is the well-known tendency for person prefixes to be separated from the verb stem by intervening material, including preverbs, adverbs, and discourse particles. On our view, tense morphemes and modifiers are no different from those. The fact that they can be stacked indicates that other preverbs constitute intervening material.

Additional evidence for the idea that the boundary between preverbs and verbal stems is weak comes from examples such as (24), found in a collection of Ojibwe texts. The adverb is complex (and this may be why this is allowed in the first place, since admittedly it is doubtful that *gichi* ‘great’ could appear on its own) and is clearly separated off from the rest of the verbal complex. Such an adverbial complex is normally found after past tense *gaa-* (or *gii-* in independent contexts).

(24) wegonesh naa gichi-wewiib **gaa**-anionji-maajaawaad?

wegonesh naa gichi-wewiib gaa-ani-onji-maajaa-waa-d

why EMPH great-quickly wh.PST-away-reason-leave-3PL-3(CONJ)

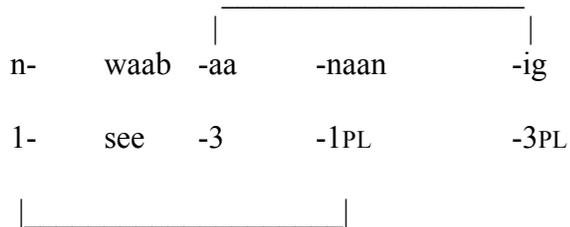
‘Why have they all left in such a great hurry?’ (Williams 1991: 78)

What about suffixes? Is there evidence that they are edge morphemes rather than syntactic or phonological clitics? The answer is yes. There appear to be two kinds of suffixes in Algonquian: inner suffixes and outer suffixes. Oxford (2014) proposes in particular that outer suffixes in Algonquian are enclitics. Consider the example in (25) to illustrate the difference between an inner suffix and an outer suffix in Ojibwe.

(25) nwaabaanaanig.

‘We see them.’

theme sign | inner suffix | outer suffix



In Ojibwe, the outer suffix always appears in absolute word final position (in contrast with the inner suffix, Mode can appear between the inner agreement suffix and the outer agreement suffix) and it remains invariant when juxtaposed with tense suffixes. On the other hand, the form of inner suffixes in such contexts never changes. This is shown in Table X.1. In Ojibwe, the tense formative and the inner suffix have fused together into a single morpheme in the present tense, but not in the past tense. In contrast, the form of the outer suffix remains constant.

Table X.1: Inner and outer suffixes in Ojibwe

Ojibwe (Valentine 2001:291–2)¹¹

	PFX	STEM	T.S.	NEG	INNER	T ¹²	OUTER	
Present	n-	wa·bm	-a·	-si	-wa·na·ny	-∅	-ag	‘we don’t see them’
Past	n-	wa·bm	-a·	-si·	-mina·	-bany	-ag	‘we didn’t see them’
	1-	see	-3OBJ	-NEG	-1p	(PRES/PAST)	-3p	

(Source: Oxford 2014: 209)

Oxford (2014) gives two more arguments in favour of the view that outer suffixes in Algonquian are enclitics: 1) in Proto-Algonquian the outer suffix appeared to share features with the definite article while the inner suffix did not; 2) in transitive verb forms in which the outer suffix indexes the object, the outer suffix appears only when the object is definite (in the inverse, the outer suffix indexes the subject and appears only when the subject is definite, indicating, as Oxford (2014) points out, that this is not a case of Differential *Object* Marking).

The idea that the 3PL agreement in (25) is an enclitic is consistent with a recent development in the theoretical literature, in which it has been argued that many instances of object agreement are better understood as object clitic doubling (Arregi and Nevins 2008; Preminger 2009; Woolford 2010; Nevins 2011; Kramer 2014). In the context of this work, the term “clitic” refers more specifically to a pronominal clitic—that is, a morpheme of category D—while true agreement is taken to involve the valuation of phi-features on a clausal functional head (e.g. Nevins 2011:961). Thus, while tense, person, and adverbial elements in Ojibwe are proclitics, outer suffixes are enclitics.

There exists independent evidence for this. In Plains Cree, if a glide and a vowel meet at a boundary, the sequence usually contracts when the glide is part of the stem, as shown abstractly in (26a) and with contrasting examples in (26b), but not when the glide is outside the stem, as in (26c).

(26) Plains Cree contraction

a. {Vw-e, Vy-e} → V (Wolfart 1973:80a)

b. *wīhtamawitō-wak wīhtamātō-wak } wīhtamaw + /eto/
(they tell it to e.o.) (tell it to so.) (reciprocal)

c. ê-pimohtê-w-iht

conj-travel-REL-unspec

‘they (unspec) traveled (with relation to him)’ (Wolfart 1973:60b, fn.76)

(Déchaine 1999:47)

Before closing section X.5, let’s address the fact mentioned in the introduction that tense morphemes in Ojibwe cannot be omitted from the second verb in a coordinate structure, a fact that P&T take to indicate that Ojibwe preverb/verb expressions are compounds and that preverbs are not independent words. In (27), observe that, without *gii-* on the second verb, the latter cannot be interpreted as past tense (only as present tense).

(27) nigīiaagamose gaje ni*(gii)naajibakwezhgane
ni-gii-aagam-ose gaje ni-gii-naad-(i)-[bakwezhi-ge-**an**]-e
1-PST-snowshoe-walk and PST-fetch-i-[cut-VAI-NZLR]-VAI
‘I walked in snowshoes and fetched some bread.’

In English, the situation is different. It is possible to say ‘He has walked in snowshoes and fetched some bread’ or ‘He will walk in snowshoes and fetch some bread’ without repeating the

auxiliary. We argue that the difference between Ojibwe and English simply stems from the fact that auxiliaries in English are free morphemes while in Ojibwe tense morphemes are bound. In English, we see this clearly independently with past tense *-ed*. One can say *I smiled and walked out*, but not **I smiled and walk out* or **I smile and walked out*, if both verbs are in the past tense, *ed* is required for the sentence to be grammatical and interpretable, precisely because it is a bound morpheme. Edge morphemes, in Ojibwe, despite the fact that they can be complex and that they attach to complex material does not mean that they are completely independent words. They are independent syntactically, but not phonologically. They carry a feature that identifies them as bound morphemes. They do not, however, necessarily need to attach to the verbal stem. They can be separated from the verbal stem as long as they attach to something else (a particle, a modifier, another tense morpheme, etc.).

To sum up section X.5, it was argued that none of the hiatus facts described in Piggott and Travis (2013) would be lost if modifiers were adjoined via the traditional mechanism of XP adjunction instead of external adjunction of complex heads, as in P&T (and as in Piggott and Newll 2007, Newell 2008, and Newell and Piggott 2014). It was also argued that Ojibwe tense elements and modifiers are edge morphemes in that material can appear between them and their hosts. If tense morphemes and modifiers in Ojibwe were heads concatenated with verbal stem heads, no such phenomena would be observed. As edge morphemes, they are, however, not completely independent words and thus need a host. The complexity/nature of Ojibwe words is such that it points to the view that they contain phrasal material rather than complex heads only (in agreement with Barrie & Mathieu 2015, etc.) and such languages have a syntax not unlike that of more familiar languages, their “genius” being in their PF properties where the notion of “word” is not a prosodic word, but a phonological phrase.

X.6 Conclusion

The aim of this paper was to show that it is not desirable to allow adjuncts to be externally adjoined as complex heads. Contra Piggott & Travis (2013), we argued that words in Ojibwe are complex, and complex in such a way that they involve XPs rather than complex heads. We provided theoretical and empirical arguments against their account and argued that the complexity of many words in Algonquian is such that a head movement analysis is not tenable.

References

- Arregui, Karlos and Andrew Nevins. 2008. 'Agreement and clitic restrictions in Basque', in Roberta D'Alessandro, Susann Fischer, and Gunnar Hrafn Hrafnbjargarson (eds.), *Agreement restrictions*. Berlin: Mouton de Gruyter, 49–85.
- Baker, Mark C. 1988. *Incorporation: A theory of grammatical function changing*. Chicago, IL: University of Chicago Press.
- Baker, Mark, C. 1991. 'On some subject/object asymmetries in Mohawk', *Natural Language and Linguistic Theory* 9: 537-576.
- Baker, Mark C. 1996. *The Polysynthesis Parameter*. Oxford: Oxford University Press.
- Baker, Mark C. 2003. *Lexical Categories*. Cambridge: Cambridge University Press.
- Baker, Mark C. 2009. 'Is head movement still needed for noun incorporation?', *Lingua* 119: 148-165.
- Barrie, Michael and Eric Mathieu. 2012. 'Head Movement and Noun Incorporation', *Linguistic Inquiry* 43: 133-42.

- Barrie, Michael and Eric Mathieu. 2015. 'Noun incorporation and phrasal movement', *Natural Language and Linguistic Theory*. <http://link.springer.com/article/10.1007/s11049-015-9296-6>
- Bobaljik, Jonathan David and Brown, Samuel. 1997. 'Interarboreal operations: Head Movement and the Extension Requirement', *Linguistic Inquiry* 28: 345-356.
- Branigan, Phil, Julie Brittain, and Carrie Dyck. 2005. 'Balancing syntax and prosody in the Algonquian verb complex', in H. Christopher Wolfart (ed.), *Papers of the 36th Algonquian Conference*. Winnipeg: University of Manitoba, 56-69.
- Brittain, Julie. 2001. *The morphosyntax of the Algonquian conjunct verb: A minimalist approach*. New York: Garland.
- Buell, Leston and Mariame Sy. 2005. 'A fixed hierarchy for Wolof verbal affixes', in *Proceedings of the 31st annual meeting of the Berkeley Linguistic Society*, 25-36.
- Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge, MA: MIT Press.
- Chomsky, Noam. 2001. 'Derivation by phase', in Michael Kenstowicz (ed.), *Ken Hale: A life in language*. Cambridge, MA: MIT Press, 1-52.
- Chomsky, Noam. 2008. 'On phases', in Robert Fredin, Carlos P. Otero, and Maria-Luisa Zubizarreta (eds.), *Foundational issues in linguistic theory: Essays in honor of Jean-Roger Vergnaud*. Cambridge, MA: MIT Press, 133-166.
- Cook, Clare. 2008. *The syntax and semantics of clause-typing in Plains Cree*. Ph.D. dissertation, University of British Columbia.
- Dahlstrom, Amy. 1987. 'Discontinuous constituents in Fox', In Paul D. Kroeber and Robert E. Moore (eds.), *Native American languages and grammatical typology*. Bloomington: Indiana University Linguistics Club, 53-73.

- Dahlstrom, Amy. 2000. 'Morphological mismatches in Algonquian: Affixal predicates and discontinuous verbs.', in *Proceedings of the 36th Chicago Linguistics Society*. Chicago: Chicago Linguistics Society, 63-87.
- Déchaine, Rose-Marie. 1999. 'What Algonquian morphology is really like: Hockett revisited', in Leora Bar-el, Rose-Marie Déchaine, and Charlotte Reinholtz (eds.), *Papers from the workshop on structure and constituency in Native American languages* (MIT occasional papers in linguistics 17). Cambridge, MA: MITWPL, 25-72.
- Dyck, Carrie. 1994. 'The definition of 'word' in polysynthetic languages', in Carrie Dyck (ed.), *Proceedings of the 1993 annual conference of the Canadian Linguistic Association. Toronto Working Papers in Linguistics*, University of Toronto, 187-203.
- Epstein, Samuel David. 1999. 'Un-principled syntax: The derivation of syntactic relations', in Samuel David Epstein and Norbert Hornstein (eds.), *Working Minimalism*. Cambridge, MA: MIT Press, 317-345.
- Fanselow, Gisbert. 2003. 'Münchhausen-style head movement and the analysis of Verb Second', *UCLA Working Papers in Linguistics* 13: 40-76.
- Goddard, Yves. 1990. 'Primary and secondary stem derivation in Algonquian', *International Journal of Linguistics* 56: 449-483.
- Halle, Morris, and Marantz, Alec. 1993. 'Distributed Morphology and the pieces of inflection', in Ken Hale and Samuel J. Keyser (eds.), *The view from Building 20: Essays in linguistics in honor of Sylvain Bromberger*. Cambridge, MA: MIT Press, 111-176.
- Hirose, Tomio. 2003. *Origins of predicates: Evidence from Plains Cree*. London: Routledge.
- Hornstein, Norbert. 2009. *A theory of syntax: Minimal operations and Universal Grammar*. Cambridge: Cambridge University Press.

- Jelinek, Eloise. 1984. 'Empty categories, case, and configurationality', *Natural Language and Linguistic Theory* 2: 39-76.
- Julien, Marit. 2007. 'On the relation between morphology and syntax', in Gillian Ramchand and Charles Reiss (eds.), *The Oxford handbook of linguistic interfaces*. Oxford: Oxford University Press, 209-238.
- Kayne, Richard. 1983. 'Chains, categories external to S, and French complex inversion', *Natural Language and Linguistic Theory* 1: 107-139.
- Kayne, Richard. 1994. *The antisymmetry of syntax*. Cambridge, MA: MIT Press.
- Koopman, Hilda. 2005. 'Korean (and Japanese) morphology from a syntactic perspective', *Linguistic Inquiry* 36: 601-33.
- Koopman, Hilda. 2012. 'Morpheme ordering and the syntax phonology interface: Encoding 'size''. Talk presented at the Workshop on Suspended Affixation, Cornell-Syracuse. october 26. conf.ling.cornell.edu/WOSA/Koopman_handout.pdf
- Koopman, Hilda and Anna Szabolcsi. 2000. *Verbal complexes*. Cambridge, MA: MIT Press.
- Kramer, Ruth. 2014. 'Clitic doubling or object agreement: The view from Amharic', *Natural Language and Linguistic Theory* 32: 593-634.
- Lechner, Winfried. 2006. 'An interpretive effect of Head Movement', in Mara Frascarelli (ed.), *Phases of Interpretation*. Berlin: Mouton de Gruyter, 45-71.
- LeSourd, Philip. 2006. 'Problems for the Pronominal Argument Hypothesis in Maliseet-Passamaquoddy', *Language* 82: 486-514.
- Leu, Thomas. 2008. *The internal syntax of determiners*. Ph.D. dissertation. New York University.
- Leu, Thomas. this volume.

- Lochbihler, Bethany and Eric Mathieu. 2007a. 'Noun incorporation via XP movement: the case of Ojibwe', Paper presented at the Concordia Symposium on Generative Grammar. September 29.
- Lochbihler, Bethany and Eric Mathieu. 2007b. 'Phrasal noun incorporation in Ojibwe', Paper presented at 39th the Algonquian Conference, University of York. October 19-21.
- Lochbihler, Bethany and Eric Mathieu. 2013. 'Héritage des traits morphologiques ϕ et δ en ojibwe', in Karl S. Hele and J. Randolph Valentine (eds.), *Papers of the 40th Algonquian Conference*. SUNY Press, 267-287.
- Mahajan, Anoop. 2003. 'Word order and (remnant) VP movement', in Simin Karimi (ed.), *Word order and scrambling*. Malden, MA: Blackwell Publishers, 217-237.
- Mathieu, Eric. 2007. 'Petite syntaxe des finales concrètes en ojibwe', in H. C. Wolfart (ed.), *Papers of the 38th Algonquian Conference*. Winnipeg: University of Manitoba, 295-321.
- Mathieu, Eric. 2008a. 'Word formation as phrasal movement: Evidence from Ojibwe', Paper presented at 39th meeting of the North East Linguistic Society (NELS 39), Cornell University, November 5-7.
- Mathieu, Eric. 2008b. 'The syntax of abstract and concrete finals in Ojibwe', in Emily Elfner and Martin Walkow (eds.), *Proceedings of the Thirty-Fifth Annual Meeting of the North East Linguistic Society (NELS 37)*. BookSurge Publishing, 101-114.
- Mathieu, Eric. 2013. 'Denominal Verbs in Ojibwe', *International Journal of American Linguistics* 79: 97-132.
- Matushansky, Ora. 2006. 'Head Movement in Linguistic Theory', *Linguistic Inquiry* 37: 69-109.

- McGinnis, Martha. 1995. 'Word-internal syntax: Evidence from Ojibwa', in Päivi Koskinen (ed.), *Proceedings of the 1995 annual conference of the Canadian Linguistics Association*, 337–347.
- Mellow, John Dean. 1989. 'A syntactic analysis of noun incorporation in Cree'. M.A., McGill University.
- Mellow, John Dean. 1990. 'Asymmetries between compounding and noun incorporation in Plains Cree', in *Papers of the 21st Algonquian Conference*, 247-257.
- 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: 847-94.
- Muriungi, Peter. 2008. 'Phrasal movement inside Bantu verbs: Deriving affix scope and order in Kiitharaka'. CASTL, Tromsø.
- Myler, Neil. 2012. 'Exceptions to the Mirror Principle and morpho "action at a distance": The Role of "word"-internal phrasal movement and Spell Out'. *Exploring the Interfaces, McGill University*, May 6-8.
- Nevins, Andrew. 2011. 'Multiple agree with clitics: Person complementarity vs. omnivorous number', *Natural Language and Linguistic Theory* 29: 939–971.
- Newell, Heather. 2008. *Aspects of the morphology and phonology of phases*, Ph.D. Dissertation, McGill University.
- Newell, Heather and Glyne Piggott. 2014. 'Interactions at the syntax–phonology interface, Evidence from Ojibwe'. *Lingua* 150: 332–362.
- Nichols, Johanna. 1986. 'Head-marking and dependent-marking grammar', *Language* 62: 56-119.

- Nilsen, Øystein. 2003. *Eliminating Positions: Syntax and semantics of sentence modification*, Ph.D. Dissertation, Universiteit Utrecht.
- Noonan, Maire. 2010. 'À to zu', in Guglielmo Cinque and Luigi Rizzi (eds.), *Mapping special PPs. The cartography to syntactic structures, Volume 6*. Oxford: Oxford University Press, 161-195.
- Noonan, Maire, this volume.
- Nunes, Jairo and Uriagereka, Juan. 2000. 'Cyclicity and extraction domains', *Syntax* 3: 20-43.
- Oxford, Will. 2014. *Microparameters of agreement: A diachronic perspective on Algonquian verb inflection*. Ph.D. dissertation. University of Toronto.
- Piggott, Glyne and Heather Newell. 2005. 'Syllabification and the Spell-out of Phases in Ojibwa words', in Eva Dobler and Yukio Furukawa (eds.). *McGill Working Papers in Linguistics*.
- Piggott, Glyne, and Newell, Heather. 2007. Syllabification, stress and derivation by phase in Ojibwa'. Ms., McGill University.
- Piggott, Glyne. 2008. 'Deriving word minimality by phase'. Ms., McGill University.
- Piggott, Glyne and Lisa Travis. 2013. 'Adjuncts within words and complex heads', in Raffaella Folli, Christina Sevdali, and Robert Truswell (eds.), *Syntax and its limits*. Oxford: Oxford University Press, 157-174.
- Preminger, Omer. 2009. 'Breaking agreements: Distinguishing agreement and clitic doubling by their failures', *Linguistic Inquiry* 40: 619–666.
- Reinholtz, Charlotte. 1999. 'On the characterization of discontinuous constituents: Evidence from Swampy Cree', *International Journal of American Linguistics* 65: 201-227.
- Rhodes, Richard. 1994. 'Agency, inversion, and thematic alignment in Ojibwe'. Paper presented at the 16th Annual Meeting of the Berkeley Linguistics Society.

- Richards, Norvin. 2004. 'The syntax of the conjunct and independent orders in Wampanoag', *International Journal of American Linguistics* 70: 327-368.
- Roberts, Ian. 2010. *Agreement and head movement: Clitics, incorporation, and defective goals*. Cambridge, MA: MIT Press.
- Shields, Rebecca. 2008. 'The functional hierarchy in Menominee: Preverbs and adverbs', in Rodney L. Edwards, Patrick J. Midtlyng, Colin L. Sprague, and Kjersti G. Stensrud (eds.), *CLS 41: The Main Session*. Chicago: The Chicago Linguistic Society, 431-444.
- Stepanov, Arthur. 2002. Late Adjunction and Minimalist Phrase Structure, *Syntax* 4: 94-125.
- Tourigny, H el ene. 2008. *(Non)Configurationality in Ojibwe: Focus on word order*. M emoire, University of Ottawa.
- Travis, Lisa. 1984. *Parameters and effects on word order variation*. Ph.D. dissertation, MIT.
- Travis, Lisa. 1988. 'The syntax of adverbs', *McGill Working Papers in Linguistics: Special issue on comparative germanic syntax*, 280-310.
- Valentine, Randolph J. 2001. *Nishnaabemwin reference grammar*. Toronto, ON: University of Toronto Press.
- Voorhis, Paul H. 1971. 'New notes on the Mesquakie (Fox) language', *International Journal of American Linguistics* 37: 63-75.
- Williams, Angeline. 1991. *The dog's children: Anishinaabe texts told by Angeline Williams*. Published and translated by Leonard Bloomfield. Newly published by John D. Nichols with a glossary. Winnipeg: The University of Manitoba Press.
- Wojdak, Rachel. 2008. *The linearization of affixes: Evidence for Nuu-Chah-Nulth*. Dordrecht: Springer.
- Wolfart, H. Christoph. 1971. 'Plains Cree internal syntax and the problem of noun incorporation', *Proceedings of the 38th Congress of the Americanists* 3: 511-18.

Woolford, Ellen. 2010. 'Active-stative agreement in Choctaw and Lakota', *Revista Virtual de Estudos da Linguagem* 8: 6–46.