

## Chapter 12

# Differential Case-Marking in Hindi

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### 1. Patterns of Case-Marking

There are cross-linguistically two major patterns of case-marking (Blake, 2001). *Nominative-accusative* refers to a grammatical pattern in which the subject of an intransitive verb receives the same morphological treatment as the subject of a transitive verb, while the object of the transitive verb receives a different treatment. *Ergative-absolutive* refers to a grammatical pattern in which the subject of an intransitive verb receives the same morphological treatment as the object of a transitive verb, while the subject of the transitive verb receives a different treatment (Dixon, 1979). Some examples from a (nominative-) accusative language (spoken Tamil) (examples (1) and (2)) and an ergative (-absolutive) language (West Greenlandic) (Manning, 1996, p. 3) (examples (3) and (4)) follow:<sup>1</sup>

spoken Tamil

- (1) *avan-Ø puLLay-E paattAA*  
he-NOM boy-ACC see.PST.3SG.M.  
'He saw the boy'

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<sup>1</sup> Glossing conventions follow the Leipzig Glossing Rules (<http://www.eva.mpg.de/lingua/files/morpheme.html>):

1:first person; 2:second person; 3:third person; ABL:ablative; ABS:absolutive; ACC:accusative; AUX:auxiliary; DAT:dative; ERG:ergative; F:feminine; FUT:future; GEN:genitive; IMP:imperative; INF:infinitive; INS:instrumental; INTR:intransitive; IPFV:imperfective; LOC:locative; M:masculine; NOM:nominative; PFV:perfective; PL:plural; PRS:present; PROG: progressive; PST:past; SG:singular; TR:transitive

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- (2)
- avan-∅ ooDinAA*

He-NOM run.PST.3SG.M.

'He ran'

West Greenlandic

- (3)
- Oli-p neq neri-vaa*

Oli-ERG meat.ABS eat-IND.TR.3SG.3SG.

'Oli eats meat'

- (4)
- Oli sinippoq*

Oli.ABS sleep:IND.INTR.3SG

'Oli sleeps'

In many languages, nominative or absolutive case is the unmarked (morphologically zero) case and functions as the 'elsewhere' case for either the subject or the object of a transitive clause. We assume that nominative (or absolutive) case is in fact a label for 'no case': that is, we assume that the absence of special morphological marking indicates the absence of case.<sup>2</sup> Thus, whereas morphologically zero cases are, in some accounts, treated as 'unmarked' (Marantz, 1991) or 'obligatory' cases (Bobaljik, 1993), we treat them as 'no case', which is also the approach advocated by Aissen (2003). In both types of case systems, the 'primary' (unmarked) argument in transitive constructions as well as the single argument of intransitive predicates remains null-marked, hence case-less.

## 2. Two Functions of Case-Marking

In the functional-typological literature, two main functions of case-marking are distinguished (cf. a.o., Mallinson & Blake, 1981; Comrie, 1989; Kibrik, 1985; Song, 2001; Malchukov, this volume).

One motivation for case-marking the subject or object of a transitive clause "is to *disambiguate arguments* in terms of their function(s) in the clause, and this is only relevant in clauses in which there is more than one argument" [emphasis ours] (Van Valin, 1992, p.19). In order to differentiate the subject from the object it is not necessary to mark them both; a case marker on one of them serves to distinguish them. Hence, if the marker is given to the object, the subject is left in the citation form, with the result that the subject of both a transitive as well as an

<sup>2</sup> We will, however, continue to gloss null-marking as 'nominative case' in our Hindi examples in this chapter.

intransitive clause is morphologically unmarked and the object is marked, yielding an accusative pattern. Conversely, if the marker is applied to the subject of a transitive clause, the object remains unmarked, resulting in an ergative pattern in which the subject of an intransitive clause and the object of a transitive clause are morphologically unmarked and the subject of a transitive clause is marked (Van Valin, 1992). This function of case marking is generally referred to as the *distinguishing* or *discriminating* function.

Another widely attested function of case has to do with the expression of specific semantic information in the case morphology. Morphological cases are generally considered to express some kind of specific (e.g. thematic) information of the argument under consideration. That does not only hold for lexical (or semantic) cases such as, e.g. locative cases, but to a certain degree for structural cases as well. For example, dative case is associated with goal and experiencer semantics, ergative case is usually associated with agentivity, or more specifically with properties such as volitionality or control, and accusative case is associated with patienthood. This function of case marking is usually referred to as the *identifying* or *indexing* function of case.

We assume that in the case-patterns we find cross-linguistically both functions play a role. For instance, ergative case marking may serve either of two purposes: it may mark and identify agentivity or it may mark the first argument of a transitive clause in order to distinguish the two arguments. In principle, these two functions of ergative case marking can go hand in hand, but below we will encounter a specific problem with that view.

In this chapter, we propose that a model of case-marking based on the two functions of case should be augmented with the notion of *argument strength*. We show how this extended approach derives split case-marking in subject and object position in Hindi. The identification of *argument strength* is needed to distinguish between strong arguments of a certain type and their weak counterparts. We suggest that in languages with differential case-marking, subjects and objects that are 'strong' are likely to be overtly marked as such. The question is how we measure the 'strength' of arguments, since languages seem to vary in this respect. Notoriously, the degree of transitivity varies on the basis of a number of factors, including animacy, specificity or referentiality, volitionality, perfectivity, etc. in different languages (Hopper & Thompson, 1980). These can be represented in terms of features that play a role in some languages but not others, or as semantic scales.

One possibility of measuring the 'strength' of arguments is by using the notion 'discourse prominence'. Legendre et al. (1993) recognize the importance of argument prominence and translate the notion into their Optimality Theoretic constraints. They use constraints such as "high-prominence arguments receive  $C_1$ " and

“low-prominence arguments are not case-marked  $C_1$  and  $C_2$ ”, where  $C_1$  in their framework refers to both nominative and ergative, and  $C_2$  to both accusative and absolutive. According to Legendre et al., intransitives always come with a high-prominent argument, while transitives always come with two high-prominent arguments. They write high-prominent arguments with capital letters. Thus, the subject and object of a transitive clause are written as  $A$  and  $P$ , while low-prominent subjects and objects are written as  $a$  and  $p$ . As a consequence, the two arguments of a transitive predicate are universally marked  $A_1P_2$  (where the subscript indicates the type of case). If one of the arguments of a transitive predicate is low-prominent, the construction becomes ‘passive’ or ‘antipassive’, i.e. with either an implicit or an obliquely case-marked argument. Obviously, high-prominent arguments are typically animate and referential or specific. However, one cannot maintain that in ordinary transitive clauses the arguments are always ‘high-prominent’ in the discourse, nor that a ‘low-prominent’ argument of a transitive predicate always gives rise to a passive or antipassive construction (cf. De Hoop, 1999). Legendre et al. (1993) are not able to make a distinction between a high-transitive clause such as *Jane hit Jacky* and a low-transitive clause such as *Jane was drinking wine* (both are  $AP$  in their model), although intuitively the wine is definitely less prominent in the discourse than Jacky. A related problem for Legendre et al. is that their system does not account for phenomena of differential case-marking of subjects and objects in a straightforward way. However, we think that the basic insight that the ‘discourse prominence’ of arguments plays a crucial role in case-marking patterns can still be maintained. In our view ‘prominence’ is one of the factors that can be used to measure the ‘strength’ of arguments.

Another way of measuring the ‘strength’ of an argument is by looking at its prototypicality, i.e. the degree to which it possesses certain features that characterize the argument’s role in the expressed event (Dowty, 1991). On the one hand, a feature such as volitionality (being in control) determines a ‘prototypical’ agent. Note that volitionality usually implies animacy as well. On the other hand, a ‘prototypical’ patient is usually characterized in terms of its ‘affectedness’. Strikingly, animate and referential or specific arguments are intuitively perceived as ‘more affected’ by an action than inanimate non-specific arguments. ‘Prototypicality’ is another factor that can be used to measure the ‘strength’ of arguments.

We conclude that in fact the different ways of measuring the ‘strength’ of arguments point in the same direction: arguments which are high-prominent in the discourse are usually animate and specific, whereas arguments which are prototypical, that is, either in control of the action (agents) or affected by the action (patients) are usually animate and specific as well. Therefore, we have chosen to use ‘strength’ as a comprehensive term for the different factors. We will write strong arguments with capital letters  $A$  and  $P$ , following Legendre et al. (1993) in this respect.

At this point, let us return to the two functions of case-marking. Which arguments of a transitive clause are case-marked, the strong or the weak ones? We may illustrate case-marking in order to *identify* arguments as in figure 1 below.

Clearly, in its identification function, case-marking identifies *strong* arguments, as argued above, the prototypical agents (the high-prominent ones, which are in control) and the prototypical patients (the high-prominent, affected ones). So, the identifying function of case predicts *A* and *P* to be case-marked in a transitive clause.

However, as we argued above, differential case-marking can also be employed to distinguish between arguments which are potentially ambiguous with respect to their role (that is, case-marking is used to distinguish between agents and patients). Since subjects are usually stronger than objects (or, agents stronger than patients), obviously, differential case-marking on the basis of distinguishability marks weak agents rather than strong agents because the weak ones are 'closer' to the patients in strength. On the other hand, strong patients get case-marked and not the weak ones, because in the case of patients, the strong ones are 'closer' to the agents. Hence, the weak agents and the strong patients represent the borderline where the danger of ambiguity is maximal and are therefore potential candidates for case-marking on the basis of distinguishability. This is illustrated as in figure 2.

Comparing Figures 1 and 2, an essential difference between the two functions of case-marking is revealed. While the identifying function explains case-marking of the strong agent and the strong patient (the *A* and the *P*), the distinguishing function explains case-marking of the weak agent and the strong

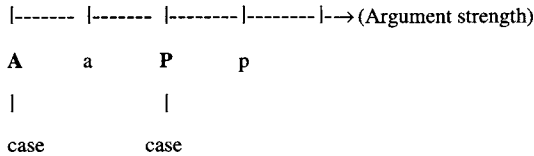


Figure 1: The identifying function of case.

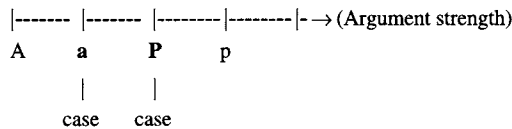


Figure 2: The distinguishing function of case.

patient (the *a* and the *P*). Another difference becomes obvious as well. When case-marking is merely used to distinguish two arguments in a transitive clause, it is of course sufficient to mark only one of the two arguments. Case-marking applies to the *relation* between the subject and the object then, rather than to both arguments independently. By contrast, when case-marking is used to identify the strength of an argument, it may apply to each argument independently, both the subject and the object of a transitive clause, as well as to the sole argument of an intransitive construction. That is, in the identifying view, we do not necessarily expect a difference in case-marking between intransitive and transitive sentences. There is a possibility to get a difference indirectly, when we say that an agent is only 'strong' in the presence of a patient and vice versa. That would be possible when we measure strength in terms of 'prototypicality' (a prototypical agent needs a patient and vice versa), but not when we measure it in terms of discourse prominence, nor when we measure it in terms of intrinsic notions such as volitionality or affectedness or features like animacy and specificity.

Thus, in the distinguishing approach of case, ergative case should be assigned to agents that are somehow 'marked' (in the grammatical role of subject) or 'weak' (compared to the object) and hence confusable with patients. Overtly marking a weak agent with 'agentive case-marking' or a strong patient with 'patientive case-marking' helps to tag the role of one argument with respect to the other. Obviously, this appears to be the case in a language such as Dyirbal, where both the weak agent and the strong patient receive overt case-marking.

On the one hand, the transitive subjects that get overt marking are the 3rd person pronouns, proper names and common nouns, i.e. the weak agents. The 1st and 2nd person pronouns, however, are prototypical (strong) subjects that do not need any morphological marking. On the other hand, 1st and 2nd person pronouns are non-canonical objects (strong patients), hence they get morphological marking, while canonical objects (that is, 3rd person pronouns, proper names and common nouns) lack overt marking. This would support Aissen's idea that weak agents as well as strong patients receive case-marking as a function of distinguishing the two arguments of a transitive clause.

<b>A</b>	-∅	- <i>ŋgu</i>	- <i>ŋgu</i>	- <i>ŋgu</i>
<b>S</b>	-∅	-∅	-∅	-∅
<b>O</b>	- <i>na</i>	-∅	-∅	-∅
	<b>1<sup>st</sup> &amp; 2<sup>nd</sup> person pronouns</b>	<b>3<sup>rd</sup> person pronouns</b>	<b>proper names</b>	<b>common nouns</b>

Figure 3: Case-marking in Dyirbal (from Table 2 in Dixon, 1979, p. 87).

Note that with regard to *object marking* in a transitive construction, an explanation on the basis of distinguishability (Aissen, 1999, 2003) points into the same direction as an explanation on the basis of identification: in both approaches it is the strong patient that gets case-marked. However, with respect to the *subject* of a transitive clause, the two approaches are diametrically opposite: the identifying function marks the strong agent, while the distinguishing function marks the weak one.

We recognize that both types of agent marking are indeed exemplified in languages across the world, but we claim that in Hindi it is the identification function that is dominant with respect to the case-marking of the subject in a transitive clause. Distinguishability, on the other hand, plays a crucial role in the case-marking of the object of a transitive clause. We will analyze the Hindi case-marking patterns in transitive clauses within a bidirectional Optimality Theoretic approach.

### 3. Differential Object Marking in Hindi

Consider the sentences in (5) and (6). The Hindi–Urdu case system allows for two case-alternations in ordinary transitive clauses. That is, transitive subjects can occur in nominative (null-marked) or ergative case, and objects in nominative or accusative case. Apparently, the two case alternations occur independently of each other (see (5),(6)).

Hindi

- (5) *wo-Ø ek bakraa-Ø / ek bakre=ko bec-taa hae*  
 He-NOM one goat-NOM/one goat=ACC sell-IPFV.SG.M. be.PRS.3SG.  
 ‘He sells a goat / the goat’
- (6) *us=ne ek bakraa-Ø / ek bakre=ko bec-aa*  
 He=ERG one goat-NOM / one goat=ACC sell-PFV.SG.M.  
 ‘He sold a goat / the goat’

The *subject* case alternation in (5) and (6) is dependent on the perfectivity of the transitive sentence. Ergative case is assigned in the context of a perfective verb phrase. The *object* case alternation in (5) and (6) correlates with the specificity of the object: accusative case marks the specific object. The latter phenomenon is referred to in the literature as *differential object marking* (cf. Aissen, 2003). Similarly, we may refer to the ergative-nominative alternation in subject position as *differential subject marking*.

As Aissen (1999, 2003) argues, sometimes the function of case-marking is not to mark all subjects or all objects of a transitive clause, but rather to mark those that are ‘less prototypical’ subjects or objects. Citing the work in Silverstein

(1976) and Comrie (1989), Aissen argues that differential case-marking on objects occurs whenever the object is *non-canonical*, or ‘marked’: “The higher in prominence a direct object, the more likely it is to be overtly case-marked” since “it is those direct objects which are most in need of being distinguished from subjects that get overtly case-marked”(Aissen, 2003). Since agents tend to be more prominent, or in our terms are stronger than patients, the ones that should get overtly case-marked under this disambiguating perspective are the ‘weak’ subjects and the ‘strong’ objects (as illustrated in Figure 2 above).

De Swart (2003) partly rejects Aissen’s analysis since, as he points out, it is not the (un)markedness of either the subject or the object in a transitive clause that is crucial, but rather the *relation between the two*. That is, we might argue that as long as a subject outranks an object in a hierarchy of strength, there is no danger of ambiguity, and no case-marking is necessary to distinguish the two. No case-marking has the advantage of satisfying an *economy* constraint which penalizes morphological case marking. However, as De Swart (2003) points out, when the arguments do not minimally differ semantically (in terms of animacy or specificity), the object is case-marked to *avoid ambiguity*.

Differential object marking in Hindi can also be accounted for in this way, i.e. as the result of an interaction between *economy* and *distinguishability* (cf. Aissen, 2003, pp. 447–448).<sup>3</sup> Indeed, those patients which are most agent-like in the sense that they are animate and/or specific are most likely to be confused with true agents, and hence receive overt accusative *ko* marking. However, as we observed in the previous section, differential object marking cannot make a principled distinction between the identifying and the distinguishing function of case, since both functions predict the same type of objects, *viz.* the strong ones, to be case-marked. In other words, the case alternation in object position in Hindi could just as well be an alternation based on the *identifying* function of case. But when does differential object marking in Hindi occur?

Differential object marking, between *ko* and null-marking, shows up with a variety of transitive and ditransitive predicates.<sup>4</sup> Strikingly, these are the same predicates that allow case alternations on the subject as well, between *ne* and null-marking. Examples are predicates like *bec* ‘sell’ (see examples (5),(6)

<sup>3</sup> As we discuss further in later sections of the chapter, distinguishability in Hindi is not determined on the basis of nominal semantics alone. For example, an animate noun (e.g. *bakraa* ‘goat’) is more likely to receive object case-marking with the verb *maar* ‘hit’ than with a verb such as *bec* ‘sell’. Thus, the possibility of differential object-marking depends not only on nominal properties (e.g. animacy, volitionality) but also on verb semantics, among other factors.

<sup>4</sup> When (specific) objects are marked with *ko* in ditransitives, they undergo obligatory scrambling (Bhatt & Anagnostopoulou 1996)



above), *maar* ‘hit’, and *de* ‘give’. When there is no *possible* case alternation in subject position, there is no *possible* case alternation in object position either (Davison, 1999a, b).<sup>5</sup> So, the subjects of predicates such as *mil* ‘receive’ or *pasand ho* ‘like’ are not real agents and get obligatorily dative marked irrespective of the (im)perfectivity of the predicate. The object of these predicates does not receive case marking, that is, irrespective of its animacy and/or specificity.

(7) *raam=ko halwaa-Ø pasand hae*  
 Raam=DAT halwaa-NOM liking be.PRS.3SG.  
 ‘Raam likes halwaa’

(8) *raam=ko wo laDkii-Ø pasand hae*  
 Raam-DAT that girl-NOM liking be.PRS.3SG.  
 ‘Raam likes that girl’

We thus observe a *partial dependency* between subject and object case-marking in (5)–(6) above (Davison, 1999a, b) because both case alternations only occur with a certain class of predicates. This dependency is of course different from the dependency pointed out by De Swart (2003). That is, De Swart refers to the relation between subject and object in individual cases. For example, he pointed out that in some languages that have differential object marking on the basis of animacy, surprisingly an *inanimate* object is case-marked when the subject is inanimate as well. In Hindi, however, the case-alternations seem to be more restricted to certain grammatical contexts. Yet, the case-alternations of subjects and objects of a transitive clause are dependent on each other *in a certain way* because both alternations are only possible with a verb that allows the other alternation as well. That suggests that we cannot explain the complete pattern of case-alternations in transitive clauses in terms of the identifying function of case only. Indeed, the identifying function of case operates independently of the grammatical context and we would expect the case-alternations to show up on the basis of certain properties of the arguments alone, not necessarily in relation to the type of verb. In the remainder of this section, we will analyse the pattern of differential object marking in Hindi as an interaction between the identifying function of case, distinguishability and economy, resulting in the case-marking of an object only when the predicate is of a certain type, and the object is animate or specific.

First of all, we will call the class of predicates that *allow for* the two types of case alternations (differential subject marking as well as differential object marking)

<sup>5</sup> Davison’s (1999b) formulation is stated in the other direction: “if the direct object can be marked with the dative *-koo* (specific/animate referent), then the subject can be marked with the ergative *-nee* (in perfective, finite clauses).”

*highly transitive* predicates. Transitivity in Hindi has been described as constituting a continuum (Bhatia, 1981; Kachru, 1981; Pandharipande, 1981; Hock, 1985). For the purposes of this chapter, we designate a set of predicates at the ‘high’ end of the transitivity continuum which allow passivization of the object, (and case-alternations between *ne* and null marking on the subject, and *ko* and null-marking on the object), as being ‘highly transitive’.

As we witnessed above, it is exactly with this class of ‘highly transitive’ predicates that we find the object case-alternation on the basis of argument strength. That is, strong objects of highly transitive verbs are case-marked, while neither weak objects of highly transitive verbs nor strong objects of less transitive verbs are. We claim that it is the identifying function of case that is responsible here for the identification of strong patients. However, we appeal to the distinguishing function of case to explain why objects of other predicates do not receive case-marking, independently of whether or not they are strong.

We assume that there is a general principle of preserving distinguishability of the subject and the object in a transitive clause (basically following Aissen, 2003; De Swart, 2003; De Hoop & Lamers, to appear). This principle is captured by the following universal constraint (De Hoop & Lamers, to appear):

(9) DISTINGUISHABILITY

The two arguments of a transitive relation should be distinguishable.

The principle of DISTINGUISHABILITY specifies that, in a transitive relation, the two arguments should be distinct from each other (variants of this constraint and elaborate discussions are also found in other recent work, e.g. Bornkessel, 2002; Næss, 2004).

As De Hoop and Lamers (to appear) point out, DISTINGUISHABILITY can be satisfied in many different ways, such as by case morphology, argument strength, and agreement. As we have seen above, two arguments can be distinguished when only one bears unambiguous morphological case marking, e.g. when the object bears accusative case or the subject ergative case. We also pointed out that arguments may be distinguished on the basis of argument strength, measured along different scales, such as animacy or specificity. Obviously, the verb itself may provide the crucial information that helps to distinguish the two arguments. In English, for example, *please* takes an experiencer (animate) object, while *like* takes an experiencer (animate) subject. Therefore, when there is one animate and one inanimate noun phrase available, it is clear which one is the subject and which one is the object in the context of one of these verbs. Last but not least, agreement with the verb may determine the subject in languages such as German and English, and both subject and object in languages with subject and object agreement. In Hindi, the verb agrees with the highest nominative argument, which can be either the subject or the object

(the latter when the subject bears non-nominative case, e.g. ergative dative). Obviously, there may be other ways to distinguish between the two arguments of a transitive relation, such as word order, prosody or surrounding context, but in this chapter we will not be concerned with all of these factors.

In Hindi, the two arguments of less transitive verbs are distinguishable on the basis of case-marking. To see this, reconsider the examples in (7)–(8) above, repeated below as (10)–(11).

(10) *raam=ko halwaa-Ø pasand hae*  
 Raam=DAT halwaa-NOM liking be.PRS.3SG.  
 ‘Raam likes *halwaa*’

(11) *raam=ko wo laDkii-Ø pasand hae*  
 Raam=DAT that girl-NOM liking be.PRS.3SG.  
 ‘Raam likes that girl’

With these predicates, the subject is invariably marked with dative case. So, DISTINGUISHABILITY is already satisfied whether or not we case-mark the object and for reasons of economy we do not expect the object to be case-marked if not necessary. In fact, the dative morphology happens to be identical to what has been analysed as accusative morphology in Hindi. Thus, marking the object with accusative case would lead to a blunt violation of DISTINGUISHABILITY. Hence, with less transitive predicates, there is a fixed case-pattern that already adequately deals with distinguishing the subject from the object. In other words, when there is no case-alternation in subject position there should be no case-alternation in object position either.

Highly transitive verbs, on the other hand, run the danger or ambiguity because both the subject and the object can be unmarked (i.e. both can end up in the nominative case). With those predicates, DISTINGUISHABILITY is saved by making use of the identifying function of case, which enables us to case-mark strong objects. With less transitive verbs, however, DISTINGUISHABILITY is already satisfied by the case-marking of the subject, and therefore, case-marking of strong objects becomes superfluous. Thus, differential object marking in Hindi can be straightforwardly accounted for in terms of the *distinguishing* function of case, as was also argued by Aissen (2003) and De Swart (2003).

The constraints DISTINGUISHABILITY (De Hoop & Lamers, to appear) and IDENTIFICATION-P in combination with the economy constraint PAIP (Malchukov, to appear) give the right results for differential object marking in Hindi. The relevant constraints are given below:

(12) DISTINGUISHABILITY

The two arguments of a transitive relation should be distinguishable.

## (13) IDENTIFICATION-P

Strong patients receive accusative marking.

## (14) PAIP

“Primary Argument Immunity Principle”: don’t case-mark the unmarked — nominative — argument.

DISTINGUISHABILITY was extensively discussed above. At this point we make a split between two subconstraints of DISTINGUISHABILITY, viz. a ‘form’-constraint DIST-CASE and a ‘meaning’-constraint DIST-STRENGTH. The form-constraint refers to distinguishability of the two arguments on the basis of case-marking, while the meaning-constraint deals with the distinguishability of the two arguments on the basis of argument strength. The latter one can be formulated as “Subjects must outrank objects in strength” and is thus equivalent to De Swart’s (2003) constraint MINIMAL SEMANTIC DISTINCTNESS. Our constraint IDENTIFICATION-P is used to identify and case-mark a ‘strong’ patient. Malchukov’s PAIP is a constraint that penalizes morphological case-marking of an argument that could in principle remain unmarked. In Hindi, PAIP is satisfied when an object or subject is in the nominative (unmarked) case and it is violated whenever an object or subject bears an overt (ergative, accusative/dative, etc.) case-marker. We prefer to use PAIP rather than Aissen’s more general constraint \*Struc<sub>C</sub>, since the latter assumes a special notion of ‘structural case,’ which our account lacks. PAIP penalizes morphological case-marking on the argument that could (should) remain unmarked (the nominative argument), i.e. the obligatory case bearing argument in terms of Bobaljik (1993).

In the following bidirectional OT tableau, the different form-meaning pairs are evaluated against the set of constraints. Nominative (i.e. the absence of) case is written as  $\emptyset$ , accusative case is represented by the marker *ko*, a pair such as [*ko*, *p*] is to be read as “[form *ko*; meaning: weak patient]”.

Note that the object of a highly transitive verb in Hindi fulfills DIST-CASE when it bears the accusative case-marker, while a null-marked object violates this constraint. This is evaluated independently of the case of the subject. So, even when the subject is assigned ergative case in a perfective highly transitive clause in Hindi, we say that DIST-CASE is violated when the object is in the nominative. This is so because the case-marking pattern is grammaticalized in Hindi such that we cannot compare individual cases to see whether the subject is actually ergative or nominative (cf. Davison, 1999a, b).<sup>6</sup> In the context of a highly transitive verb, it

<sup>6</sup> Davison (1999b) notes that a small class of verbs (e.g. *pahcaan* ‘recognize’, *bhuul* ‘forget’) are optionally ergative and also allow alternation of *ko* and null marking on the object, providing further support for the partial independence of object case alternations from subject case alternations in the same (perfective) context.

Table 1: Bidirectional OT table: Form and meaning of the object of a highly transitive verb.

Object of highly transitive verb	PAIP	DIST-CASE	DIST-STRENGTH	IDENTIFICATION-P
∅ [∅, p]		*		
[ko, p]	*			
∅ [∅, P]		*	*	*
[ko, P]	*		*	

is the accusative case marker that in fact guarantees *distinguishability* if the object is strong instead of weak. However, as we pointed out above, we assume that in sentences with less transitive verbs, one of the arguments is obligatorily case-marked and then DIST-CASE is straightforwardly satisfied already.

The table reads as follows. The null-form is better than the form *-ko* because the economy constraint PAIP outranks the distinguishability constraint DIST-CASE as well as the identification constraint IDENTIFICATION-P. The meaning *p* wins over the meaning *P* because the latter violates meaning constraint DIST-STRENGTH. Thus, the first candidate form-meaning pair combines an optimal form with an optimal meaning, hence is super-optimal (Blutner, 2000). The second candidate pair is not super-optimal, because it combines an optimal meaning with a sub-optimal form (hence, it is blocked by the first super-optimal pair). The third candidate pair is not super-optimal either, because it combines an optimal form with a sub-optimal meaning (hence, it is blocked by the first super-optimal pair as well). Finally, the fourth candidate pair combines a sub-optimal form with a sub-optimal meaning, and this is super-optimal again (it cannot be blocked by the first pair, because both its form and its meaning are different from that one).

Whenever we encounter a pattern in language where in the same context two forms are available as well as two meanings, we may find a one-to-one mapping of forms and meanings that is in accordance with a principle of markedness that states that the (more) marked form is used to express the (more) marked meaning (Horn, 1984). When this is the case, the pattern can be analysed in terms of bidirectional Optimality Theory (Blutner, 2000). Blutner (2000) derives the markedness principle by means of bidirectional optimization (from form to meaning and from meaning to form).

In Blutner's (2000) framework a form-meaning pair  $\langle f, m \rangle$  is called *super-optimal* if and only if there is no other super-optimal pair  $\langle f', m \rangle$  such that  $\langle f', m \rangle$  is more harmonic than  $\langle f, m \rangle$  and there is no other super-optimal pair

$\langle f, m' \rangle$  such that  $\langle f, m' \rangle$  is more harmonic than  $\langle f, m \rangle$ . The reader may verify that according to this definition, there are two super-optimal pairs in the diagram in the table above, namely  $\langle \emptyset, p \rangle$  and  $\langle ko, P \rangle$ . Indeed, although *ko* is not an optimal form itself and *P* is not an optimal meaning, the pair  $\langle ko, P \rangle$  is super-optimal, because there is no super-optimal pair that blocks it (i.e. the two candidates  $\langle ko, p \rangle$  and  $\langle \emptyset, P \rangle$  are not super-optimal, because they are both blocked by the super-optimal pair  $\langle \emptyset, p \rangle$ ).

Thus, bidirectional OT provides us with an analysis of differential object marking in Hindi that is in accordance with the markedness principle (our analysis is similar to De Swart's 2003 analysis). Note, by the way, that the constraint IDENTIFICATION-P does not play a role at all in the analysis because it is harmonically bound by DIST-STRENGTH. Let us now turn to differential subject marking.

#### 4. Differential Subject Marking in Hindi

When we consider differential *subject* marking, Hindi presents a serious problem for an analysis along the lines of the distinguishing function of case. First of all, whenever the subject and the object in a transitive clause are not minimally distinct, then in principle, the case marking of the specific object should already be sufficient to do the job. In both Aissen's (1999, 2003) and De Swart's (2003) approaches, there would be no need to mark additionally the subject of a transitive clause in the perfective with ergative case.

Moreover, the ergative case-marking of the subject of a perfective transitive clause in Hindi is clearly not triggered by a *decrease in strength* of that subject. That is, subjects of perfective clauses are not weaker nor in any other way more similar to objects than subjects of imperfective clauses. Following Aissen's account, we would expect non-canonical subjects (i.e. those agents which are weak, e.g. non-volitional, inanimate) to receive overt case-marking. By contrast, the subject of a perfective transitive clause, in other words the agent of an action, which (successfully) brings about an event to completion, is usually conceived of as being typically agentive (Dowty, 1991), corresponding to a high degree of transitivity (Hopper & Thompson, 1980), hence strong in our account, and not weak as predicted by Aissen.

Further evidence that the ergative case-marker *ne* marks properties associated with strong agents can be seen in constructions where *ne* is used optionally. Even though there is no second argument in intransitive predicates, case-marking is used to resolve a certain ambiguity allowed by the predicate semantics. In Hindi, the single argument of a small set of primarily 'bodily emission' verbs is optionally ergative. In such cases, ergative case-marking associates with an interpretation of

the agent as being volitional, i.e. in *control* of the event the predicate refers to and as such more like a prototypical agent (Butt & King, 1991, 2003; Mohanan, 1994; Lee, 2003).

(15) *Raam=ne chiikh-aa*  
 Raam=ERG scream-PFV.SG.M.  
 'Raam screamed (purposefully)'

(16) *raam-Ø chiikh-aa*  
 Raam-NOM scream-PFV.SG.M.  
 'Raam screamed'

As we have argued in Section 2, only the identifying function of case is in principle compatible with a differential case-marking pattern in the subject position of an intransitive clause. To sum up, it appears that both ergative subjects of perfective transitive sentences as well as ergative subjects of intransitive verbs such as *to scream* mark strong agents rather than weak ones. These subjects definitely do not need the ergative case marking to avoid ambiguity with respect to the object. This all strongly suggests that ergative case-marking in Hindi is a reflection of the identifying function of case.

In other words, it seems that we cannot account for the case marking patterns in Hindi only by appealing to the distinguishing role of case, but we have to take into account the identifying role of case as well. That is, ergative case-marking seems to fulfill an identifying role in Hindi, marking strong agents, hence coding prototypical agent properties such as volitionality. But as we will argue below, we cannot account for differential subject marking in Hindi by (directly) relating ergative case to volitionality. Rather, as we will argue, ergative case is reserved for strong agents in Hindi, but volitionality is not among the factors that make an agent strong in Hindi. Elsewhere we provided an alternative explanation for the relation between ergative case and volitionality, namely that it is an indirect relation that comes about as the result of bidirectional optimization (De Hoop & Narasimhan, 2004).

Let us begin our examination of the ergative case with the assumption that ergative case identifies (true, prototypical, strong) 'agentivity'. Agentivity may capture different types of properties, such as successful completion of the event, the presence of a patient, and volitionality or control. In transitive predicates, we find that a decrease in 'agentivity' in one way or another may result in the loss of ergative case marking, which is grammaticalized in specific construction types (an overview of the main predicate classes in Hindi is provided in the appendix). For instance, in 'inability passive' constructions (Mohanan, 1994) where the subject is unable to accomplish the action encoded by the verb, it is marked with the instrumental case *se* (17).

- (17) *Raam=se kaam-Ø nahII ki-yaa ga-yaa*  
 Raam=INS work-NOM not do-PFV.SG.M. go-PFV.SG.M.  
 'Raam couldn't do the work'

The ergative case-marking on the subject is also blocked with transitive predicates (e.g. *khaa* 'eat', *pii* 'drink') when the intransitive light verb *jaa* 'go' is added (18). This light verb is typically used with intransitive main verbs with a theme argument which undergoes change of location or state (19, 20). In (18), we may say that the cumulative effect of the highly transitive verb in combination with the intransitive verb is a decrease in agentivity, again blocking the use of ergative case in favour of the subject to be null-marked, even in perfective contexts.

- (18) *siitaa-Ø saaraa khaanaa-Ø khaa ga-yii*  
 Siitaa-NOM all food-NOM eat go-PFV.SG.F.  
 'Siitaa ate up all the food'

- (19) *siitaa-Ø kamre=se nikal ga-yii*  
 Siitaa-NOM room=ABL emerge go-PFV.SG.F.  
 'Siitaa left the room'

- (20) *siitaa-Ø so ga-yii*  
 Siitaa-NOM sleep go-PFV.SG.F.  
 'Siitaa went to sleep'

Note that the objects in (17) and (18) can still alternate between null and *ko* marking, that is, both in the inability passives and in the *jaa* light verb constructions, reinforcing our point regarding the principled independence of the object case-alternation with a highly transitive verb.

- (21) *raam=se mohan=ko maar-aa nahII ga-yaa*  
 Raam=INS Mohan=ACC beat-PFV.SG.M. not go-PFV.SG.M.  
 'Raam could not beat Mohan.'

- (22) *siitaa-Ø us baDe seb=ko puuraa khaa ga-yii.*  
 Siitaa-NOM that big apple=ACC all eat go.PFV.SG.F.  
 'Siitaa ate up the whole big apple'

To sum up the discussion so far, the examples in (17)–(18) and (21)–(22) suggest that a reduced agentivity blocks ergative case-marking in Hindi, independent of the case-marking of the object, thus in accordance with our initial assumption that ergative case-marking in Hindi cannot be accounted for in terms of the distinguishing function of case.

However, if we wish to argue that ergative case in Hindi is indeed used to identify (strong) agentivity, then we should be able to characterize the exact agentive



property or set of agentive properties that is associated with ergative case. In the examples (5)–(6) above we saw that it was the perfectivity of a highly transitive predicate that triggered ergative case marking on the subject. In (18) and (22), however, the presence of a perfective highly transitive predicate is overruled by the influence of a certain type of light verb, such that ergative case-marking gets blocked. In (17) and (21), we might say that the agent has less control, and that this blocks the ergative case. Another factor which might influence ergative case-marking in Hindi, is volitionality. Note that the agent of an inability passive as in (17) and (21) may have less control, but must still have ‘internally determined capability’ (Pandharipande, 1981) to carry out an action; an independent measure of this property is the compatibility of a predicate which occurs in the inability passive construction to also occur felicitously in imperatives (e.g. the verb *maar* ‘hit’ can occur in sentences such as *us = ko maaro* ‘hit him’; however, a verb such as *dikh* ‘glimpse’, which does not entail an ‘internally capable’ subject, can occur in neither construction).

As we pointed out above, in Hindi, the single argument of a small set of primarily ‘bodily emission’ verbs (e.g. *khAAsnaa* ‘cough’, *bhAUknaa* ‘bark’, *chiikhnaa* ‘scream’, *muutnaa* ‘urinate’, *thuuknaa* ‘spit’, *muskuraanaa* ‘smile’) is optionally ergative (see examples (15)–(16) above). The case alternation in (15)–(16) above clearly performs an identifying role, coding a prototypical agent property such as volitionality. In some dialects of Hindi, the subject argument of ‘desire’ constructions can optionally receive ergative case-marking as well to imply volitionality (Butt & King 2002):

- (22) *raam=ne ghar jaa-naa hae*  
 Raam=ERG home GO-INF be.PRS.3SG.  
 ‘Raam wants to go home’

When the subject is marked with *ko* (dative case), the sentence is ambiguous between a volition and obligation reading:

- (23) *raam=ko ghar jaa-naa hae*  
 Raam=DAT home GO-INF be.PRS.3SG.  
 ‘Raam wants to/has to go home’

The obligation reading suggests that the subject is non-volitional, or less in control, i.e. less of a prototypical agent; this might be argued to make the ergative case marking less adequate, and that is why this reading is only available with the dative case marker. Note, however, that the unmarked form (dative case) can be associated with both readings. Ergative case thus expresses the volitionality of the agent argument in the intransitive examples above, *but volitionality is not necessarily realized as ergative case*. This is also obvious when we consider other

types of intransitive verbs, which do not optionally allow for ergative case irrespective of whether their subjects are volitional agents as with *bhaag* 'run' or not, as with *gir* 'fall':

- (24) *mohan-Ø ghar bhaag-aa*  
 mohan-NOM home run-PFV.SG.M.  
 'Mohan ran home'
- (25) *aruNaa-Ø zamiin=par gir-ii*  
 aruNaa-NOM ground=LOC fall-PFV.SG.F.  
 'Aruna fell on the ground'

So, in Hindi the role of the verb class in determining the case-marking patterns is quite strong (as also argued by Davison, 1999a, b). Similar to what we have observed with respect to differential object marking, differential subject marking in transitive clauses is restricted by the verb class and aspect, in the sense that agents of *perfective highly transitive* predicates are assigned ergative case. In a small class of intransitive predicates, ergative case is used to express the volitionality of the agent argument, but in general, volitionality of the agent is not realized as ergative case in Hindi. That is, volitional agents of imperfective transitive clauses do not bear ergative case, nor usually do volitional agents of perfective intransitive clauses.

Moreover, subjects of perfective predicates which are lexically characterized as highly transitive receive ergative case-marking, even if the subject is clearly non-volitional, in fact a patient rather than an agent (Davison, 1999b). This is shown in example (28), where the use of a highly transitive predicate, *khaa* 'eat', results in ergative case on the subject even when the subject in this idiomatic psych-predicate based on the verb *khaa* 'eat' has all the properties of a prototypical patient. That is, the verb *khaa* can occur as the light verb in a compound verb such as *maar khaa* 'suffer beatings' (lit. 'eat beating') or *dhokhaa khaa* 'suffer deception'. But even in such cases, the patient subject receives ergative case:

- (26) *raam=ne apne shaitaanii=ke kaaraN bahut maar*  
 Raam=ERG self bad.behaviour=GEN reason much beating  
*khaa-yaa*  
 eat-PFV.SG.M.  
 'Raam suffered much beating for his bad behaviour'

Examples such as (26) as well as the examples in (18) and (22) above might suggest that ergative case-marking on the subject is merely lexically determined by the (light) verb and that the semantic notion of agentivity of the subject is irrelevant. However, the lexical and semantic contributions of the light verb are not

easily teased apart. For instance, the compound verb construction in (26) differs from other (psych–verb) constructions ((30)–(32)) in being able to occur in the progressive, compatibility with an adverb of duration, and (marginally) passivization ((27)–(29)):

- (27) *raam-Ø* *bahut maar khaa rahaa hae*  
 Raam-NOM much beating eat PROG be.PRS.3SG.  
 ‘Raam is getting a lot of beating’
- (28) *raam=ne ek ghaNTe=ke liye bahut maar*  
 Raam=ERG one hour=GEN for much beating  
*khaa-yaa*  
 eat-PFV.SG.M.  
 ‘Raam got a lot of beating for an hour’
- (29) *?raam=se aaj bahut maar khaa-yaa ga-yaa*  
 Raam=INS today much beating eat-PFV.SG.M. go-PFV.SG.M.  
 ‘Raam was beaten a lot today’
- (30) *\*raam=ko seb-Ø pasand ho rahaa hae*  
 Raam=DAT apple-NOM liking be PROG be.PRS.3SG.  
 \*‘Raam is liking the apple’
- (31) *\*raam=ko ek ghaNTe=ke liye maamlaa-Ø pataa hu-aa*  
 Raam=DAT one hour=GEN for matter-NOM know become-PFV.SG.M.  
 \*‘Raam got to know the matter for an hour’
- (32) *\*raam=se seb-Ø pasand hu-aa ga-yaa*  
 Raam=INS apple-NOM liking become-PFV.SG.M. go.PFV.SG.M.  
 ‘The apple was liked by Raam’

Since not all psych–predicate constructions necessarily pattern in a similar way with respect to these tests, the evidence is not conclusive that *maar khaa* involves different agentive and aspectual properties than other psych–predicates. Nevertheless, it is suggestive of the fact that the light verb may not be mechanically assigning case to the subject owing to arbitrarily specified lexical information, but it is the interaction of (grammaticalized) predicate semantics and other semantic and aspectual features such as control and perfectivity, which eventually determines the degree of agentivity (and thereby the case-marking) of the subject.

In our analysis of differential subject marking, we assume that languages vary in which features determine argument strength (De Hoop, 1999). De Hoop (1999) argues that the mapping from semantic input to case morphology takes place in two optimization cycles, such that strength is determined at a separate (intermediate or

hidden) level. As such, argument strength can be viewed as an abstract notion that is neither part of the actual meaning nor of the actual form. Nevertheless, in this chapter we represent argument strength as a feature of the abstract meaning, by using *A* for a strong agent and *a* for a weak one. In addition to factors such as perfectivity, verb semantics, and volitionality, the strength of the agent can be determined by additional sources, including, as discussed above, the strict dominance of the light verb in compound verb constructions, and reduced control (as in the inability passives).

We claim that in Hindi, it is perfectivity which determines the strength of the agent argument, while the factor of volitionality in Hindi is too weak to influence the assignment of ergative case (contra Lee, 2003, among others). Elsewhere, however, we accounted for the indirect influence of volitionality on ergative case assignment in Hindi (De Hoop & Narasimhan, 2004).

In the remainder of this section, we present our bidirectional Optimality Theoretic analysis of the differential subject marking patterns we find in Hindi transitive clauses. We assume, as we pointed out in the previous section, that argument strength is determined at an intermediate level between input (predicate and argument properties) and output (case-marking). As we mentioned above, we assume that in Hindi a perfective highly transitive predicate makes an agent strong.

The three relevant constraints are listed below:

(12) DISTINGUISHABILITY

The two arguments of a transitive relation should be distinguishable.

(33) IDENTIFICATION-A

Strong agents receive ergative marking.

(14) PAIP

“Primary Argument Immunity Principle”: don’t case-mark the unmarked — nominative — argument.

With the help of the three constraints formulated above, we can account for the nominative–ergative case alternation we find in the subject of transitive clauses in Hindi.

- (34) *Raam=ne Shyaam=ko maar-aa*  
 Raam=ERG Shyaam=ACC hit-PFV.SG.M.  
 ‘Raam hit Shyaam’

- (35) *Ravii-Ø (ek) gaay=ko khariid-naa caah-taa hae*  
 Ravi-NOM one cow=ACC buy-INF wish-IPFV. SG.M. be.PRS.3SG.  
 ‘Ravi wishes to buy the cow’

Table 2: Bidirectional OT table: Form and meaning of the subject of a highly transitive verb.

Subject of highly transitive verb	IDENTIFICATION-A	PAIP	DISTINGUISHABILITY
∅ [∅, a]			
[ <i>ne</i> , a]		*	
[∅, A]	*		
[ <i>ne</i> , A]		*	

The analysis is based on the assumption that in Hindi, as we pointed out above, in the context of a highly transitive predicate, perfectivity determines the strength of the agent argument in the input. We assume that DISTINGUISHABILITY is completely taken care of by the pattern of differential object marking (as pointed out in the previous section), so that this constraint is vacuously satisfied and does not play a role in differential subject marking (Table 2). Unlike its counterpart IDENTIFICATION-P, IDENTIFICATION-A is an influential constraint and it is even ranked higher than PAIP.

The first candidate pair combines an optimal form with the meaning *a*. Because this pair does not violate any constraints, it is super-optimal. The second candidate pair violates the economy constraint as it has a marked form. Therefore, this pair is blocked by the first one. The third candidate pair violates the constraint that requires a strong agent to be case-marked. Because the latter constraint is ranked higher than the economy constraint, this pair is blocked as well. The fourth candidate violates PAIP in order to satisfy IDENTIFICATION-A. Hence, this pair combines an optimal form with the meaning *A*. Because both the form and the meaning of the fourth pair differ from the form and meaning of the first super-optimal pair, this pair is super-optimal as well, i.e. a winner.

## 5. Conclusion

The class of highly transitive predicates in Hindi is distinguished by case-alternations on the object, between *ko* and null-marking. These are also the predicates that allow case-alternations on the subject, among *ne*, *se*, and null-marking. We can thus posit a partial dependency between subject and object case-marking in these instances. Case alternations on the subject and the object do not depend on predicate semantics alone, but also on grammatical aspect (for the subject) and nominal properties (for the object).

The main motivation for the overt case-marking of the object in Hindi is to *distinguish* argument roles (agents from patients) in transitive predicates. For the class of highly transitive predicates, there seems to be a general principle of preserving the relative distance between the subject and the object (in a hierarchy of argument strength) such that case-marking appears when the object becomes more agent-like (in particular, when it is animate and specific).

On the other hand, the motivation for overt case-marking of the subject cannot be to distinguish agents from patients. If it were, we would expect patient-like or ‘weak’ agents to be case-marked. By contrast, ergative case in Hindi transitive clauses is assigned to ‘strong’ agents. Moreover, we find ergative case-marking on some subjects of intransitive clauses as well. Therefore, we claim that the main motivation for the overt case-marking of the subject in Hindi is to identify (strong) agentivity of a subject.

We have proposed a model of case-marking based on two functions of case (the identifying and the distinguishing function of case) augmented with the notion of *argument strength*. We assume that languages can vary in which features determine argument strength. In Hindi, perfectivity of a highly transitive verb makes an agent strong. We argue that the interaction of the language-specific determination of argument strength, the two main functions of case, and an economy constraint that penalizes morphological case adequately characterizes the complex case-system that shows differential object marking as well differential subject marking, which is found in transitive clauses in Hindi.

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## Appendix

The main predicate classes in Hindi are listed in Table A1.



Table A.1

A	P	P properties	A properties	Grammatical aspect	Class	Examples of predicates
<i>ne</i>	<i>ko</i>	animate/specific		perfective	HT	<i>likh</i> 'write'
<i>ne</i>	<i>0</i>	elsewhere		perfective	HT	<i>dekh</i> 'see'
<i>0</i>	<i>ko</i>	animate/specific		imperfective	HT	<i>maar</i> 'hit'
<i>0</i>	<i>0</i>	elsewhere		imperfective	HT	<i>de</i> 'give'
<i>se</i>	<i>ko</i>	animate/specific		passive + negative	HT	<i>dikhaa</i> 'show'
<i>se</i>	<i>0</i>	elsewhere		passive + negative	HT	
<i>ko</i>	<i>0</i>			(im)perfective	MT	<i>mil</i> 'receive' <i>bhukh + lag</i> 'feel hungry'
<i>0</i>				(im)perfective	IV	<i>gir</i> 'fall'
<i>0</i>				(im)perfective	IV	<i>ciikh</i>
<i>ne</i>			+ volitional	perfective	IV	'shout' <i>khAAs</i> 'cough'

*Note:* A and P are syntactically 'core' arguments; A controls binding of reflexives; is obviated by pronouns; controls PRO of participial clauses; gaps subjects in coordinate constructions; P sometimes passivizes, and determines verb agreement when it is the highest nominative argument in the clause (Mohanani, 1994); HT: high transitive; MT: mediotransitive; IV: intransitive.