

Incorporation in Crow?

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Abstract: While Crow has been described as an incorporating language (Graczyk 2007, Wallace 1993, Rankin et al. 2003), Golston, Boyle & Gebhardt (2018) argue that what looks like incorporation isn't. Rather what's happening is loss of word status, formation of a new prosodic word and deaccentuation. Focusing on noun incorporation, this paper reviews the facts and analyses, explicitly outlining the incorporationlike characteristics and weighing them against the phonological analysis. The conclusions are that the evidence favors a nonincorporating account and that even if incorporating features are acknowledged it's too simplistic to call Crow an incorporating language.

Keywords: Crow, incorporation, deaccentuation, prosody-syntax interface

1. Introduction

A variety of phenomena fall under the term 'incorporation', but the phenomenon does, perhaps canonically, involve the appearance of a word inside the verb when it would ordinarily appear in another position in the syntax and a tendency for generic rather than referential interpretation of the incorporated element (e.g. Massam 2009). How unified these phenomena are has been the focus of long debate, as have the kinds of phenomena that are necessary conditions for categorizing a language as incorporating. Before proceeding to examples of Crow, whose status as an incorporating language this paper questions, examples (1)-(3) illustrate some of the characteristics typically used to identify a language as incorporating. The a examples are nonincorporated while the b examples are incorporated structures. The tables below each data pair point to salient semantic and morphosyntactic contrasts between the nonincorporated and incorporated versions, with the element undergoing incorporation highlighted.

(1) Onondaga noun incorporation (Massam 2009:1077, citing Woodbury 1975, in Baker 1988)

- a. *pet wa?-ha-htu-?t-a?* *ne? o-hwist-a?*
Pat PST-3MS/3N-lost-CAUS-ASP the PRE-**money**-SUF
'Pat lost the money'
- b. *pet wa?-ha-hwist-ahtu-?t-a?*
Pat PST-3MS/3N-**money**-lost-CAUS-ASP
'Pat lost money'

Table 1: Salient evidence of nonincorporation and incorporation in (1a) and (1b)

Nonincorporated structure	Incorporated Structure
postverbal object	preverbal object
object with inflectional morphology	object without inflectional morphology
object a full DP	object a bare root
object referential	object nonreferential

(2) Mohawk noun incorporation (Baker 1996:21)

- a. *shako-núhwe'-s* *ne owira'a*
M.SG.SUBJ/3.PL.OBJ-like-HAB the **baby**
 'He likes the baby'
- b. *ra-wir-a-núhwe'-s*
M.SG.SUBJ-baby-like-HAB
 'He likes babies'

Table 2: Salient evidence of nonincorporation and incorporation in (2a) and (2b)

Nonincorporated structure	Incorporated Structure
postverbal object outside the verb	preverbal object inside the verb
object a full word	object a bare root
object a full DP	object a bare root
object referential	object nonreferential
transitive verb agrees with subject and object	intransitive verb agrees with subject

(3) Yucatec Mayan noun incorporation (Mithun 2000:857, citing Bricker 1978)

- a. *t-in-č'ak-Ø-ah* *če'*
 COMP-I-chop-it-IMPF(transitive) **tree**
 'I chopped the tree'
- b. *č'ak-če'-n-ah-en*
 chop-**tree**-ANTIPAS-PERF-I.ABS
 'I wood-chopped'

Table 3: Salient evidence of nonincorporation and incorporation in (3a) and (3b)

Nonincorporated structure	Incorporated Structure
object outside the verb	object inside the verb
transitive verb	intransitive verb
active morphology	antipassive morphology (reduced valence)
object referential	object nonreferential

The incorporated examples in the three languages exhibit some of the characteristics typically, though not universally, associated with incorporation structures, here primarily those showing incorporation of the object noun. First, depending on canonical and incorporated order, the incorporated version places the object in a linear position other than that of the canonical non-incorporated structure. Second, the incorporated element lacks affixal morphology. Third, the incorporated noun lacks overt morphological evidence of full DP structure, whether the nonincorporated noun has overt DP functional structure or not. Fourth, the incorporating verb de-transitivizes, sometimes via overt morphology. Fifth, the meaning of the incorporated element typically tends toward a nonreferential interpretation. It should be noted that while the three examples above involve incorporation of an object noun, indirect objects and adjuncts may also be incorporated, although subjects generally are not incorporated. Incorporation is a widespread phenomenon, notably common in North American, Australian, Oceanic, Austronesia and other languages. See [Massam \(2009\)](#) for an overview.

Having shown rather canonical examples of incorporation, I devote the rest of the paper to questioning claims that Crow incorporates. The main claim is presented and then countered with a purely phonological analysis of the phenomena. The argument against Crow incorporation is then tempered with a discussion of what constitutes incorporation and the conclusion that at least in the case of Crow, and likely in many languages, to say a language is incorporating is an overgeneralization and simplification.

2. Incorporation in Crow

2.1. Crow under an incorporation account

Crow, a Siouan language of the North American Great Plains, is a head-final language, with rich verb morphology that tends toward agglutinating and is said to incorporate nouns, verbs and other items ([Graczyk 2007:5-7](#), [Wallace 1993:3](#), [Rankin et al. 2003:183](#)). Example (4b) is an object-incorporated version of (4a) (from [Graczyk 2007:280](#)).¹

- (4) a. *iisáakshe íliia daxxóxx-uu-k*
 young.men **tipi.pole** peel-PL-DECL
 ‘the young men peeled the tipi poles (e.g., the ones they cut in the mountains yesterday)’
- b. *iisáakshe ílii-daxxóxx-uu-k*
 young.men **tipi.pole**-peel-PL-DECL
 ‘the young men were peeling tipi poles (engaging in the activity of peeling poles)’

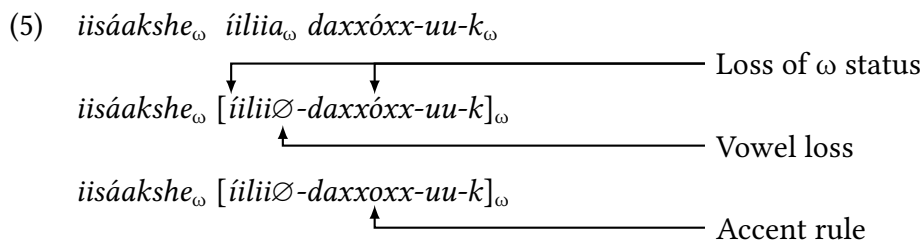
The nonincorporated sentence, (4a), shows canonical SOV order with the object noun outside the verb in so-called citation form used for morphologically independent words ([Graczyk 2007:32-33](#)). Example (4b) has the same linear order of elements, SOV, but the noun appears with the final vowel deleted. Also phonologically, note that (4b) has three pitch accents, one on each word, while in (4a) the object-verb complex is reduced to a single accent. Semantically, according

¹For the Crow data, most of the glosses are transparent, but also note that A = agentive prefix, B = nonagentive prefix, DECL = declarative marker, PRO = pronominal.

to Graczyk, (4a) points to a reference of specific ‘tipi poles’ while the object noun in (4b) has a generic reference. Assuming incorporation has occurred in (4b) I assume that the incorporation is accounted for by something like Baker’s (1988) analysis.

2.2. Crow under a nonincorporation account

Arguing that Crow does not have morphosyntactic incorporation,² Golston, Boyle & Gebhardt (2018) make the case that what is going on in sentences like (4b) is a purely phonological phenomenon of deaccentuation and loss of word status. Assuming that (4b) is derived from (4a), we have something like the derivation in (5).



The object noun *íliia* ‘tipi poles’ loses its independent word status and the final vowel is lost by a general rule. With the noun and verb reduced to a single phonological word, an accent rule applies whereby, generally, the accent in the first word is kept and the accent in the second word is lost (Graczyk 2007:21-23). As an analogy, consider the English sentence in (6a), which is reduced in (6b).

- (6) a. [the men] $_{\omega}$ didn’t $_{\omega}$ see $_{\omega}$ her $_{\omega}$
 b. [the men] $_{\omega}$ didn’t $_{\omega}$ [siər] $_{\omega}$

Describing (6b) as derived from a representation of (6a), we have the two phonological words see her reduced to a single phonological word, with her deaccented and the /h/ deleted. The resulting form, [siər] $_{\omega}$, is simply a reduced and deaccented version of see her; we do not want to argue that her has been incorporated in any morphosyntactic or semantic way. The English phonological reduction, deaccentuation and one element losing its word status, is precisely what Golston, Boyle and Gebhardt argue is also occurring in the purported incorporation cases in Crow.

However, there is no inconsistency between morphosyntactic incorporation and a phonological process that may be part of incorporation. After all, incorporation is a kind of wordformation and the result of wordformation, words, are subject to word-level phonology. To show that the phonology is the full account of the data and not simply the phonological effect of incorporation, Golston, Boyle and Gebhardt show problems with a morphosyntactic account which leave phonology alone as the explanation. The problems identified include the practical difficulty in determining whether incorporation has occurred due to the same SOV linear order in both the nonincorporated and incorporated versions. Further, the apparent incorporation of XPs as well as heads, incorporation of functional material, and the conclusion that purported movement violates island constraints are cited as evidence that incorporation is not occurring.

²For the nonincorporating account of Crow, I use terms such as ‘incorporating’ and ‘incorporated structure’ to refer to those phenomena that have been alleged to involve incorporation.

First, in Crow it is usually impossible to discern a difference between nonincorporated and incorporated structures because both have SOV linear order. That is, roughly speaking we have something like $S O V \Rightarrow S O-V$, as in the examples in (4) where we cannot tell whether the purportedly incorporated object is independent of or attached to the verb. There is a difference in the form of the object due to the loss of the final vowel when it's incorporated, but the loss of the vowel is no indication that incorporation via Baker-like (1988) movement has occurred. Second, according to Graczyk (2007), Wallace (1993), Boyle (2002), and Rankin et al. (2003), Crow is able to incorporate phrases, against typical accounts which call for incorporation of heads. Besides heads that include nouns, quantifying determiners, verbs and postpositions, Crow is also argued to incorporate phrases such as postpositional phrases, as in (7). Further, Rankin et al. (2003:183) claim about incorporation that "in Crow, it is so productive that it is not surprising to find entire RCs incorporated into the verb complex." Incorporation of a CP relative clause appears in (8).

- (7) PP incorporation (adapted from Graczyk 2007:382)
 [PP *ammalapáshkuua-ss*]-*da-lee-ʔ*
Billings-GOAL-2A-go-Q
 'Are you going to Billings?'
- (8) RC incorporation (adapted from Graczyk 2007:200)
 [CP *ak-dii-ammalapáshkuua-ss-aa-lee*]-*waa-chiin-moo-k*
REL-2B-Billings-GOAL-**PORT-go**-1A-look.for-INCL-DECL
 'We'll look for someone to take you to Billings'

Third, as the contrasts in examples (1) to (3) illustrate, incorporated material is typically single words or roots of words, without affixal or other functional material. This generally holds true in Crow, although Graczyk notes cases of incorporation of a noun along with its possessor (Graczyk 2007:281).

- (9) *d-áasuu-lai-waa-(a)k* ...
2.POSS-house-make-1A-SS
 'I will make a house for you ...'

As for verbs, it is not at all clear that what is going on in verb incorporation as claimed by Graczyk in examples like (10).

- (10) *b-eeláx-b-isshi-k*
 1A-urinate-1A-**need.to**-DECL
 'I need to urinate' (Graczyk 2007:300-309)

Nearly all cases of alleged verb incorporation involve one main verb and another of modal or aspectual quality such as 'will', 'try', 'want to', 'would', 'be ready', 'begin to'. That is, such examples involve a single predicate rather than the multiple predication that is generally the case in verb-incorporation (see Baker 1988: chapter 4). In addition, each of the verbs in (10) is independently marked for person with the *b(a)*- morpheme for agentive first person, in contrast to the typical case with incorporated verbs or serial verb constructions which result in agreement on only one of the verbs.³ As a more extreme example, (11) show triple agreement.

³I refer to inflectional agreement markers, while Graczyk (2007), for example, regards them as arguments. I leave investigation of these markers' status for further research.

- (11) *April-sh baa-waláx-ba-k-b-ii-luu-k*
 April-DEF 1A-sing-1A-give-1A-FUT-PL-DECL
 ‘We’ll sing for April’ (Wallace 1993:123)

Importantly from a theoretical point of view, Golston et al. (2018) hold that incorporation via movement into the verb from elsewhere in the syntactic structure sometimes requires violating island constraints. In a Baker-like (1988) syntactic treatment of incorporation, a direct object or other constituent undergoes movement as in (12), with English lexical items used in a simplified version of the Mohawk sentences in (2), based on Baker (1988:83, ex. 19a).

- (12) a. baby likes house \Rightarrow baby house-likes
 b. $[_{TP} \textit{baby} [_{VP} \textit{likes} [_{DP} \textit{house}]]] \Rightarrow [_{TP} \textit{baby} [_{VP} \textit{house-likes} [_{DP} \textit{house}]]]]$

In (12b) the object moves from the complement of V to left-adjoin to the verb. What is noted by Goldston, Boyle and Gebhardt is that under this account the movement sometimes entails extraction from a syntactic island. For example, in (13) there is a violation of Ross’s (1967) Left Branch Condition, more precisely a Right Branch Condition in Crow.

- (13) Left (Right) Branch Conditions (Graczyk 2007:287)
 a. *baláxii-uuwate kúh shoop-dútchi-k*
 weapon-metal PRO four-take-DECL
 ‘He also took four guns’
 b. $*[_{DP} \textit{baláxii-uuwate shoop}_i] \textit{kúh shoop}_i\textit{-dútchi-k}$

In (13a) the quantifying determiner *shoop-* ‘four’ appears as part of the verb, clearly separated from the DP by the pronominal form *kúh* (one of the few cases where linear order does change between nonincorporated and incorporated sentences). However, in order to achieve the movement as indicated in (13b) *shoop(a)* must be illicitly extracted from its position in the right branch of the DP. This movement is analogous to the illegal extraction of *whose* from the left branch of the DP in (13c).

- (13) c. $*\textit{whose}_i \textit{did you buy} [_{DP} \textit{___}_i \textit{book}]$

As one other example, the incorporation in (14) entails violation of the Coordinate Structure Constraint.

- (14) Coordinate Structure Constraint (adapted from Graczyk 2007:296)
 a. *iisashpíta-lak baaík-dappee-t isahkáale-lak duus-aat-ák*
 rabbit-and stuff-kill-TEMP his.grandmother-and eat-APRX-SS
 ‘When he would kill rabbits and other small game he and his grandmother would eat them’
 b. $*[_{DP} \textit{iisashpíta-lak baaík}_i] \textit{baaík}_i\textit{-dappee-t isahkáale-lak}$

While the purported movement is linearly vacuous as shown in (14b), it requires extracting the right conjunct out of the conjoined phrase. The illegal movement in (14b) is akin to the ungrammaticality of *wh*-moving the right conjunct of the DP in (14c).

- (14) c. $*\textit{what}_i \textit{did you eat} [_{DP} \textit{the sandwich and ___}_i]$

In the vast island literature since Ross (1967) much has been discussed about how universal islands are and under what conditions they can be violated, etc., but it is important note relevant to example (14) that the coordinate structure constraint is still considered one of the most robust constraints (see for example Boeckx 2012 and Hofmeister & Sag 2010).

To recapitulate to this point, in Crow it is usually impossible to tell if something has moved under incorporation since the order is SOV in both nonincorporated and incorporated versions. Also, in order to achieve morphosyntactic incorporation, in some cases the noun root must be extracted from an island. These empirical and theoretical problems leave the phonological account of Golston, Boyle & Gebhardt (2018) as the preferred interpretation of what's happening in Crow "incorporation", i.e. deaccentuation and loss of word status as the object noun and verb make up a single prosodic word.

2.3. A problematic case for the nonincorporation account

Wallace (1993) presents an example, (15) below, that looks like a genuine case of incorporation, where the adverb *kan* 'now' and the noun *nakáak* 'bird' clearly intervene between the verb *oosshe* 'cook' and the nonagentive prefix *bii-* 'me' (adapted from Wallace 1993:54).⁴

- (15) a. *ba-sahké* *bii=kan=nakáak=oosshe-hche-wia-k*
 1.POSS-mother 1B=**now**=**bird**=cook=CAUS=want-DECL
 'My mom wants me to cook the turkey now'

Unlike in many examples, if the *bii-* prefix in (15a) is part of the verb then the object sits unambiguously inside the verb, a counterexample to Golston et al.'s (2018) contention that purported cases of incorporation are string vacuous. However, there are two facts about cases like that in (15a) that mitigate the conclusion of its being a case of incorporation. First, Wallace (1993), claiming a typological oddity, presents data showing that the three preverbal elements in (15a) can be freely ordered in all six possible ways (English translations, for convenience):

- (15) b. me-now-bird- me-bird-now- bird-me-now-
 bird-now-me- now-bird-me- now-me-bird-

This would seem to argue that whatever is happening to generate the six versions of (15b) it is not incorporation, since affixation and noun incorporation are typically rigid in terms of morpheme order. Second, while the permutations involve the nonagentive B prefix they do not involve the agentive A prefix. If (15a) is the result of incorporation, the incorporation is evidently qualified, a point discussed more in the following sections.

3. What is incorporation, and does Crow have it?

Massam (2009:1078) presents a definition:

⁴Although *bii-* represents the apparent cooker, since this subject is embedded in a causative construction the subject of 'cook' gets the nonagentive prefix instead of the agentive prefix.

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.

Despite some circularity, this definition is general enough to group many of the phenomena held to be or to be related to incorporation. Some characteristics of incorporation were illustrated in examples (1)-(3) above: appearance of a word or root inside a predicate, change in word order (where relevant), tendency toward nonreferentiality of the incorporated root, changes in morphology of both the incorporating and incorporated elements, reduction in valence of the verb. Various categories can be incorporated into other categories. Perhaps the most prominent cases involve incorporation of object nouns into the verb, though other categories such as prepositions and adverbs can be incorporated; both arguments and adjuncts are incorporatable. While Baker (1988:76-81) rules out English-type compound nouns as true incorporating structures, there clearly is some overlap between the properties of incorporation in languages like Onondaga and compound nouns in English (16a) and, to the degree that they are acceptable, structures like that in (16b).

- (16) a. duck hunter
 b. Wayne hunts ducks \Rightarrow Wayne duck-hunts
 S V O S O-V
 transitive *hunts* intransitive *duck-hunts*

Evidence that *duck-hunts* is an incorporation, or at least a compound, lies in stress modification (17) and detransitivization (18).

- (17) stress: Wáyne_ω húnts_ω dúcks_ω \Rightarrow Wáyne_ω [dúcks-hunts]_ω
 3 main word stresses 2 main word stresses

- (18) detransitivization: Wayne duck-hunts
 ?Wayne duck-hunts ducks/ducklings/mallards/mergansers

Sapir (1911:254-257) called noun incorporation the process of compounding a noun stem with a verb. Baker integrated theory to define noun incorporation as syntactic movement of a head, which adjoins to the verb, for which see example (12) above; Sadock (1991), in an autolexical approach, pointed to syntactic properties of noun incorporation in Greenlandic. In contrast, Mithun (1984:847-848) characterized noun incorporation as “a solidly morphological device” but she also claimed it to be “perhaps the most nearly syntactic of all morphological processes”. The several variant approaches mentioned here only scratch the surface of ways to analyze noun incorporation in particular, let alone incorporation more generally. Mithun, in fact, classified incorporation into four basic types that includes features of morphology, syntax, semantics and pragmatics, although the characteristics overlap much more than she suggests in her categorization.

Massam (2009), rightly I think, comes to the conclusion that incorporation as a unified phenomenon does not exist; rather, “incorporation” is a cover term for a family of related phenomena. That should not be a surprising conclusion, as it accords with what we often find in linguistics: the lack of clean categories. Consider ergativity as an example. Many languages are called ergative but the characteristics and degree of ergativity in a language vary greatly,

with regard to case, agreement, morphology, syntax (deep ergativity), which tenses and aspects it appears with, which persons, etc. Coons et al. (2017:1) suggest that scholarship is reaching a consensus that ergativity “is not a single unitary phenomenon, and is not realized in the same way across different languages”. They cite on the same page specific comments from ergativity specialists such as Johns (2000:67) that there is “little value in studying ergativity as a thing in itself” and Deal (2015) that “ergativity is not one but many phenomena”. Therefore, rather than claim that a certain language is ergative, one should be careful to say that language has such and such characteristics of ergativity. Similarly, since incorporation may involve any of a number of features (e.g. compounding, pseudoincorporation, semantic incorporation, distribution of bare nominals, complex predicates motivated by backgrounding of information, genericness, etc.), one should specify what particular aspects of incorporation are present.

So, where does that leave us with Crow, particularly with noun incorporation. In favor of incorporation, in certain restricted circumstances the linear order of the noun with regard to other items in the sentence differs between structures, and that noun in its noncanonical position usually lacks all functional material. Also, to the degree that the noun prefers a generic or habitual interpretation we have behavior that accords with incorporated status. Against incorporation is the fact that it is usually impossible to tell if a noun has moved linearly, and thus structurally; that phrases rather than simply heads are alleged to incorporate, that some functional material–possessors–can appear on the noun in noncanonical position. Theoretically, the strongest argument against incorporation is that in some cases it entails violation of island constraints. The examples in (15) constitute a wash: it looks like an object noun is appearing amid inflectional material but, on the other hand, the flexibility of word order suggests what is happening is not incorporation. This aspect must be further studied, at least to determine whether one or both of the person prefixes is more cliticlike or more agreementlike.

What happens in Crow does seem to have certain incorporationlike characteristics, but the evidence seems to weigh against incorporation based on the island violations. The most one can muster in favor of incorporation in Crow is that it exhibits certain features of incorporation. But without adducing incorporation, all the structures purported to be incorporation can be accounted for by positing deaccentuation and loss of word status.

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