Big Brother

- “Don't you see that the whole aim of Newspeak is to narrow the range of thought? In the end we shall make thought crime literally impossible, because there will be no words in which to express it …”

(George Orwell, 1984, written in 1948)

George Orwell (1903-50)

Language and Thought

- Orwell’s vision
  - Language constrains human thought
  - Language can be put to sinister use to control thought

- Widespread idea: people who speak different languages think differently

- Outlook
  - Does knowing a language restrict how you view the world?
  - How does knowing any language affect how you view the world?
  - Can languages be used to control speakers?

Language and Thought

- Language is a biological specialization of humans … an ‘instinct’

Motor Coordination

Creativity

Michelangelo, Sistine Chapel
Everyday Creativity

- Ability to create many novel expressions by combining a small number of pieces
- “It was so icy last week that you couldn’t make it down your own driveway without falling down.”
- “My cat writes symphonies daily.”
- “Englishmen cook wonderful dinners.”
- “Don’t cry, Daddy, I’ll get your coffee.”

‘Instincts’

- Bats use sonar to echolocate; homing pigeons know where home is; deer rub antlers against trees; spiders spin webs; dolphins play; some primates walk
- Special properties of individual species, not related to ‘general intelligence’, develop automatically
- Another ‘instinct’: human language

Franz Boas
Edward Sapir
Benjamin Lee Whorf

Terminology
Linguistic Relativity
Sapir–Whorf Hypothesis

Walpi village (Hopi)
Hopiland, AZ
Story so far…

- Language & Thought
  - Do thought processes depend upon language?
  - Can thought processes be controlled/manipulated by language?

Why do Humans have Language?

- Because we’re smarter than other animals?
- Because we have a bigger brain?
- Because our mouths have a special shape?
- Because somebody took the time to teach us?
- …or because that’s just something that humans do?

Why call language an instinct?

- Species specificity
- Uniformity throughout human species
- Humans *spontaneously* create languages
- Independence from other mental abilities
- Sensitive period for learning language.

Species Specificity

- Other species simply can’t learn human language
- The communication systems of other animals are not even remotely as complex as human language.

Creativity of Human Language

- Animal communication systems have a fixed, limited range of messages (e.g. bee dance, bird song, monkey call)
- Human language is *infinitely* creative
  “There’s an armadillo golfing next to the library.”
  “Have you ever seen an armadillo golfing next to the library?”

Creativity of Human Language

- Increased expressive power of human language is not simply a difference of *degree* - human language is *fundamentally* different
- *Creativity* of human language results from its *combinatorial* properties
- Small number of memorized ‘pieces’ yield vast range of possible messages.
Uniformity of Human Language

• All humans master a human language … except in extreme circumstances

• All human languages are remarkably similar in their basic properties.

Children spontaneously create language

• Pidgins and Creoles
• Improving on the input: the case of “Simon”
• Creating languages with no input at all: “Home Sign” languages
• Special parental input is not necessary

Children create their own system

“It broke”
“Don’t giggle me!”
“Does she doesn’t like that?”

Why call language an instinct?

• Species specificity
• Uniformity throughout human species
• Humans spontaneously create languages
• Independence from other mental abilities
• Sensitive period for learning language.
Language and Brain Size

- Elephants have bigger brains than humans, no language
- Some dwarfs have smaller brains than chimps, but they have normal language abilities

Language and General Intelligence

- Good language with poor overall cognitive profile:
  - Williams Syndrome
- Poor language with good overall cognitive profile:
  - Pure Word Deafness
  - Broca’s Aphasia
  - Specific Language Impairment.
- “Double Dissociation” argument

Cognitive Characteristics of Williams Syndrome

- Low general IQ
- Poor math
- Poor spatial abilities, e.g. navigation
- Good language
- Often good with music.
- Highly social

Copying Simple Pictures

<table>
<thead>
<tr>
<th></th>
<th>Model</th>
<th>WS Age 11</th>
<th>WS Age 11</th>
<th>Control Age 6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><img src="image1" alt="Model" /></td>
<td><img src="image2" alt="WS Age 11" /></td>
<td><img src="image3" alt="WS Age 11" /></td>
<td><img src="image4" alt="Control Age 6" /></td>
</tr>
<tr>
<td></td>
<td><img src="image5" alt="Model" /></td>
<td><img src="image6" alt="WS Age 11" /></td>
<td><img src="image7" alt="WS Age 11" /></td>
<td><img src="image8" alt="Control Age 6" /></td>
</tr>
</tbody>
</table>
Model: Williams, Age 11;1, KBIT 66 (RA)
Control: Age 6;9, KBIT 116 (LC)

Describing Complex Pictures

“Bill is looking at the cow that the boy is pointing at, and Max is looking at the cow that the girl is pointing at.” (WS, IQ approx. 40)

(Zukowski 2001)

Pure Word Deafness

Normally functioning people, Unable to hear words

Auditory Input

Auditory Object Recognition

Auditory Word Recognition

Broca’s Aphasia

- Identified 1861, Paul Broca
- Patient Leborgne (“Tan”): intelligent, good language comprehension, severe speech deficit
- Died soon afterwards: brain showed selective damage at junction of frontal, parietal, temporal lobes, left hemisphere

Broca’s Aphasia - Speech

Typical clinical symptoms of Broca’s aphasics:
“...Yes ... Monday ... Dad, and Dad ... hospital, and ... Wednesday, Wednesday, nine o’clock and ... Thursday, ten o’clock ... doctors, two, two ... doctors and ... teeth, yah. And a doctor ... girl, and gums, and I.”
“...Me ... build-ing ... chairs, no, no cab-in-ets. One, saw ... then, cutting wood ... working ...”
### Broca’s Aphasia - Comprehension

1a. “The cat chased the dog.”  
active

1b. “The cat was chased by the dog.”  
passive

2a. “I showed her baby pictures.”  
ambiguous

2b. “I showed her the pictures.”  
unambiguous

2c. “I showed her the baby pictures.”  
unambiguous

*Function Words*

---

### Specific Language Impairment

- Genetic disorder, currently poorly understood
- Good general cognitive abilities, poor language
  “It’s a flying finches, they are.”
  “She remembered when she hurts herself the other day.”
  “The neighbors phone the ambulance because the man fall off the tree.”
  “The boys eat four cookie.”
  “Carol is cry in the church.”

---

### Why call language an instinct?

- Species specificity
- Uniformity throughout human species
- Humans *spontaneously* create languages
- Independence from other mental abilities
- Sensitive period for learning language.

---

### Sensitive Period for Language Learning

- Language learning is *effortless* before puberty, extremely effortful later in life
- Applies to both first and second language learning
- Applies to spoken and signed languages
- Sensitive periods familiar from ‘instincts’ in other species

---

### Language as an Instinct

- Language is specific to humans, and extremely uniform among humans
- Humans create language without instruction
- Language abilities are partly independent of other cognitive abilities
- Language learning requires a young brain
- Language has the properties of an ‘instinct’.

---

### Therefore…

- Individuals have little control over the inbuilt instincts of their species
- If human languages are very similar, little scope for sinister manipulation
- But what does the ‘Language Instinct’ consist of?
Two Arguments

• The Argument for Mental Grammar
  The expressive variety of language use implies that a language user’s brain contains a set of unconscious grammatical principles.

• The Argument for Innate Knowledge
  The way children learn to talk implies that the human brain contains a genetically determined specialization for language.

Grammar!

Prescriptive Grammar

• Typically states what people *should and should not do* with a language
  – … according to some ‘authority’
• It prescribes

Descriptive Grammar

• Describes what people *actually do* with language
• Explaining how the language system works
• It describes

Some Prescriptive Rules of English

• *Don’t* split infinitives
• *Don’t* use double negation
• *Don’t* end a sentence with a preposition
• *Don’t* use *who* in place of *whom*
• *Don’t* misuse *hopefully*
  – E.g. “Hopefully he will arrive tomorrow.”
Some Descriptive Rules of English

- The subject precedes the verb, the object follows the verb
  - “The dog chewed the bone.”
  - *“Chewed the bone the dog”*
- Auxiliary verbs precede the subject in questions
  - “What has she done?”
  - *“What she has done?”*
- Form the plural of a noun by adding ‘-s’
  - dog --> dogs; circumstance --> circumstances

Mental Grammar

- The knowledge that is stored in a speaker’s head about his/her language
- Words and word order patterns (syntax)
- Sounds and sound patterns (phonology)
- Ways of constructing meanings (semantics)
- Ways of constructing words (morphology)
- Most of this ‘knowledge’ is unconscious (cf. vision, walking)

Mental Grammar (contd.)

- All speakers have a systematic mental grammar
- Low prestige speech is also systematic
  - “I ain’t done nothing”
  - “Done ain’t I nothing”
  - “Nothing I done ain’t.”

Where do Prescriptive Rules come from?

- Rules adopted into English from Latin
- Rules adopted from mathematics
- Speech patterns imposed by speakers with high social prestige
- Word choices of older generation
- Attempts to improve clarity, avoid ambiguity

Split Infinitives

6a. “To boldly go where no man has gone before.”
6b. “To go boldly where no man has gone before.”
7a. “I want to quickly read the newspaper.”
7b. “I want quickly to read the newspaper.”
English infinitive = 2 words, to + verb stem

Where do Prescriptive Rules come from?

(Bishop Robert Lowth, 1762,
A Short Grammar of the English Language)
Split Infinitives

6a. “To boldly go where no man has gone before.”
6b. “To go boldly where no man has gone before.”

7a. “I want to quickly read the newspaper.”
7b. “I want quickly to read the newspaper.”

English infinitive = 2 words, to + verb stem

8. Infinitives in Romance languages = 1 word
   - comere to eat Latin
   - andare to go Italian
   - estar to be Spanish
   - danser to dance French

(Bishop Robert Lowth, 1762,
A Short Grammar of the English Language)

Which sounds more natural?

I hope unexpectedly to win the prize.
I hope to unexpectedly win the prize.

Sentence-final Prepositions

3a. “What did the president talk about?”
3b. “About what did the president talk?”
3c. “Who did you sit with?”
3d. “With whom did you sit?”

Stranding of prepositions is descriptively impossible in Romance languages, e.g. Latin, Italian, French, Spanish

4. * “Quien Juan ha hablato con?”
5. “This is a rule up with which we should not put.”
   (Winston Churchill)

A preposition is something you shouldn’t end a sentence with…

- the bed had not been slept in
- something to talk about
- what are you looking for?
- in the bed had not been slept
- something about which to talk
- for what are you looking?

Where do Prescriptive Rules come from?

- Rules adopted into English from Latin
- Rules adopted from mathematics
- Speech patterns imposed by speakers with high social prestige
- Word choices of older generation
- Attempts to improve clarity, avoid ambiguity

Double Negatives

9. English
   a. “I didn’t see nothing.”
   b. “He didn’t never say nothing like that.”

Mathematicians may object, but …

10. Spanish
    “No vi nada.”
    I didn’t see nothing.

11. French
    “Il n’a jamais dit cela.”
    He hasn’t never said that.
Agreement

un gato negro
a cat black

dos gatos negros
two cats black

no vi nada
not saw anything

Where do Prescriptive Rules come from?

• Rules adopted into English from Latin
• Rules adopted from mathematics
• Speech patterns imposed by speakers with high social prestige
• Word choices of older generation
• Attempts to improve clarity, avoid ambiguity

Norms of Socially Dominant Group

• US: white, northern, wealthy class
• UK: southern upper-class English

Norms of Socially Dominant Group

• US: white, northern, wealthy class
• UK: southern upper-class English
• Latin America: Castilian Spanish (past)
• Brazil: European Portuguese (past)
• Ireland & US: British English (past)
• …marker of social identification/allegiance

Where do Prescriptive Rules come from?

• “The Jamaicans entered the bobsled competition hopefully and optimistically”
• “Hopefully the Jamaicans will win the gold medal in the bobsled competition”

= the speaker hopes
Where do Prescriptive Rules come from?

- Rules adopted into English from Latin
- Rules adopted from mathematics
- Speech patterns imposed by speakers with high social prestige
- Word choices of older generation
- Attempts to improve clarity, avoid ambiguity

Where might Descriptive Rules come from?

- Saying what ‘makes sense’?
- Saying what is easily understandable?
- …or it’s just the way that English (French, Swahili, Ojibwa…) works

Adverb Placement

- Students who often seek advice from their TA can improve their grades
- Students who often seek advice from their TA can often improve their grades

Comparative ‘-er’

- big: bigger
- sad: sadder
- red: redder
- happy: happier
- enormous: enormouser
- melancholy: melancholier
- crimson: crimsoner
- delighted: delighteder