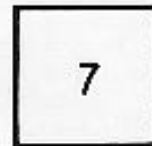
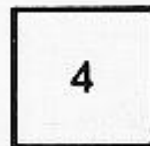
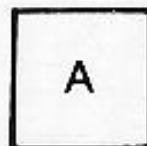


# Odds and Ends

- What to learn?
- Study groups
- Brainstorming for Projects
- Homework

## BOX 6-16 Card Turning Problem

If a card has a vowel on one side, then it has an even number on the other side.



Select those cards that you definitely need to turn over to find out whether or not they violate the rule.

Adapted from Wason (1966)

Solve the problem: Each of four cards has a number on one side and a letter on the other. Which cards must be turned over to test the hypothesis, "If a card has a vowel on one side, then it has an odd number on the other side"? The four cards are showing 6, L, U, and 9, respectively.

L and U

U

U and 9

6, L, and U

U and 6

Solve the problem: Each of four cards has a number on one side and a letter on the other. Which cards must be turned over to test the hypothesis, "If a card has a vowel on one side, then it has an odd number on the other side"? The four cards are showing 6, L, U, and 9, respectively.

L and U -- 3%

U -- 26%

U and 9-- 53%

6, L, and U -- 13%

U and 6 -- 5%

Confirmation Bias biases choice of 9 and prevents people from choosing 6 to test the hypothesis, even though they should

# Ten Criteria for Distinguishing Science from Pseudoscience

- Modified from Finn et al. American journal of speech-language pathology, vol 14, august, page 172
- Untestable—Is the treatment or psychological/social principle unable to be tested or disproved?
- Unchanged—does the treatment or psychological/social principle approach remain unchanged even in the face of contradictory evidence?

# Ten Criteria for Distinguishing Science from Pseudoscience

- Confirming evidence—is the rationale for the treatment or psychological/social principle approach based only on confirming evidence, with disconfirming evidence ignored or minimized?
- Anecdotal evidence—Does the evidence in support of the treatment or psychological/social principle rely on personal experience and anecdotal accounts?
- Inadequate evidence—are the treatment or psychological/social principle claims incommensurate with the level of evidence needed to support those claims?

# Ten Criteria for Distinguishing Science from Pseudoscience

- Avoiding Peer review—are treatment or psychological/social principle claims unsupported by the evidence that has undergone critical scrutiny?
- Disconnected—is the treatment or psychological/social principle approach disconnected from well-established scientific models or paradigms?
- New terms—Is the treatment or psychological/social principle described by terms that appear to be scientific but upon further examination are found not to be scientific at all?

# Ten Criteria for Distinguishing Science from Pseudoscience

- Grandiose outcomes—Is the treatment or psychological/social principle approach based on grandiose claims or poorly specified outcomes?
- Holistic—Is the treatment or psychological/social principle claimed to make sense only within a vaguely described holistic framework?



THE UNDERSTATEMENT OF THE  
MILLENNIUM AND THE DISCOVERY  
OF THE GENE THAT SUPPLIES  
THE BODY WITH THE ABILITY TO  
TALK

JOHNSON... I THINK  
I MAY HAVE A  
BREAKTHROUGH.

ASK ME,  
I'LL TELL YOU..  
WHAT DO YOU  
WANT TO KNOW?

E mail: [mrboffo@mrboffo.com](mailto:mrboffo@mrboffo.com)

JOE  
MARTIN  
12-9-99

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# Design Features of Language

- Hockett (1960)
- vocal auditory channel
- broadcast transmission
- directional reception
- rapid fading
- interchangeability
- total feedback
- specialization
- semanticity,
- arbitrariness
- discreteness
- displacement
- productivity
- traditional transmission
- duality of patterning

# More Current Features

- Duality of patterning
  - Meaningless units
  - Meaningful elements
- Arbitrariness
  - Symbol meaning relationship
  - Phonological symbolism

kiki versus bouba

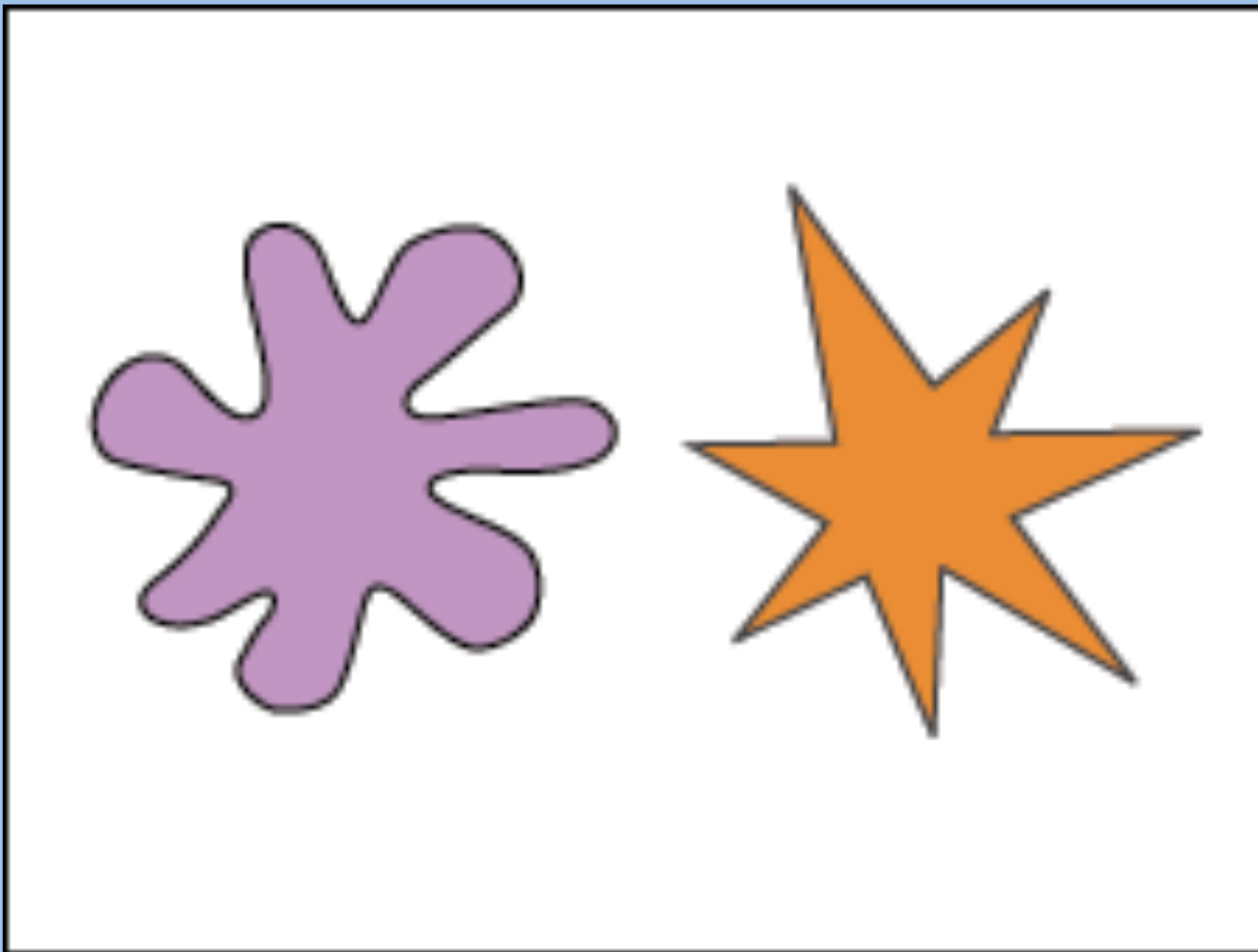




Fig. 11.7. Signs for 'tree' in three sign languages. Reprinted from 'Two faces of sign: iconic and abstract' by U. Bellugi & E.S. Klima in *Annals of the New York Academy of Sciences*, 280, 1976, by kind permission of the authors and the New York Academy of Sciences.

# More Current Features

- Duality of patterning
  - Meaningless units
  - Meaningful elements
- Arbitrariness
  - Symbol meaning relationship
  - Phonological symbolism
- Recursion
  - Embedding clauses
    - Mary said that John thought that Henry was fired
  - Pirahã language

[Noam] Chomsky (1980: 221-222):

. . . the rules of the grammar must iterate in some manner to generate an infinite number of sentences, each with its specific sound, structure, and meaning. We make use of this 'recursive' property of grammar constantly in everyday life. We construct new sentences freely and use them on appropriate occasions . . .

# Language and Communication

- Multiple types of study
  - Literary
  - Scientific
- Scientific perspective
  - Form--What it is--Linguistics
  - Function--How it is used--Psycholinguistics

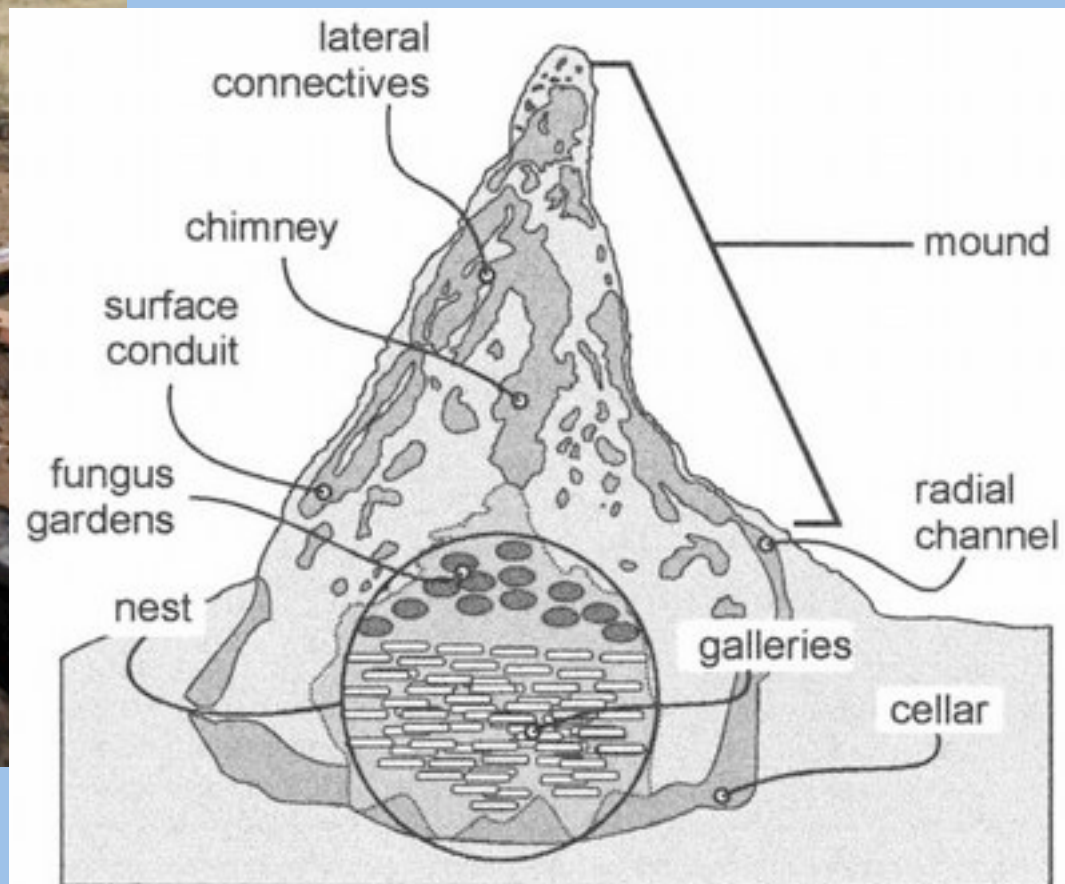


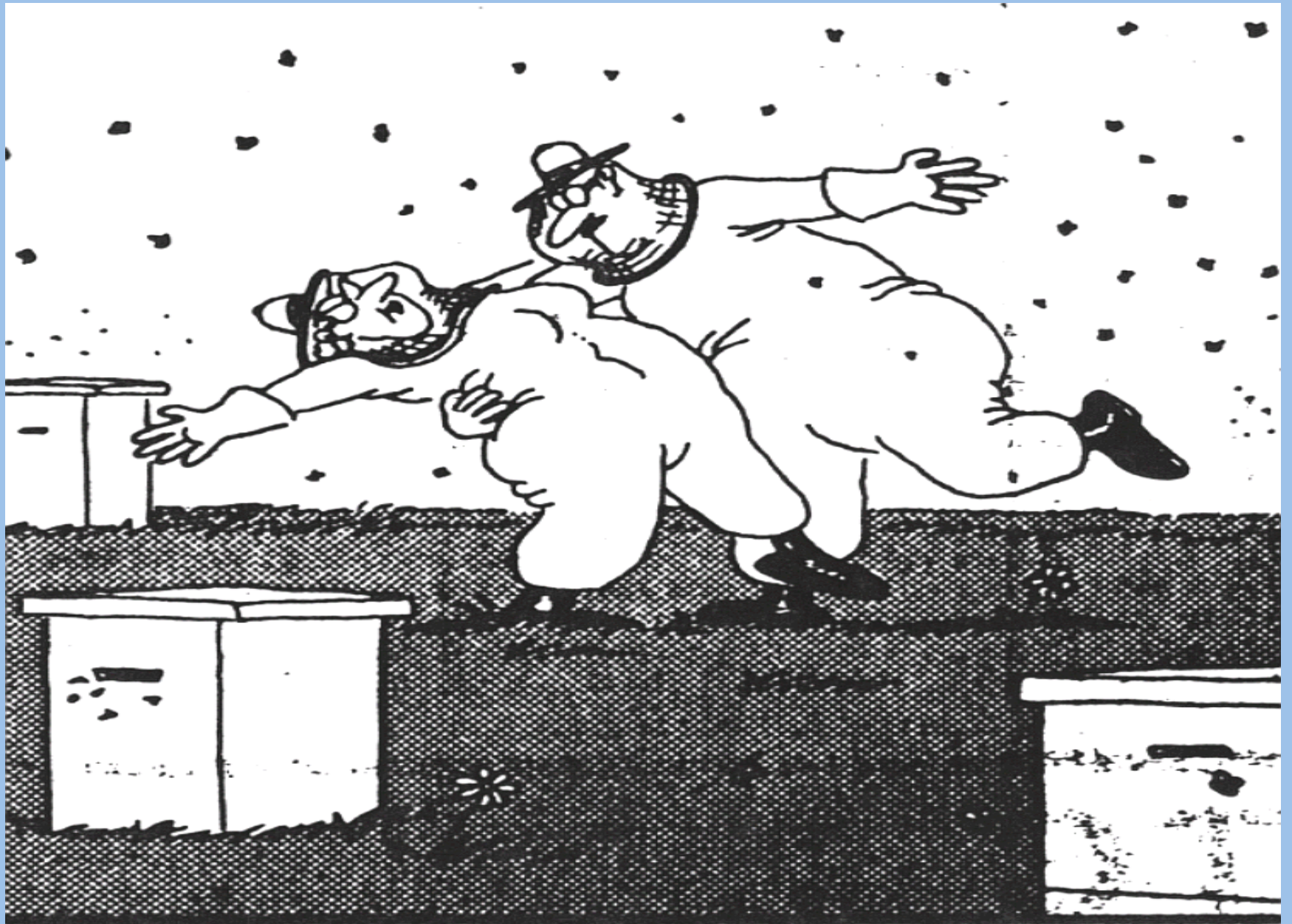
# Knowledge of Language

- Procedural--
  - Knowing how
- Declarative--
  - Knowing that
- Testing for Rules
  - One wug, two ?
- Conscious report of rule
  - not informative

# Animal Communication

- Ants
  - Architectural Termites
- Bees
  - Magical Dances





**Dance of the Beekeepers**



# Animal Communication

- Ants and bees--
  - Scents and dances
- Birds Learning songs--
  - Critical period
- Chimps--
  - Limited inventory of sounds
- Learning language--
  - Making things happen vs. referring to things

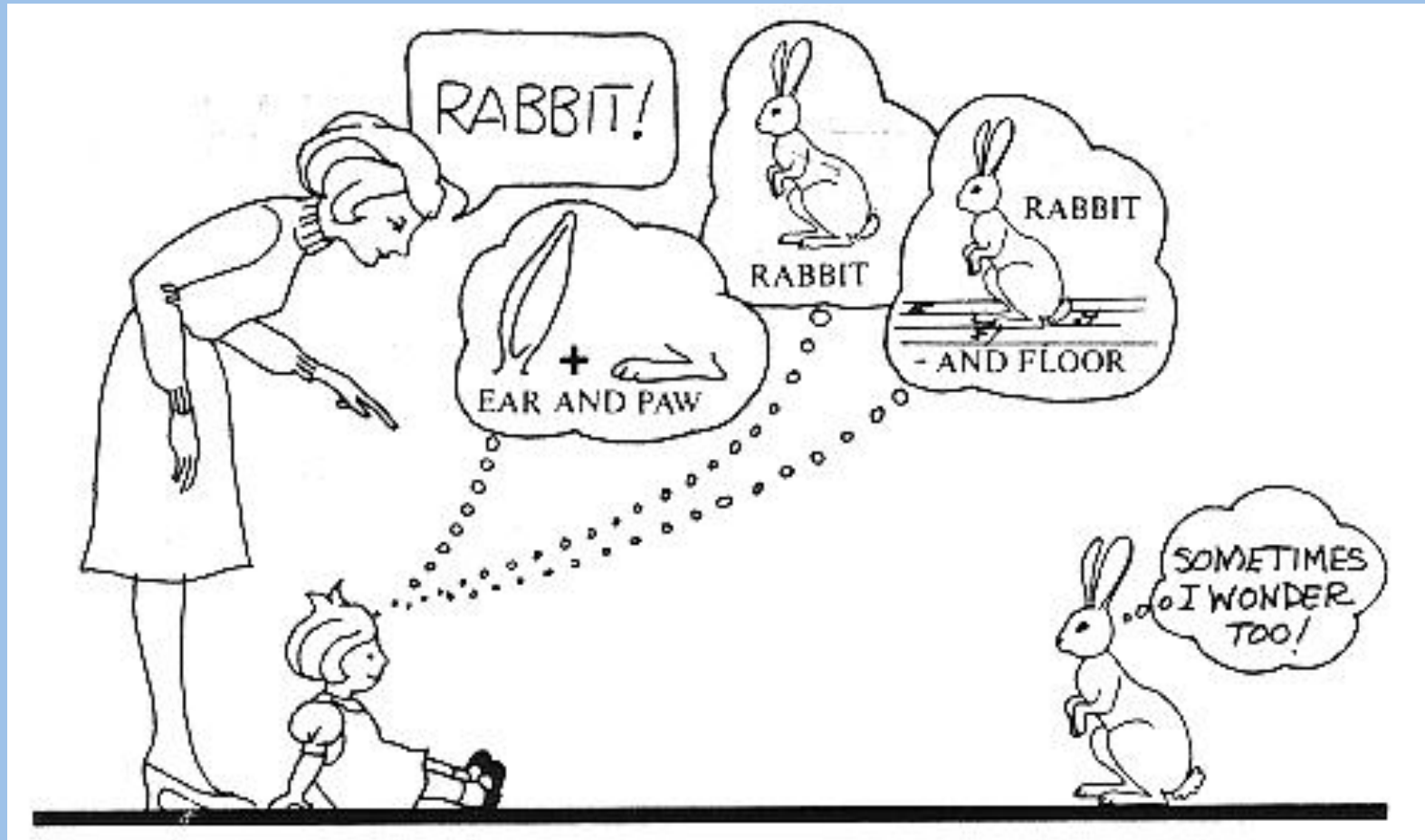
# HAGAR THE HORRIBLE



# Language -- Uniquely Human?

- Language -- human function?
- Ideal symbol system
- Gavagai!
  - Willard Van Orman Quine
  - Anthropologist and Informant
  - Language Acquisition

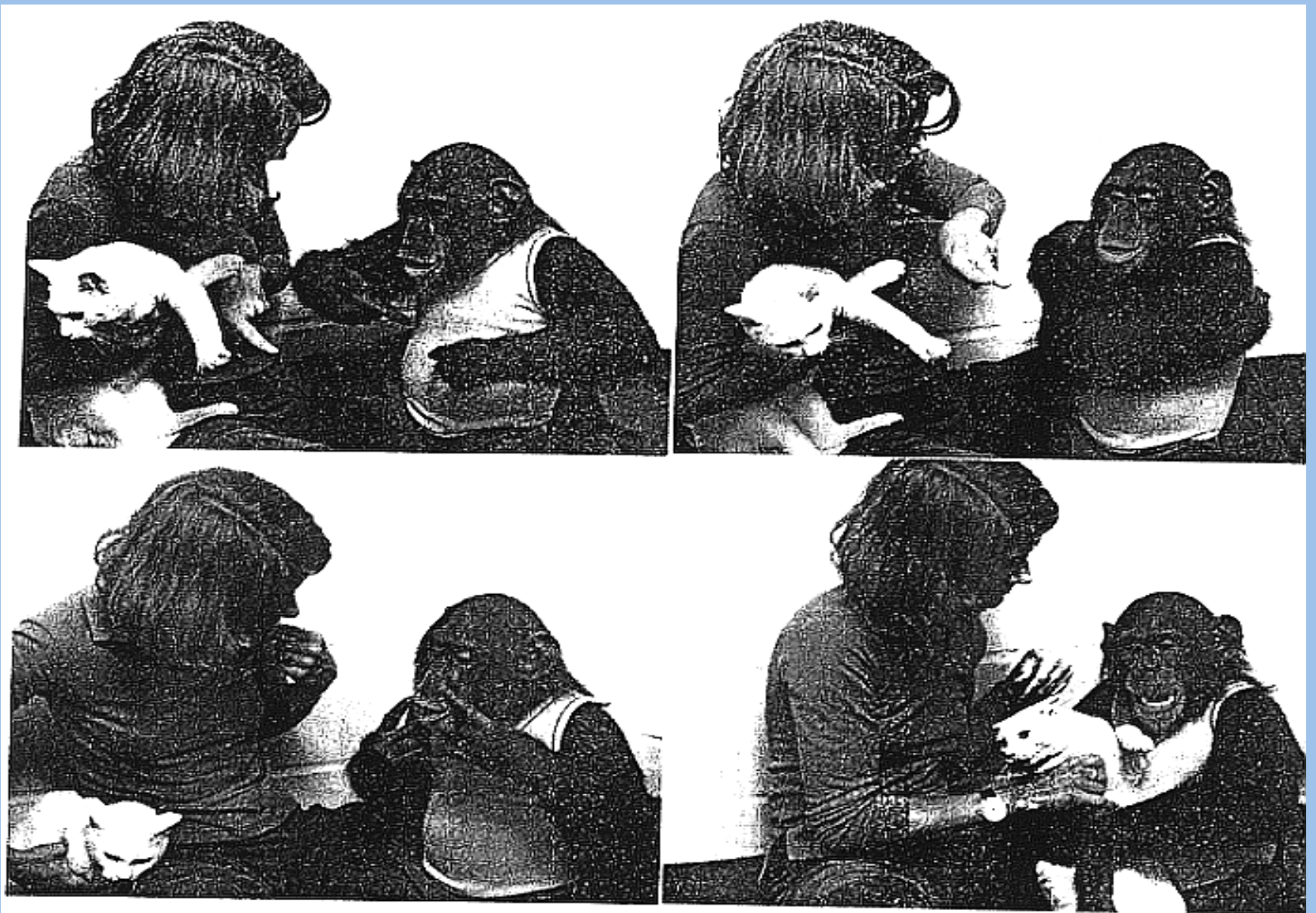
## Gavagai -- Puzzle of Language Acquisition





# Four levels of language

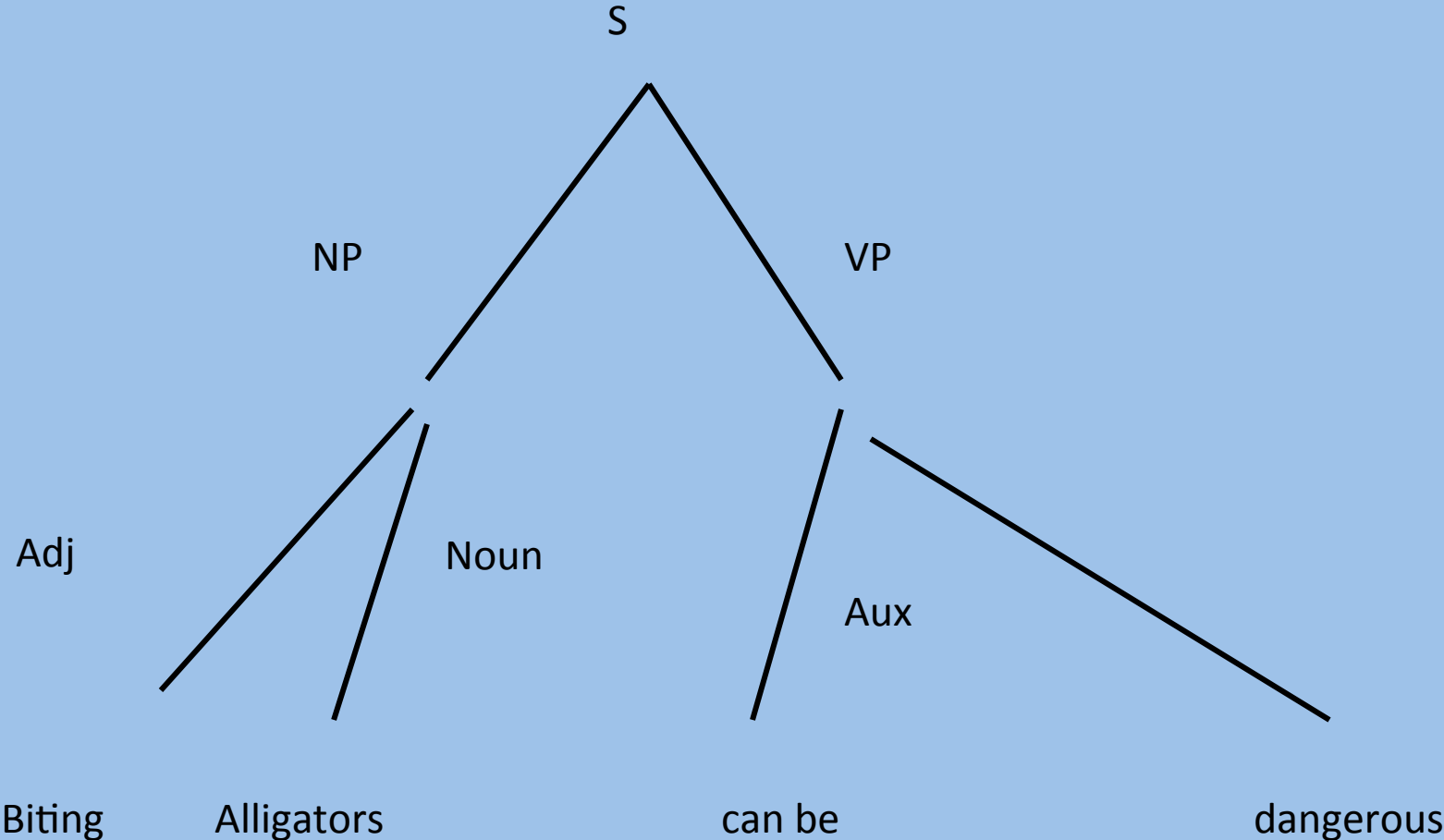
- phonology -- surface form of language
  - Sign Language
  - Speech
    - Syllables
    - Chinese tone
      - flat ma -- mother
      - rising ma -- hemp
      - down up ma -- horse
      - falling ma -- scold

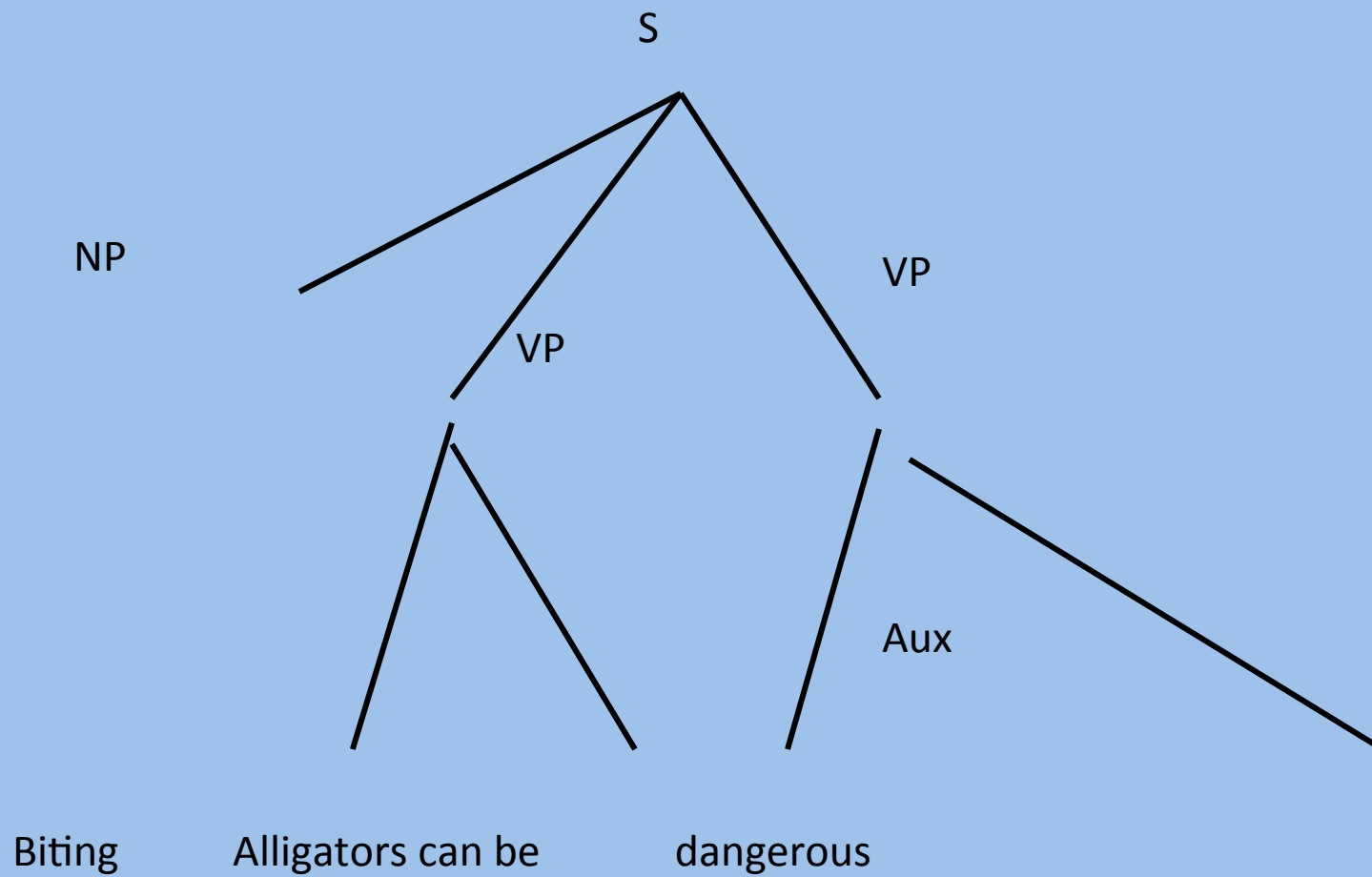


*Figure 9.1 Nim signs 'me hug cat' to his teacher, Susan Quinby (photograph by Herbert Terrace).*

# Four levels of language

- phonology -- surface form of language
  - Sign Language
  - Chinese tone
- syntax -- grammar
  - Biting alligators can be dangerous





# Four levels of language

- phonology -- surface form of language
  - Sign Language
  - Chinese tone
- syntax -- grammar
  - Biting alligators can be dangerous
- semantics -- meaning
  - Waltzing matilda
  - Lexicon
    - Onomatopoeia

# Australian song -- Waltzing Matilda

- [Demo--The Seekers](#)
- [Words](#)
- <http://www.youtube.com/watch?v=INdjRCNcZj0>

# Australian song -- Waltzing Matilda

- Swagman -- hobo street ; street person
- kilubar tree -- Eucalytus
- billy bong -- river
- billy boil -- coffee
- watzing matilda -- walking or hiking
- jump buck -- sheep
- tucker bag -- a pillowcase on a stick



# Four levels of language

- phonology -- surface form of language
  - Sign Language
  - Chinese tone
- syntax -- grammar
  - Biting alligators can be dangerous
- semantics -- meaning
  - Waltzing matilda
  - Lexicon
    - Onomatopoeia
- pragmatics -- function
  - A fine friend you are!