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?

accusative pattern
\[
\begin{array}{c|c}
\text{NP}_{\text{ext-V}} & \text{NP}_{\text{int-V}} \\
\hline
\text{NP}_{\text{ext-V}} & \text{NP}_{\text{int-V}} \\
\text{nom} & \text{acc}
\end{array}
\]
(Icelandic, Navajo)

ergative pattern
\[
\begin{array}{c|c}
\text{NP}_{\text{ext-V}} & \text{NP}_{\text{int-V}} \\
\hline
\text{NP}_{\text{ext-V}} & \text{NP}_{\text{int-V}} \\
\text{erg} & \text{abs}
\end{array}
\]
(Archi, Sierra Popoluca)

active pattern
\[
\begin{array}{c|c}
\text{NP}_{\text{ext-V}} & \text{NP}_{\text{int-V}} \\
\hline
\text{NP}_{\text{ext-V}} & \text{NP}_{\text{int-V}} \\
\text{erg} & \text{abs}
\end{array}
\]
(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
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 $\text{NP}_{\text{ext}} - V_t$ to be marked by ergative $\text{CASE}$.
    b. All languages have a constraint that requires $\text{NP}_{\text{int}} - V_t$ to be marked by accusative $\text{CASE}$.

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

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 T₁, 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

<table>
<thead>
<tr>
<th>Candidates</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\rightarrow C_1$</td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>$C_2$</td>
<td></td>
<td></td>
<td>**!</td>
</tr>
<tr>
<td>$C_3$</td>
<td></td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td>$C_4$</td>
<td>*!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$C_5$</td>
<td></td>
<td>*!</td>
<td>*</td>
</tr>
</tbody>
</table>

$T_2$: Reranking

<table>
<thead>
<tr>
<th>Candidates</th>
<th>A</th>
<th>C</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>$C_1$</td>
<td>*!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$C_2$</td>
<td></td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td>$\rightarrow C_3$</td>
<td></td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td>$C_4$</td>
<td></td>
<td></td>
<td>*!</td>
</tr>
<tr>
<td>$C_5$</td>
<td></td>
<td>*!</td>
<td>*</td>
</tr>
</tbody>
</table>
Constraint reranking = parametrization:
By reranking the constraints B and C in $T_\perp$, 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 $T_\perp$ 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.
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.
(5)  

a. \textbf{*Dat} ("*Dative"):  
Avoid dative case.

b. \textbf{*Acc} ("*Accusative"):  
Avoid accusative case.

c. \textbf{*Nom} ("*Nominative"):  
Avoid nominative case.

d. \textbf{Faith-Lex}:  
Realize a case feature specified on V in the input.

e. \textbf{Faith-Lex}_{trans}:  
Realize a case feature specified on transitive V in the input.
(6) a. *Ranking in Icelandic:*
   \[
   \text{Faith-Lex}_{tr} \gg \text{Faith-Lex} \gg *\text{Dat} \gg *\text{Acc} \gg *\text{Nom}
   \]

b. *Ranking in Japanese:*
   \[
   \text{Faith-Lex}_{tr} \gg *\text{Dat} \gg \text{Faith-Lex} \gg *\text{Acc} \gg *\text{Nom}
   \]

c. *Ranking in English:*
   \[
   *\text{Dat} \gg \text{Faith-Lex}_{tr} \gg \text{Faith-Lex} \gg *\text{Acc} \gg *\text{Nom}
   \]
Woolford (2001) on Dative Subjects 3: Icelandic

(7) a. Bátnum hvolfdi
    boat<sub>dat</sub> capsized

b. Barninu batnadhi veikin
    child<sub>dat</sub> recovered from disease<sub>nom</sub>

\[ T_3: \text{Intransitive V in Icelandic; inherent dative} \]

<table>
<thead>
<tr>
<th>Candidates</th>
<th>Faith-Lex&lt;sub&gt;tr&lt;/sub&gt;</th>
<th>Faith-Lex</th>
<th>*Dat</th>
<th>*Acc</th>
<th>*Nom</th>
</tr>
</thead>
<tbody>
<tr>
<td>→ C&lt;sub&gt;1&lt;/sub&gt;: NP&lt;sub&gt;dat&lt;/sub&gt; V&lt;sub&gt;[+dat]&lt;/sub&gt;</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C&lt;sub&gt;2&lt;/sub&gt;: NP&lt;sub&gt;nom&lt;/sub&gt; V&lt;sub&gt;[+dat]&lt;/sub&gt;</td>
<td></td>
<td>*!</td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>C&lt;sub&gt;3&lt;/sub&gt;: NP&lt;sub&gt;acc&lt;/sub&gt; V&lt;sub&gt;[+dat]&lt;/sub&gt;</td>
<td></td>
<td>*!</td>
<td></td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>

\[ T_4: \text{Transitive V in Icelandic; inherent dative on NP}_{ext} \]

<table>
<thead>
<tr>
<th>Candidates</th>
<th>Faith-Lex&lt;sub&gt;tr&lt;/sub&gt;</th>
<th>Faith-Lex</th>
<th>*Dat</th>
<th>*Acc</th>
<th>*Nom</th>
</tr>
</thead>
<tbody>
<tr>
<td>→ C&lt;sub&gt;1&lt;/sub&gt;: NP&lt;sub&gt;dat&lt;/sub&gt; V&lt;sub&gt;[+dat]&lt;/sub&gt; NP&lt;sub&gt;nom&lt;/sub&gt;</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>C&lt;sub&gt;2&lt;/sub&gt;: NP&lt;sub&gt;dat&lt;/sub&gt; V&lt;sub&gt;[+dat]&lt;/sub&gt; NP&lt;sub&gt;acc&lt;/sub&gt;</td>
<td></td>
<td></td>
<td>*</td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td>C&lt;sub&gt;3&lt;/sub&gt;: NP&lt;sub&gt;nom&lt;/sub&gt; V&lt;sub&gt;[+dat]&lt;/sub&gt; NP&lt;sub&gt;acc&lt;/sub&gt;</td>
<td></td>
<td>*!</td>
<td></td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>
(8) a. Akatyαn-ga/*-ni moo arukeru
   baby\textsubscript{nom/dat} already walk can
b. Taroo-ni eigo-ga hanaseru
   Taro\textsubscript{dat} English\textsubscript{nom} speak can

\[ T_5: \text{Intransitive V in Japanese; no inherent dative} \]

\[
\begin{array}{|c|c|c|c|c|}
\hline
\text{Candidates} & \text{FAITH-LEX\textsubscript{tr}} & *\text{DAT} & \text{FAITH-LEX} & *\text{ACC} & *\text{Nom} \\
\hline
C_1: \text{NP}_{\text{dat}} V_{[+\text{dat}]} & & *! & & & \\
\rightarrow C_2: \text{NP}_{\text{nom}} V_{[+\text{dat}]} & & * & & & \\
C_3: \text{NP}_{\text{acc}} V_{[+\text{dat}]} & & * & & *! & \\
\hline
\end{array}
\]

\[ T_6: \text{Transitive V in Japanese; inherent dative on NP}_{\text{ext}} \]

\[
\begin{array}{|c|c|c|c|c|}
\hline
\text{Candidates} & \text{FAITH-LEX\textsubscript{tr}} & *\text{DAT} & \text{FAITH-LEX} & *\text{ACC} & *\text{Nom} \\
\hline
\rightarrow C_1: \text{NP}_{\text{dat}} V_{[+\text{dat}]} \text{NP}_{\text{nom}} & & * & & & \\
C_2: \text{NP}_{\text{dat}} V_{[+\text{dat}]} \text{NP}_{\text{acc}} & & * & & *! & \\
C_3: \text{NP}_{\text{nom}} V_{[+\text{dat}]} \text{NP}_{\text{acc}} & & *! & & * & * \\
\hline
\end{array}
\]
(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))
(12)  

a. *Ranking in Niuean (standard ergative pattern)*:  
   \[ \text{Faith-Lex}_{tr} \gg \ast \text{Erg} \gg \text{Faith-Lex} \]

b. *Ranking in Basque (active ergative pattern)*:  
   \[ \text{Faith-Lex}_{tr} \gg \text{Faith-Lex} \gg \ast \text{Erg} \]

c. *Ranking in English (accusative pattern)*:  
   \[ \ast \text{Erg} \gg \text{Faith-Lex}_{tr} \gg \text{Faith-Lex} \]
Woolford (2001) on Ergative Patterns 4: Niuean

\[ T_7: \text{Intransitive V in Niuean; no ergative on } NP_{ext} \]

<table>
<thead>
<tr>
<th>Candidates</th>
<th>Faith-Lex(_{tr})</th>
<th>(*\text{ERG})</th>
<th>Faith-Lex</th>
<th>(*\text{Acc})</th>
<th>(*\text{Nom})</th>
</tr>
</thead>
<tbody>
<tr>
<td>(C_1:\ NP_{erg} \ V_{[+\text{erg}]})\</td>
<td></td>
<td>(*!)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(\rightarrow C_2:\ NP_{nom} \ V_{[+\text{erg}]})\</td>
<td></td>
<td>(\ast)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[ T_8: \text{Transitive V in Niuean; inherent ergative on } NP_{ext} \]

<table>
<thead>
<tr>
<th>Candidates</th>
<th>Faith-Lex(_{tr})</th>
<th>(*\text{ERG})</th>
<th>Faith-Lex</th>
<th>(*\text{Acc})</th>
<th>(*\text{Nom})</th>
</tr>
</thead>
<tbody>
<tr>
<td>(\rightarrow C_1:\ NP_{erg} \ V_{[+\text{erg}]}) \ NP_{nom}\</td>
<td></td>
<td>(\ast)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(C_2:\ NP_{erg} \ V_{[+\text{erg}]}) \ NP_{acc}\</td>
<td></td>
<td>(\ast)</td>
<td></td>
<td>(*!)</td>
<td></td>
</tr>
<tr>
<td>(C_3:\ NP_{nom} \ V_{[+\text{erg}]}) \ NP_{acc}\</td>
<td></td>
<td>(*!)</td>
<td></td>
<td>(\ast)</td>
<td>(\ast)</td>
</tr>
</tbody>
</table>
**T\textsubscript{9}: Intransitive V in Basque; inherent ergative on NP\textsubscript{ext}**

<table>
<thead>
<tr>
<th>Candidates</th>
<th>Faith-Lex\textsubscript{tr}</th>
<th>Faith-Lex</th>
<th>*Erg</th>
<th>*Acc</th>
<th>*Nom</th>
</tr>
</thead>
<tbody>
<tr>
<td>(\rightarrow C_1): NP\textsubscript{erg} V\textsubscript{[+erg]}</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(C_2): NP\textsubscript{nom} V\textsubscript{[+erg]}</td>
<td></td>
<td>*!</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**T\textsubscript{10}: Transitive V in Basque; inherent ergative on NP\textsubscript{ext}**

<table>
<thead>
<tr>
<th>Candidates</th>
<th>Faith-Lex\textsubscript{tr}</th>
<th>Faith-Lex</th>
<th>*Erg</th>
<th>*Acc</th>
<th>*Nom</th>
</tr>
</thead>
<tbody>
<tr>
<td>(\rightarrow C_1): NP\textsubscript{erg} V\textsubscript{[+erg]} NP\textsubscript{nom}</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(C_2): NP\textsubscript{erg} V\textsubscript{[+erg]} NP\textsubscript{acc}</td>
<td></td>
<td></td>
<td>*</td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td>(C_3): NP\textsubscript{nom} V\textsubscript{[+erg]} NP\textsubscript{acc}</td>
<td></td>
<td>*!</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Aspect-based split ergativity in 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))
Assumptions:

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

(14) Ranking in Hindi:
\[
\text{FAITH-LEX}_{\text{perf}} \gg \ast\text{ERG} \gg \text{FAITH-LEX}, \ast\text{ACC}
\]
Person-based split ergativity in Dyirbal:
In Dyirbal, \( NP_{ext} \) of \( V_t \) is marked ergative (-\( \eta gu \)) 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.”
Background assumptions (Wunderlich, Kiparsky):

1. Θ-roles are characterized by contextual features derived from argument structures (that involve lexical decomposition): \( [\pm hr], [\pm lr] \) (‘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) \( \Theta \)-roles in lexical entries of verbs:

a. sleep: \( < \theta_1 > \)
   \[
   [-hr,-lr]
   \]

b. read: \( < \theta_1, \theta_2 > \)
   \[
   [-hr,+lr] \quad [+hr,-lr]
   \]

c. give: \( < \theta_1, \theta_2, \theta_3 > \)
   \[
   [-hr,+lr] \quad [+hr,+lr] \quad [+hr,-lr]
   \]
Cases in Lexical Decomposition Grammar

(16) Cases:

<table>
<thead>
<tr>
<th>Case</th>
<th>Feature 1</th>
<th>Feature 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOM</td>
<td>[–]</td>
<td></td>
</tr>
<tr>
<td>ACC</td>
<td>[+hr]</td>
<td></td>
</tr>
<tr>
<td>ERG</td>
<td>[+lr]</td>
<td></td>
</tr>
<tr>
<td>DAT</td>
<td>[+hr]</td>
<td>[+lr]</td>
</tr>
</tbody>
</table>
Stiebels (2000, 2002) on Constraints

(17) Faithfulness constraints:
    a. \textbf{IDENT([hr])}: The value of a [hr] feature of a Θ-role \(\alpha\) in the input must not conflict with the value of the [hr] feature of an argument bearing \(\alpha\) in the output.
    b. \textbf{IDENT([lr])}: The value of a [lr] feature of a Θ-role \(\alpha\) in the input must not conflict with the value of the [lr] feature of an argument bearing \(\alpha\) in the output.
    c. \textbf{MAX([+hr])}: A [+hr] specification of a Θ-role \(\alpha\) in the input must appear on the argument bearing \(\alpha\) in the output.
    d. \textbf{MAX([+lr])}: A [+lr] specification of a Θ-role \(\alpha\) in the input must appear on the argument bearing \(\alpha\) in the output.

(18) Markedness constraints:
    a. \textbf{*[+hr]}: [+hr] must not appear in the output.
    b. \textbf{*[+lr]}: [+lr] must not appear in the output.
    c. \textbf{UNIQUENESS}: A case can show up only once per clause.

Predictions:

- If there were only faithfulness constraints, every language would have both ergative (for \( \text{NP}_{\text{ext}} - \text{V}_t \)) and accusative (for \( \text{NP}_{\text{int}} - \text{V}_t \)) 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: \( ^* [\text{+-hr}] \) blocks accusative; \( ^* [\text{+-lr}] \) blocks ergative.
**$T_{11}$: Accusative pattern: transitive verbs**

<table>
<thead>
<tr>
<th>$\text{read: } [-\text{hr},+\text{lr}],[+\text{hr},-\text{lr}]$</th>
<th>IDENT({hr})</th>
<th>IDENT({lr})</th>
<th>MAX({+hr})</th>
<th>MAX({+lr})</th>
</tr>
</thead>
<tbody>
<tr>
<td>$C_1: \text{NP}<em>{\text{nom}} \text{ NP}</em>{\text{acc}} \ V$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| $C_2: \text{NP}_{\text{nom}} \text{ NP}_{\text{nom}} \ V$ | *! | | * | *
| $C_3: \text{NP}_{\text{acc}} \text{ NP}_{\text{nom}} \ V$ | *! | | * | *
| $C_4: \text{NP}_{\text{acc}} \text{ NP}_{\text{acc}} \ V$ | *! | | * | *
| $C_5: \text{NP}_{\text{nom}} \text{ NP}_{\text{dat}} \ V$ | | *! | | *
| $C_6: \text{NP}_{\text{dat}} \text{ NP}_{\text{acc}} \ V$ | *! | | | *
| $C_7: \text{NP}_{\text{dat}} \text{ NP}_{\text{dat}} \ V$ | *! | | * | |
| $\sim C_8: \text{NP}_{\text{erg}} \text{ NP}_{\text{acc}} \ V$ | *! | | | * |
$T_{12}$: Accusative pattern: ditransitive verbs

<table>
<thead>
<tr>
<th>give: $[-hr,+lr],[+hr,+lr],[+hr,-lr]$</th>
<th>IDENT([-hr])</th>
<th>IDENT([lr])</th>
<th>MAX([+hr])</th>
<th>MAX([+lr])</th>
</tr>
</thead>
<tbody>
<tr>
<td>$C_1$: NP\textsubscript{nom} NP\textsubscript{dat} NP\textsubscript{acc} V</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>$C_2$: NP\textsubscript{nom} NP\textsubscript{acc} NP\textsubscript{acc} V</td>
<td>*</td>
<td>**</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>$C_3$: NP\textsubscript{nom} NP\textsubscript{dat} NP\textsubscript{nom} V</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>**</td>
</tr>
<tr>
<td>$C_4$: NP\textsubscript{nom} NP\textsubscript{nom} NP\textsubscript{acc} V</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>**</td>
</tr>
<tr>
<td>$C_5$: NP\textsubscript{nom} NP\textsubscript{dat} NP\textsubscript{dat} V</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>$C_6$: NP\textsubscript{dat} NP\textsubscript{dat} NP\textsubscript{acc} V</td>
<td>*</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$C_7$: NP\textsubscript{acc} NP\textsubscript{dat} NP\textsubscript{acc} V</td>
<td>*</td>
<td>*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Deriving Specificity Effects 3

#### $T_{13}$: Ergative pattern: transitive verbs

<table>
<thead>
<tr>
<th>read: $[-hr, +lr],[+hr, -lr]$</th>
<th>IDENT([hr])</th>
<th>IDENT([lr])</th>
<th>MAX([+hr])</th>
<th>MAX([+lr])</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\rightarrow C_1$: NP$<em>{erg}$ NP$</em>{nom}$ V</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>$C_2$: NP$<em>{nom}$ NP$</em>{nom}$ V</td>
<td></td>
<td></td>
<td></td>
<td>*!</td>
</tr>
<tr>
<td>$C_3$: NP$<em>{acc}$ NP$</em>{nom}$ V</td>
<td>*!</td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>$C_4$: NP$<em>{acc}$ NP$</em>{acc}$ V</td>
<td>*!</td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>$C_5$: NP$<em>{nom}$ NP$</em>{erg}$ V</td>
<td></td>
<td>*!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\sim C_6$: NP$<em>{erg}$ NP$</em>{acc}$ V</td>
<td></td>
<td></td>
<td>*!</td>
<td></td>
</tr>
</tbody>
</table>
Stiebels (2000, 2002) on Accusative vs. Ergative Patterns

**T_{14}: Nominative/accusative pattern**

<table>
<thead>
<tr>
<th>V: [+hr, +lr], [+hr, –lr]</th>
<th>UNIQ</th>
<th>MAX( [+hr] )</th>
<th>* [+hr]</th>
<th>* [+lr]</th>
<th>MAX( [+lr] )</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \rightarrow C_1: \text{NP}<em>{nom} \text{NP}</em>{acc} \text{V} )</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( C_2: \text{NP}<em>{erg} \text{NP}</em>{nom} \text{V} )</td>
<td>*!</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>( C_3: \text{NP}<em>{erg} \text{NP}</em>{acc} \text{V} )</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td>*!</td>
</tr>
<tr>
<td>( C_4: \text{NP}<em>{nom} \text{NP}</em>{nom} \text{V} )</td>
<td>*!</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**T_{15}: Ergative/absolutive pattern**

<table>
<thead>
<tr>
<th>V: [+hr, +lr], [+hr, –lr]</th>
<th>UNIQ</th>
<th>MAX( [+lr] )</th>
<th>* [+lr]</th>
<th>* [+hr]</th>
<th>MAX( [+hr] )</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \rightarrow C_1: \text{NP}<em>{nom} \text{NP}</em>{acc} \text{V} )</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( C_2: \text{NP}<em>{erg} \text{NP}</em>{nom} \text{V} )</td>
<td>*!</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>( C_3: \text{NP}<em>{erg} \text{NP}</em>{acc} \text{V} )</td>
<td></td>
<td></td>
<td>*</td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td>( C_4: \text{NP}<em>{nom} \text{NP}</em>{nom} \text{V} )</td>
<td>*!</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\( \Rightarrow \) Under which rankings are \( C_3 \) and \( C_4 \) predicted to become optimal?
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'.

Gereon Müller (Institut für Linguistik)
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) \[ \text{Max([+Ir])/[+perf]}: \]

(‘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:** –
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)):

<table>
<thead>
<tr>
<th>verb type</th>
<th>perfective</th>
<th>imperfective</th>
</tr>
</thead>
<tbody>
<tr>
<td>class 1 (agentive transitive V)</td>
<td>erg</td>
<td>nom</td>
</tr>
<tr>
<td>class 2 (unergative intransitive V)</td>
<td>erg/nom</td>
<td>nom</td>
</tr>
<tr>
<td>class 3 (unaccusative intransitive V)</td>
<td>nom</td>
<td>nom</td>
</tr>
<tr>
<td>class 4 (unaccusative transitive V)</td>
<td>dat</td>
<td>dat</td>
</tr>
</tbody>
</table>

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

a. Raam-do acaanak šer dikʰaa.  
   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 jaanbuujʰkar 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.’
(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

<table>
<thead>
<tr>
<th>$V(\Theta_1(,\Theta_2))$</th>
<th>IDENT (Sem)</th>
<th>MAX/DEP ([GOAL])</th>
<th>ERG (perf)</th>
<th>*ERG</th>
<th>MAX ([vol])</th>
<th>*SUBJ/DAT</th>
<th>*Nom</th>
</tr>
</thead>
<tbody>
<tr>
<td>$C_1$: NP_{ext-ERG [+VOL]}</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\rightarrow C_2$: NP_{ext-NOM}</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$C_3$: NP_{ext-DAT [-VOL,+GOAL]}</td>
<td>*!</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>$V(\Theta_1(,\Theta_2))$</th>
<th>IDENT (Sem)</th>
<th>MAX/DEP ([GOAL])</th>
<th>ERG (perf)</th>
<th>*ERG</th>
<th>MAX ([vol])</th>
<th>*SUBJ/DAT</th>
<th>*Nom</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\rightarrow C_1$: NP_{ext-ERG [+VOL]}</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$C_2$: NP_{ext-NOM}</td>
<td></td>
<td></td>
<td></td>
<td>*!</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$C_3$: NP_{ext-DAT [-VOL,+GOAL]}</td>
<td>*!</td>
<td>*</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Lee (2003) on Hindi 5: Class 2b/3

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

<table>
<thead>
<tr>
<th>$V(\Theta_1)$</th>
<th>IDENT (Sem)</th>
<th>MAX/DEP ([GOAL])</th>
<th>ERG (perf)</th>
<th>*ERG ([VOL])</th>
<th>MAX *SUBJ/ *Nom</th>
</tr>
</thead>
<tbody>
<tr>
<td>$C_1$: NP$_{ext}$-ERG[+$VOL$]</td>
<td>*!</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>$\rightarrow C_2$: NP$_{ext}$-NOM</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>$C_3$: NP$_{ext}$-DAT[−VOL, +GOAL]</td>
<td></td>
<td></td>
<td>*!</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>$V(\Theta_1)$</th>
<th>IDENT (Sem)</th>
<th>MAX/DEP ([GOAL])</th>
<th>ERG (perf)</th>
<th>*ERG ([VOL])</th>
<th>MAX *SUBJ/ *Nom</th>
</tr>
</thead>
<tbody>
<tr>
<td>$C_1$: NP$_{ext}$-ERG[+$VOL$]</td>
<td>*!</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>$\rightarrow C_2$: NP$_{ext}$-NOM</td>
<td></td>
<td></td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>$C_3$: NP$_{ext}$-DAT[−VOL, +GOAL]</td>
<td></td>
<td>*!</td>
<td>*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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 \texttt{ERG}, \texttt{ACC}.
2. The projection of arguments from lexicon to syntax is uniform across languages.
3. There are no semantically irrelevant projections like \texttt{Agr_sP}, \texttt{Agr_oP} (Chomsky (1995, 2001)).
4. Case assignment is independent of movement (Chomsky (2000, 2001)).

5. \begin{enumerate}
\item \texttt{ERG, ACC} \rightarrow \text{internal structural case} (K_2)
\item \texttt{NOM, ABS} \rightarrow \text{external structural case} (K_1)
\end{enumerate}

6. Internal case is generally morphologically more marked; external case often remains without overt marking (Comrie (1989), Dixon (1994)).
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}_{\text{perf}} (Woolford (2001))
2. \textit{*[+lr]/[–perf]} (Stiebels (2000))
3. \textit{Max([+lr])/[+perf]} (Kiparsky (1999))
4. \textsc{Erg}_{\text{perf}} (Lee (2003))


