

## The challenge of inverse morphology

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### 1. Introduction

Inverse morphology constitutes an own type of argument linking, which is totally different from the well-known generalized case systems articulated in terms of abstract case (accusative and ergative). In these systems so-called differential object marking often applies, where the choice of accusative depends on salience (animacy, definiteness, topicality). If the object is relatively high in salience, contrary to what one expects for objects, the object is marked accusative. Likewise, differential subject marking reflects salience of the subject. If the subject is relatively low in salience, contrary to what one expects, the subject is marked ergative. The combined forces of both differential object and differential subject marking can lead to a four-way case split.

(1) Four-way case split.

	low-salient objects	high-salient objects
high-salient subjects	NOM NOM	NOM ACC
low-salient subjects	ERG NOM	ERG ACC

In the category of person, 1st/2nd person (local person) is more salient than 3rd person. A possible distribution of person that correlates with the distribution of case in (1) is the following.

(2) Possible person constellations

	low-salient objects	high-salient objects
high-salient subjects	1→3 (direct)	1→2 or 2→1 (local)
low-salient subjects	3→3 (symmetric)	3→1 (inverse)

The higher argument of a transitive verb is called 'subject', whereas the lower argument is called 'object'. 'x→y' (or 'x/y') symbolizes that x is the value of the subject, and y the value of the object.

Generalized case morpho-syntax encodes subjects and objects independent of each other, according to absolute contextual values. By contrast, inverse morphology encodes relative salience. The direct marker encodes the more natural constellation in which the subject is more salient than the object. Conversely, the inverse marker encodes the constellation in which the object is more salient than the subject. Therefore, these markers are necessarily head markers, they have to encode the verb itself rather than the dependents of the verb. The effects of the direct marker can be compared with the distribution NOM NOM in (1), and those of the inverse marker with the distribution ERG ACC. This already shows that neither ERG nor ACC alone are capable of conveying the information of an inverse marker. Inverse morphology seems to be an ingenious system, in its purest form it is only found in the Algonquian languages. However, many more Amerindian languages as well as some Asian languages show some relics of inverse morphology. Without our knowledge of Algonquian we would probably be unable to analyze these relics adequately.

The questions I am going to discuss include the following:

- How general is inverse morphology?
- How can inverse morphology be developed?
- Can inverse morphology undergo the change to accusative or ergative morphology?
- Does an inverse system exhibit subject-object asymmetries?

## 2. Some basic facts about Algonquian

Animacy is a central category. Intransitive verbs have different stems for animate vs. inanimate subjects. Likewise, transitive verbs have different stems for animate vs. inanimate objects.

- (3) Some thematic endings of stems in Ojibwe; the common root here is *biin* ‘clean’.

	animate	inanimate	
Subject of intransitive verbs	biin-zi (VAI)	biin-ad (VII)	‘be clean’
Object of transitive verbs	biin-ih (VTA)	biin-toon (VTI)	‘make clean’

- (4) Some forms with the four ‘clean’-stems in Ojibwe

a. Independent order, indicative, positive

biin-zi-wag.	(3pl.anim)	‘They are clean.’
biin-ad-wan.	(pl.inan)	‘They (inanimate) are clean.’
w-biin-toon-naawaan.	(3pl)	‘They make it clean.’
w-biin-ih-igo-naawaa.	(invers-3pl)	‘It makes them clean.’
biin-ih-aa-wag	(direct-3pl.anim)	‘Someone makes them clean.’ = ‘They are made clean.’ (Passive)

b. Conjunct order, neutral, positive

biin-zi-waad	‘that they are clean’
biin-ad-k	‘that they (inanimate) are clean’
biin-toon-waad	‘that they make it clean’
biin-ih-igo-waad	‘that it makes them clean’
biin-ih-ind-waa	‘that someone makes them clean’

All transitive forms are sensitive to the relative ranking of arguments (saliency scale).

- (5) Direct and inverse forms in Ojibwe = Nishnaabemwin (Dialect of Parry Island, Ontario, Valentine 2001).

- a.  $2 > 1 > 3$ : In the prefixes, 2nd person has preference over 1st person (see the inclusive plural), and both have preference over third person.

n-waabm-aa-min	‘We(encl) see him/them.’	(1-see-DIR-1pl)
g-waabm-aa-min	‘We(incl) see him/them.’	(2-see-DIR-1pl)
g-waabm-aa-waa-g	‘You(pl) see them.’	(2-see-DIR-2pl-3pl)
n-waabm-igo-min	‘They see us(excl).’	(1-see-INV-1pl)
g-waabm-igo-min	‘They see us(incl).’	(2-see-INV-1pl)
g-waabm-igo-waa-g	‘They see you(pl).’	(2-see-INV-2pl-3pl)

/aa/ and /igo/ are called theme suffixes. The direct suffix /aa/ applies if subject person ranks over object person. In the inverse constellation the inverse suffix /igo/ applies.

- b. Accordingly, /i/ is the direct suffix with both subject and object being local person, and /iN/ is the corresponding inverse suffix. However, in the plural suffixes, one finds the ranking  $pl/1 > pl/2, pl/3$ . (The expression of 1st person plural takes preference.)

g-waabm-i-min	‘You(sg/pl) see us(excl).’	(2-see-DIR-1pl)
g-waabm-ini-min	‘We(excl) see you(sg/pl).’	(2-see-INV-1pl)

- c. In addition, all 3rd person arguments must be ranked to each other. Only one proximate 3rd person is possible, all others must be obviative (3' or 4). Number is marked only on the proximate person (whereas gender is always unmarked). The use of /aa/ and /igo/ is consistent with the ranking 3 > obv.

w-waabm-aa-n	'She sees him/them <sub>obv.</sub> '	(3-see-DIR-3)
w-waabm-aa-waan	'They see him/them <sub>obv.</sub> '	(3-see-DIR-3pl)
w-waabm-igo-on	'He/they <sub>obv</sub> see her.'	(3-see-INV-3)
w-waabm-igo-waan	'He/they <sub>obv</sub> see them.'	(3-see-DIR-3pl)

The distinction between direct and inverse must not be identified with active and passive because an additional (impersonal) passive is possible. It takes person/number suffixes of intransitive verbs. It is special for Ojibwe that passive makes use of the theme suffixes. The use of /igoo/ vs. /aa/ indicates that the full person scale of Ojibwe is

2 > 1 > X (unspecific) > 3 > obv.

- (6) Unspecific subject (= passive) in Ojibwe.

n-waabm-igoo-min	'Someone sees us (= We are seen).'	(1-see-INV.PASS-1pl)
waabm-aa-wag	'Someone sees them (=They are seen).'	(see-DIR-3pl)

Obviative is also marked on the noun. (Valentine 2001:183)

- (7) W-gii-waabm-aa-n dash niw zhiishiib-an niibna bbaa-gom-nid.  
 3-PAST-see-DIR-OBV then that.OBV duck-OBV many go.around-float-OBV  
 'Then he saw many ducks swimming about.'

This opens four possibilities for a transitive verb: each argument can be proximate or obviative, and it can be subject or object. As a rule, the proximate argument is subject in the direct voice, and the obviative one is subject in the inverse voice.

- (8) Obviative in Plains Cree and Ojibwe (Wolfart & Carroll 1981:30, Valentine 2001)

a.	wāpam-ē-w	nāpēw	śīśīp-a.	'The man sees the duck (obv)'
	wwaabm-aa-n	nini	zhiishiib-an.	
	see-DIR-OBV	man	duck-OBV	
b.	wāpam-ik	nāpēw-a	śīśīp.	'The man (obv) sees the duck'
	wwaabm-igoo-n	ninw-an	zhiishiib.	[≈'The duck is seen by the man']
	see-INV-(OBV)	man-OBV	duck	
c.	wāpam-ē-w	nāpēw-a	śīśīp.	'The duck sees the man (obv)'
	wwaabm-aa-n	ninw-an	zhiishiib.	
	see-DIR-OBV	man-OBV	duck	
d.	wāpam-ik	nāpēw	śīśīp-a.	'The duck (obv) sees the man'
	wwaabm-igoo-n	nini	zhiishiib-an.	[≈'The man is seen by the duck']
	see-INV-(OBV)	man	duck-OBV	

S\O	duck-OBV	duck.PROX	man-OBV	man.PROX
man.PROX	direct			
man-OBV		inverse		
duck.PROX			direct	
duck-OBV				inverse

Obviative marking enables to establish clause-internal and clause-external co-references ('reference tracking'). Co-reference between arguments requires the same obviation status (proximate or obviative). Clause-internal co-reference relates to a possessor. Usually, the possessor is more prominent than the possessee; however, an additional obviative marking can invert this relationship, see (9b).

- (9) Clause-internal co-reference in Plains Cree (Wolfart & Carroll 1981).
- a. cān wāpam-ēew o-stēs-a w-īk-ihk  
 John see-DIR 3P-brother-OBV 3P-house-at  
 'John<sub>prox</sub> saw his<sub>prox</sub> older brother<sub>obv</sub> at his<sub>prox</sub> house'
- b. cān wāpam-ēw o-stēs-a w-īk-īy-ihk  
 John see-DIR 3P-brother-OBV 3P-house-OBV.POSS-at  
 'John saw his older brother<sub>obv</sub> at his<sub>obv</sub> house'
- (10) Clause-external co-reference in Plains Cree (Wolfart & Carroll 1981)
- a. nāpēw atimw-a wāpam-ēw ē-sipwēhtē-t [≈ SS]  
 man dog-OBV see-DIR CONJ-leave-3  
 'The man<sub>prox</sub> saw the dog as he<sub>prox</sub> left'
- b. nāpew atimw-a wāpam-ēw ē-sipwēhtē-yit [≈ DS]  
 man dog-OBV see-DIR CONJ-leave-3OBV  
 'The man saw the dog<sub>obv</sub> as he<sub>obv</sub> left'

Given certain circumstances, such a *cross-referencing* system can be reanalyzed as a switch-reference system: the obviative marking on the dependent verb in (10b) can be re-interpreted as a different subject (DS) marker.

The inflectional system accounts only for two, possibly *animate* arguments. Therefore, the recipient of ditransitive verbs is treated like the patient of transitive verbs.

- (11) The transitive animate inflection (VTA) of ditransitives in Ojibwe
- a. direct: n-miin-aa 'I give her something.' (1-give-DIR)  
 n-miin-aa-g 'I give them something.' (1-give-DIR-3pl)
- b. inverse: n-miin-ig 'She gives me something.' (1-give-INV)  
 n-miin-igo-og 'They give me something.' (1-give-INV-3pl)
- (12) The passive of ditransitives with animate intransitive inflection (VAI)
- miin-aa 'She is given something.' (give-DIR)  
 miin-aa-wag 'They are given something.' (give-DIR-3pl)  
 n-miin-igoo 'I am given something.' (1-give-INV.PASS)
- (13) The inverse of ditransitive verbs is illustrated by the example in (a), while the passive is shown in (b) (Valentine 2001: 656, 688).
- a. N-gii-bgidnamaa-g aw nini w-baashkzig-an.  
 1-PAST-let.have-INV that man 3-rifle-OBV  
 'That man let me have his gun.'
- b. Semaa-n gii-miin-aa-wag giw kiwenziin-yag gaa-bi-zhaajig.  
 tobacco-OBV PAST-give-DIR-3pl those old.man-pl who-hither-come.part.conj  
 'The old men who had come were given tobacco.'

Besides various intransitive and transitive markers, Algonquian exhibits a rich system of valency-increasing markers, deriving ditransitive verbs if they are applied on transitive ones. However, only one object can be marked on the verb. In the causative it is the causee that is co-indexed on the verb, while in the applicative it is the applied object.

- (14) Some derived verbs in Ojibwe (Valentine 2001: 435, 463, 465)
- |  |                    |
|--|--------------------|
| a. Causative                                 | b. Comitative      |
| baak-nam-oo-h                                | wiid-oopo-m        |
| open-TRANS.ANIM-epenth-CAUS                  | WITH-eat-WITH      |
| ‘get/cause someone to open something’        | ‘eat with someone’ |
| c. Benefactive                               |                    |
| dkw-aabiit-maw                               |                    |
| short-stringlike.object-BEN                  |                    |
| ‘shorten something (stringlike) for someone’ |                    |
- (15) 1st person beneficiary marked on the verb (Valentine 2001:700)
- Aw kwe n-dazht-amaa-g n-babgiwyaan.  
 that woman 1-make-BEN-INV 1P-shirt  
 ‘That woman is making me a shirt.’ (literally: my shirt)

### 3. How inverse systems come about and how they can be changed

Let us briefly speculate about the origin of the theme markers direct and inverse.

Note that there is a rich system of classifiers on verbs with the general format:

root-conceptual classifier-categorical classifier

- (16) Some verbs with dko ‘short’ (Valentine 2001:342 ff)

VAI	VII	
dko-ozī	dkow-aa	‘be short’
dkw-aabiig-zi	dkw-aabiig-ad	‘be short’ (of a string-like obj.)
dkw-aabk-izi	dkw-aabk-ad	‘be short’ (of a metal/stone-like obj.)
dkw-aak-zi	dkw-aak-od	‘be short’ (of a wooden/pole-like obj.)

1. The theme markers function as classifiers of verbs, but more to the inflectional side.

Compare (17a) and (b):

- (17) a. n-waabn-daan jiimaan.                      b. n-waabm-aa nin.  
 1-see-VTI boat    1-see-DIR man  
 ‘I see the boat.’    ‘I see the man.’

ad (a):/-daan/ is an absolute classifier: it is one of the various transitive suffixes that signals inanimate object. Here, the scale animate > inanimate is aligned with the scale subject > object.

ad (b): /-aa/ is a relative classifier. /i/ and /iN/ classify verbs with two local arguments (1st or 2nd person), i.e., the scale 2 > 1 is aligned with the scale subject > object, either directly or inversely. In the remaining transitive verbs, /aa/ singles out the class of verbs in which some segment of the scale 2,1 > X > 3 > obv is aligned with the scale subject > object, while (underlying) /igw/ characterizes the situation in which such a segment is aligned inversely. Note that there are inverse-only verbs such as ‘make someone thirsty/drunk/sick’, ‘give someone a headache’.

2. The theme markers can be regarded as being generalized from portmanteau morphemes, which encode subject and object properties simultaneously.

- (18) This diagram shows that case morphemes can be regarded as generalized portmanteau morphemes. Segmentation into subject and object features is more effective than portmanteaus.

S\O	2	1	3	
2		2→1	2→3	
1	1→2		1→3	
3	3→2	3→1	3→3	→ 3.ERG
	↓	↓		
	2.ACC	1.ACC		

- (19) In the presence of a strong person hierarchy, however, generalization can group portmanteaus slightly differently, e.g., above and below the shadowed cells.

S\O	2	1	3	obv	
2		2→1	2→3	???	→ generalization: direct
1	1→2		1→3		
3	3→2	3→1		3→obv	
obv	???		obv→3		
	↓ generalization: inverse				

Inverse morphology is most effective if more groups than one are formed, like in Algonquian. In the independent order of Ojibwe, *g-V-aa* (2-V-DIR) necessarily expresses 2→3, while *g-V-in* (2-V-INV.LOC) expresses 1→2. It doesn't need more than six morphemes to express 8 different subject-object constellations. A precondition is that the person prefixes (such as /g-/ and /n-/) are not specified for either subject or object. In other words, inverse morphology and case morphology exclude each other. This suggests that they are rigid alternatives, and no shift between the types is possible.

The situation is a little more complex. (i) Besides person, also number must be marked. Algonquian always uses number suffixes specific for a particular person. (ii) In the conjunct order, the prefix position is occupied by a subordinating element, or it is empty. In any case, the use of inverse and direct markers is less economical here because it leaves too much ambiguity. (iii) Moreover, a string of suffixes undergoes various phonological alternation because of the working of prosodic and phonological rules, so that the morphemes are often not easy identifiable. (Valentine's grammar 2001 mostly does without segmentation.)

As Dahlstrom observed for Plains Cree (on the basis of documented bible translations), the inverse and direct marker in the conjunct order have been established not before the second half of the 19th century. Before that, most constellations were expressed by portmanteaus, and only few generalizations had been made. In modern Plains Cree, and even more in modern Ojibwe, the number of idiosyncrasies and the number of dialectal varieties in the conjunct order is much greater than in the independent order.

In the conjunct order of Ojibwe (dialect of Manitoulin Island, Lake Huron), the direct marker /i/ seems to have been generalized from 2→1 also to 3→1, so that /i/ has adopted properties of an accusative marker for the 1st person. Similarly, /inin/ (a variant of the inverse marker /iN/) now covers both 1→2 and 3→2 cells, so that it could be regarded as 2.ACC. (All segmentation in (20) is mine.)

(20) Ojibwe: Transitive animate verbs, conjunct order, neutral mode, positive (276, 295)

S\O	2sg	2pl	1sg	1pl	3sg	3pl	obv
2sg			i-yan	i-yaang	ad	ad-waa	
2pl			i-yeg	i-yaang	eg	eg-waa	
1sg	in-aan inin-aa	inin-agog			ag	ag-waa	
1pl	igoo-yan in-aang	igoo-yeg in-aang			aa-ngid angid	aa-ngid-waa angid-wa	
3sg	ik igo-yan	igo-yeg inin-eg	id igo-yaanh	igo-yaan-gid i-yan-gid			aa-d
3pl	ik-waa igo-yan	igo-yeg-waa inin-eg-waa igo-yeg	i-waad igo-yaanh	igo-yaan-gid-waa i-yan-gid-waa i-yamin-gid-waa igo-yaang			aa-waad
obv	ig		ig	i-yamin-gid igo-yaang	igo-d	igo-waad	

However, these sporadic tendencies of generalizing accusative must be complemented by changing other morphemes, too. Yet, it is rather improbable that within Ojibwe's conjunct order some general sort of case will develop because the person-number endings of verbs with a single animate person as the subject (animate intransitives and transitive inanimate verbs) are identical with those of inverse verbs in which the single animate person is the object. Such a rigid constellation is unlikely broken off.

(21) Identical person-number morphemes for objects and subjects in the conjunct order, neutral mode, positive in Ojibwe (Valentine 2001: 295, 236, 260). Recall that *-igo* represents the inverse morpheme, and *-igoo* the passive morpheme.

	2sg	2pl	1sg	1pl.excl	1pl.incl	3sg	3pl
Object of VTA with inanimate subject	-igo-yan	-igo-yeg	-igo-yaanh	-igo-yaang	-igo-yang	-igo-d	-igo-waad
Object of VTA with unspecified subject	-igoo-yan	-igoo-yeg	-igoo-yaanh	-igoo-yaang	-igoo-yang	-ind	-ind-waa
Subject of VAI or VTI (after vowel)	-yan	-yeg	-yaanh	-yaang	-yang	-d	-waad

Summarizing, inverse morphology can emerge only under very specific circumstances, including head marking, a rigid classificatory system of verbs related to argument properties, a strong person hierarchy, and the existence of person-number morphemes that are not specified for grammatical functions. Such a system lacks subject-object asymmetries in the morphology, and is therefore incompatible with case. A change into a case system is improbable, even if sporadic generalization to accusative may occur.

#### 4. How morphological generalizations determine other domains of grammar

An important question is whether a system with morphological subject-object symmetry has influence on other domains of the grammar.

Semantic roles only play a peripheric role in Algonquian. According to Rhodes (1994, cited in Valentine 2001, but not identifiable in the reference list), agent sensitivity is shown by two preverbs, obviously for purely semantic reasons: (i) The aspectual preverb *booni-* ‘stop’ always relates to the agent regardless of whether it functions as the subject or the object (794 ff.) (ii) Similarly, the directional preverb *bi-* ‘hither’ always relates to agents (729). However, Valentine gives no examples with inverse forms that could prove this.

There is only one property specific for objects: only objects allow quantifier floating. Floated quantifiers are realized in the preverbal focus position. There might be a semantic motivation for this asymmetry because generally, it is more natural to focus on objects than on subjects.

(22) Quantifier floating in Plains Cree (a) and Ojibwe (b) (Dahlstrom 1991: 83, Valentine 2001: 573)

- a. Nisto nipah-ē-w-ak mōsw-a nāpēw-ak  
 three kill-DIR-3-pl moose-OBV man-pl  
 ‘The men killed THREE moose.’ / \*‘Three men killed moose.’
- b. Gnabaj niibna w-gii-ns-aa-dg-enan ninw-an.  
 perhaps many 3-PAST-kill-DIR-DUB-OBV men-OBV  
 ‘He must have killed MANY men.’

In pragmatically neutral word order subjects often occupy the same slot. Rhodes 1994 (see Valentine 2001: 962) found the following distributions with ditransitive verbs to be preferred by Ojibwe speakers. Here, subjects precede the primary object, regardless of whether they are agent (in the direct voice) or recipient (in the inverse voice). This can be seen as a consequence of ordering according to salience. However, inanimate objects immediately follow the verb by default.

(23) Pragmatically neutral word order with ditransitive verbs

- |                         |                         |
|-------------------------|-------------------------|
| a. Inanimate theme      | b. Animate theme        |
| V-dir theme agent recip | V-dir agent recip theme |
| V-inv theme recip agent | V-inv recip agent theme |
| O2 S O1                 | S O1 O2                 |

The clearest subject property found in Algonquian is raising to object. Verbs of mental activity, embedding a proposition, can mark the subject of the dependent verb as their object. A semantic explanation is that subjects are the more natural topics of mental activities.

(24) Raising to object in Ojibwe (Valentine 2001:683)

- a. G-nandwenm-in da-miij-yan  
 2-want-LOC.INV FUT-eat-2sg.CONJ  
 ‘I want you to eat it.’
- b. Weweni ka-naagzowaabam ezhchige-yaanh  
 carefully 2.FUT-observe.1sg what.one.does-1sg.CONJ  
 ‘You will watch me carefully how I do it.’



No further grammaticalised subject-object asymmetries can be found. In particular, so-called weak crossover effects don't arise. As is well-known from English and many other languages exhibiting some sort of case, the subject can bind the possessor of the object, but not the object the possessor of the subject. However, such an asymmetry does not occur in the inverse system.

(25) The object can bind the possessor of the subject if inversion takes place (Dahlstrom 1991: 99).

- a. kahkiyaw iskwēw-ak sākīh-ē-w-ak o-tānis-iwāw-a.  
 all woman-pl love-DIR-3-pl 3P-daughter-3plP-OBV  
 'All<sub>i</sub> women love their<sub>i</sub> daughters.'
- b. kahkiyaw iskwēw-ak sākīh-**ik**-w-ak o-tānis-iwāw-a.  
 all woman-pl love-INV-3-pl 3P-daughter-3plP-OBV  
 'Their<sub>i</sub> daughters love all<sub>i</sub> women.' [≈ all women are loved by their daughters.]

(26) This possibility of binding is independent of position (Dahlstrom 1991: 99,87).

- a. o-tānis-iwāw-a sākīh-**ik**-w-ak kahkiyaw iskwēw-ak.  
 3P-daughter-3plP-OBV love-INV-3-pl all woman-pl  
 'Their<sub>i</sub> daughters love all<sub>i</sub> women.' [≈ all women are loved by their daughters.]
- b. kahkiyaw sākīh-**ik**-w-ak o-tānis-iwāw-a iskwēw-ak.  
 all love-INV-3-pl 3P-daughter-3plP-OBV woman-pl  
 'Their<sub>i</sub> daughters love all<sub>i</sub> women.' [≈ all women are loved by their daughters.]

(27) Another example of subject-object symmetry:

- a. namōya awiyak wanikiskisitotaw-ē-w o-tawāsimis-a  
 no one forget-DIR-3 3P-child-OBV  
 'No one<sub>i</sub> forgets his<sub>i</sub> child.'
- b. namōya awiyak wanikiskisitotawā-**k** o-tawāsimis-a  
 no one forget-INV 3P-child-OBV  
 'His<sub>i</sub> children forget no one<sub>i</sub>.' [≈ nobody is forgotten by his children]
- c. Positional variant:  
 o-tawāsimis-a wanikiskisitotawā-**k** namōya awiyak  
 3P-child-OBV forget-INV no one  
 'His<sub>i</sub> children forget no one<sub>i</sub>.'

(28) Raising to object: Even if the subject is raised to the matrix, the object of the dependent verb can still bind the possessor of the subject, see (28b) (Dahlstrom 1991: 72f.). I have found no example with quantifiers.

- a. ni-kiskēyim-ā-w George ē-sākīh-ā-t o-kosis-a.  
 1-know-DIR-3 George CONJ-love-DIR-3 3P-son-OBV  
 'I know (that) George<sub>i</sub> loves his<sub>i</sub> sons.'
- b. ni-kiskēyim-**im**-ā-wa George ē-sākīh-**iko**-t o-kosis-a.  
 1-know-OBV-DIR-3 George CONJ-love-INV-3 3P-son-OBV  
 'I know (that) his<sub>i</sub> sons love George<sub>i</sub>.'

Valentine's grammar of Ojibwe contains only a few relevant examples, but seems to describe them not fully adequately. It is unclear of whether (29b) is a positional variant of (29c) (Valentine 2001: 632f.).

- (29) a. John w-gii-waabm-aa-n w-gwisa-n.  
 John 3-PAST-see-DIR-OBV 3P-son-OBV  
 'John<sub>i</sub> saw his<sub>i</sub> son.'
- b. John w-gii-waabm-igo-n w-gwisa-n.  
 John 3-PAST-see-INV-OBV 3P-son-OBV  
 lit. 'His<sub>i</sub> son saw John<sub>i</sub>.'
- c. John w-gwisa-n w-gii-waabm-igo-n.  
 John 3P-son-OBV 3-PAST-see-INV-OBV  
 'John<sub>i</sub>'s son saw him<sub>i</sub>.'

The follow. ungrammatical sentences of Ojibwe (Valentine 2001: 633) violate the condition that binder and bindee must have the same obviation status (usually both are proximate).

- (30) a. \*w-gwisa-n w-gii-waabm-aa-n John-an.  
 3P-son-OBV 3-PAST-see-DIR-OBV John-OBV  
 'His<sub>i</sub> son saw John<sub>i</sub>.'
- b. \*John w-gwisa-n w-gii-waabm-aa-n oosa-n.  
 John 3P-son-OBV 3-PAST-see-DIR-OBV 3P.father-OBV  
 'John<sub>k</sub>'s son<sub>i</sub> saw his<sub>i</sub> father<sub>k</sub>.'

## 5. Conclusion

The lexical asymmetry of transitive verbs is a universal property of language: the arguments of a verb are always ordered. Agents are higher-ranked than non-agents, recipients are higher-ranked than exchanged objects, and so on. Some of these lexical asymmetries can be made visible (and thus explained) by means of lexical decomposition.

The arguments of a verb are instantiated by entities that have certain independent properties, i.e. certain values of animacy or person. Inverse morphology is sensitive to the fact of whether these independent properties are in line with argument hierarchy or not. In order for inverse morphology to be effective, all further person-number morphology must be symmetric, with no bias for subject or object. Therefore, inverse morphology leads to morphological symmetry, and, as it seems, also to syntactic subject-object symmetry.

By contrast, case morphology is asymmetric, and therefore incompatible with inverse morphology. A case-determined grammar projects lexical asymmetry into morphology *and* into syntax, and because of this homomorphism it is the preferred option.

It needs a special mechanism, as well as special circumstances, to block lexical asymmetry so that inverse morphology can emerge, which, for this reason, is a rare option.

However, what we can learn from the existence of this option: neither morphological asymmetry ('case') nor syntactic asymmetry (syntactic 'subject-object') are universal.

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