Optimal case in Hindi

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This short paper succeeds another paper on optimal case (Wunderlich 2000b), in which the case patterns of German and Icelandic have been described. The major goals are the following: (i) to show that the various semantic conditions for Hindi accusative and ergative can best be captured by markedness constraints in the sense of Stiebels (2000a,b); (ii) to show that Hindi is subject to the same higher-order constraints as the Germanic languages; the constraints in Hindi only differ insofar as they are specific instantiations of the universal constraints for purely language-specific reasons.

The most obvious peculiarities of case in Hindi are the following. First, Hindi exhibits an accusative split: The direct object of transitive verbs is realized in the accusative only if the referent of the object NP is human, animate-specific, or inanimate-definite (Mohanan 1994). This variation, however, does not play any role in ditransitive verbs, where the lowest argument (the direct object) is always realized by nominative. Second, Hindi has acquired an ergative, which is restricted to [+perfective] verb forms but is also possible with intransitive verbs. Third, Hindi does not have an overt dative. In the tradition of Hindi grammar it is assumed that the postnominal clitic *-ko* is ambiguous between dative and accusative, a position that has also been taken by Mohanan (1994) and Butt (1995). I will assume that *-ko* is nothing but an accusative morpheme.

The case specifications assumed for Hindi are the following:[1]

(1) Case specifications in Hindi:

-ko	ACC	[+hr]
-ne	ERG	[+lr]
∅	NOM	[ ]
-kaa	GEN	[+hr]/N
-se	INSTR	[+instr]
-me	LOC1	[+in.loc]
-par	LOC2	[+at.loc]

In the following, I disregard the semantic cases instrumental and locative, as well as the genitive.[2] The remaining case patterns are given in (2), with the higher argument first.[3]

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[1] The feature [+hr] 'there is a higher role' encodes by default all non-highest theta-roles, while [+lr] 'there is a lower role' encodes all non-lowest theta-roles; consequently, [+hr,+lr] encodes the medial role of a 3-place (ditransitive) predicate. The structural cases, being sensitive to argument hierarchy, are specified in terms of the same features. Thus, accusative matches the lowest role, and ergative the highest role.

[2] The instrumental occurs, among others, on passive agents and causees, and on the highest argument in a modal negative polarity construction. The genitive occurs, among others, on the possessor in copular constructions and on the highest argument in a construction with predicative nominals. I assume that instrumental and genitive on the highest argument of a verb complex is lexically marked.

[3] Case patterns in brackets such as <erg nom> correspond to the unmarked linear order of arguments.

(2) The structural case patterns of Hindi. The symbol '◊' indicates the assignment of a lexical feature value (which is [−lr] for nom◊).

	+perfective		−perfective		Passive	(Dialect)	examples (English translations)
i1	nom	i1	nom		*	*	canonical
i2	erg◊	i1	nom		*	*	bathe, sneeze
t1	<erg acc>	t7	<nom acc>	i1	nom	acc	canonical
t2	<erg nom>	t3	<nom nom>	i1	nom	nom	canonical
t3	<nom◊ nom>	t3	<nom nom>	i1	nom	nom	speak, bring
t4	<acc◊ nom>	t4	<acc◊ nom>		*	*	see, receive
d1	<erg acc nom>	d2	<nom acc nom>	t4	acc nom	acc nom	canonical

This table shows the split between ergative in [+perf] and nominative in [−perf], as well as the split between accusative vs. nominative for the lower argument. Following Stiebels (2000), I assume that splits can best be captured by contextualized markedness constraints. More precisely, the constraint ranking in (3a) predicts that accusative is blocked in the presence of 'LowS' (semantic conditions of low salience), and (3b) predicts that ergative is blocked in the context [−perf]. [4]

(3) a. *[+hr]/LowS ≫ Max(+hr) ≫ *[+hr]
A [+hr] argument role is realized by accusative unless the argument is of low salience (namely, either [−spec, +animate] or [−def, −animate]).

b *[+lr]/−perf ≫Max(+lr) ≫ *[+lr]
A [+lr] argument role is realized by ergative unless it is in the domain of a [−perf] verb form.

In the above-mentioned paper (Wunderlich 2000b), I have argued that the case-marking in German and Icelandic is determined by four higher-order constraints, which supplement the generally assumed faithfulness and markedness constraints (Max(+F) vs. *(+F)), see also Stiebels (2000). These constraints are listed in (4).

(4) a. MAX(lexF): Every lexically assigned (positively-valued) feature in the input has a correspondent in the output.
b. DEFAULT: Every linking domain displays the default linker (nominative).
c. UNIQUENESS: Each linker applies only once in a domain.
d. MAX(+hr,+lr): Every feature combination [+hr,+lr] in the input has a correspondent in the output.

MAX(lexF) ensures that lexically assigned feature values remain visible in the output. DEFAULT is motivated by economy: Every case pattern should be realized by minimal effort, so it should include the default form of a NP. UNIQUENESS serves to avoid ambiguity: If two positions in a case

[4] As Stiebels (2000a,b) has shown, both constraint rankings in (3) are derived by *Harmonic Alignment* (Prince & Smolensky 1993) of independently motivated scales. The alignment of the two scales in (i) yields, among others, the scales in (ii), from which the markedness rankings in (iii) follow.

(i) a. [+def] > [−def] b. [+perf] > [-perf]
[+hr] > [ ] [+lr] > [ ]
(ii) a. [+hr]/+def > [+hr]/−def b. [+lr]/+perf > [+lr]/−perf
(iii)a. *[+hr]/−def ≫ *[+hr]/+def b. *[+lr]/−perf ≫ *[+lr]/+perf

pattern are realized identically, it is hard to distinguish the arguments. MAX(+hr,+lr) is a local conjunction in the sense of Smolensky (1995); it reflects the requirement that all maximally marked theta roles should be visible. For logical reasons, this constraint must rank above both MAX(+hr) and MAX(+lr).

How are these constraints instantiated in Hindi? I claim that the Hindi data can best be captured if three of these constraints are adapted to the special situation in Hindi: UNIQUENESS is restricted to UNIQUENESS/mCase, MAX(+hr,+lr) is modified to MAX(+hr)/[+lr], and DEFAULT is restricted to DEFAULT/non[+lr].

(5)a. UNIQUENESS(mCase): Each marked case applies only once in a domain.
b. MAX(+hr)/[+lr]: Every feature combination [+hr,+lr] in the input has a correspondent [+hr] in the output.
c. DEFAULT/non[+lr]: Every linking domain displays either ERG (=[+lr]) or the default linker (NOM).

The restriction of UNIQUENESS is motivated by the following facts: (i) Hindi nominative is the only case realized without any case clitic. (ii) Because ACC is blocked with indefinite or unspecific direct objects, the pattern <nom nom> is inevitable. (iii) mCase exactly represents the context in which verb agreement is excluded, see the appendix. (It will turn out below that UNIQUENESS(+hr) is already sufficient to exclude all undesired structural double case.)

The modification of Max(+hr,+lr) is motivated by the fact that dative [+hr,+lr] does not occur in the output. The modified constraint ensures that a typical dative context (the medial argument of ditransitive verbs and the highest argument of experiencer verbs) is respected in Hindi. What Mohanan (1994) really means when she argues that with respect to these contexts the existence of a dative must be assumed, is that there are underlying specifications that would lead to a dative if this case existed.

Finally, the restriction of DEFAULT is motivated by the fact that ergative replaces nominative in the [+perf] verb forms while ACC still can occur, which, however, would be excluded by a simple DEFAULT. It is desirable that Default is restricted to surface contexts that lack an ergative rather than to [−perf], which is an underlying feature. Moreover, a constraint such as DEFAULT/−perf would yield wrong results for experiencer verbs in the perfect (see below). Without the constraint DEFAULT/non[+lr], one could not explain why transitive verbs show the <erg acc> pattern in the perfective, but nevertheless require nominative in the passive. There is, however, a dialect of Hindi in which accusative occurs in the passive (Mohanan 1984:94); in this dialect, DEFAULT/non[+lr] is relatively low-ranked and could be equated with simple DEFAULT.

Under the assumption that the constraints in (5), complemented by MAX(lexF), dominate both MAX(+hr) and MAX(+lr), the correct case patterns in Hindi can be predicted. In all tableaus that follow the lowest argument is left-most, and the highest is right-most, corresponding to the way in which the theta-structure (the list of λ-abstractors) is represented, conversely to the default linear ordering in syntax.

Consider first ditransitive verbs in which the lowest argument (‘z’) is realized by NOM, even if it is human. (6a) illustrates this type of verbs in the perfective. The relevant theta-structure with the annotated default case features is shown in (6b) (Wunderlich 1997).

(6) Ditransitive verbs

a ilaa-ne mạạ-ko baccaa/*bacce-ko diyaa.
Ila-ERG mother-DAT child.NOM/*child-ACC give,PERF
‘Ila gave a/the child to the mother’ (Mohanan 1994:85)

b. λz λy λx [ACT(x) & BECOME POSS(y,z)]
+hr +hr –hr
–lr +lr +lr

If all additional constraints are ranked above both MAX(+hr) and MAX(+lr), the optimal case pattern turns out to be <erg acc nom>, as shown in (7).

(7) Ditransitive verbs with z being animate; [+perf]

	z y x	MAX lexF	UNIQ mCas	*[+lr]/ –perf	*[+hr]/ LowS	MAX(+hr) /[+lr]	DEF/ n[+lr]	MAX (+lr)	MAX (+hr)	*[+hr] *[+lr]
☞	NOM ACC ERG							*	*	**
	ACC NOM ERG					*!		*	*	**
	ACC ACC ERG		*!							***
	ACC ERG ERG		*!			*			*	***
	NOM ACC NOM							**!	*	*

The ranking of UNIQ(mCase) is crucial here in order to exclude double-ACC. The tableau also shows that MAX(+hr)/[+lr] is necessary to ensure that ACC is realized on the medial rather than the lowest argument. Since double-ERG is already excluded by MAX(+hr)/[+lr], UNIQ(mCase) could as well be specialized to UNIQ(+hr).

It is evident from the tableau in (7) that the lowest argument must be realized by NOM, independent of its sortal properties, and that this fact precisely results from the ACC-DAT syncretism. It is, therefore, reasonable to base all identifications of morphological case on the phonological identity of case morphemes rather than on underlying features. Moreover, the fact that NOM rather than ACC is found on objects of ditransitive verbs, even if they are human or specific animate, indicates that the *lexical* specification of ACC must not include any sortal specification. Whether a human (animate) object is realized by ACC or NOM rather results from the fact of whether it is participant of a transitive or a ditransitive verb.

The imperfective of ditransitive verbs is illustrated by the example in (8). The tableau shows that the pattern <nom acc nom> is optimal in this case.

(8) Ditransitive verbs with z being animate; [–perf]

ilaa-ne	maạ-ko	baccaa/	*bacce-ko	detaa	hai.
Ila.NOM	mother-ACC	child.NOM	child-ACC	give.IMPERF	be.PRES

'Ila gives a/the child to the mother'

	z y x	MAX lexF	UNIQ mCas	*[+lr]/ –perf	*[+hr]/ LowS	MAX(+hr) /[+lr]	DEF/ n[+lr]	MAX (+lr)	MAX (+hr)	*[+hr] *[+lr]
	NOM ACC ERG			*!				*	*	**
☞	NOM ACC NOM							**	*	*
	ACC ACC NOM		*!					**		**
	ACC NOM NOM					*!		**	*	*

In the passive of these verbs, nothing is shifted in the realization of case, except that the highest argument is unrealized.[5]

[5] According to the several subject tests provided by Mohanan (1994), each of the two arguments can be designated for subject in the passive: either the higher object realized by ACC, or the lower object realized by

(9) Passive of ditransitive verbs with z being animate

mąą-ko baccaa diyaa gayaa.
mother-ACC child.NOM give.PERF go.PERF
'the mother was given a/the child'

	z y	MAX lexF	UNIQ mCas	*[+lr]/ −perf	*[+hr]/ LowS	MAX(+hr) /[+lr]	DEF/ n[+lr]	MAX (+lr)	MAX (+hr)	*[+hr] *[+lr]
☞	NOM ACC							*	*	*
	ACC ACC		*!				*	*		**
	ACC NOM					*!		*	*	*

Let us next consider 2-place ('experiencer') verbs whose higher argument is realized by ACC rather than ERG, as in (10a). I assume that the higher argument of these verbs is exceptionally marked by the feature [+hr], shown in (10b).[6] In languages with a distinct dative case this argument gets realized by dative because of the default feature [+lr] on the highest theta-role (Wunderlich 1997, 2000a,b). For Hindi, the pattern <acc nom> is optimal, as shown in (11).

(10) 2-place 'experiencer' verbs

a. tushaar-ko caand dik^{h}aa.
Tushar-ACC moon.NOM see-PERF
'Tushar saw the moon' (Moh:141)

b.

	λy	λx	SEE(x,y)
lexical:		+hr	
default:	–lr	+lr	
	+hr		

(11) 2-place 'experiencer' verbs, where x is lexically marked by [+hr]; [+perf]

	y x	MAX lexF	UNIQ mCas	*[+lr]/ −perf	*[+hr]/ LowS	MAX(+hr) /[+lr]	DEF/ n[+lr]	MAX (+lr)	MAX (+hr)	*[+hr] *[+lr]
☞	NOM ACC							*	*	*
	ACC ACC		*!				*	*		**
	ACC NOM	*!						*	*	*
	NOM ERG	*!							**	*
	ACC ERG	*!							*	**

Turning to canonical transitive verbs, we see in (12) that <erg acc> is optimal if ACC is not blocked for sortal reasons.

(12) Transitive verbs with y being [+anim,+spec], [+perf]

ilaa-ne ek bacce-ko ut^{h}aayaa.
Ila-ERG one child-ACC lift.PERF
'Ila lifted a child' (Moh:79)

NOM. The same situation is found in Icelandic and has been discussed in Wunderlich (2000a). The meaning of the verb determines the highest argument, while the case morphology determines the argument(s) that are realized in the default case NOM; one of these arguments may, then, be selected for a 'subject' position in the syntax, depending on the interaction of constraints that are not discussed here.

[6] This type of verb is very common in the Indian languages, but is also found in many other languages, including German. The lexical marking by [+hr] (which is the default feature for the lower argument) is often semantically motivated because experiencers are typically 'affected' (see the discussion below).

	y x	MAX lexF	UNIQ mCas	*[+lr]/ −perf	*[+hr]/ LowS	MAX(+hr) /[+lr]	DEF/ n[+lr]	MAX (+lr)	MAX (+hr)	*[+hr] *[+lr]
☞	ACC ERG									**
	ACC NOM							*!		*
	NOM ERG								*!	*

However, in the passive of these verbs the lower argument is realized by NOM, provided that DEFAULT dominates MAX(+hr).

(13) Passive of transitive verbs with y being [+anim,+spec], [+perf]

anil (raam-se) ut^{h}aayaa jaaegaa.
Anil.NOM Ram-INSTR lift.PERF go.FUT
Anil will be lifted/carried (by Ram)' (Moh:92)

	y	MAX lexF	UNIQ mCas	*[+lr]/ −perf	*[+hr]/ LowS	MAX(+hr) /[+lr]	DEF/ n[+lr]	MAX (+lr)	MAX (+hr)	*[+hr] *[+lr]
	ACC						*!			*
☞	NOM								*	

In the Hindi dialect where ACC appears in the passive, DEFAULT/non[+lr] must be ranked below MAX(+hr). In the preceding tableaus this constraint was not crucial in the determination of the optimal case pattern. The only context in which the order of DEFAULT/non[+lr] is crucial is the passive of transitive verbs. Accordingly, the dialect variation observed in Mohanan (1994) is restricted to this context.

(14) Passive of transitive verbs with y being [+anim,+spec], [+perf]; different ranking:

anil-ko (raam-se) ut^{h}aayaa jaaegaa.
Anil.ACC Ram-INSTR lift.PERF go.FUT
Anil will be lifted/carried (by Ram)' (Moh:94)

	y	MAX lexF	UNIQ mCas	*[+lr]/ −perf	*[+hr]/ LowS	MAX(+hr) /[+lr]	MAX (+lr)	MAX (+hr)	DEF/ n[+lr]	*[+hr] *[+lr]
☞	ACC								*	*
	NOM							*!		

Transitive verbs with a nonsalient object lead to the <erg nom> pattern in the perfective. Consider the readings that are available in (15a,b).

(15) Transitive verbs with y being [−anim, −def], [+perf]

a. ilaa-ne haar ut^{h}aayaa.
Ila-ERG necklace.NOM lift.PERF
'Ila lifted a/the necklace'

b. ilaa-ne haar-ko ut^{h}aayaa.
Ila-ERG necklace-ACC lift.PERF
'Ila lifted the/*a necklace' (Moh:80)

	y x	MAX lexF	UNIQ mCas	*[+lr]/ −perf	*[+hr]/ LowS	MAX(+hr) /[+lr]	DEF/ n[+lr]	MAX (+lr)	MAX (+hr)	*[+hr] *[+lr]
	ACC ERG				*!					**
	ACC NOM				*!			*		*
☞	NOM ERG								*	*
	NOM NOM							*!	*	

The distribution of definite and indefinite readings found in (15a,b) precisely follows from the markedness constraint *[+hr]/–anim,–def, i.e., ACC is blocked under the reading [–anim,–def]. However, nothing follows from this for the reading of NOM objects. Only if [+def] were part of the lexical entry of ACC, a NOM-argument could achieve the reading [–def] by paradigmatic contrast. However, the fact that (15a) has both readings supports the view that nothing but a markedness constraint is at work here.

The last pattern to consider is <nom nom> with transitive verbs, occurring with imperfective verb forms.

(16) Transitive verbs with y being [–anim,–def], [–perf]

niinaa kelaa khaaegii.
Nina.NOM.f banana.NOM.m eat.FUT.fsg
'Nina will eat a/*the banana' (Moh:104)

	y x	MAX lexF	UNIQ mCas	*[+lr]/ –perf	*[+hr]/ LowS	MAX(+hr) /[+lr]	DEF/ n[+lr]	MAX (+lr)	MAX (+hr)	*[+hr] *[+lr]
	ACC ERG			*!	*					**
	ACC NOM				*!			*		*
	NOM ERG			*!					*	*
☞	NOM NOM							*	*	

The structural case patterns of Hindi thus follow from the assumed constraints and their ranking. So far, only one class of verbs with lexical marking has been considered. In a language with both accusative and ergative split, however, one expects the possibility that transitive verbs are exceptionally marked with respect to either ACC or ERG.

Indeed, some Hindi transitive verbs never take ACC objects, while others take only ACC objects. Simililarly, there are also transitive verbs that cannot take ERG subjects. In the framework proposed here, all these verbs are exceptionally marked, even though the kind of marking might be predicted from the meaning of the verb. MAX(lexF), then, ensures that the lexically assigned feature value is realized. Interesting is the class of verbs in (17b), where [+hr] is a feature value that does not override a default value, but because of its lexical nature it is subjected to MAX(lexF).

(17) a. Verbs that take only NOM objects: *banaa* 'make', *gaa* 'sing', *pii* 'drink' (Moh:81)
λy λx DRINK(x,y)
–hr

b. Verbs that take only ACC objects: *maar* 'kill', *bulaa* 'call' (Moh:81)
λy λx KILL(x,y)
+hr

c. Verbs that cannot take ERG subjects: *bol* 'speak', *laa* 'bring' (Moh:73)
λy λx BRING(x,y)
–lr

As Mohanan (1994:71) points out, Hindi exhibits some intransitive verbs that alternate between ERG and NOM subjects, depending on whether the action is deliberatively done or not (*cillaa* 'shout', *naac* 'dance'), and a few intransitives that take only ERG subjects (*nahaa* 'bathe', *cʰ ị ịk* 'sneeze'). I assume that both subtypes of intransitive verbs are marked by [+lr], and that furthermore the feature [+contr] (marking agentivity, or 'conscious choice' in the sense of Mohanan) is available, either optionally or obligatorily. Then, two alternative accounts are possible in order to restrict the realization of ERG to instances of [+contr]: either the lexical entry itself is restricted to [+lr]/[+control],

or there is an additional markedness constraint *[+lr]/[−control] (ranking above MAX(lexF)), by which ERG is blocked in all instances of [−control]. The second option is illustrated by the two tableaus in (18).

(18) ERG-NOM alternation of intransitive verbs depending on the lexical feature [+contr]

a. +contr		*[+lr]/ −contr	MAX lexF	UNIQ mCas	*[+hr]/ LowS	MAX(+hr) /[+lr]	DEF/ n[+lr]	MAX (+lr)	MAX (+hr)	*[+hr] *[+lr]
☞	ERG									*
	NOM		*!					*		
b. −contr										
	ERG	*!								*
☞	NOM		*					*		

The [+contr] condition for the Hindi ergative is compatible with the occurrence of ERG in the desiderative copular construction, exemplified by (19a) (Butt and King 1991). Butt (2000) points out that this construction „entails that a subject has control over whether or not the action should be performed“. The construction with ERG in (19a) can be compared with a similar construction in which ACC is marked, shown in (19b). The latter is, according to Butt, the unmarked option: „the subject may or may not want to perform the action“.

(19) a. anjum-ne xat lik^{h}-naa hai.
Anjum-ERG letter.NOM write-INF be.PRES.3sg
‘Anjum wants to write a letter’

b. anjum-ko xat lik^{h}-naa hai.
Anjum-ACC letter.NOM write-INF be.PRES.3sg
‘Anjum should write a letter’

Obviously, both constructions must be lexically marked in order to bear the respective modal meaning. Prototypically, the feature [+lr] invites a control reading, whereas [+hr] invites an affectedness reading, according to the proto-role account of Dowty (1991). This is also true of Hindi: the ergative is restricted to [+control], as shown in (18), while [+hr] for the highest argument is characteristic for experiencer verbs, illustrated in (10) above. Therefore, I assume that the copula assigns the lexical feature [+lr] to the highest argument if it means ‘want’, while it assigns the feature [+hr] if it means ‘be obliged’. This feature distribution is compatible with the prototypical readings just mentioned: someone who wants to do φ must be in some control of φ, whereas someone who is obliged to do φ is in a way affected for doing φ (therefore, control is irrelevant in this case, as has been observed by Butt). The reverse feature distribution would be unexpected. The two lexical entries of the copula expressing modal readings are given in (20).

(20) a. λV λx WANT(x,V(x))
INF +lr
b. λV λx URGED(x,V(x))
INF +hr

The ergative in the copular construction is completely independent of aspect. Since the infinitive is neither [+perf] nor [−perf], it is questionable whether this ergative is subject to the markedness constraint *[+lr]/−perf. But even in the worst case, where it is assumed that the verb complex [infinitive + finite copula] belongs to [−perf], our constraint ranking predicts that the lexically marked ERG survives in [−perf] contexts. (21) represents the whole verb complex derived by Functional

Composition from (20a), and (22) shows how the case pattern comes about under the condition that y is [−anim,−def].

(21) λy λx WANT(x,WRITE(x,y))
+lr
+hr −hr
−lr

(22) The modal copular construction, where x is lexically marked by [+lr]

	y x	MAX lexF	UNIQ mCas	*[+lr]/ −perf	*[+hr]/ LowS	MAX(+hr) /[+lr]	DEF/ n[+lr]	MAX (+lr)	MAX (+hr)	*[+hr] *[+lr]
	ACC ERG			*	*!					**
	ACC NOM	*			*!			*		*
☞	NOM ERG			*					*	*
	NOM NOM	*						*!	*	

This brief study is complete regarding the case patterns with ERG, ACC and NOM in Hindi. Additional considerations of genitive, instrumental and locative would supplement this study in interesting ways, hoewever, none of the results of this paper would be touched.

The two major results are the following. (i) The various semantic conditions for the realization of ACC and ERG do not belong to the lexical specifications of these cases because such an assumption would lead to inconsistencies. However, if these conditions are captured by markedness constraints, the universally motivated order of such constraints correctly predicts the distribution of case and possible readings. (ii) The higher-order constraints that are necessary in other languages (UNIQUENESS, DEFAULT and MAX(+hr,+lr)) are effective in Hindi, too, although they have to be adapted (i.e., contextually specified) to the situation in Hindi.

Appendix: Agreement in Hindi.

Agreement in Hindi interacts with case assignment: The verb agrees with a NOM-argument irrespective of whether it is the higher argument (subject), or the lower argument (object). If two NOM-arguments cooccur, the verb agrees with the one which is higher. Moreover, each verb form must bear features for gender and mostly also number (in short: ϕ-features), even if there is no NOM-argument available – in such a case the default specification msg is used. (For the following it is irrelevant of whether msg is considered as [−fem,−pl] or rather as unspecified [gender:[ ], number [ ]].) The constraints that account for agreement (and have already been confirmed for other languages, see Wunderlich 2000a on Icelandic) are given in (23).

(23) Agreement constraints
a. AGR(NOM): The ϕ-features of the verb agree with those of a nominative argument.
b. AGR(HIGH): The ϕ-features of the verb agree with those of the highest argument.
c. *AGR(mCase): The ϕ-features of the verb do not agree with features of an argument marked for case.
d. MARK ϕ: All verb forms bear ϕ-features in the output (with possibly negative values).
e. DEP(ϕ): All positive values of ϕ-features in the output have a correspondent in the input.

MARK ϕ ensures that no verb form is accepted which does not bear gender and number information, and DEP(ϕ) ensures that only msg forms of a verb occur if a NOM-argument is lacking. The con-

straint ranking specific for Hindi is that AGR(HIGH) must be dominated by *AGR(mCase), whereas all other constraints may be co-ranked with either the former or the latter. For the sake of simplicity, I assume the first option. (All constraints are high-ranked unless there is reason to demote them.)

In the following tableaus, x identifies the higher argument, and y the lower argument. Furthermore, V-ϕ(+) indicates a verb form with positive feature values instantiated, and V-ϕ(U) indicates a verb form with default specification. Two occurrences of ϕ signal agreement (in the sense of Wunderlich 1994). Let us first consider the case where two nominatives cooccur.

(24) Agreement in the presence of a <NOM NOM> case pattern

	y	x	DEP(ϕ)	MARKϕ	*AGR mCase	AGR(NOM)	AGR(HIGH)
☞	NOM	NOM-ϕ V-ϕ					
	NOM-ϕ	NOM V-ϕ					*!
	NOM	NOM V-ϕ(U)				*!	*
	NOM	NOM V		*!		*	*
	NOM	NOM V-ϕ(+)	*!			*	*

This tableau shows that AGR(HIGH) is necessary, while the following in (25) shows that at least AGR(NOM) is necessary, too.

(25) Agreement in the presence of a <ERG NOM> case pattern

	y	x	DEP(ϕ)	MARKϕ	*AGR mCase	AGR(NOM)	AGR(HIGH)
	NOM	ERG-ϕ V-ϕ			*!	*	
☞	NOM-ϕ	ERG V-ϕ					*
	NOM	ERG V-ϕ(U)				*!	*
	NOM	ERG V		*!		*	*
	NOM	ERG V-ϕ(+)	*!			*	*

Finally, let us consider an instance of default agreement. The tableau (26) shows that *AGR mCase must dominate AGR(HIGH). It is also evident that the bare verb form, as well as any verb form distinct from the default form, is excluded.

(26) Agreement in the presence of a <ERG ACC> case pattern

	y	x	DEP(ϕ)	MARKϕ	*AGR mCase	AGR(NOM)	AGR(HIGH)
	ACC	ERG-ϕ V-ϕ			*!		
	ACC-ϕ	ERG V-ϕ			*!		*
☞	ACC	ERG V-ϕ(U)					*
	ACC	ERG V		*!			*
	ACC	ERG V-ϕ(+)	*!				*

It is obvious from these considerations that the choice of the verb form depends on the actual case pattern and not solely on features of the input. Consequently, the evaluation of verb form candidates cannot take place before the evaluation of case, which in turn at least partly depends on the sortal properties of argument NPs (animate vs. inanimate). Hence, the evaluation of case and the evaluation of agreement can best be seen as parallel, and both have to take place in the clausal domain.

References

Butt, Miriam. 1995. *The Structure of Complex Predicates in Urdu*. Stanford: CSLI.

Butt, Miriam. 1998. Constraining argument merger through aspect. In: Erhard Hinrichs et al. (eds.) *Complex predicates in nonderivational syntax*. (= Syntax and Semantics 30), 73-113. San Diego: Academic Press.

Butt, Miriam. 2000. A reexamination of the accusative to ergative shift in Indo-Aryan. Ms. University of Konstanz.

Butt, Miriam and Tracy King. 1991. Semantic case in Urdu. *Papers from the 27th Regional Meeting of the Chicago Linguistics Society*, 31-45.

Dowty, David. 1991. Thematic proto-roles and argument selection. *Language* 67: 547-619.

Mohanan, Tara. 1994. *Argument structure in Hindi*. Stanford: CSLI Publications.

Prince, Alan and Paul Smolensky. 1993. Optimality Theory: constraint interaction in generative grammar. Ms. Rutgers University, New Brunswick, and University of Colorado, Boulder.

Smolensky, Paul. 1995. On the internal structure of the constraint component *Con* of UG. Paper presented at UCLA.

Stiebels, Barbara. 2000a. Linker inventories, linking splits and lexical economy. In Barbara Stiebels and Dieter Wunderlich (eds.) *Lexicon in Focus,* 211-245. Berlin: Akademie Verlag. (Studia grammatica 45)

Stiebels, Barbara. 2000b. Typologie des Argumentlinkings: Ökonomie und Expressivität. Habilschrift. University of Düsseldorf

Wunderlich, Dieter. 1994. Towards a lexicon-based theory of agreement. *Theoretical Linguistics* 20: 1- 35.

Wunderlich, Dieter. 1997. Cause and the structure of verbs. *Linguistic Inquiry* 28: 27-68

Wunderlich, Dieter. 2000a. The force of lexical case: German and Icelandic compared. In Sharon Inkelas and Kerstin Hanson (eds.) *The word*. Stanford: CSLI publications. To appear.

Wunderlich, Dieter. 2000b. Optimal case: The distribution of case patterns in German and Icelandic. Ms. University of Düsseldorf.