What would Humboldt have done about ergativity in 2010?
ERGATIVITY

Accusative alignment

Ergative alignment

“AGENTE”
### SOME EXAMPLES

<table>
<thead>
<tr>
<th>Accusative: Latin</th>
<th></th>
<th>Ergative: Tsez</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>rex</em>-Ø</td>
<td><em>revenit</em></td>
<td><em>šax</em>-Ø</td>
<td><em>ays</em></td>
</tr>
<tr>
<td>king-<em>nom</em></td>
<td>came back</td>
<td>king-<em>abs</em></td>
<td>arrived</td>
</tr>
<tr>
<td>senator-Ø</td>
<td><em>reg-em</em></td>
<td><em>šax-zā</em></td>
<td><em>tušman-Ø</em></td>
</tr>
<tr>
<td>senator-<em>nom</em></td>
<td>king-<em>acc</em></td>
<td>king-<em>erg</em></td>
<td>enemy-<em>abs</em></td>
</tr>
<tr>
<td><em>laudavit</em></td>
<td></td>
<td><em>exursi</em></td>
<td>killed</td>
</tr>
</tbody>
</table>
HUMBOLDT’S VIEW OF ERGATIVITY

• The ergative clause can be assimilated to the passive
• The ergative NP is different from the nominative NP
FAST FORWARD 200 YEARS

What we have accomplished

• The ergative construction is different from the passive, moreover, some ergative languages have a separate passive

• The ergative NP has properties of a syntactic subject:
  – control and raising, coreference across clause, binding, addressee of the imperative
**Ergative is Syntactic Subject**

Tongan: Control (same as in English or German)

<table>
<thead>
<tr>
<th>Na’e</th>
<th>ui</th>
<th>‘e</th>
<th>he</th>
<th>fefine_i</th>
<th>‘a</th>
<th>e</th>
<th>tokoua_k</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAST</td>
<td>call</td>
<td>ERG</td>
<td>DET</td>
<td>woman</td>
<td>ABS</td>
<td>DET</td>
<td>guys</td>
</tr>
<tr>
<td>‘o</td>
<td>langamatai</td>
<td>_____</td>
<td>‘a</td>
<td>e</td>
<td>faiakó]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COMP</td>
<td>help</td>
<td>ABS</td>
<td>DET</td>
<td>teacher</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

‘The woman called the guys [to help the teacher].’

Tsez: reflexive binding

<table>
<thead>
<tr>
<th>už-ā</th>
<th>nesā nesis</th>
<th>žek-si</th>
<th>‘The boy hit himself.’</th>
</tr>
</thead>
<tbody>
<tr>
<td>boy-ERG</td>
<td>self.ABS</td>
<td>hit-PAST</td>
<td></td>
</tr>
<tr>
<td>*uži</td>
<td>nesā nesiz</td>
<td>žek-si</td>
<td></td>
</tr>
<tr>
<td>boy.ABS</td>
<td>self.ERG</td>
<td>hit-PAST</td>
<td></td>
</tr>
</tbody>
</table>
HOW SYNTACTIC IS ERGATIVITY?

• Since the ergative NP has the properties of a syntactic subject, ergativity is a morphological phenomenon

and should not have profound syntactic consequences—ergative languages are only ergative in the morphological marking of NPs
So ERG is syntactic subject…

• it should also be high on the Accessibility Hierarchy (Keenan & Comrie 1977) which accounts for the ease of relative clause formation:

Subject > Object > Indirect Object > Prepositional Object > Genitive > Standard of comparison
**However...**

- Unlike subjects in nominative-accusative languages, the ergative NP is often inaccessible to relativization, topicalization, and wh-question formation (A-bar movement).

- The inaccessibility of the ergative NP to extraction (*syntactic ergativity*) is found in a large number of ergative languages.
IF ERG DOES NOT EXTRACT, HOW TO ASK “WHO DID THIS?” AND HOW TO RELATIVIZE A?

• Turn A into S (antipassivization, agent focus):
  *The hunter shot the bear* → *The hunter that shot at the bear*
  the hunter [that __ shot at the bear]
  (e.g., some Mayan languages, Chukchi, Salish)

• Use a resumptive pronoun in place of A:
  *the hunter [that he shot the bear]*
  (e.g., Polynesian languages)
SYNTACTIC ERGATIVITY

• WALS: 32 ergative languages, of which 5 allow the relativization of the ergative NP; the exceptions belong to two language families:
  – Hunzib, Ingush, Lezgian—Nakh-Dagestani
  – Ngiyambaa, Pitjantjatjara—Pama-Nyungan

• If we add Basque, we get 6 languages (out of 33) that allow for A-bar movement (extraction) of the ergative NP
Ergative languages with and without extraction of the ergative

- Ergative extracts: 6
- Ergative cannot extract: 27
A CLOSER LOOK AT THE CHOSEN SIX

• Do ergative languages which allow the extraction of the ergative NP show any difficulty in that extraction?
HOW TO DETERMINE WHAT IS EASY AND WHAT IS DIFFICULT

• Experimental work on the processing of extracted DPs
  – If a particular structure is more difficult it imposes a heavier processing load
  – The processing load can be measured by reaction time, time of response, or neuroimaging
RELATIVE CLAUSES

• Universal preference for subject relatives over object relatives

• The reporter

  [ who ( __ ) attacked the senator]  
  admitted the error.

  IS PREFERRED OVER

• The reporter

  [ who the senator attacked __ ]  
  admitted the error.

SR

OR
Relative clauses

Universal preference for subject relatives over object relatives:

• Die Gruppe, die den Naturschutzverein unterstützte, bewundert den Bürgermeister

*IS PREFERRED OVER*

• Die Gruppe, die der Naturschutzverein unterstützte, bewundert den Bürgermeister
PROCESSING: SUBJECTS ARE EASIER TO EXTRACT THAN OBJECTS

• English (King and Kutas 1995; Traxler et al. 2002, a.o.)
• German (Hemforth 1993; Mecklinger et al. 1995; Schlesewsky et al. 2000; Schwartz 2007, a.o.)
• Dutch (Frazier 1987, 1989)
• Japanese (Miyamoto & Nakamura 2003; Ishizuka et al. 2003)
• Korean (Kwon et al. 2006, 2010)
• Russian (Levy et al. 2007; Fedoroiva 2006; Polinsky 2008)
• Chinese (Lin & Bever 2006—but Hsiao & Gibson 2003)
Relative Clauses in Acquisition

- Acquired 2;0-2;6
- Universal preference for subject relatives
  - English (multiple studies)
  - German (Behrens 2001)
  - Indonesian (Tjung 2006)
  - Russian (Polinsky 2008)
  - Chinese (Hsu et al. 2006)
  - Irish (Goodluck et al. 2001)
  - Turkish (Slobin 1982)
THE NOMINATIVE TRAP

• All these languages are nominative-accusative

• In such languages, Subject ~ Nominative, and Object ~ Accusative

• It is hard to tell what extraction is sensitive to, case form or grammatical function
Ergative languages can help

Do languages in which both the ABS and ERG NPs extract show a processing difference
--between *subjects* and *objects*
or
--between *absolutives* (unmarked case) and *ergatives* (marked case)?
What happens in an ergative language?

- If extraction is sensitive to subject/object difference, ERG and ABS subject should be privileged:
  \[ \text{ERG/ABS}_{\text{subject}} > \text{ABS}_{\text{object}} \]

- If extraction is sensitive to morphological (surface) case, any ABS should be privileged, (being an unmarked case):
  \[ \text{ABS} > \text{ERG} \sim \text{NOM} > \text{ACC} \]

Enter Basque

emakume-a-k gizon-a-Ø ikusi du gaur
woman-the-ERG man-the-ABS seen has today
‘The woman has seen the man today.’
MORPHOSYNTACTIC AMBIGUITY

a + k: [singular det] + [ergative case]
(a) emakume-a-k gizon-a ikusi du
   woman-the-erg man-the.abs seen has
   ‘The woman has seen the man.’

ak: [plural determiner], absolutive case
(b) zu-k emakume-ak ikusi dituzu
    you-erg women-the.pl.abs seen have
    “you have seen the women”
FULL SYNTACTIC AMBIGUITY

(A)  emakume-a-k  gizon-ak  ikusi  ditu
     woman-the-erg  men-the.pl.abs  seen  has
     ‘The woman has seen the men.’

(B)  emakume-ak  gizon-a-k  ikusi  ditu
     women-the.pl.abs  man-the-erg  seen  has
     ‘The man has seen the women.’
CARREIRAS ET AL. IN PRESS: THE STRUCTURE REMAINS AMBIGUOUS TO THE VERY LAST WORD

[emakume-a-k __OBJ ikusi ditu-en] gizon-a-k lagunak dira
[woman-the-erg seen has-that] man-PL friends are
‘the men that the woman saw are friends’

[___SUBJ emakume-ak ikusi ditu-en] gizon-a-k lagunak ditu
[woman-the.pl seen has-that] man-the-erg friends has
‘the man that saw the women has friends’

(Carreiras et al. in press, see also Mendikoetxea 1989)
READING TIMES AT THE LAST TWO WORDS, Basque

Carreiras et al. in press
Basque Acquisition

- Acquisition data also show the prevalence of object relatives over subject relatives (Mendikoetxea 1989; Junkal Gutiérrez 2009):
  \[\text{ABS} > \text{ERG}\]
- Same prevalence in questions (Junkal Gutiérrez 2009)
The Basque study could be interpreted in two ways:

– The object relative is easier because the distance between the gap and the filler is shorter (a similar proposal has been made for Chinese, Hsiao & Gibson 2003, 2010)

– Extraction is sensitive to case, not to grammatical function, hence ABS > ERG

However, there are no data on ABS\textsubscript{SUBJECT}
How do A and P compare to S?

Accusative alignment

Ergative alignment
**How do A and P compare to S?**

- In a nominative-accusative language, the extraction of S is comparable to the extraction of A, both in terms of structure and in terms of processing time.
- English: reaction times (ms) for extraction of A, S, and P in wh-questions (Polinsky et al. 2010)

<table>
<thead>
<tr>
<th>Extraction of S</th>
<th>Extraction of A</th>
<th>Extraction of P</th>
</tr>
</thead>
<tbody>
<tr>
<td>431</td>
<td>441</td>
<td>524</td>
</tr>
</tbody>
</table>
HOW DO A AND P COMPARE TO S?

• In an ergative language, A (=ergative NP) is at a disadvantage in processing (compared to P)
• Is that the contrast between subject and object, or between ERG and ABS?
• How does the extraction of A compare to the extraction of S?
Enter Avar

- a Northeast Caucasian language
- spoken in Western Dagestan, Azerbaijan, Kazakhstan, Turkey
- about 744,000 speakers in the Russian Federation (2002 census)
- taught in primary and secondary schools
- a reasonable reading tradition
Avar

- SOV, head-final, verb-final
- ergative-absolutive case system (+dative, genitive, and various locative cases)
- morphologically unmarked ABS; marked ERG
- pre-nominal relative clauses without relative pronouns or overt Complementizers
A\textsc{var} RCs

- both ABS and ERG arguments can be relativized

subject relative: \([\_i \text{DP-ABS} \text{Verb}] \text{Head-noun}_i\)

object relative: \([\text{DP-ERG} \_i \text{Verb}] \text{Head-noun}_i\)
Avar Pro-drop

Text counts:

- Ergative DP dropped 75%
- Absolutive subject DP dropped 47%
- Absolutive object DP dropped 5%

Based on frequency of pro-drop, **ergative RCs** and **subject RCs** in general should be easier
## PREDICTIONS

<table>
<thead>
<tr>
<th>Extraction sensitive to:</th>
<th>Subject relative:</th>
<th>Object relative:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[ ___\text{DP-ABS} V] \text{NP-ABS}_i</td>
<td>[\text{DP-ERG }___\text{V}] \text{NP-ABS}_i</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>Grammatical function</th>
<th>easier</th>
<th>harder</th>
</tr>
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<tbody>
<tr>
<td>Morphological case</td>
<td>harder</td>
<td>easier</td>
</tr>
<tr>
<td>Frequency of pro-drop</td>
<td>easier</td>
<td>harder</td>
</tr>
</tbody>
</table>
THE EXPERIMENT: MATERIALS

4 conditions, 20 sentences each:

- **ERG gap**: [__i DP-ABS Verb] Head-noun_i
- **ABS-Obj gap**: [DP-ERG ___i Verb] Head-noun_i
- **ABS-Subj gap**: [___i PP Verb] Head-noun_i
- **PP gap**: [DP-ABS ___i Verb] Head-noun_i
THE EXPERIMENT: MATERIALS

- each participant sees 40 experimental items
- 80 fillers (all of them grammatical)
- all stimuli were normed by 3 native speakers
- the overall length of sentences and lexical items was controlled for and kept maximally uniform
RESULTS

- Word-by-word reading times

preliminary, small subject pool
READING TIME AT HEAD NOUN

![Graph showing reading time for different types of gaps (abs S gap, abs O gap, erg gap).]
Avar: Relativization on S and P is preferred over relativization on A
## Interpreting the Results

<table>
<thead>
<tr>
<th>Extraction sensitive to:</th>
<th>Subject relative: $[_i \text{DP-ABS } V] \text{NP-ABS}_i$</th>
<th>Object relative: $[\text{DP-ERG } _i \text{V}] \text{NP-ABS}_i$</th>
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<td>harder</td>
</tr>
</tbody>
</table>

**ABS > ERG**
• Even though some ergative languages permit the extraction of the ergative NP, this extraction is more difficult than that of the ABS (regardless of its grammatical function)
INTERIM SUMMARY

• Do ergative languages with syntactic ergativity and ergative languages without it share a dispreference for the extraction of the ergative NP? YES
  – In syntactically ergative languages, the “ergative disadvantage” is an absolute constraint (27 languages in WALS)
  – In languages where the ergative extracts, the “ergative disadvantage” is a gradient constraint (Avar, maybe Basque)
IMPLICATIONS FOR THE ACCESSIBILITY HIERARCHY

From

Subject > Object > Indirect Object > Prepositional Object > Genitive > Standard of comparison

To

Nominative > Accusative > Dative > Prepositional object/Oblique > Genitive?
UNDERSTANDING EXTRACTION

• Standard assumption: A-bar movement (extraction) is sensitive to structural position

• The new evidence: A-bar movement (extraction) is sensitive to argument-marking
  – No difference in accusative languages
  – Clear difference in ergative languages
UNDERSTANDING EXTRACTION

• If the new evidence is correct, the Accessibility Hierarchy needs to be revised:
  unmarked core argument > marked core argument > non-core arguments

• The unknowns:
  – other ergative languages with extraction of the ergative NP
  – possible difference between ABS subject and object
  – extraction of other case forms in accusative languages (e.g., datives)
Humboldt’s View of Ergativity

- The ergative clause can be assimilated to the passive: NO
- The ergative NP is different from the nominative NP: YES
Next

• Why is the ergative extraction difficult?

• In search of an answer:
  Ergative NP is *diachronically* related either to the *by*-phrase or to the possessive/locative PP
  (Basque case forms could be analyzed as *PPs*?)
ACCESSIBILITY HIERARCHY AGAIN

Subject > Object > Indirect Object > Prepositional Object > Genitive > Standard of comparison
INITIAL EVIDENCE THAT THE ERGATIVE NP IS PP-LIKE

- Does not license depictives
- Does not/has difficulty floating quantifiers
- Includes an overt adposition
- Unlike the nominative, can remain unchanged in nominalizations (only in some languages)
CONCLUSIONS

• Syntactic ergativity is an empirical reality, and it appears in two guises:
  – **Absolute syntactic ergativity** (ABS NP undergoes extraction, ERG NP does not)
  – **Gradient syntactic ergativity** (the extraction of the ERG NP is possible but has greater processing costs than the extraction of the ABS NP)
CONCLUSIONS

A-bar phenomena (relativization, topicalization, wh-questioning, focusing) are sensitive to case rather than to structural position.

This sensitivity is obscured in nominative-accusative languages but is evident in ergative languages.