Syntactic direction and obviation as empathy-based phenomena: a typological approach

David Y. Oshima
Stanford University
davidyo@stanford.edu

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Abstract

In previous studies, various syntactic/semantic factors (person hierarchy, animacy, topicality, etc.) have been discussed as relevant to linguistic phenomena known as syntactic direction and nominal obviation. This paper develops and motivates a uniform analysis of the direct/inverse opposition and obviation marking (DIO-marking), based on the (extended) theory of linguistic empathy. Drawing on data from four languages that belong to different families (Cree, Navajo, Jinghpaw, and Japanese), I discuss that the empathy-based approach (i) provides a uniform analysis of DIO-systems in different languages, as well as the *yaru*/*kureru* opposition in Japanese, which have been believed to be controlled by different sets of syntactic/semantic factors, and (ii) dispenses with construction-specific rules/constraints such as the person constraint, the possessive constraint, and the ban on multiple proximates within a clause. I also demonstrate that the empathy-based account allows us to model similarities/contrasts among DIO-systems in a comprehensive way, reducing cross-linguistic differences into two planes: (i) the plane of E-marking: how and to what extent empathy relations are encoded, and (ii) the plane of E-ranking: what factors affect (more) empathy relations.

1 Introduction

In the literature, various syntactic/semantic factors (e.g. person hierarchy, animacy, topicality, discourse prominence, control force) have been discussed as relevant to linguistic phenomena known as syntactic direction and nominal obviation. This paper explores the hypothesis that the opposition of direct/inverse and obviation are most directly controlled by the notion of linguistic empathy, drawing on data from different groups of languages.

Direct/inverse systems are attested in various families of languages, such as Algonquian, Athabaskan and Tibeto-Burman; an analog of such systems is found in Japanese too. Nominal obviation has a more limited distribution, and is best known from the Algonquian languages. The basic function of these syntactic devices is to rank participant NPs along a certain dimension or hierarchy, which is known as the animacy hierarchy, obviation tier etc. The subject of a direct construction must outrank (or be of the same rank as) the object, while the opposite holds for an inverse construction; similarly, an NP marked as proximate outranks NPs marked as obviative in the relevant discourse stretch. Various factors, such as person, animacy, definiteness, topicality, discourse prominence, control force, etc., have been discussed as determinant of the choice of direct/inverse and obviation. In the present work I argue that the key factor controlling

the direct/inverse opposition and obviation marking (DIO-marking) is linguistic empathy. Under this hypothesis, the effects of various semantic/pragmatic factors, which have been observed and discussed in previous studies, neatly follow from the general theory of linguistic empathy; also, the empathy-based approach allows us to model cross-linguistic similarities/contrasts among DIO-systems in an elegant way.

The organization of this paper is as follows. In Section 2, I review the theory of linguistic empathy and illustrate some empathy-related phenomena, drawing mainly on Japanese data. I also make conceptual and terminological clarifications on the notion of empathy. In Section 3, I illustrate the DIO-marking systems in Cree (Algonquian), Navajo (Athabaskan), and Jinghpaw (Tibeto-Burman), and argue for a uniform, empathy-based analysis of them all. In Section 4, I discuss similarities and differences among the discussed DIO-systems, and draw out certain typological generalizations.

2 Preliminaries

This section provides an overview of the theory of linguistic empathy, which plays a central role in the arguments to be developed in the following sections.

2.1 Empathy hierarchies

The basic idea of the theory of empathy is that linguistic expressions may reflect the speaker's point of view, from which he describes a state of affairs. The notion, which was first discussed by Kuno and Kaburaki (1977), has been characterized in metaphorical terms such as "speaker's identification with a participant", "camera angle", and "point of view" (see also Takami 1997; Kozai 2000).

As Kuno and Kaburaki (1977) and Kuno (1978, 1987) show at length, Japanese has several lexical devices which represent the "point of view" from which an event is described, including the two kinds of giving verbs *yaru* and *kureru*:

(1) a. Taro-wa Hanako-ni okane-o *yar*-u.
Taro-Top Hanako-Dat money-Acc give-Pres
b. Taro-wa Hanako-ni okane-o *kure*-ru.
Taro-Top Hanako-Dat money-Acc give-Pres

(Kuno 1987:246)

Both (1a) and (1b) describe a situation in which Taro gives money to Hanako, but (1a) describes it from Taro's or the neutral perspective and (1b) from Hanako's. More generally, *yaru* is a verb that is used when the action is looked at from the point of view of the referent of the subject or the neutral (objective) point of view, whereas *kureru* is a verb used when the event is described from the point of view of the referent of the dative object. (Empirical consequences of this claim will be illustrated shortly.)

Similar observations hold for compound verbs with auxiliary giving verbs, which convey the benefactive meaning:

(2) a. Taro-ga Hanako-o tasukete-*yat*-ta.
Taro-Nom Hanako-Acc help-Ben-Past
'Taro helped Hanako (for her/my/... sake).'
b. Taro-ga Hanako-o tasukete-*kure*-ta.
Taro-Nom Hanako-Acc help-Ben-Past

In (2a), Taro's benefactive action is described either objectively or from the point of view of Taro, whereas in (2b) it is described from the point of view of Hanako.[1] Kuno and Kaburaki (1977) introduce the term "empathy" in reference to the point of view or "camera angle" that a speaker takes when he describes an event. In Kuno (1987), the notion of empathy is defined as follows:

(3) *Empathy*: Empathy is the speaker's identification, which may vary in degree, with a person/thing that participates in the event or state that he describes in a sentence.
Degree of Empathy: The degree of the speaker's empathy with x, E(x), ranges from 0 to 1, with E(x) = 1 signifying his total identification with x, and E(x) = 0 a total lack of identification.

(Kuno 1987:206)

The empathy relationships (i.e. the relative degree of the speaker's identification with participants) encoded by *yaru* and *kureru* can be summarized as follows (cf. Oshima 2004):

(4) yaru (main verb): E(Agent)≥E(Recipient)
kureru (main verb): E(Recipient)>E(Agent)

[1]Kuno (1987) claims that *yaru* as an auxiliary verb does not allow the neutral perspective and thus the empathy relations encoded by auxiliary *-yaru* and *-kureru* are symmetrical. This is not correct, as discussed in Oshima (2004); the following examples illustrate this point:

(i) a. [Max-to Pat]-wa otagai-o tetudat-ta.
Max-and Pat-Top each.other$_i$-Acc help-Past
'[Max and Pat]$_i$ helped each other$_i$.'
b. [Max-to Pat]-wa otagai-o tetudatte-yat-ta.
Max-and Pat-Top each.other$_i$-Acc help-*yaru*-Past
'[Max and Pat]$_i$ helped each other$_i$ (for each other's$_i$ sake).'
c. *[Max-to Pat]-wa otagai-o tetudatte-kure-ta.
Max-and Pat-Top each.other$_i$-Acc help-*kureru*-Past
'[Max and Pat]$_i$ helped each other$_i$ (for each other's$_i$ sake).'

Under the assumption that the meanings of *-yaru* and *-kureru* are symmetrical (E(Benefactor)>E(Beneficiary) and E(Beneficiary)>E(Benefactor)) it would be predicted that, by the Ban on Conflicting Foci (see below), neither can be used in a reciprocal construction, which encodes a mutual action. As the data above demonstrate, the prediction holds only for *-kureru*.

yaru (auxiliary verb): E(Benefactor)≥E(Beneficiary)
kureru (auxiliary verb): E(Beneficiary)>E(Benefactor)

Kuno and Kaburaki (1977) also observe that, in natural languages, there are several constraints on possible or favored choices of point of view. First, the empathy relationships within a sentence must be consistent, as illustrated in the following examples:[2]

(5) a. Taro-wa [Hanako-ga hon-o *kure*-ta] node, Hanako-ni
Taro-Top Hanako-Nom book-Acc give-Past because Hanako-Dat
okane-o *yat*-ta.
money-Acc give-Past
'Taro gave money to Hanako because Hanako gave him a book.'
b. *Taro-wa [Hanako-ga hon-o *kure*-ta node] Hanako-ni okane-o *kure*-ta.

The sentences in (5) differ only with respect to the choice of giving verb. Kuno and Kaburaki (1977) propose that the unacceptability of (5b) results from the violation of the following principle:

(6) *Ban on Conflicting Empathy Foci*: A single sentence cannot contain logical conflicts in empathy relationships.

(Kuno and Kaburaki 1977:632)

In (5b), the empathy hierarchy of the main clause and that of the embedded clause are in conflict (E(Taro)>E(Hanako) and E(Hanako)>E(Taro)), so that the sentence results in violation of the Ban on Conflicting Empathy Foci.

They also argue that there are a number of empathy constraints based on semantic/pragmatic scales (hierarchies), where higher members must or tend to be more empathized with than lower members. E.g.,

(7) *Speech Act Empathy Hierarchy*: The speaker cannot empathize with someone else more than with himself.

E(speaker)≥E(other)

(Kuno 1987:212)

(8) *Topic Empathy Hierarchy*: Given an event or state that involves A and B such that A is coreferential with the topic of the present discourse and B is not, it is

[2]Following Kuno and Kaburaki's convention, *, ? etc. in this section indicate that sentences marked with them "are syntactically grammatical, but are unacceptable (in varying degrees) due to violation of various constraints on empathy foci" (Kuno and Kaburaki 1977:fn.1).

easier for the speaker to empathize with A than with B.

E(discourse topic)≥E(non-topic)

(Kuno 1987:210)

(9) *Surface Structure Empathy Hierarchy*: It is easier for the speaker to empathize with the referent of the subject than with the referents of other NPs in the sentence.

E(subject)>E(other NPs)

(Kuno 1987:211)

(10) *Descriptor Empathy Hierarchy*: Given descriptor x (e.g., *John*) and another descriptor f(x) (e.g., *John's brother*), the speaker's empathy with x is greater than with f(x).

E(x)>E(f(x))

(Kuno 1987:207)

The examples below illustrate that violation of these constraints make sentences unacceptable or marginal.

(11) (violation of the Speech Act Empathy Hierarchy)

a. Boku-ga Max-ni hon-o yat-ta.
I-Nom Max-Dat book-Acc give-Past
'I gave Max a book.'

b. *Boku-ga Max-ni hon-o kure-ta.
I-Nom Max-Dat book-Acc give-Past

cf. Kimi-ga Max-ni hon-o kure-ta.
you-Nom Max-Dat book-Acc give-Past

(12) (violation of the Topic Empathy Hierarchy)

a. Taro-wa saikin keiki-ga i-i. Dareka-ga (kare-ni)
Taro-Top recently business-Nom good-Pres someone-Nom he-Dat
okene-o {yat/kure}-ta-ni-tigai-nai.
money-Acc give-Past-must
'Taro is prosperous these days. Someone must have given him money.'

b. Taro-wa saikin okane-ni komatte-i-ru. (Kare-wa)
Taro-Top recently money-Dat have.trouble-Asp-Pres he-Top

dareaka-ni okene-o {yat/*kure}-ta-ni-tigai-nai.
someone-Dat money-Acc give-Past-must
'Taro is short of money these days. He must have given his money to somebody.'

(13) (conflict of the Speech Act Empathy Hierarchy and the Surface Structure Empathy Hierarchy)

a. Boku-ga Max-o tasuke-ta.
I-Nom Max-Acc help-Past
'I helped Max.'

b. ?Max-ga boku-ni tasuke-rare-ta.
Max-Nom I-Dat help-Pass-Past
'Max was helped by me.'

(14) (conflict of the Surface Structure Empathy Hierarchy and the Descriptor Empathy Hierarchy)

a. Max_i-wa kare_i-no musuko-ni tasuke-rare-ta.
Max_i-Top he_i-Gen son-Dat help-Pass-Past
'Max was helped by his son.'

b. *Max_i-no musuko-ga kare_i-ni tasuke-rare-ta.
Max_i-Top he_i-Gen son-Dat help-Pass-Past
'Max's son was helped by him.'

In (11), the agent participant refers to the speaker and thus the use of *kureru* causes the violation of the Speech-Act Empathy Hierarchy. (12) illustrates that a discourse topic must receive at least as much empathy as a non-discourse topic.[3] (13b) and (14b) involve a passive, which "demotes" the agent to a peripheral function from the default locus of empathy, namely subject. (13b) is marginal because the first-person pronoun is displaced from the natural syntactic position for the empathy-locus. A similar account applies to (14b), where the two relevant arguments are expressed as 'Max' and 'his

[3]When the Topic Empathy Hierarchy and the Speech-Act Empathy Hierarchy conflict, the latter takes precedence:

(i) a. Taro-wa saikin keiki-ga i-i. Boku-ga (kare-ni) okene-o
Taro-Top recently business-Nom good-Pres I-Nom he-Dat money-Acc
{yat/*kure}-ta-noda.
give-Past-Emph
'Taro is prosperous these days. I gave him money.'

b. Taro-wa saikin okane-ni komatte-i-ru. (Kare-wa) boku-ni okene-o
Taro-Top recently money-Dat have.trouble-Asp-Pres he-Top I-Dat money-Acc
{*yat/kure}-ta-noda.
give-Past-Emph
'Taro is short of money these days. He gave me his money.'

Such interactions among empathy constraints will be discussed in more detail in the following sections.

son' (f_{son}(Max)), rather than, say, 'the boy', 'Pat' etc. and 'his father' (f_{father}(x)); the Descriptor Empathy Hierarchy dictates that the speaker's empathy is with Max, and the acceptability degrades when the NP referring to him is demoted from subject.

Finally, let me point out the (somewhat trivial) effect of humanhood/animacy on empathy relations, which has not been, to my knowledge, explicitly discussed in the literature. Observe the following examples:[4]

(15) a. Herumetto-ga tentoo-no syokku-o yawaragete-{*yat/kure}-ta.
helmet-Nom fall-Gen shock-Acc soften-Ben-Past
'The helmet lessened the shock when he fell down (for his sake).'

b. Kono kemuri-wa kare-no inoti-o
This smoke-Top he-Gen life-Acc
sukutte-{*yaru/kureru}-hazu-de-at-ta.
save-Ben-should-Past
'This smoke should have saved his life (for his sake).'

c. Kono saku-ga hituzi-tati-o ookami-kara
this fence-Nom sheep-Pl-Acc wolf-from
mamotte-{?*yatte/kurete}-i-ru.
protect-Ben-Asp-Pres.
'This fence protects sheep against wolves.'

The data above suggest that animate objects generally receive more empathy than inanimate objects; to capture this I stipulate the following:

(16) *Animacy Empathy Hierarchy*: It is easier for the speaker to empathize with animate objects than with inanimate objects.

E(animate)>E(inanimate)

Humanhood seems to have some effect on empathy relations too; the contrast between human and non-human animates is, however, less clear than the one between animates and inanimates, and can be overruled by pragmatic factors.

(17) a. Kono syoonen-ga sono inu-ni hone-o {yat/??kure}-ta.
this boy-Nom that dog-Dat bone-Acc give-Past
'This boy gave that dog a bone.'

b. Kono syoonen-ga {uti-no inu/ Fido} -ni hone-o {yat/kure}-ta.
this boy-Nom our dog Fido -Dat bone-Acc give-Past
'This boy gave our dog/Fido [referring to a dog] a bone.'

[4]Examples (15a) and (15b) (with *kureru*) are taken from a short story by Masaki Yamada, *Soonan*, with some modifications.

(18) a. Kono inu-ga sono syoonen-o tasukete-{??yat/kure}-ta.
this dog-Nom that boy-Acc help-give-Past
'This dog saved the boy (for his sake).'
b. {Uti-no inu/ Fido} -ga sono syoonen-o tasukete-{yat/kure}-ta.
our dog Fido -Nom that boy-Acc help-give-Past
'Our dog/Fido [referring to a dog] saved the boy (for his sake).'

2.2 Psychological reality of linguistic empathy

In previous studies, the notion of linguistic empathy has been metaphorically characterized as "point of view". The term "point of view", however, has been used loosely and ambiguously in the literature, and thus does not reveal much about the exact psychological/ontological nature of linguistic empathy. Thus, I believe that it is important to make clear my own stance toward the notion adopted in the present work. (The reader who is more interested in data-oriented analyses of syntactic direction and obviation may want to skip the remainder of this section.)

First of all, the notion of empathy should be distinguished from other types of "point of view", in particular deictic center (see Levinson 2003; Fillmore 1982; Iida 1996 among others) and logophoricity (or narrative perspective; Schlenker1999; Banfield 1992; Sells 1987). Although the latter two notions and linguistic empathy have strong correlations, they cannot be reduced to one another; while the locus of empathy of a clause tends to match the center of deixis and the logophoric individual, dissociation of them is not impossible (Culy 1997; Oshima 2004).

Whereas an array of factors (e.g. the person hierarchy, topicality, animacy, deixis, logophoricity) have been pointed out as correlates of linguistic empathy, it is by no means a simple task to pin down the exact ontological status of the notion. There are two important questions to be addressed in this connection: i.e.,

(19) (i) Is linguistic empathy universal?
(ii) Is linguistic empathy unitary? (or, Is linguistic empathy a psychologically realistic, primitive notion?)

As to question (i), in the literature it has been generally assumed that the answer is positive. A priori, we can think of (at least) two versions of the universality hypothesis of empathy:

(20) a. **Strong Hypothesis**: Linguistic empathy is a universal notion. Empathy phenomena in natural language are controlled by the same set of factors, although languages may differ as to how and to what extent empathy relations are explicitly encoded. When there is a conflict among factors to determine empathy relations (see fn.4), the resolution is cross-linguistically unique.
b. **Weak Hypothesis**: Linguistic empathy is a universal notion. Empathy

> phenomena in different languages are controlled by largely overlapping sets of factors. When there is a conflict among factors to determine empathy relations, the resolution may vary cross-linguistically.

Kuno's stance toward these two options seems neutral or closer to (20b); in Kuno (1978), he remarks:

> [Empathy-related] phenomena similar to those observed in Japanese are found in various other languages, including English. A specific and concrete hypothesis constructed on Japanese data would help us develop analyses of similar phenomena in other languages; also, analyses of similar phenomena in other languages allow us to further generalize the hypotheses based on Japanese data as well as to recognize characteristics of Japanese.
>
> (Kuno 1978:282; my translation)

In Section 3, I will examine various "similar phenomena in other languages", and argue that the weak version of the universality hypothesis is more appropriate.

With regard to question (ii), authors like Delancey (1981a,b) and Kozai (2000) propose to decompose (what is known as) linguistic empathy into more primitive components or subtypes. As will be discussed in Section 3, however, this move is implausible as it stands, failing to capture interactions among the relevant factors. A more promising alternative would be to derive empathy relations from a harmonic alignment of various relevant hierarchies (scales), such as the hierarchies of grammatical functions (subj>obj>obl), topichood (more topical>less topical), person (local person>non-local person), animacy (animate>inanimate) (cf. Aissen 1999, 2003; Prince and Smolensky 1993).[5] The partial ordering derived from a harmonic alignment would (conveniently) allow a certain range of cross-linguistic variety.

From the material at hand, it seems difficult to choose between the two approaches on empirical grounds. A conceptual advantage of the harmonic alignment-based, reductionist approach would be that it allows us to understand the elusive concept of linguistic empathy in more concrete terms; at the same time, the non-reductionist approach seems

[5]The formal definition of harmonic alignment adopted by Prince and Smolensky (1993) is as follows:

(i) Alignment. Suppose given a binary dimension D_1 with a scale $X > Y$ on its elements {X, Y}, and another dimension D_2 with a scale $a > b \ldots > z$ on its elements. The harmonic alignment of D_1 and D_2 is the pair of Harmony scales.

H_x: X/a $\succ$ X/b $\succ \ldots \succ$ X/z
H_y: Y/z $\succ \ldots \succ$ Y/b $\succ$ Y/a

where the connective $\succ$ is read as "more harmonic than". To construct a harmonic alignment of more than two scales, the definition must be modified so that each harmonic scale may be partially (rather than totally) ordered.

to provide a somewhat simpler picture, where formal oppositions (e.g. *yaru* and *kureru*) are associated with a certain, functional/conceptual primitive. In the present work, I will not pursue the reductionist approach in further detail, and adopt the working hypothesis that linguistic empathy is a primitive notion that reflects a certain psychological construct, while leaving question (ii) open for future research. At any rate, I believe that the choice between the non-reductionist and (harmonic alignment-based) reductionist hypotheses does not have a crucial bearing on the discussion to follow; should it turn out to be the case that the latter is more appropriate, the term empathy would remain as a convenient cover term to refer to relative rankings in harmonic scales.

2.3 Cognitive bases of linguistic empathy

As stated above, I will assume that linguistic empathy reflects a primitive psychological construct. Below, I elaborate on my working hypothesis on the cognitive bases of linguistic empathy in some detail. I submit that linguistic empathy reflects the degree to which the speaker introjects (or "takes in") others' physical/mental states at the time when they participate in linguistically reported events; this is an elaboration of, rather than a replacement of, Kuno and Kaburaki's original statements.

I presume that different patterns of perspective taking, e.g. actor-focus, recipient-focus, and neutral, correspond to different neuro-physiological activation patterns. It is widely known that imagery of certain objects and actions often accompanies activation in the same sensorimotor cortex systems that are used for direct perception and actions (Deiber et al. 1998, Porro et al. 1996, Parsons et al. 1995). When one produces or processes a sentence that reports an event of, say, (someone's) walking, he may construct a mental image of walking either in objective (or "depictive") mode, i.e., as an image that is more visual than motoric, or in subjective (or "enactive") mode, which leads to the activation of the cortex areas and neural pathways that are activated when he himself engages in direct action of walking (cf. MacWhinney *submitted*).

When the reported event involves multiple participants, there will be more than one possible perspective to be taken to construct a mental image in the subjective/enactive mode; reporting a donatory event, for example, the speaker can take either the perspective of the actor or that of the recipient. These two "points of view" correspond to different activation patterns, i.e., a pattern reminiscent of the one observed when the speaker himself participates in a donatory event as the agent, and a pattern that looks more like the one observed when he is the recipient, respectively; the mental imagery in the objective/depictive mode corresponds to yet another pattern. Linguistic empathy phenomena can be viewed as an embodiment of such perspective taking at the neurophysiological level, i.e., the choice of patterns in which direct perception/action is transposed onto mental imagery.

3 Syntactic direction and obviation

In certain languages (e.g. Algonquian: Cree (Dahlstrom 1986; Wolfart 1973), Blackfoot (Pustet 1995), Ojibwa (Rhodes 1990; Jelinek 1990), Athabaskan: Navajo (Young and Morgan 1980; Hale 1973), Tibeto-Burman: Jinghpaw (DeLancey 1981b), Nootkan (Whistler 1985); see Klaiman 1991 and Givón 1994a for more references) (a subset of) transitive/ditransitive verbs have two forms called **direct** and **inverse**. Algonquian languages also have systems of nominal **obviation**, which are closely related to the choice of direct/inverse (Aissen 1997; Klaiman 1991; Dahlstrom 1986 among others).

In the literature, the role that empathy plays in systems of direct/inverse and obviation marking (DIO-marking) has been largely overlooked, although a few authors count it as one of the relevant factors (Dahlstrom 1986; Navarro 2001; DeLancey 1981a,b). In this section, I will take up the DIO-systems in Cree, Navajo, and Jinghpaw, and develop a uniform, empathy-based analysis of them;[6] namely I propose that the syntactic direction in these languages is primarily controlled by linguistic empathy in a parallel way to the Japanese *yaru*/*kureru* opposition, and that the obviation is a morphological device to designate an NP as the empathy locus of a clause. I will also argue that the proposed analysis is superior to previous accounts, demonstrating that it has wider empirical coverage, dispenses with various construction-specific rules/constraints proposed in past studies, and allows us to capture some aspects of cross-linguistic similarities/differences in a simple way, i.e., in terms of different "weights" on factors that affect empathy relations.

3.1 Cree

3.1.1 BASIC FACTS

In Algonquian languages, verb stems are split into four classes according to the valence and semantic class (gender) of arguments:[7] Intransitive Inanimate (II; intransitive verbs with an inanimate subject), Intransitive Animate (IA; intransitive verbs with an animate subject), Transitive Inanimate (TI; transitive verbs with an inanimate object), Transitive Animate (TA; transitive verbs with an animate object). When a transitive verb selects for a recipient or a beneficiary in addition to a patient, the former is treated as a core argument to the exclusion of the latter (Klaiman 1991:289).[8]

A subset of TA verbs have alternative forms (called **theme signs**) which indicate the syntactic direction. When the two arguments of a TA verb differ in person, the choice

[6] The three languages are chosen because (i) the DIO-systems in these languages are relatively well studied in the literature, and (ii) they exhibit theoretically interesting contrasts, on the basis of which I will draw (in the next section) a preliminary typology of DIO-systems.

[7] Cree nouns belong to one of the two genders, animate and inanimate. The animate class includes people, animals, most plants, and also some objects (such as *ospwa·kan* 'car' and *se·hke·payi·s* 'pipe'). The inanimate class includes most objects, most body parts, and some parts of plants (Dahlstrom 1986:11-2; Aissen 1997:714).

[8] Dahlstrom (1986:17) remarks that three-place predicates like *mi·y-* 'give' assigns the recipient role to the first object and the theme to the second object.

of direct/inverse forms is controlled by the person hierarchy: 2>1>3. That is, the direct is used when (i) the subject is first or second person (a SAP; speech-act participant) and the object is third person (a non-SAP), or (ii) the subject is second person and the object is first person; the inverse is used elsewhere. The following examples are from Cree, taken from Dahlstrom (1986):

(21) a. ni-wa·pam-a·-w
1 see dir3
'I see him.'

b. /ni-wa·pam-ekw·-w/ → niwa·pamik
1 see inv 3
'He sees me.'

(22) a. ki-wa·pam-i- n
2 see dirsg
'You (sg.) see me.'

b. ki-wa·pam-iti-n
2 see invsg
'I see you (sg.).'

As is manifest in the data above, agreement affixes in Cree generally do not specify grammatical functions of their target nominals.[9] The sentences in (21) and (22) would thus be ambiguous without the direct/inverse suffixes. It should be noted that the use of full NPs would not resolve the ambiguity, since Cree (and Algonquian languages in general) does not have a fixed word order or a system of case marking for core arguments.

When the subject of a TA verb is inanimate, only the inverse form is possible (Dahlstrom 1986:56-9):

(23) ni-se·kih-iko-n
1 scare inv sg
'It scares me.'

Another factor that restricts the choice of direct/inverse is obviation. Obviation is a grammatical opposition which distinguishes one non-SAP NP from all others in a certain discourse stretch, minimally a clause (see below); the one singled out is called **proximate**, and the other non-SAPs are **obviative**. Proximate nominals are morphologically unmarked. Obviative animate nominals are marked by the ending *-a*, and sometimes their obviative status is reflected in verbal inflection too. The obviative status of

[9]First and second person agreement prefixes appear in the same affix slot, and thus cannot cooccur. When both first and second persons appear as core arguments, the second person prefix is chosen, as in (22).

inanimate nominals is not marked by an ending, but it is reflected in verbal inflection when the inanimate NP is the subject of an intransitive verb (Dahlstrom 1986:13).

When both core arguments of a TA clause are animate non-SAPs (and thus are on a par with one another in terms of person/animacy), the choice between direct/inverse is constrained by their obviation statuses. That is, when a proximate subject acts on an obviative object, the direct form is used, and when an obviative subject acts on a proximate object, the inverse is used:

(24) aya·hciyiniwah nisto e·h-nipaha·t awa na·pe·sis
Blackfoot (obv) three kill.3.obv.dir this boy
'This boy (prox.) had killed three Blackfoot (obv.).'

(Bloomfield 1934:98)

(25) osa·m e·-sa·kihikot ohta·wiyah aw o·skini·kiw
too.much love.obv.3.inv his.father.obv this young.man
'For his father (obv.) too much cherished this young man (prox.).'

(Bloomfield 1934:53)

Both the subject and object of a transitive clause may be obviative, while they cannot be both proximate. When both of the core arguments are obviative, either a direct or inverse form is possible, although the inverse with two obviatives is very rare (Dahlstrom 1986:53-4). The sole non-SAP participant in an intransitive clause is usually proximate, but it may be obviative. From the data at hand, it is not clear whether the configuration where one core argument is a SAP and the other is obviative is possible.

The obviative status of a nominal is said to be determined by discourse factors. Dahlstrom (1986:108) notes: "The proximate third person may be the topic of discourse [...]. The proximate third person is also usually the focus of the speaker's empathy (Kuno and Kaburaki 1977); in narratives, proximate often corresponds to the character whose point of view is being represented".[10]

Besides the topicality/discourse factor, obviation is restricted by two alleged "syntactic" constraints. First, there can be at most one proximate NP within a clause (or more precisely, when there are two or more proximates within a clause, they must be coreferential). Thus, as mentioned above, both the subject and the object of a transitive clause cannot be proximate (Dahlstrom 1986:116):

(26) a. $[_S$ ... NP[Proximate] ... NP[Obviative] ...]
b. *$[_S$ ... NP[Proximate]$_i$ ... NP[Proximate]$_j$ ...]

[10]The observation that the direct form is generally preferred when both of the core arguments are obviative, thus, seems to suggest that the direct is used when the speaker's perspective is neutral.

c. $[_S \ldots \text{NP[Proximate]}_i \ldots \text{NP[Proximate]}_i \ldots]$

(27) awa na·pe·sis o·hih ka·-kaskatahomiht niya·nan miye·w misatimwah
this boy this.obv be.wounded.obv 5 give.3.obv horse.obv
'The boy (prox.) gave five horses (obv.) to the man who had been wounded (obv.).'

A proximate participant NP and a proximate possessor NP within a clause must be coreferential (Dahlstrom 1986:119, Wolfart and Carroll 1981:26-7).

(28) wa·pam-e·-w o-kosis-a
see.obv.dir.3 3.son.obv
'He$_i$ (prox.) saw his$_i$ (prox.) son (obv.).'

In this regard, Aissen (1997) proposes that there can be at most one proximate within a domain that she terms an **obviation span**. An obviation span can be indefinitely long, covering many sentences; as to the lower bound, she proposes the following as a tentative constraint:

(29) MINIMAL SPAN: Let A be a set consisting of a head and its arguments. Then, for each pair [of third person nominals] α, β in A, if α bears a relation [(of obviation)] to B, B an obviation span, and β bears a relation [(of obviation)] to C, C an obviation span, then B = C.

(Aissen 1997:714)

This roughly amounts to saying that an obviation span for a proximate is the minimal clause containing it, excluding adjuncts. This makes a correct prediction as to the facts mentioned above, as well as data like the following, as (29) allows a single sentence to contain more than one obviation span:

(30) e·h-takohte·cik e·kotah, a·say o·ma ka·-pa·skiswa·t mostoswah.
arrive.3.pl there already this.inan shoot.3.obv buffalo.obv
'When they (prox.) arrived there, he (prox.) had already shot the buffalo.'

(Dahlstrom 1986:138)

(31) mi·na aya·hciyiniwah nisto awa na·pe·sis miywe·yihtamwak o·k a·yisiniyiwak
also Blackfoot.obv 3 this boy be.glad.3.pl.inan these person.pl
'Also the people (prox.) were glad that the boy (prox.) killed three Blackfoot (obv.).'

(Dahlstrom 1986:138)

Second, in a possessive construction, the possessum must be obviative:

(32) o·hta·wiya e·h-okima·wiyit,
his.father.obv be.thief.obv
'His (prox.) father (obv.) was a thief.'

Both possessor and possessum nouns may be obviative, but it is impossible for both to be proximate, or for only the possessum noun to be proximate; below I will refer to this phenomenon as the "possessive constraint". When the possessor is already obviative, it is possible to explicitly mark the possessum as "further" obviative (or subobviative; Dahlstrom 1986:55-6; Wolfart 1978; see also Aissen 1997:718-9; Pustet 1995):

(33) wa·pam-im-e·-w o-kosis-iyiw-a
see.obv.dir.3 3.son.obv.obv
'He$_i$ (prox.) saw his$_j$ (obv.) son (obv.).'

3.1.2 THE DIRECT/INVERSE OPPOSITION AND OBVIATION AS EMPATHY PHENOMENA

In the last section we surveyed three syntatico-semantic factors that affect the direct-inverse opposition in Cree: the person hierarchy, gender (animacy), and obviation. We have also seen that obviation is constrained by discourse factors as well as alleged syntactic rules (i.e. the minimal obviation span and possessive constraint).

As the reader may have noticed, the Cree direct/inverse opposition is strikingly similar to the Japanese *yaru*/*kureru* opposition. It seems reasonable, thus, to extend the empathy-based account of the latter, discussed in Section 2, to the former. I propose that the choice between direct and inverse in Cree is based on the empathy relations among the participants of a clause, analogous to the case of the Japanese donatory/benefactive constructions, and conversely, that the Japanese *yaru*/*kureru* can be construed as lexicalized direct/inverse verbs.

(34) direct: E(Agent)$\geq$E(Recipient), or
E(Agent)$\geq$E(Patient) in the absence of the recipient role
inverse: E(Recipient)$>$E(Agent), or
E(Patient)$>$E(Agent) in the absence of the recipient role

In the following, I closely examine the similarities of the two paradigms of constructions and argue that various restrictions concerning the Cree DIO-marking follow from the general theory of empathy, i.e., without postulating construction-specific constraints.

First, the person hierarchy-based constraint is reminiscent of the Speech-Act Empathy Hierarchy. Recall that in Japanese, a first person participant is always the empathy locus of a clause, to the effect that when it is the agent participant of a donatory event

yaru must be chosen while when it is the recipient *kureru* is the only option. If *yaru* and *kureru* are construed as lexicalized direct/inverse forms, the effect of person on the *yaru*/*kureru* alternation is analogous to that on the cree direct/inverse alternation, except for the relevant person hierarchies (1>{2,3} in Japanese and 2>1>3 in Cree). Second, the effect of animacy can be attributed to the Animacy Empathy Hierarchy, which I proposed in Section 2 based on Japanese data. Third, various constraints on obviation too are given straightforward accounts by the theory of empathy. While obviation has no counterpart in Japanese or English (which have been the major sources of data for studies of linguistic empathy), the correlation between empathy and obviation has been pointed out by at least two authors (Dahlstrom 1986; Navarro 2001). Following their remarks, I assume that the obviative status of a noun directly reflects the speaker's empathy with its referent, i.e., a proximate non-SAP outranks other non-SAPs in the relevant discourse stretch. As we saw in the last section, the correlation between the empathy and topicality is captured by the Topic Empathy Hierarchy in the theory of empathy. The effect of topicality on obviation is thus a welcome consequence of this assumption.

Let us now address the two alleged syntactic constraints on nominal obviation: the minimal obviation span and possessive constraint. As we saw above, there can be at most one proximate within a certain discourse stretch (minimal obviation span; see (26)). Under the hypothesis that the syntactic direction and obviation are empathy-based phenomena, the minimal obviation span can be understood as the minimal domain within which there can be at most one empathy locus.

Within Japanese syntax, it has been argued that such a domain ("empathy domain") exists, and there has been debate as to its proper definition, especially in connection with the binding properties of (the perspectival use of) *zibun* (Kuno 1972, 1973, 1978; Kuroda 1973; Takami 1997; Oshima 2004; cf. Iida 1996; Katagiri 1991). Kuno (1978) stipulates that the empathy domain for an expression is the minimal clause *or NP* that contains it. The binding condition for *zibun* in its perspectival use can be roughly stated as: (i) *zibun* in its perspectival use must be the empathy locus of its empathy domain (i.e. must empathically outrank all other co-participants in its empathy domain) and (ii) it must be bound to the subject of a higher clause. As such, a sentence like (35a) is precluded due to the Ban on Conflicting Empathy Foci, because in the relative clause the use of *zibun* indicates that its referent, Max, empathically outranks all other co-participants, while the use of *yaru* indicates that the subject of the relative clause, Pat, receives at least as much empathy as Max (see Oshima 2004 for detailed discussion):

(35) a. *Max$_i$-wa Pat-ga zibun$_i$-ni kasite-*yat*-ta hon-o
Max$_i$-Top Pat-Nom self$_i$-Dat lend-Ben-Past book-Acc
nakusite-simat-ta.
lose-end.up-Past
'Max lost the book which Pat lent to him.'

cf. Max$_i$-wa Pat-ga kare$_i$-ni kasite-*yat*-ta hon-o nakusite-simat-ta.
he

b. Max-wa Pat-ga zibun-ni kasite-*kure*-ta hon-o nakusite-simat-ta.
Max$_i$-Top Pat-Nom self$_i$-Dat lend-Ben-Past book-Acc lose-end.up-Past
'Max lost the book which Pat lent to him.'

The ban on multiple proximates within a clause can be stated in a way very similar to binding condition (i) of perspectival *zibun*: i.e., it must empathically outrank co-participants within its empathy domain. This formulation is more plausible than previous ones (Dahlstrom 1986; Aissen 1997), making it possible to draw a generalization that an expression designating an empathy locus is associated with a certain domain (within which it must outrank all other participants).

It should be noted, however, that a proximate NP differs from perspectival *zibun* in two respects (apart from the fact that the former is not necessarily anaphoric). First, its empathy domain ("minimal obviation span") is not equivalent to the empathy domain for *zibun*: in particular, the empathy domain for a possessive NP in Cree is the minimal clause that contains it, while the empathy domain for a possessive *zibun* is the minimal NP that contains it. Thus, a possessive proximate NP must be coreferential with the empathy locus of the clause that minimally contains it (i.e. the proximate argument of the clause; see (28), repeated below as (36)), while perspectival *zibun* may not be, as shown in (37):

(36) (= (28))
wa·pam-e·-w o-kosis-a
see.obv.dir.3 3.son.obv
'He$_i$ (prox.) saw his$_i$ (prox.) son (obv.).'

(37) Max$_i$-wa zibun$_i$-no hon-o Pat-ni {yat/kure}-ta.
Max$_i$-Top self$_i$-Gen book-Acc Pat-Dat give-Past
'Max$_i$ gave his$_i$ book to Pat. '

I do not have an answer as to why this is the case. It might be worth pointing out, however, that the illustrated contrast is somewhat reminiscent of the cross-/intra- linguistic parametrization of "binding domains" for anaphoric expressions (see Kiparsky 2002; Huang 2000 among others).

Second, unlike *zibun* in its perspectival use, a proximate NP can cooccur with a first or second person argument; in other words, a proximate NP is required to outrank other non-SAPs in the minimal obviation span, but not SAPs.

(38) ni-wa·pam-a·-w atim
1 see dir3 dog
'I see the dog (prox.).'

(39) Max$_i$-wa boku-ga zibun$_i$-ni kasite-{*yat/?*kure}-ta hon-o
Max$_i$-Top I-Nom self$_i$-Dat lend-Ben-Past book-Acc
nakusite-simat-ta.
lose-end.up-Past
'Max$_i$ lost the book I lent to him$_i$.'

The possessive constraint, finally, directly follows from the Descriptor Empathy Hierarchy and the ban on multiple proximates (where the latter is derived from the Ban on Conflicting Empathy Hierarchy and the assumption that a proximate NP indicates an empathy locus). Recall that in Cree when a possessor NP modifies a noun, either the possessor is proximate and the possessum is obviative, or both are obviative. The other two combinations are impossible:

(40)

	Possessor	**Possessum**	
(i)	Proximate	Proximate	impossible
(ii)	Proximate	Obviative	possible
(iii)	Obviative	Proximate	impossible
(iv)	Obviative	Obviative	possible

Configuration (i) is excluded by the ban on multiple proximates, as the possessor and the possessum necessarily belong to a single obviation span. Configuration (iii), on the other hand, is blocked by the Descriptor Empathy Hierarchy. Consider the following example:

(41) Ca·n ote·ma ki·-ma·kwamik.
John(prox.) his(prox.).dog(obv.) bite.inv
'John's dog bit him.'

(Wolfart 1973:25)

If the obviation statuses of the two nominals are switched, a conflict of empathy relations arises as the Descriptor Empathy Hierarchy dictates that: E(John)>E(John's dog) while obviation indicates the opposite, to the effect that the sentence becomes unacceptable.

3.1.3 Comparison with Givón's multi-dimensional approach

In the last section, I sketched out a uniform, empathy-based account of the Cree DIO-marking, claiming that various relevant factors, such as person, animacy, and topicality affect the DIO-marking not directly, but via the parameter of empathy. The proposed account contrasts with previous "multi-dimensional" approaches, which posit a parochial distinction between the syntactico-semantic (grammaticized) and pragmatic (non-grammaticized) aspects of the direct/inverse opposition and nominal obviation,

and assume that empathy may come in play only when syntactico-semantic constraints, which would (pre-)determine the choice between direct/inverse and proximate/obviative, are absent (Dahlstrom 1986; Navarro 2001). Givón (1994b) takes a stronger version of the multi-dimensional view, and proposes that inverse constructions in certain languages, including that in Algonquian, have two distinct uses which he calls **pragmatic (optional) inverse** and **semantic (obligatory) inverse**. The pragmatic inverse is given a pragmatic, topicality-based definition: i.e. the voice construction in which "[t]he patient [of a transitive event] is more topical than the agent, but the agent retains considerable topicality" (Givón 1994b:8-9)[11] and is opposed to other voices which are defined in a similar manner (cf. Cooreman 1987):[12]

(42) a. **Active-Direct**: The agent is more topical than the patient, but the patient retains considerable topicality.
b. **Passive**: The patient is more topical than the agent, and the agent is extremely non-topical ("suppressed", "demoted")
c. **Antipassive**: The agent is more topical than the patient, and the patient is extremely non-topical ("suppressed", "demoted")

The semantic inverse, in contrast, is controlled by a subset of semantic factors he calls generic topic hierarchies, which can be understood as norms as to the expected or unmarked relative topicality (Givón 1994b:22; cf. Givón 1976; Hawkinson and Hyman 1974); that is, a pragmatic inverse is used when the norm (43c) is reversed, while a semantic inverse is required when one or more of (43a,b,d-i) is reversed.

(43) **The generic topic hierarchies:**

a.	Discourse participation:	speaker > hearer > 3rd-person
b.	Animacy:	human > animate > inanimate
c.	Agentivity:	agent > dative > patient
d.	Gender:	male > female
e.	Age:	adult > child
f.	Size:	large > small
g.	Possession:	possessor > possessed
h.	Definiteness:	definite > indefinite
i.	Anaphoricity:	pronoun > full-NP

[11] One problem with this formulation is that it does not capture the fact that, with ditransitive predicates, it is the pair of the agent and recipient participants, rather than the agent and patient, whose relative ranking affects the direct-inverse opposition.

[12] Note that Givón's functional definition of (pragmatic) inverse is broader than the standard ones, and covers many types of constructions which have not been regarded as inverses, e.g. the topic construction in Modern Greek and the object-fronting construction in Biblical Hebrew (Givón 1994b:18-20).

Givón claims that languages like Algonquian unite both pragmatic and semantic inverses in the same inverse morphology, while in some other languages, e.g. Sahaptin, the two functions are expressed by two separate constructions (cf. Rude 1994).

As long as the data so far discussed concern, the uniform empathy-based analysis and Givón's multi-dimensional analysis seem to make roughly the same predictions. I believe, however, that the former is preferable to the latter in two respects. First, on the grounds of parsimony, it is not desirable to postulate an ambiguity or distinct uses of a single form unless it is empirically necessary. The semantic/pragmatic distinction might be motivated for syntactic directions in certain languages, but not in Cree (and the other three languages taken up in the present work: Japanese, Navajo, and Jinghpaw). Second, the uniform account can be easily extended to model complicated interactions between hierarchies, which are observed in languages like Navajo and Jinghpaw. DIO-systems in different languages vary not only as to how the relevant hierarchies are ordered, but also as to whether and how readily the reversal between hierarchies happens. The empathy-based analysis, as we will see shortly, allows us to capture such cross-linguistic differences in terms of the "weights" on factors that affect the speaker's empathy. It is not clear, on the other hand, how such interactions between hierarchies might be dealt with in Givón's formulation.

3.2 Navajo

3.2.1 BASIC FACTS

Navajo is another well-studied language with a DIO-system. Below, I briefly illustrate syntactic/morphological properties of the Navajo syntactic direction and semantic/pragmatic factors that affect it.

Navajo is a head-marking language with subject/object agreement affixes. In a transitive clause, a third person object is marked by one of the three alternative forms: (i) ∅ (null), (ii) *yi*, and (iii) *bi*. The ∅ form is used when the subject is a SAP. The *yi* form is used when the subject outranks the object in the so-called animacy hierarchy (see below), while *bi* is used when the object outranks the subject. The choice between *yi*/*bi* is also mirrored in the linear order of the subject and the object: with *yi*, the subject precedes the object, and with *bi*, the order is reversed:[13]

[13]Thompson (1996:82-3) remarks that the link between the word order and *yi*-/*bi*-marking is not as strict as commonly believed, showing data like the following:

(i) a. John gat yiká' nagu'.
John cedar on fell
'John fell on the cedar.'

b. John gat biká' nagu'.
John cedar on fell
'The cedar fell on John.'

c. gat John biká' nagu'.
cedar John on fell
'The cedar fell on John.'

(44) a. łį́į́’ sétał
horse 3Acc(∅)-1sgNom-kicked
‘I kicked the horse.’
b. at’éédtó yodlą́ą́
girl water 3Acc(*yi*)-3Nom-drank
‘The girl drank the water.’
c. dibé tó ’abíił’éél.
sheep water 3Acc(*bi*)-3Nom-swept.off
‘The water swept the sheep off.’

Several authors regard this alternation as indicative of syntactic direction and/or obviation, rather than passive etc. (Jelinek 1997, 1990; Klaiman 1991; Aissen 2000; Thompson 1994, 1989a,b).[14] As in Algonquian, the direct/inverse alternation with ditransitives involves only the agent and recipient arguments (Jelinek 1990:231).

As to the morphological properties of *yi* and *bi*, there remains some disagreement. Some authors consider subject/object prefixes in general to be pronominal (Jelinek 1997, 1990; Aissen 2000; Thompson 1994, 1989a,b), whereas Speas (1990) and Uyechi (1991, 1996) argue that these prefixes are agreement markers, except for *bi*, which is an incorporated pronoun (see also Bresnan 2001:161-8). In the present work I do not go into the details of the morphological facts and refer to *yi* and *bi* simply as “object prefixes”, which indicate the direct and inverse construction respectively.

Navajo does not have a morphological obviation marker corresponding to *-a* in Cree;[15] the linear order of NPs can, however, be viewed as a functional analog of obviation marking, as it indicates, loosely speaking, that the first NP outranks, or is of the same rank as, the second on the hierarchy that determines the direction.

(45) a. **Cree**: $\{$[NP$_i$ NP-*a*$_j$ V], [NP-*a*$_j$ NP$_i$ V], ...$\}$
$\Rightarrow$ NP$_i >$ (?$\geq$) NP$_j$
b. **Navajo**: [NP$_i$ NP$_j$ V]
$\Rightarrow$ NP$_i \geq$ NP$_j$

Now, let us examine factors that affect the direct/inverse alternation (and word or-

---

d. gat John yiká’ nagu’.
cedar John on fell
‘John fell on the cedar.’

A sentence like (ic) is problematic for Speas’ (1990) claim that *bi* is a pronoun anaphoric to the NP in the topic position.

[14] See Uyechi (1991) for comparative discussion of alternative analyses.

[15] The so-called fourth person in Navajo (and other Apachean languages) is sometimes referred to as “obviative” (Klaiman 1991:180). I find this terminology confusing and thus do not adopt it; the functions of the Apachean fourth person are different in kind from those of Algonquian obviation (see Akmajian and Anderson 1970).

der) in Navajo. When one core participant is animate and the other is inanimate, the choice between *yi*/*bi* is restricted, parallel to the case of the Cree syntactic direction:

(46) a. at'ééd tó yodlą́ą́
girl water 3Acc(*yi*)-3Nom-drank
'The girl drank the water.'
b. *tó at'ééd bodlą́ą́
water girl 3Acc(*bi*)-3Nom-drank

(47) a. dibé tó 'abíił'éél.
sheep water 3Acc(*bi*)-3Nom-swept.off
'The water swept the sheep off.'
b. *tó dibé 'ayíił'éél.
water sheep 3Acc(*yi*)-3Nom-swept.off

Creamer (1974) proposes the following as the "animacy hierarchy" that controls the *yi*/*bi* alternation: *yi* is used when the subject outranks the object in this hierarchy, whereas *bi* is chosen when the object outranks the subject.

(48) Human > Animals (Lg > Med > Sm) > Insects > Natural forces > Plants & Inanimate objects > Abstract notions

The effect of the animacy hierarchy is not absolute, but relative (see Hale 1973 among others). For example, when the two core participants of a transitive clause are ranked close (e.g. human and animal), violation of the selection principles makes the sentence only awkward, rather than unacceptable.

(49) a. diné bį́į yiyiisxį́.
man deer killed-Dir
'The man killed the deer.'
b. ?bį́į diné biyiisxį́.
deer man killed-Inv

(Hale 1973:302)

(50) a. ?łééchąą'í shiye' yishxash.
dog my.son bit-Dir
'The dog bit my son.'
b. shiye' łééchąą'í bishxash.
my.son dog bit-Inv

(Hale 1973:302)

Such reversal phenomena are observed even between animate and inanimate nouns, as in:[16]

[16]Recall that sentences like (51b) and (52b) are impossible in Cree, where an inanimate object acts on an

(51) a. łį́į́' 'ii'ni' biisxį́.
horse lightning killed-Inv
'Lightning killed the horse.'
b. 'ii'ni' łį́į́' yiisxį́.
lightning horse killed-Dir

(Hale 1973:305)

The following examples are from San Carlos Apache, a language closely related to Navajo:

(52) a. izee ncho'í gídí yi-yeshį́.
medicine bad cat killed-Dir
'Poison killed the cat.'
b. gídí izee ncho'í bi-yeshį́.
cat medicine bad killed-Inv

(Shayne 1982:389)

Based on such data, several authors conclude that the *yi*/*bi* alternation is controlled by relative potency or control force, rather than animacy (Frishberg 1972; Hale 1973; Shayne 1982; Witherspoon 1977; Klaiman 1991).

When the two core participants of a transitive clause are equally ranked in the animacy hierarchy, it is said that the direction is determined by the topicality/discourse prominence: i.e. *yi* indicates that the subject (agent) is a topic (or discourse-prominent), and *bi* indicates that the object (patient) is a topic (or discourse-prominent). In a neutral description with two equally animate arguments, the *yi* form is used (italics in the gloss indicate foci; cf. Aissen 2000; Willie and Jelinek 2000; Jelinek 1997; Hale 1973):

(53) a. 'ashkii 'at'ééd yizts'ǫs
boy girl 3Acc(*yi*)-3Nom-kissed
'The boy *kissed the girl*. / *The boy kissed the girl*.'
b. 'ashkii 'at'ééd bizts'ǫs
boy girl 3Acc(*bi*)-3Nom-kissed
'*The girl kissed* the boy. / The boy was kissed by the girl.'

When a transitive clause has two human participants and only one of them is realized as an overt nominal, the interpretation of this nominal is constrained by the choice of *yi*/*bi* (Willie 1991; cf. Frishberg 1972).[17]

animate and yet the inverse is used. This is probably not unrelated to the fact that in Algonquian animacy is by large a grammaticized property of nouns. The soft effect of humanhood, size, etc., on the other hand, might well be attested in the Algonquian syntactic direction, although, to my knowledge, it has not been explicitly discussed in the literature.

[17]Frishberg (1972:263) reports that a sentence like (54b) is ambiguous (while a sentence like (54a) is not).

(54) a. [díí ’ashkii] yi-ztał
this boy kicked
‘He kicked this boy.’
NOT: ‘This boy kicked him.’

(Willie 1991:74)

b. [díí ’ashkii] bi-ztał
this boy kicked
‘This boy kicked him.’
NOT: ‘He kicked this boy.’

(Willie 1991:75)

As Aissen (2000) points out, this phenomenon follows from the assumption that *yi* (*bi*) indicates that the subject (object) is a topic, as generally a null pronominal is more discourse-prominent than a lexically realized nominal (cf. Givón 1983; Ariel 1990).

3.2.2 Empathy and the Navajo direction

I hypothesize, as I did with the Cree DIO-system, that the Navajo syntactic direction and word order (which is a functional analog of the obviation in Cree) are controlled by the notion of empathy. The DIO-system in Navajo, however, contrasts with that in Cree in two respects: (i) not only animacy, but other semantic features of nouns such as humanhood, size, and potency are reported to affect the possibility/likelihood of the alternation; also, the effect of these semantic features is not absolute or categorical, (ii) the opposition is present (or explicit) only if both core arguments are non-SAPs. Below, I examine these two points in some detail and discuss their implications on the empathy-based analysis.

As we saw above, the Navajo DIO-system is affected by at least two factors: the animacy (or alternatively, the scale of attributed control force etc.) and topicality. This indicates that any accounts of the Navajo direct/inverse opposition based solely on the animacy hierarchy (Creamer 1974), relative potency (Shayne 1982), control force (Hale 1973; Witherspoon 1977), or topicality (Willie and Jelinek 2000; Jelinek 1997) fall short (cf. Thompson 1996:96). A tentative approximation of the rules to determine the Navajo direction would be the following:

(55) (i) When the agent of a transitive clause outranks the recipient/patient in the animacy hierarchy, the direct form is used.
(ii) When the recipient/patient of a transitive clause outranks the agent in the animacy hierarchy, the inverse form is used.
(iii) When the agent and the patient are equally ranked in the animacy hierarchy:

(iii-a) if the agent is more topical, the direct form is used.
(iii-b) if the recipient/patient is more topical, the inverse form is used.

This formulation too, however, fails to capture the phenomenon of animacy reversal and wrongly excludes sentences like (49b), (50b), (51b) and (52b). The basic reason behind animacy reversal, I presume, is the conflict between the effects of animacy hierarchy and topicality. That is, in the Navajo syntactic direction, unlike those in Japanese and Cree, the effect of topicality may override that of animacy, although the latter takes precedence over the former in principle.

The empathy-based account of the syntactic direction captures the effects of both animacy and topicality, by the Animacy Empathy Hierarchy and the Topic Empathy Hierarchy. Furthermore, it allows us to model conflicts among the relevant hierarchies in a rather simple way. I submit that languages may vary as to how much each of the relevant factors (e.g. person, animacy, topicality etc.) "matters" to the determination of linguistic empathy. The relation between the relevant factors and linguistic empathy can be approximated by the following scheme:

(56) E(x) = F_E (Person (x), Topicality (x), Animacy (x), Potency (x), ...) = $a\times$Person (x) + $b\times$Topicality (x) + $c\times$Animacy (x) + $d\times$Potency (x) + ..., where Person, Topicality, Animacy, Potency, ... are functions whose ranges are positive real numbers and *a, b, c, d, ...* are constants ("weights").

Cross-linguistic differences, such as the possibility of occasional animate-inanimate reversals, can be attributed to the weights of each argument, i.e., the size of the constants $a, b, c, d, \ldots$ in the formula above: that is, in Navajo, the weight of the topicality factor relative to the animacy factor is greater than in Japanese and Cree.

Now, let us address the second characteristic of the Navajo inverse system, which concerns the person hierarchy. As mentioned above, the object prefix position of a verb is empty when the subject is a SAP and the object is a non-SAP. When the object is a SAP, the alternation does not occur since there is no third person object prefix. In other words, the *yi*/*bi* alternation is present only when both of the core arguments are non-SAPs.

(57) a. łį́į' sétał
horse 3Acc(∅)-1sgNom-kicked
'I kicked the horse.'
b. łį́į' shiztał
horse 1sgAcc-3Nom-kicked
'The horse kicked me.'

Does this mean that person in Navajo has no bearings on the empathy relations among the participants? No. If this were the case, the *yi*/*bi* alternation would be present in

sentences like (57a) just as in those in which both core arguments are non-SAPs.

The absence of opposition in such cases rather suggests that a variant of the Speech-Act Empathy Hierarchy, i.e. E(SAP) > E(non-SAP), is operative in Navajo; that is, if it is always the case that first and second persons outrank third person, the direction marking (*yi* in (57a)) would be redundant and thus its absence is motivated by economy, at the expense of explicitness. This surmise is supported by the fact that, when a lexical first person pronoun and a non-SAP NP cooccur within a clause, it is preferred that the former precedes the latter (Willie and Jelinek 2000:264-5). What cannot be inferred from the data presented so far is the ranking between first person and second person. Either of the three possibilities: (i) 1>2 (as in Japanese), (ii) 2>1 (as in Cree), and (iii) 1=2 (as in Jinghpaw; see below) is viable, and thus investigation with other diagnostics is required to identify the exact person hierarchy in Navajo. Note that, in any event, underspecification of the empathy relations between the core participants arises only if (iii) is the case.

3.3 Jinghpaw

Jinghpaw is a Tibeto-Burman language with SOV order. DeLancey (1981b) illustrates two sets of morphological empathy markers in the Hprang-Hkadung dialect of this language. The first is verbal affixes *d-*/*m-*, which he calls **viewpoint morphemes**: *d-* indicates that the agent is the empathy locus of a transitive or ditransitive clause, while *m-* designates the patient in a transitive clause or the recipient in a ditransitive clause as the empathy locus.[18] The opposition of *d-* and *m-* is thus entirely analogous to that of direct/inverse markers in Algonquian. In the following I refer to *d-* and *m-* as direct/inverse markers.

The second is the person agreement. In Jinghpaw, the target of person agreement is the empathy locus, rather than a certain grammatical function:

(58) ngai MaNaw hpe gumhpraw jaw n-iʔ ai
I MaNaw OBJ money give Asp-1st
'I gave money to Manaw.'

(59) ?MaNaw ngai hpe gumhpraw jaw n-uʔ ai
MaNaw me OBJ money give Asp-3rd
'Manaw gave me money.'

(60) MaNaw ngai hpe gumhpraw jaw n-iʔ ai
MaNaw I OBJ money give Asp-1st

As shown in the examples above, in sentences where *d-*/*m-* do not occur,[19] agreement

[18] According to DeLancey's analysis, what *d-* and *m-* indicate is an attention focus, which is a subtype of empathy locus; see below.

[19] The occurrence of *d-*/*m-* is blocked by other prefix morphemes, such as *n-* in (58)-(60). They also do not occur in certain constructions types, such as gnomic sentences.

with third person in preference to first or second person is disfavored. When both the subject and the object are SAPs, the agreement can go with either of them, depending on which is "spotlighted". Based on such data, DeLancey proposes that the person hierarchy in Jinghpaw is: $(1 = 2) > 3$.[20]

Interestingly, in Jinghpaw, unlike in Japanese and Cree, the person hierarchy effect can be overruled by the topicality factor. This can be already seen from the status of (59), which is not entirely unacceptable. In sentences with the viewpoint morphemes *d-* and *m-*, this is further borne out:

(61) nang shi hpe ndai jaw d-it ai
you he OBJ this give *d*-2nd
'You gave him this.'

(62) nang shi hpe ndai jaw m-uʔ ai
you he OBJ this give *m*-3rd
'To him, you gave this.'

(63) *nang shi hpe ndai jaw mduʔ ai
you he OBJ this give *d*-3rd

(64) *nang shi hpe ndai jaw m-it ai
you he OBJ this give *m*-2nd

In (62), both the inverse marker *m-* and the agreement with third person indicate that the recipient receives more empathy than the agent, despite the fact the former is outranked by the latter in the person hierarchy.

Under the hypothesis that languages may differ as to the weights on semantic/pragmatic factors that affect linguistic empathy, this phenomenon can be accounted for by assuming that in Jinghpaw the weight of the person factor relative to the topicality is smaller than in Cree etc. On the other hand, from the premise that *d-*/*m-* and person agreement both indicate the empathy locus, it is correctly predicted that (63) and (64) are unacceptable, where they designate two different participants as empathy loci of a single clause.

DeLancey, however, challenges Kuno's Ban on Conflicting Empathy Foci, arguing that in Jinghpaw it is possible to specify two empathy loci within a clause. The crucial set of data is the following, in particular (67):

(65) shi nang hpe ndai jaw d-uʔ ai
he you OBJ this give *d*-3rd
'He gave you this.'

[20]This, incidentally, is reminiscent of person agreement in Algonquian. As mentioned in fn.10, in Cree, when one core argument is first person and the other is second person, agreement goes with second person which outranks first person.

(66) shi nang hpe ndai jaw m-it ai
he nang OBJ this give *m*-2nd
'To you, he gave this.'

(67) shi nang hpe ndai jaw d-it ai
he nang OBJ this give *d*-2nd
'You were given this by him.'

(68) *shi nang hpe ndai jaw m-uʔ ai
he nang OBJ this give *m*-3rd

Under the assumption that the person agreement and *d*- both designate the empathy locus, (67) should involve a conflict. DeLancey takes this as supporting evidence for his claim that the notion of empathy consists of two primitive components, which he terms viewpoint and attention flow (Delancey 1981a). He proposes that *d*- and *m*- identify what the attention focus (i.e. the starting point of the hearer's attention flow) of a clause is, while the person agreement marks the viewpoint from which an event is described. With this move, however, it becomes unclear why sentences like (63) and (64) are excluded; why are these sentences unacceptable, if the split of attention focus and viewpoint is allowed, the attention focus can go with the object, and the viewpoint can go with a third person participant?

A simpler and more plausible analysis would be that in (67) the event is described from the neutral perspective. If we assume that the opposition of *d*- and *m*- is an analog of that of *yaru* and *kureru*, it would not be surprising that *d*- allows the neutral perspective. To explain the acceptability of (67), thus, we only need to stipulate that agreement goes with a SAP in preference to a non-SAP when the two core arguments of a clause are equally empathized with. To conclude, the data shown above does not force us to abandon the "unitary notion of empathy" (DeLancey 1981b:46).

3.4 Summary

In this section, I argued that the notion of empathy plays the central role in the DIO-systems in Cree, Navajo, and Jinghpaw. Syntactic directions in these languages are analogs of the *yaru*/*kureru* opposition in Japanese, and obviation can be understood as a morphological device to indicate the empathy locus of the relevant discourse stretch (obviation span).

The advantages of the uniform, empathy-based analysis of the DIO-systems over past analyses are summarized below:

(i) To account for the conditions on the direct/inverse alternation and obviation-marking in Cree, it has been believed that construction-specific constraints, such as the person/animacy-related restrictions, topicality effect, and possessive constraint must be postulated (Dahlstrom 1986; Aissen 1997). The empathy-based account allows us to eliminate them on grounds of parsimony; under the empathy-

based hypothesis, the effects of person and animacy can be derived from (a variant of) the Speech-Act Empathy Hierarchy and the Animacy Empathy Hierarchy, which have been motivated on independent grounds. In the same vein, the discourse effect and possessive constraint on obviation can be accounted for by the Topicality Empathy Hierarchy and the Descriptor Empathy Hierarchy respectively.

(ii) While various notions, such as the animacy hierarchy (Creamer 1974), relative potency (Hale 1973), control force (Witherspoon 1977; Shayne 1982; Klaiman 1991), and topicality (Willie and Jelinek 2000; Jelinek 1997), have been proposed as the determinant factor of the *yi*/*bi* alternation in Navajo, none of them has fully adequate empirical coverage. The empathy-based analysis is more appropriate, capturing the effects of both information structure-based and semantic conditions.

(iii) DeLancey (1981b) proposes to split the notion of empathy into two components (viewpoint and attention flow), in order to account for data in Jinghpaw that involve apparent empathy conflicts. Not only is this move disfavorable on grounds of parsimony, it makes wrong predictions regarding certain data. The unitary notion of empathy must be maintained to provide a consistent account of the relevant phenomena.

4 Typology

So far we have overviewed the DIO-systems in four languages which belong to different families: Japanese (Japanese), Cree (Algonquian), Navajo (Athabaskan), and Jinghpaw (Tibeto-Burman). These systems exhibit certain striking similarities, such as: (i) the alternation is controlled or affected by the person hierarchy, animacy, and topicality; (ii) the recipient, in preference to the patient, is chosen to compete with the agent; and (iii) the direct form allows the neutral perspective, while the inverse does not.

On the other hand, there are interesting differences among them; namely they differ as to (i) how and to what extent empathy relations are encoded (E-marking) and (ii) what ranks higher than what in the empathy hierarchy (E-ranking). In this section, I will summarize and discuss how these systems differ from one another, to establish a preliminary typology of DIO-systems.

4.1 E-marking

4.1.1 DOMAIN

In Japanese, only giving verbs and derived benefactive verbs exhibit the opposition. In Cree, a wider range of transitive/ditransitive verbs, which belong to the Transitive Animate class, have direct/inverse forms. In Navajo and Jinghpaw, as a rule all transitive/ditransitive verbs potentially alternate.

4.1.2 MARKING

The opposition of *yaru* and *kureru* in Japanese is lexical. In Navajo, the direction is indicated by third person pronoun object prefixes. Cree and Jinghpaw have suffixes specialized to indicate the direction, which are called theme signs and viewpoint morphemes respectively. Jinghpaw *m-*/*d-* may be blocked by other suffixes such as the aspect marker *n-*, while in Cree theme signs are always present when appropriate.

4.1.3 LINKING STRATEGY: OBVIATION AND GRAMMATICAL FUNCTIONS

In the four languages, only Cree has the morphological obviation of nominals. As mentioned in 3.2, however, the word order in Navajo reflects empathy relations among the core participants of a clause and thus conveys more or less equivalent information as morphological obviation. An important generalization is that there is a negative correlation between the presence of such markers of the empathy locus (including word order) on the one hand, and grammatical function (GF) marking devices such as GF-based word order and case marking on the other. GF-markers and obviation can be understood as alternative strategies to carry out the surface form/semantic role linking, the presence of obviation (with direction marking) compensating the lack of GF-marking (cf. Klaiman 1991:164-170). The system in Navajo is a "hybrid", in that it also has person agreement with GF-encoding; a possible linking problem arises only when both arguments are third person, and only in this case does the empathy-based word order play a significant role in the linking resolution.

4.1.4 ACTIVE PAIRS

In Navajo, the direction is indicated only when both arguments are third person. In the other three languages, the direction-marking is present in all person combinations.[21] As remarked in 3.2, from the functional perspective this contrast can be understood as a trade-off between economy and explicitness. When the two core arguments of a clause differ in person, the person hierarchy restricts possible empathy relations, to the effect that the direction marking may be redundant; for example, in the following Japanese example, the choice of *yaru* over *kureru* does not have any semantic or pragmatic import, as the empathy relation designated by *yaru* (E(the speaker)$\geq$E(Max)) is predictable from the person hierarchy (the Speech Act Empathy Hierarchy).

(69) Boku-wa Max-ni hon-o yat-ta.
I-Top Max-Dat book-Acc give-Past
'I gave Max a book.'

In Navajo, this type of redundancy is not present, the direct/inverse opposition being neutralized. In languages like Cree which do not have GF-based person agreement nor

[21] It is reported that in some languages (e.g. Ojibwa, another Algonquian language) the direction is present only when at least one of the core arguments is a SAP (Jelinek 1990, Rhodes 1990).

case-marking, on the other hand, the direction marking is functionally motivated in all person combinations to resolve the surface form/semantic role linking.

4.2 E-ranking

4.2.1 PERSON HIERARCHY

In Japanese, first person outranks second and third (1>{2,3}). In Cree, second person outranks first person, and first person outranks third person (2>1>3). In Jinghpaw, first person and second person are equally ranked, and local persons outrank third person ({1,2}>3). In Navajo, local persons outrank third person, but the ranking between first person and second person is unknown (SAP>3). From these hierarchies we can draw out the generalization that third person never outranks a local person (i.e. SAP≥3).

Such representations of hierarchies are, however, only approximations. In Jinghpaw, for example, the effect of person hierarchy can be overruled by the topicality/discourse prominence, while this never happens in Cree etc. Also, in Japanese, although second person can be outranked by third person (cf. (11)), there seems to be a tendency for the direct form to be used in the [Agent:2nd, Recipient:3rd] configuration, and the inverse in the [Agent:3rd, Recipient:2nd] configuration. These points suggest that the "distances" between ranked members within person hierarchies too may vary from language to language, so that the ranking is perceived as a mere tendency in certain languages but as a categorical effect in others.

4.2.2 ANIMACY HIERARCHY

In Navajo, it is possible that certain "potent" inanimate nouns (e.g. lightning, poison) empathically outrank animate nouns (presumably only when the former is more discourse-prominent than the latter). This does not happen in Cree, in which animacy is by large a grammaticized property of nouns. In Japanese too, an animate/inanimate reversal seems not to take place even when an inanimate NP is both potent and topical (cf. (15b)). As to Jinghpaw, I do not have enough data to assess this possibility. I leave it as an open question to what extent such contrasts reflect the world view/ontology of speakers.

4.3 Summary

The points discussed above are summarized in the following table:

(70) **Table 1**

	Japanese	**Cree**	**Navajo**	**Jinghpaw**
Direction Marking	lexical	by specialized affixes (theme signs)	by agreement (pronominal?) prefixes	by specialized affixes (viewpoint morphemes)
Domain	only giving and benefactive verbs	TA (transitive animate) verbs	transitive verbs in general	transitive verbs in general
Obviation	No	Yes	No; but the word order reflects empathy relations	No
Active pairs	all combinations	all combinations	3-3 only	all combinations
Linking strategy	case-particles	by the combination of direction and obviation	by the combination of direction, empathy-based word order, and agreement	GF-based word order
Person hierarchy	1>{2,3}	2>1>3	SAP>3	{1,2}>3
Other remarks			animate/inanimate reversal possible	person reversal possible

The observations from the four languages reveal that there can be considerable variety among DIO-systems in diverse aspects. At the same time, the empathy-based account allows us to draw out certain typological generalizations/predictions such as:

(71) (i) **There is no "reversed alignment"**: There are no DIO-systems where, for example, the direct (or inverse) construction indicates that the subject is more topical than the object *or* less animate than the object, or that the subject outranks the object in the person hierarchy *or* the subject is less topical than the object.

(ii) **There is a trade-off between obviation and GF-marking**: There are no or few languages that have both nominal obviation (or its analog) and GF-marking (on top of the syntactic direction), because having both causes redundancy. Conversely, there are no or few languages that lack both nominal obviation and GF-marking, because at least one of them is required to resolve the linking between surface forms and semantic roles.

The following table illustrates the point (71ii) in more detail:

(72) **Table 2**

	marking	**specified information**	**languages**
(i)	direction, obviation	semantic linking, empathy relations	Cree
(ii)	direction (deficient), GF-marking (deficient), obviation (word order)	semantic linking, empathy relations	Navajo
(iii)	direction, GF-marking	semantic linking, empathy relations	Jinghpaw
(iv)	direction (lexically restricted), GF-marking	semantic linking, empathy relations (limited)	Japanese
(v)	only GF-marking	semantic linking	English etc.
(vi)	only direction	empathy relations	likely to be non-existent
(vii)	only obviation	empathy relations	likely to be non-existent
(viii)	direction, GF-marking, obviation	semantic linking, empathy relations	likely to be non-existent

In a language like Cree (row (i) in Table 2), which has both direction and obviation, the combination of these two devices convey the information about both semantic linking and empathy relations. In a Cree transitive sentence, thus, it is always encoded which of the core arguments is the agent and which is the recipient/patient, plus which argument is more empathized with than the other. Navajo has all the direction marking, GF-marking and a functional analog of obviation, but the direction marking and GF-marking are both deficient, in the sense that they are not always present (row (ii)). The combination of these three devices again conveys the information about semantic linking and empathy relations. A language like Jinghpaw has direction and GF-marking, instead of obviation (row (iii)). The information specified in a clause, however, ends up being the same, again both semantic linking and empathy relations are specified. Next, in Japanese GF-marking is always present, but direction is lexically restricted (row (iv)). As a result, empathy relations are not always specified in a clause. A language like English, next, has only GF-marking (row (v)). In such a language empathy relations within a clause cannot be explicitly encoded. Rows (i)-(v) are possible and attested patterns. What we expect not to exist is languages that have patterns in the bottom three rows. If a language has only direction or obviation and not GF-marking, semantic linking cannot be resolved. The intuition behind this is that the resolution of semantic linking is more important than the specification of empathy relations, and a language may lack

the specification of empathy relations but not the specification of semantic linking. The row at the bottom corresponds to a language that has all of the (complete) direction, GF-marking, and obviation. It seems likely that such a language does not exist either, because it involves redundancy; as shown in rows (i) and (iii) of this table, obviation *or* GF-marking on top of direction is sufficient to specify both semantic linking and empathy relations, so for a language to have both of them leads to redundancy.

5 Conclusion

In this paper, I argued that the direct/inverse alternation and obviation are most directly controlled by the notion of linguistic empathy, drawing on data from Japanese, Cree, Navajo, and Jinghpaw, and developed a preliminary typology of DIO-systems.

The empathy-based approach neatly integrates observations and insights in past studies of syntactic direction and obviation. Its advantages over previous analyses come from three directions. First, it provides a uniform analysis of the DIO-systems in different languages, as well as the *yaru*/*kureru* opposition in Japanese, which have been believed to be controlled by different sets of syntactic/semantic factors. Second, it dispenses with construction-specific rules such as the person constraint and the possessive constraint. Third, it allows us to capture contrasts among DIO-systems in a simple way, reducing cross-linguistic differences into two planes: (i) the plane of E-marking: how and to what extent empathy relations are encoded, and (ii) the plane of E-ranking: what factors affect (more) empathy relations.

Overall, the proposed analysis of direction/obviation as empathy phenomena demonstrates that the notion of empathy can be encoded in the "core syntax" of natural languages, rather than coming into play only as peripheral phenomena, e.g., conventional implicatures associated with a limited set of lexical items. Also, the extended theory of empathy, with the idea of "weighting" of relevant factors, might be applicable for certain alleged syntactic phenomena in languages without explicit empathy relation marking. A good example is the person constraint on the passive; as argued in Kuno's work, within the theory of empathy the awkwardness of a sentence like the following is explained as a result of the conflict of the Surface Structure Empathy Hierarchy and the Speech-Act Empathy Hierarchy (cf. (13); Kuno 1987:230-1; Kato 1979):

(73) He was hit by me.

In certain languages, like Lummi, the effects of the person hierarchy are categorical and a sentence like (73) is judged as ungrammatical/unacceptable, rather than just awkward (Jelinek and Demers 1983, 1994). This contrast between English and Lummi can be given a purely empathy-based account (e.g. without constructing harmonic alignments; cf. Bresnan et al. 2001), if we assume that the weight on topicality relative to the weights on subjecthood and person is bigger in English than in Lummi (so that only in English the topicality factor can overrule the joint effect of grammatical function and person).

The present work leaves two interesting questions for future discussion. The first is whether the empathy ranking is determined culturally or linguistically. Do varieties of E-ranking strategies reflect speakers' ontology or social/cultural backgrounds? Or are they rather arbitrarily encoded in individual grammars? The second question is how the empathy-theory interacts with grammaticalization. While general empathy-based principles, which are discussed in Section 2, account for a wide variety of DIO-related phenomena, it should not be overlooked that certain aspects of specific DIO-systems (e.g. gender in Cree) are more grammaticized than others (e.g. the animacy effect in Japanese). It is an important task to inquire into the implications of the grammaticalization of empathy-based morphology on the theory of empathy, as well as to explore the paths through which the grammaticalization occurs.

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