

# Overview of categorization

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- Categories impose status of sameness on different (but related) patterns.
- Schema - abstract representation of a category.
- Knowledge about a category exists in the associations between the schema and other categories which are associated with it (including linguistic categories)
  - Associations vary in cue validity
  - Certain associations characterize the prototype

# Overview of categorization

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- Category structure is hierarchical.
  - Categories can 'contain' other categories
  - Lower level category shares all features of higher level category
- Higher level categories have fewer defining criteria, they are more schematic (vague)
  - thing > mineral > diamond > blue diamond

# Overview of categorization

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- Higher level categories are more differentiated from other categories
  - Animals, fruit, tools
  - Apple, orange, pineapple
- Higher level categories lack internal consistency:
  - Things = rocks, buildings, people, countries, fruit, spaceships, jewelry, meat...

# Overview of categorization

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- Brains tend to organize the world (at least at first) around a certain optimal level, the basic level.
- The basic level:
  - Where tension between the internal consistency of the category and its differentiation from other categories is optimally resolved.



# Overview of categorization

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- The basic level is rooted in experiences of how features/attributes co-occur in the world
  - Not necessarily fixed, related to our interaction with the world
  - Natural discontinuities -- vis a vis our needs, where is it sensible to create divides
  - Ex. Consider 3 plants: cotton, thistle, flax
    - Human: [cotton, flax] / [thistle] (cloth source vs. not)
    - Boll Weevil: [cotton] / [thistle, flax] (food vs not)

# Language and categorization

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- Linguistic representations map onto (are associated with) other categories/schemas
- Words map onto schemas imperfectly
  - Ambiguity, vagueness and polysemy

# Language and categorization

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- Ambiguity - 1 word --> 2 or more unrelated schemas
  - Bank - financial institution or river's edge
  
- Vagueness - 1 word --> 2 or more irrelevantly different categories - no experiential basis for considering separate
  - Aunt - mother's sister or father's sister
  - Vagueness probably always present, not always troublesome

# Language and categorization

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- Polysemy - between vagueness and ambiguity
  - Paint - a house vs. an oil painting



# Language and categorization

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- Encoding basic level objects
  - Basic level terms tend to be simpler
  - Subordinate terms are often compounds formed from basic level terms
    - Claw hammer, red delicious apple, gold fish
- Basic level terms tend to be learned early

# Language and categorization

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- Language and events
- Is there some notion of basic level events?
  - Something happened > a canine made a noise > a dog barked > a french poodle emitted a loud sharp bark
  - Move > walk > creep

# Language and categorization

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- Children tend to learn 'light' verbs first
  - *Want, do, make, put, get...*
  - Schematic, polysemous
- Developmental overview
  1. Verbal 'islands' - verbs used conservatively
  2. Noun substitutions occur
  3. Verb substitutions occur

# Language and categorization

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## 1. Verbal islands

- Children begin using verbs in the same patterns and with the same words in which they learned them.



# Language and categorization

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## 2. Noun substitutions occur

- Children begin to substitute other nouns into familiar patterns
- Generalization of verbal categories
  - Liken to creation of 'dog' schema after seeing many dog exemplars all with all their variations
- Strengthening of part of speech type categories (N,V, Adj, etc.)

# Language and categorization

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1. Verb substitutions occur
  - Syntactic pattern categorization
  - Sequences of words can be viewed as sequences of word categories --> constructions

# Constructions

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- Constructions (Goldberg)
  - Form meaning pair independent of words in sentence
  - Traditionally differences in complement configuration are associated with differences in verb meaning:  
(dative vs. ditransitive construction)
    1. I brought a glass of water to Pat/the table
    2. I brought Pat/\*the table a glass of water

# Constructions

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1. The garden is swarming with bees
2. Bees are swarming in the garden

In (1), garden must be full of bees, in (2), not necessarily.

1. I loaded the truck with hay.
2. I loaded the hay onto the truck

In (1), truck is filled with hay, in (2) not necessarily.



# Constructions

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1. I am afraid to cross the road
2. I am afraid of crossing the road.
3. ?I am afraid to fall down.
4. I am afraid of falling down.

*afraid to* constructions presuppose intention to commit act described, *afraid of* constructions do not.

# Constructions

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Transitivity: agent acts upon object causes an effect in object

- John kicked the ball
- Mary ate the ice cream

Adjective + *to* anticipates an intended action

- I'm afraid/proud/glad to tell you the story of my Dad.

Adjective + *of* presents an anticipated reaction to a condition

- I'm afraid/proud/\*glad of telling you the story of my Dad.

# Constructions

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- A constructional account of meaning claims that systematic differences in meaning between the same verb in different constructions are attributed to particular constructions.

# Constructions

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1. Pat kicked the wall. (transitive)
2. Pat kicked Bob black and blue. (resultative)
3. Pat kicked the football into the stadium.  
(caused motion)
4. Pat kicked at the football.
5. Pat kicked his foot against the chair.
6. Pat kicked Bob the football. (ditransitive)
7. The horse kicks. (intransitive)
8. Pat kicked his way out of the operating room.  
(way construction)



# Constructions

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- The meaning of a sentence is comprehended partly from the specific words used and partly from the constructional meaning.

# Constructions

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- Evidence from nonsense words
  - I *mooped* him something (60% of people say *moop* means *give*)
- Naigles et. al study (1987)
  - Children (24-30 mos.) shown 2 scenes on videotape
    - Big bird pushing cookie monster down (transitive)
    - Big bird and Cookie Monster both squatting (intransitive)
  - Simultaneously heard transitive or intransitive constructions
  - Preferential looking to scene matching constructional meaning

# Constructions

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- Constructions allow for novel extensions of verbs.
  1. She sneezed the napkin off the table.
  2. Dan talked himself blue in the face.
  3. She baked him a cake.
  4. She soldered him a music stand.

# Constructions

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- “Simple clause constructions are associated directly with semantic structures which reflect scenes basic to human experience.” (Goldberg)
- Constructional meanings may bootstrap up from ‘light’ verb meanings
  - Verbs with rather schematic meanings learned first
    - *Give* - non specific for what is given, who it is given to, how the given object is made, etc. → schematic
    - *Put, take, go* similar



# Constructions

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- Patterns learned and associated with this meaning
  - He gave me the ball.
  - He gave the ball to me
  
- New verbs substituted into pattern
  - He threw me the ball.
  - He handed the ball to me.
  
- New verb meanings are learned both by association with experienced events, and by an understanding of the constructional meanings in which they occur

# Constructions

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- Sentences are comprehended from a variety of cues: lexical meaning, on-line adjustments (beachcomber model), constructional meaning
- Prototype not always interpreted
  - *Red squirrel*
    - red, and squirrel together activate particular comprehension of both 'red' and 'squirrel' (Zwaan & Madden)
  - Fred read *all* the books in the library
    - meaning of *all the books* is readjusted to mean each unique book (Zwaan & Madden)

# Constructions

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- Polysemous senses of words require resolution
  - *Paint* the wall *vs.* *paint* a mural (Tuggy)
- Constructions are associated with basic events
  - Causation, moving, giving, receiving
  - Constructions characterized by sequences of word categories
    - Transitive: N-V-N
  - Constructions can be polysemous or ambiguous as well
    - N-V-N    I have a book, I kicked the ball

# Constructions

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- Speech acts also constructional (Perez Hernandez)
  - Speech acts are defined in terms of patterns of intonation, morphology, etc.
    - Interrogative
    - Imperative
    - Declarative
  - Indirect speech acts
    - Can you pass the salt? (question form/imperative function)
    - That's your sister? (declarative form/interrogative function)
    - You're to be here tomorrow. (declarative form/imperative function)



# Constructions

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- Linguistic forms are cues for interpretation, but meanings are rarely fully compositional – that is predictable from knowing the prototypical meanings of the parts