Goal: How Language Works

- How **language** works = how (parts of) the **mind** work(s) = what (parts of) the **brain** do(es)
Basic Questions

- What is knowledge of language?
- How does that knowledge develop in the individual? (developmental biology)
- How did that knowledge emerge in the species? (evolutionary biology)
- How is that knowledge put to use (note: NOT: what is that knowledge for?)?
Innate Linguistic Substrate

- “non-negotiable” in Fodorian sense
- ‘structure’ in the sense of Cognitive Physiology; a “language organ”
Uniform growth in light of ‘poverty of stimulus’

Purely formal (non-functional) universals

(strong) continuity

Language creation (creolization)

Cases of dissociation
Universal Grammar

yet

Linguistic Variation

(beyond Saussurian arbitrariness)
Principles and Parameters
A Principle

- John tried [e to leave]
A Principle

- John tried [e to leave]
- John told Mary [e to leave]
A Principle

- John could have been shopping
A Principle

- John *could* have been shopping
- *Could* John have been shopping
A Principle

- John *could* have been shopping
- *Could* John have been shopping
- *Have* John *could* been shopping
A Principle

- John didn’t know what Bill bought
A Principle

- John didn’t know what Bill bought
- John didn’t know who bought a book
A Principle

- John didn’t know what Bill bought
- John didn’t know who bought a book
- John didn’t know who bought what
A Principle

- John didn’t know what Bill bought
- John didn’t know who bought a book
- John didn’t know who bought what
- *John didn’t know what who bought
Recent trend in linguistic theory: ‘Minimalism’

- Reduce principles (and parameters) to ‘virtual conceptual necessity’ (Chomsky 1995)
- How about analyzing parameters in this light?
A new perspective on the Language Faculty

Language Faculty in the **Broad** sense and
Language faculty in the **Narrow** sense

(Hauser, Chomsky and Fitch 2002)
(also for music [Jackendoff & Lerdahl 2004] and beyond)
The Orchestrated Components View

- Comparative analysis
  - Across species (Hauser et al.)
  - Within human (Boeckx, Nevins, Marcus in progress)

Toward more general principles
Not deny the specificity of language
(representational vocabulary), but emphasize the general character of processes
\( \alpha \cdots \gamma \cdots \beta \)

Nice: reduce search space to first/closest candidate
Not restricted to syntax:

Assimilation in Sanskrit: “...a Coronal nasal assimilates the Coronal features from a retroflex consonant that precedes it... The nasal can be arbitrarily far away from the retroflex, provided that no Coronal consonant intervenes” (Halle)

a ks.obh-an.a ‘quake’  
b kr.p-an.a ‘hum’  
c ks.ved-ana ‘lament’  
d kr.t-ana ‘cut’
Vowel copy in Ainu:

- tas-a ‘cross’      ray-e ‘kill’
- per-e ‘tear’       hew-e ‘slant’
- nik-i ‘fold’       ciw-e ‘sting’
- tom-o ‘concentrate’ poy-e ‘mix’
- yup-u ‘tighten’    tuy-e ‘cut’

(glides block by virtue of sharing an articulator (dorsal) with vowels)
John sells books, and Bill ☹ newspapers
John sells books, Mary buys records and Bill ø newspapers
“ncncsnklckscnlsknclks”
- John tried [e to leave]
- John told Mary [e to leave]
- e seems [John to be nice]
- John seems [(John) to be nice]]
- e seems [to Bill] [John to be nice]
- John seems [to Bill] [(John) to be nice]
- John tried [e to leave]
- John told Mary [e to leave]
- e seems [John to be nice]
- John seems [(John) to be nice)]
- e seems [to Bill] [John to be nice]
- John seems [to Bill] [(John) to be nice]
  - NPs block, PPs don’t
Contrastiveness (Sedivy et. al 1999)

- Now touch the yellow comb
Subjects looked immediately at the comb when they heard “yellow”

The bowl is yellow, but not contrastively so.
John kissed Mary, and Bill did Ø too
John said someone left, but I don’t remember who Ø
John read a book about something weird but I forgot what Ø
- John can bike
- John can bike and Mary can bike too
John is likely to appear (John) to be drunk
1

John

2

Likely

3

(John)

4

appear

5

(John)

CH-2

CH-1
CH-1

(John)  CH-2

(John)  John

4  3  2  1

appear likely
CH-1

(John) CH-2

(John)

John

4  3  2  1

appear likely

X”

X’

X°
Theorizing about Parameters

- First step: what are the actual parameters?
- Second step: Do parameters interact? How are they organized?
More precisely:

- Are there restrictive conditions on possible parameters (limited set of parameter schemata)?
- Are all parameters binary?
- What is the order of magnitude of parametric variation (2, 10, 100, \(n\))? 
- Which parameter setting algorithm is correct?
- Are there neuropsychological correlates?
Early Parameters: ‘Octopus’ Parameters

1. ‘Null Subject’ parameter

- Gianni verra ‘G. will come’
- Verra ‘He will come’
- Verra Gianni ‘G. will come’
- Chi credi che verra? ‘who you-think that will come?’
If Null Subject,

- Possibility of post-verbal subjects (‘Verb Subject’ sequences)
- No effect of the *[ ... that ___ ...] - Filter
- **Head-parameter**
- Mary likes apples = [Mary [**likes** apples]]
Principle: Every Phrase has a Head
(every atom has a nucleus)
Parameter: Phrases are either head-medial or head-final
<table>
<thead>
<tr>
<th></th>
<th>English</th>
<th>Japanese</th>
</tr>
</thead>
<tbody>
<tr>
<td>VP</td>
<td>like apples</td>
<td>ringo-o taberu</td>
</tr>
<tr>
<td>NP</td>
<td>portrait of Taro</td>
<td>taro-no syasin</td>
</tr>
<tr>
<td>AP</td>
<td>kind to Taro</td>
<td>taro-ni sinsetu(-da)</td>
</tr>
<tr>
<td>PP</td>
<td>with Taro</td>
<td>taro-to</td>
</tr>
</tbody>
</table>
Head-Parameter

English parameter: build bigger phrases by adding new words on the left

Japanese parameter: build bigger phrases by adding new words on the right
Baker’s Macroparameters

- Rough estimate: 10-12 ‘octopus’ parameters, hierarchically organized
Baker’s parameter hierarchy

- Polysynthesis
  - yes
  - Adjective neutralize
    - verb
    - noun
    - Warlpiri
  - no
    - Head directionality
      - Optional polysynthesis
        - First/yes
          - Chichewa
          - Selayarese
        - First/no
          - Subject side
            - beginning
              - Tzotzil
              - Malagasy
            - end
              - Pro drop
                - yes
                  - Welsh
                  - Zapotec
                - no
                  - high
                    - English
                    - Indonesian
                  - low
                    - Edo
                    - Khmer
                - no
                  - French
                  - Spanish
                  - Romanian

- Ergative case
  - Mohawk
  - Warlpiri

- Subject placement
  - low
    - Pro drop
      - yes
        - French
      - no
        - Spanish
        - Romanian
  - high
    - English
    - Indonesian
    - Edo
    - Khmer
Questions about Baker’s hierarchy

- Where does the hierarchy come from?
- Not all languages display the whole range of consequences predicted by octopus parameters
- What is the learning algorithm associated with it? Is there a parameter-setting pathway?
- What kind of evidence does the child need to set a parameter?