The Rosetta stone

• *This famous object was necessary to solve a 1500 year old mystery--what were hieroglyphs inscribed on ancient Egyptian relics?*

• *Decorations?*

• *Mystical symbols?*

• *Language?*
What is it?

- A stone with three different inscriptions
- 1- Egyptian hieroglyphs - unknown after 400 AD even to Romans
- 2. Demotic - unknown
- 3. Greek -- known
- The Greek segment indicated all three were the same passage, a tribute to Ptolemy.

- [http://www.mnsu.edu/emuseum/prehistory/egypt/hieroglyphics/rosettastone.html](http://www.mnsu.edu/emuseum/prehistory/egypt/hieroglyphics/rosettastone.html)
Why three languages?

• Hieroglyphic script was the language for religious documents
• Demotic was the common language of the day
• Greek was spoken by the ruling class.
• Thus priests, commoners, and rulers could read the praise of Ptolemy.
History

• Hieroglyphs had mystical appeal to Europeans

• The stone was Discovered near Rosetta, Egypt, north of Cairo, 1799 by Napoleon’s army

• Taken after his defeat to England and recognized as valuable information-- it’s still there!
On exhibit in British Museum, ca 1847
No living person could read hieroglyphs

• Thomas Young, famous physicist, isolated some names and established phonetic equivalents across the languages -- a major discovery.

• Jean Champollion, language savant, found the key in 1821. He knew Coptic which shared some words with demotic. He then extended Young’s discovery to other names and words.
Example “text”
Detail of three scripts
Script naming Ptolemy
Significance for language
Using the "known" to decode the unknown

- Greek could be read
- Glyph patterns noted
- Correspondences drawn (with difficulty)
- Ideographs AND phonetic elements
- Assumption it was a human language
Think rebus and charades

• Essentially Egyptian was written using symbols that stood for the consonants in a word. The sound was reflected in the name of the object. Since vowels were not written, there was much ambiguity and this was reduced by one or more "determinative" ideograms that gave the whole idea of the meaning of the sequence of sound symbols.
Analogy to language acquisition

- Child knows “mentalese” (Greek)
- Child hears, say, English (hieroglyphs)
- Child knows possible elements: N, V, X bar, etc
- Uses “semantic bootstrapping” to determine relation between “mentalese” and English. (“Dog” refers to dog and is N and N is part of NP)
Rossetta analogy to first language acquisition

• Mentalese-->
Rosseta analogy to first language acquisition

- *English*-->
Rosetta analogy to first language acquisition

- English-->
- /
- /
- /
- Mentalese-->
Analogy 2

• Child assumes parents’ use human phrase structure (e.g. follow X-bar structure)

• involves “mapping” English “names” onto mentalese

• Determining actual patterns of English elements
End Rossetta
Pinker’s example
The child must use categories like noun and verb – not just words.

"If children are willing to guess that words for objects are nouns and words for actions are verbs, they would have a leg up on the rule learning problem."

Look for phrases

- Words must be ordered but that requires categories (N, V, etc) within phrases.
Finding phrases requires two assumptions

• "children cannot attack the language learning task like a logician free of preconceptions; they need guidance. That guidance could come from two sources... parents' speech respects the basic design of human phrase structure.... Second, since the meanings are usually guessable in context, the child could use the meanings to set up the right phrase structure. 285"
Guide 1: X-bar theory of phrase structure is innate

- Heads of phrases (N, V, A) are grouped with modifiers inside X phrases.
Guide 2: the child uses the meanings to determine the right structure.

- Meanings guessable in context in Mentalese allow “semantic bootstrapping.”
Pinker's example "The big dog ate ice cream."

1. From learning the individual content words, the child guesses their categories and grows the first twigs of a tree. 285

• A N V N

• The big dog ate ice-cream
Pinker 2

• 2. *Nouns and verbs must belong to phrases; the child posits one for each of these words.*

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NP   VP   NP
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• A N V N

• The big dog ate ice-cream
2. From the meaning of the utterance (by context), the child knows the dog just ate ice cream and guesses that "ice-cream" and "dog" are role players for the verb "eat."

(The child already knows in mentalese about eating and dogs.)
• with a few other assumptions including "dog" being the agent and hence subject NP, a tree has been created reflecting the structure of English.

• "A tree for the sentence has been completed…. The rules and dictionary entries can be peeled off the tree:

• S-> NP VP, NP->(det)(A)N, VP->V (NP)

• Dog:N, ate: V; eater=subject, thing eaten=object
Pinker 5

• Having only a few categories (N, V, A) and corresponding phrases is critical to reducing the information load for the child.

• "Mental flexibility confines children; innate constraints set them free." (They don't get lost in possibilities like us adults!)

• (This is the basic problem with “tabula rasa” and general learning theories.)
Freud and the Rosetta stone?

Europe and America in the 1800s were wild about anything Egyptian. The hieroglyphs were believed to be the keys to ancient magic and if solved, the lost knowledge of Egypt would let free.

Freud probably modeled his theories of mind on the Rosetta!
Dream interpretation and the Rosetta stone?

• The dream-thoughts and the dream-content present themselves as two descriptions of the same content in two different languages; or, to put it more clearly, the dream-content appears to us as a translation of the dream-thoughts into another mode of expression, whose symbols and laws of composition we must learn by comparing the origin with the translation. (Interpretation of Dreams, ch.6)
The dream-thoughts we can understand without further trouble the moment we have ascertained them. The dream-content is, as it were, presented in hieroglyphics, whose symbols must be translated, one by one, into the language of the dream-thoughts.
It would of course, be incorrect to attempt to read these symbols in accordance with their values as pictures, instead of in accordance with their meaning as symbols. For instance, I have before me a picture-puzzle (rebus)-….. Now a dream is such a picture-puzzle, and our predecessors in the art of dream-interpretation have made the mistake of judging the rebus as an artistic composition. As such, of course, it appears nonsensical and worthless.
But Sigmund...

- Nice analogy to the Rosetta stone but you’re no Young or Champollion
- We still need the code book or grammar of dreams to do the translation!
- (If there is one; maybe dreams are more like decorations?)