Syntax II: [A] Case 3
Optimalitätstheoretische Ansätze

Gereon Müller

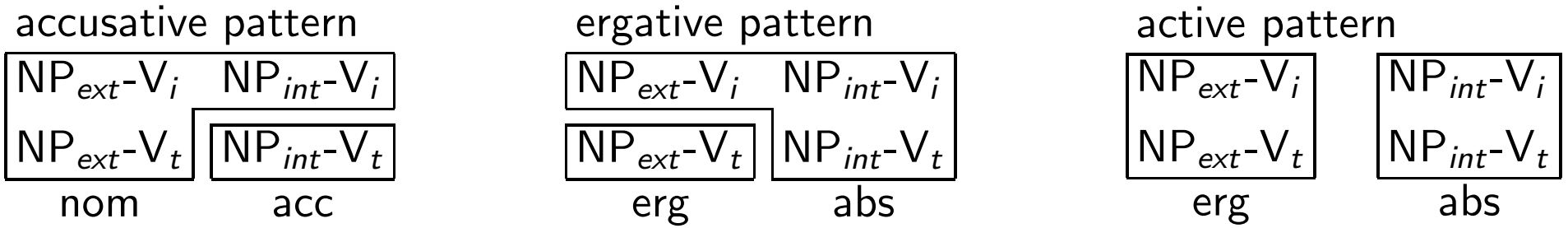
Institut für Linguistik
Universität Leipzig

WiSe 2014

www.uni-leipzig.de/∼muellerg

Basic Question

How can existing patterns of argument encoding be derived from theories of case and agreement?



(Icelandic, Navajo) (Archi, Sierra Popoluca) (Basque, Guaraní)

1. split ergativity based on argument-type (Dyirbal)
2. split ergativity based on tense/aspect (Hindi)
3. split ergativity based on clause type (Sierra Popoluca) clause-type based

Optimality Theoretic Analyses

Answer given in Optimality Theory (Prince & Smolensky (2004), Smolensky & Legendre (2006)):
All natural languages obey exactly the same constraints on argument encoding.
For instance:

(1) a. All languages have a constraint that requires NP_{ext}-V_t to be marked by ergative Case.
b. All languages have a constraint that requires NP_{int}-V_t to be marked by accusative Case.

However: Constraints are violable and ranked. Different constraint rankings produce different grammars with different argument encoding systems.

Literature

Relevant literature:

- Kiparsky (1999)
- Müller (2000)
- Wunderlich (2000)
- Stiebels (2000, 2002)
- Woolford (2001)
- Lee (2003)
- de Hoop & Malchukov (2008)

Background: Optimality Theory

(2) Basic assumptions:

a. Constraints are violable.
b. Constraints are ranked.
c. Constraints are universal.
d. Wellformedness (grammaticality) of a linguistic expression is decided by a competition of forms: The candidate with the best constraint profile in a given candidate set is optimal (= grammatical), all other candidates are suboptimal (= ungrammatical).

Optimality Theory: Definitions

(3) Optimality:
A candidate C_i is optimal (= grammatical) iff there is no candidate C_j in the same candidate set that has a better constraint profile.

(4) Constraint Profile:
A candidate C_j has a better constraint profile than a candidate C_i iff there is a constraint Con_k such that (a) and (b) hold:

a. C_j satisfies Con_k better than C_i.
b. There is no constraint Con_l ranked higher than Con_k on which C_i and C_j differ.

Note:
C_j satisfies a constraint Con better than C_i iff C_j has fewer violations of Con. This implies the case that C_i violates Con once (or more often), and C_j does not violate Con at all.

Organization of the Grammar

Input → Gen(erator) → H(armony-)Eval(uation)

(generates candidates) (determines optimal candidate)

This presupposes that in addition to the constraints employed by the Gen component, which are inviolable and unranked, the H-Eval component relies on a system of constraints that are violable and ranked (and, by assumption, universal) in order to determine the best constraint profile, hence, optimality. The ranking among the violable local constraints of the H-Eval component is indicated by the symbol $\gg$; the H-Eval constraints themselves are typically written with small capitals. Optimality-theoretic competitions are often illustrated by tables (so-called tableaux); optimality of a candidate is indicated by the pointing finger (here: $\rightarrow$); violation of a constraint is shown by a star * in the appropriate column of the table; if this violation is fatal for a candidate (i.e., responsible for its suboptimality), an exclamation mark ! is added. In the abstract H-Eval competition in table T_1, in which the candidate set consists of C_1–C_5, C_1 emerges as the optimal candidate: It avoids a violation of the high-ranked constraints A and B (unlike C_3–C_5), and it minimizes a violation of the low-ranked constraint C (unlike C_2). Hence, there is no competing candidate with a better constraint profile than C_1.

Tableaux

T_1: Determining optimality

Candidates	A	B	C
→ C_1			*
C_2			**!
C_3		*!	
C_4	*!		
C_5		*!	*

T_2: Reranking

Candidates	A	C	B
C_1		*!	
C_2		*!*	
→ C_3			*
C_4	*!		
C_5		*!	*

Important Concepts 1

Constraint reranking = parametrization:
By reranking the constraints B and C in T_1, candidate C_3 emerges as the optimal candidate. Reranking of constraints forms the basis of the concept of parametrization in optimality-theoretic syntax.

Non-cumulativity:
A further characteristic feature of this approach is that it is essentially non-cumulative; i.e., no number of violations of a low-ranked constraint can outweigh a single violation of a higher-ranked constraint. Thus, suppose that there were an additional, lowest-ranked constraint D in T_1 that C_1 violates, say, five times, and that C_2–C_5 do not violate at all. This would not undermine C_1's optimality.

Important Concepts 2

Candidates and candidate sets:

1. The input defines the candidate set (for present purposes).
2. The competing candidates are phrase-structure trees (sentences)

Two types of constraints:

1. markedness constraints
2. faithfulness constraints

Woolford's (2001) Analysis

Background assumptions:

1. There are (ordered) markedness constraints that block the realization of cases.
2. There are faithfulness constraints that demand the realization of case specifications in the input (lexical, inherent case).
3. Nominative/absolutive and accusative are structural cases; dative and ergative (and genitive) are inherent cases (that must be specified on a verb).
4. Every NP must be case-marked.

Woolford (2001) on Dative Subjects 1

(5)
a. *Dat ("*Dative"):
Avoid dative case.
b. *Acc ("*Accusative"):
Avoid accusative case.
c. *Nom ("*Nominative"):
Avoid nominative case.
d. Faith-Lex:
Realize a case feature specified on V in the input.
e. Faith-Lex$_{\text{trans}}$:
Realize a case feature specified on transitive V in the input.

Woolford (2001) on Dative Subjects 2

(6)

a. *Ranking in Icelandic*:
FAITH-LEX$_{tr}$ ≫ FAITH-LEX ≫ *DAT ≫ *ACC ≫ *NOM

b. *Ranking in Japanese*:
FAITH-LEX$_{tr}$ ≫ *DAT ≫ FAITH-LEX ≫ *ACC ≫ *NOM

c. *Ranking in English*:
*DAT ≫ FAITH-LEX$_{tr}$ ≫ FAITH-LEX ≫ *ACC ≫ *NOM

Woolford (2001) on Dative Subjects 3: Icelandic

(7) a. Bátnum hvolfdi
boat$_{dat}$ capsized

b. Barninu batnadhi veikin
child$_{dat}$ recovered from disease$_{nom}$

T_3: *Intransitive V in Icelandic; inherent dative*

Candidates	FAITH-LEX$_{tr}$	FAITH-LEX	*DAT	*ACC	*NOM
→ C_1: NP_{dat} $V_{[+dat]}$			*		
C_2: NP_{nom} $V_{[+dat]}$		*!			*
C_3: NP_{acc} $V_{[+dat]}$		*!		*	

T_4: *Transitive V in Icelandic; inherent dative on NP_{ext}*

Candidates	FAITH-LEX$_{tr}$	FAITH-LEX	*DAT	*ACC	*NOM
→ C_1: NP_{dat} $V_{[+dat]}$ NP_{nom}			*		*
C_2: NP_{dat} $V_{[+dat]}$ NP_{acc}			*	*!	
C_3: NP_{nom} $V_{[+dat]}$ NP_{acc}	*!	*		*	*

Woolford (2001) on Dative Subjects 4: Japanese

(8) a. Akatyan-ga/*-ni moo arukeru
baby$_{nom/dat}$ already walk can

b. Taroo-ni eigo-ga hanaseru
Taro$_{dat}$ English$_{nom}$ speak can

T_5: *Intransitive V in Japanese; no inherent dative*

Candidates	Faith-Lex$_{tr}$	*Dat	Faith-Lex	*Acc	*Nom
C_1: NP$_{dat}$ V$_{[+dat]}$		*!			
→ C_2: NP$_{nom}$ V$_{[+dat]}$			*		*
C_3: NP$_{acc}$ V$_{[+dat]}$			*	*!	

T_6: *Transitive V in Japanese; inherent dative on NP$_{ext}$*

Candidates	Faith-Lex$_{tr}$	*Dat	Faith-Lex	*Acc	*Nom
→ C_1: NP$_{dat}$ V$_{[+dat]}$ NP$_{nom}$		*			*
C_2: NP$_{dat}$ V$_{[+dat]}$ NP$_{acc}$		*		*!	
C_3: NP$_{nom}$ V$_{[+dat]}$ NP$_{acc}$	*!		*	*	*

Woolford (2001) on Ergative Patterns: 1

(9) *ERG ("*Ergative"):
Avoid ergative case.

Note:

1. *ERG is ranked high in languages with an accusative argument encoding system.
2. The ergative is an inherent case; it must be specified for an external argument on V (and it can be specified only for an external argument).

Woolford (2001) on Ergative Patterns: 2

(10) Standard ergative pattern: Niuean (Polynesian)

a. Ko e tohitohi a au (he) mogo-nei
PRES write NOM I on time this
'I am writing at the moment.'

b. To lagomatai he ekekafo a ia
FUT help ERG doctor NOM him
'The doctor will help him.' (Seiter (1980))

(11) Active ergative pattern: Basque (Isolate):

a. Jon-Ø etorri da
Jon-ABS come:PTCP.PRF be:3.SG.INTR
'Jon came.'

b. Jon-ek saltatu du
Jon-ERG jump:PTCP.PRF have:3.SG.TR
'Jon jumped.'

c. Jon-ek ardo-a-Ø ekarri du
Jon-ERG wine-DET-ABS bring:PTCP.PRF have:3.SG.TR
'Jon brought the wine.' (Hualde & Ortiz de Urbina (2003, 364))

Woolford (2001) on Ergative Patterns: 3

(12)
a. *Ranking in Niuean (standard ergative pattern)*:
FAITH-LEX$_{tr}$ $\gg$ *ERG $\gg$ FAITH-LEX
b. *Ranking in Basque (active ergative pattern)*:
FAITH-LEX$_{tr}$ $\gg$ FAITH-LEX $\gg$ *ERG
c. *Ranking in English (accusative pattern)*:
*ERG $\gg$ FAITH-LEX$_{tr}$ $\gg$ FAITH-LEX

Woolford (2001) on Ergative Patterns 4: Niuean

T_7: *Intransitive V in Niuean; no ergative on NP_{ext}*

Candidates	Faith-Lex$_{tr}$	*Erg	Faith-Lex	*Acc	*Nom
C_1: NP_{erg} $V_{[+erg]}$		*!			
→ C_2: NP_{nom} $V_{[+erg]}$			*		*

T_8: *Transitive V in Niuean; inherent ergative on NP_{ext}*

Candidates	Faith-Lex$_{tr}$	*Erg	Faith-Lex	*Acc	*Nom
→ C_1: NP_{erg} $V_{[+erg]}$ NP_{nom}		*			*
C_2: NP_{erg} $V_{[+erg]}$ NP_{acc}		*		*!	
C_3: NP_{nom} $V_{[+erg]}$ NP_{acc}	*!		*	*	*

Woolford (2001) on Ergative Patterns 5: Basque

T_9: *Intransitive V in Basque; inherent ergative on NP_{ext}*

Candidates	FAITH-LEX$_{tr}$	FAITH-LEX	*ERG	*ACC	*NOM
→ C_1: NP_{erg} $V_{[+erg]}$			*		
C_2: NP_{nom} $V_{[+erg]}$		*!			*

T_{10}: *Transitive V in Basque; inherent ergative on NP_{ext}*

Candidates	FAITH-LEX$_{tr}$	FAITH-LEX	*ERG	*ACC	*NOM
→ C_1: NP_{erg} $V_{[+erg]}$ NP_{nom}			*		*
C_2: NP_{erg} $V_{[+erg]}$ NP_{acc}			*	*!	
C_3: NP_{nom} $V_{[+erg]}$ NP_{acc}	*!	*		*	*

Woolford (2001) on Ergative Patterns 6: Hindi

(13) Aspect-based split ergativity in Hindi

a. Raam toTii khaataa thaa
Ram.MASC-NOM bread.FEM-ACC eat.IMP.MASC be.PAST.MASC
'Ram (habitually) ate bread.'

b. Raam-ne roTii khaayii thii
Ram-ERG bread-NOM eat.PERF.FEM be.PAST.FEM
'Ram had eaten bread.' (Mahajan (1990))

Woolford (2001) on Ergative Patterns 7: Hindi

Assumptions:

1. There is another constraint FAITH-LEX$_{\text{perf}}$.
2. Not all verbs with an external argument NP have an ergative case feature for this argument (this handles exceptions).
3. FAITH-LEX$_{\text{perf}}$ is the only FAITH-LEX constraint outranking *ERG in Hindi.

(14) Ranking in Hindi:
FAITH-LEX $_{\text{perf}}$ $\gg$ *ERG $\gg$ FAITH-LEX, *ACC

Woolford (2001) on Person-based Splits

Person-based split ergativity in Dyirbal:
In Dyirbal, NP_{ext} of V_t is marked ergative (*-ŋgu*) if it is a 3rd person pronoun or an item to the right of it on the person/animacy scale. NP_{int} of V_t is marked accusative (*-na*) if it is a 1st or 2nd person pronoun. All other types of argument NP remain without an overt marker (see Dixon (1972, 1994)).

Assumption (p. 534, following Comrie):
"All transitive subjects in Dyirbal have ergative Case that is simply not morphologically realized on first- and second-person pronouns."
(p. 535:) "My conclusion is that (virtually) all subject splits (and some object splits) involve an alternation between realizing or not realizing one abstract Case."

Stiebels (2000, 2002): Lexical Decomposition Grammar

Background assumptions (Wunderlich, Kiparsky):

1. Θ-roles are characterized by contextual features derived from argument structures (that involve lexical decomposition): [±hr], [±lr] ('there is a higher role; there is a lower role').
2. Cases are defined in terms of the same primitive features; cases match Θ-role specifications as much as possible (specificity).

(15) *Θ-roles in lexical entries of verbs*:

a. *sleep*: $<\theta_1>$
$[-\text{hr},-\text{lr}]$

b. *read*: $< \theta_1, \quad \theta_2 >$
$[-\text{hr},+\text{lr}] \quad [+\text{hr},-\text{lr}]$

c. *give*: $< \theta_1, \quad \theta_2, \quad \theta_3 >$
$[-\text{hr},+\text{lr}] \quad [+\text{hr},+\text{lr}] \quad [+\text{hr},-\text{lr}]$

Cases in Lexical Decomposition Grammar

(16) Cases:

NOM	[–]	
ACC	[+hr]	
ERG	[+lr]	
DAT	[+hr]	[+lr]

Stiebels (2000, 2002) on Constraints

(17) Faithfulness constraints:

a. IDENT([hr]):
The value of a [hr] feature of a Θ-role α in the input must not conflict with the value of the [hr] feature of an argument bearing α in the output.

b. IDENT([lr]):
The value of a [lr] feature of a Θ-role α in the input must not conflict with the value of the [lr] feature of an argument bearing α in the output .

c. MAX([+hr]):
A [+hr] specification of a Θ-role α in the input must appear on the argument bearing α in the output.

d. MAX([+lr]):
A [+lr] specification of a Θ-role α in the input must appear on the argument bearing α in the output.

(18) Markedness constraints:

a. *[+hr]:
[+hr] must not appear in the output.

b. *[+lr]:
[+lr] must not appear in the output.

c. UNIQUENESS: A case can show up only once per clause.

Stiebels (2000, 2002): Naive Predictions

Predictions:

- If there were only faithfulness constraints, every language would have both ergative (for NP_{ext}-V_t) and accusative (for NP_{int}-V_t) for the arguments of transitive verbs.
- Nominative should always be optimal for the sole argument of an intransitive verb.
- Dative should always be optimal for the intermediate argument with ditransitive verbs.

Markedness constraints ensure that these consequences can sometimes be avoided: *[+hr] blocks accusative; *[+lr] blocks ergative.

Deriving Specificity Effects 1

T_{11}: *Accusative pattern: transitive verbs*

read: [–hr,+lr],[+hr,–lr]	IDENT([hr])	IDENT([lr])	MAX([+hr])	MAX([+lr])
→ C_1: NP_{nom} NP_{acc} V				*
C_2: NP_{nom} NP_{nom} V			*!	*
C_3: NP_{acc} NP_{nom} V	*!		*	*
C_4: NP_{acc} NP_{acc} V	*!			*
C_5: NP_{nom} NP_{dat} V		*!		*
C_6: NP_{dat} NP_{acc} V	*!			
C_7: NP_{dat} NP_{dat} V	*!	*		
⇝ C_8: NP_{erg} NP_{acc} V				

Deriving Specificity Effects 2

T_{12}: *Accusative pattern: ditransitive verbs*

give: [–hr,+lr],[+hr,+lr],[+hr,–lr]	Ident([hr])	Ident([lr])	Max([+hr])	Max([+lr])
→ C_1: NP_{nom} NP_{dat} NP_{acc} V				*
C_2: NP_{nom} NP_{acc} NP_{acc} V				**!
C_3: NP_{nom} NP_{dat} NP_{nom} V			*!	*
C_4: NP_{nom} NP_{nom} NP_{acc} V			*!	**
C_5: NP_{nom} NP_{dat} NP_{dat} V		*!		*
C_6: NP_{dat} NP_{dat} NP_{acc} V	*!			
C_7: NP_{acc} NP_{dat} NP_{acc} V	*!			*

Deriving Specificity Effects 3

T_{13}: *Ergative pattern: transitive verbs*

read: [–hr,+lr],[+hr,–lr]	IDENT([hr])	IDENT([lr])	MAX([+hr])	MAX([+lr])
→ C_1: NP_{erg} NP_{nom} V			*	
C_2: NP_{nom} NP_{nom} V			*!	*
C_3: NP_{acc} NP_{nom} V	*!		*	*
C_4: NP_{acc} NP_{acc} V	*!			*
C_5: NP_{nom} NP_{erg} V		*!		*
⇝ C_6: NP_{erg} NP_{acc} V				

Stiebels (2000, 2002) on Accusative vs. Ergative Patterns

T_{14}: Nominative/accusative pattern

V: [–hr,+lr],[+hr,–lr]	Uniq	Max([+hr])	*[+hr]	*[+lr]	Max([+lr])
→ C_1: NP_{nom} NP_{acc} V			*		*
C_2: NP_{erg} NP_{nom} V		*!		*	
C_3: NP_{erg} NP_{acc} V			*	*!	
C_4: NP_{nom} NP_{nom} V	*!	*			*

T_{15}: Ergative/absolutive pattern

V: [–hr,+lr],[+hr,–lr]	Uniq	Max([+lr])	*[+lr]	*[+hr]	Max([+hr])
C_1: NP_{nom} NP_{acc} V		*!		*	
→ C_2: NP_{erg} NP_{nom} V			*		*
C_3: NP_{erg} NP_{acc} V			*!	*	
C_4: NP_{nom} NP_{nom} V	*!	*			*

⇝ Under which rankings are C_3 and C_4 predicted to become optimal?

Stiebels (2000, 2002) on Splits 1

Strategy:
The existing constraints are relativized with respect to certain features. The more fine-grained versions of the constraints (which are ranked higher than the general versions) then derive (e.g.) person-based split ergativity in Dyirbal and aspect-based split ergativity in Hindi.

(19) Some further constraints:

a. *[+lr]/[+1]
('Avoid ergative marking in first person (or similar) contexts')

b. *[+hr]/[–anim]
('Avoid accusative marking in third person inanimate contexts')

c. *[+lr]/[–perf]
('Avoid ergative marking in non-perfect contexts.'

Stiebels (2000, 2002) on Splits 2

Notes:

1. In contrast to what we have seen with Woolford (2001), this implies that, e.g., first and third person NP_{ext}-V_t's have a different case in Dyirbal.
2. Kiparsky (1999) has an opposite constraint with a similar effect; see (20).

(20) Max([+Ir])/[+perf]:
('Realize ergative marking in perfect contexts.')

Lee's (2003) Analysis

The analysis is developed within OT-LFG (Bresnan (2001), Sells (2001)). An assumption taken over from work in LFG is that cases (or case markers) have core meanings.

(21) ERG:

a. highest argument role
b. volitional agent
c. causer

(22) ACC:

a. not highest argument role
b. proto-patient

(23) DAT:

a. goal
b. sentience
c. not a volitional agent
d. not a causer

(24) NOM: –

Lee (2003) on Hindi 1

What we have seen so far (Woolford (2001)):

(25) Aspect-based split ergativity in Hindi

a. Raam toTii khaataa thaa
Ram.MASC-NOM bread.FEM-ACC eat.IMP.MASC be.PAST.MASC
'Ram (habitually) ate bread.'

b. Raam-ne roTii khaayii thii
Ram-ERG bread-NOM eat.PERF.FEM be.PAST.FEM
'Ram had eaten bread.' (Mahajan (1990))

However, upon closer inspection the situation is a bit more complicated.

Lee (2003) on Hindi 1

Four classes of verbs (based on Mohanan (1994)):

verb type	perfective	imperfective
class 1 (agentive transitive V)	erg	nom
class 2 (unergative intransitive V)	erg/nom	nom
class 3 (unaccusative intransitive V)	nom	nom
class 4 (unaccusative transitive V)	dat	dat

Note:

- (class 1): V in (25) belongs to class 1.
- (class 2): "Ergative case is conditioned by the semantic property of volitional participation in the action, not transitivity."

Lee (2003) on Hindi 3

(26) Class 2 (non-volitional vs. volitional) in perfective contexts:

a. Raam-do acaanak šer dik^{h}aa. Vah/*us-ne
Ram-DAT suddenly lion-NOM appear.PERF he-NOM/*he-ERG
cillaayaa.
scream.PERF
'Ram suddenly saw a lion. He screamed.'

b. Us-ne/*vah jaanbuuj^{h}kar cillaayaa.
he-ERG/*he-NOM deliberately shout-PERF
'He shouted deliberately.'

(27) Class 3 (unaccusative) in perfective contexts:

Raam/*Raam-ne giraa.
Ram-NOM/*Ram-ERG fall-PERF

'Ram fell hard.'

Lee (2003) on Hindi 4: Constraints

(28) Constraints (order indicates ranking in Hindi):

a. IDENT(Sem):
Semantic features must not change their values from input (argument structure) to output (case marker).

b. MAX/DEP([GOAL]):
A [GOAL] specification can neither be added nor deleted from input to output.

c. ERG_{perf}:
The highest argument role in a perfective clause must be in the ergative.

d. *ERG:
Avoid ergative case markers.

e. MAX([VOL]):
A feature [VOL] in the input (argument structure) is realized in the output (case marker).

f. *SUBJ/DAT:
Avoid dative case markers for subjects.

g. *NOM:
Avoid nominative case markers.

Lee (2003) on Hindi 5: Class 1/2a

T_{16}: *Class 1/2a: imperfective*

V(Θ_1(,Θ_2)) [+VOL]	IDENT (Sem)	MAX/DEP ([GOAL])	ERG (perf)	*ERG	MAX ([VOL])	*SUBJ/ DAT	*NOM
C_1: NP_{ext}-ERG[+VOL]				*!			
→ C_2: NP_{ext}-NOM					*		*
C_3: NP_{ext}-DAT[−VOL,+GOAL]	*!	*				*	

T_{17}: *Class 1/2a: perfective*

V(Θ_1(,Θ_2)) [+VOL]	IDENT (Sem)	MAX/DEP ([GOAL])	ERG (perf)	*ERG	MAX ([VOL])	*SUBJ/ DAT	*NOM
→ C_1: NP_{ext}-ERG[+VOL]				*			
C_2: NP_{ext}-NOM			*!		*		*
C_3: NP_{ext}-DAT[−VOL,+GOAL]	*!	*	*			*	

Lee (2003) on Hindi 5: Class 2b/3

T_{18}: *Class 2b/3: imperfective*

V(Θ_1) [−VOL]	IDENT (Sem)	MAX/DEP ([GOAL])	ERG (perf)	*ERG	MAX ([VOL])	*SUBJ/ DAT	*NOM
C_1: NP_{ext}-ERG[+VOL]	*!			*			
→ C_2: NP_{ext}-NOM					*		*
C_3: NP_{ext}-DAT[−VOL,+GOAL]		*!				*	

T_{19}: *Class 2b/3: perfective*

V(Θ_1) [−VOL]	IDENT (Sem)	MAX/DEP ([GOAL])	ERG (perf)	*ERG	MAX ([VOL])	*SUBJ/ DAT	*NOM
C_1: NP_{ext}-ERG[+VOL]	*!			*			
→ C_2: NP_{ext}-NOM			*		*		*
C_3: NP_{ext}-DAT[−VOL,+GOAL]		*!	*			*	

Lee (2003) on Dyirbal

- Lee presents an analysis that is similar in its effects to the one developed by Stiebels. However, rather than relativizing the relevant constraints by adding person/argument type information, Lee relies on harmonic alignment and constraint conjunction, more or less as in Aissen (1999, 2003).

Conclusion 1

Do optimality-theoretic approaches to argument encoding meet the criteria for explanatory adequacy?

1. There are no construction-specific rules for cases like ERG, ACC.
2. The projection of arguments from lexicon to syntax is uniform across languages.
3. There are no semantically irrelevant projections like Agr_sP, Agr_oP (Chomsky (1995, 2001)).
4. Case assignment is independent of movement (Chomsky (2000, 2001)).
5.
   1. ERG, ACC $\rightarrow$ internal structural case (K_2)
   2. NOM, ABS $\rightarrow$ external structural case (K_1)
6. Internal case is generally morphologically more marked; external case often remains without overt marking (Comrie (1989), Dixon (1994)).

Conclusion 2

Claim:

1. Existing optimality-theoretic analyses have problems with criterion (5) (it is not really clear why ergative and absolutive are mutually exclusive in the vast majority of languages).
2. Existing optimality-theoretic analyses all fail with respect to criterion (1): Some of the constraints are highly construction-specific. This may be taken to be indicative of a more general problem: The analyses are surface-oriented; there is little theoretical abstraction and, consequently, little progress towards explanatory adequacy.

An obvious example: Perfective environments in Hindi.

1. $\textsc{Faith-Lex}_{\textsc{perf}}$ (Woolford (2001))
2. *[+lr]/[–perf] (Stiebels (2000))
3. Max([+lr])/[+perf] (Kiparsky (1999))
4. $\textsc{Erg}_{\textsc{perf}}$ (Lee (2003))

Aissen, Judith (1999): Markedness and Subject Choice in Optimality Theory, *Natural Language and Linguistic Theory* 17, 673–711.

Aissen, Judith (2003): Differential Object Marking: Iconicity vs. Economy, *Natural Language and Linguistic Theory* 21, 435–483.

Bresnan, Joan (2001): The Emergence of the Unmarked Pronoun. In: G. Legendre, J. Grimshaw & S. Vikner, eds., *Optimality-Theoretic Syntax*. MIT Press, Cambridge, Mass., pp. 113–142.

Chomsky, Noam (1995): *The Minimalist Program*. MIT Press, Cambridge, Mass.

Chomsky, Noam (2000): Minimalist Inquiries: The Framework. In: R. Martin, D. Michaels & J. Uriagereka, eds., *Step by Step*. MIT Press, Cambridge, Mass., pp. 89–155.

Chomsky, Noam (2001): Derivation by Phase. In: M. Kenstowicz, ed., *Ken Hale. A Life in Language*. MIT Press, Cambridge, Mass., pp. 1–52.

Comrie, Bernard (1989): *Language Universals and Linguistic Typology*. 2 edn, Blackwell, Oxford.

de Hoop, Helen & Andrej Malchukov (2008): Case-Marking Strategies, *Linguistic Inquiry* 39(4), 565–587.

Dixon, R.M.W. (1972): *The Dyirbal Language of North Queensland*. Cambridge University Press, Cambridge.

Dixon, R.M.W. (1994): *Ergativity*. Cambridge University Press, Cambridge.

Hualde, José Ignacio & Jon Ortiz de Urbina, eds. (2003): *A Grammar of Basque*. Mouton de Gruyter, Berlin.

Kiparsky, Paul (1999): Analogy and OT: Morphological Change as Emergence of the Unmarked. Vortrag auf der 21. Jahrestagung der DGfS, Konstanz. Ms., Stanford University.

Lee, Hanjung (2003): Parallel Optimization in Case Systems. Ms., University of Minnesota, Twin Cities.

Mohanan, Tara (1994): *Argument Structure in Hindi*. CSLI Publications, Stanford.

Müller, Gereon (2000): *Elemente der optimalitätstheoretischen Syntax*. Stauffenburg, Tübingen.

Prince, Alan & Paul Smolensky (2004): *Optimality Theory. Constraint Interaction in Generative Grammar*. Blackwell, Oxford.

Sells, Peter, ed. (2001): *Formal and Empirical Issues in Optimality Theoretic Syntax*. CSLI, Stanford.

Smolensky, Paul & Geraldine Legendre (2006): *The Harmonic Mind*. MIT Press, Cambridge, Mass.

Stiebels, Barbara (2000): Linker Inventories, Linking Splits and Lexical Economy. In: B. Stiebels & D. Wunderlich, eds., *Lexicon in Focus*. Akademie-Verlag, Berlin, pp. 211–245.

Stiebels, Barbara (2002): *Typologie des Argumentlinkings: Ökonomie und Expressivität*. Akademie Verlag, Berlin.

Woolford, Ellen (2001): Case Patterns. In: G. Legendre, J. Grimshaw & S. Vikner, eds., *Optimality-Theoretic Syntax*. MIT Press, Cambridge, Mass., pp. 509–543.

Wunderlich, Dieter (2000): Optimal Case in Hindi. Ms., Universität Düsseldorf.