

# Conceptual behavior language



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Conceptual Behavior Definition: Behavior under the control of generalized or abstract stimulus properties rather than specific attributes

°List of 12 words, group into 3 categories  
Concept Definition: Distinct category of objects or events that are all generally related on the basis of certain features

°Positive vs. Negative instances

Ex. shown picture of a cat= positive instance, shown picture of a bunny= negative instance because category is cats

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Now How do we learn concepts? 1. Hypothesis Testing Theory

2. Family Resemblances

3. Hierarchical Organization  
Hypothesis Testing Theory-Proposed by Bruner, Goodnow, and Austin

1. Wholist Strategy: responding to all attributes of a conceptual class or category

°Most efficient because you don't have to start over

°Ex. Looking at cards, after correct for one item remembered all characteristics, when told incorrect narrow down list, and so on

2. Partist Strategy: focusing on a single attribute of a conceptual class or category

°Ex. looking at cat, importance is fur, therefore dog is cat because of fur

Concept Learning-Part of Hypothesis Testing Theory

Definition: hypothesis is testing about a concept by making guesses about which attributes are essential for defining the concept

-Problems:

1. rule of confirmatory and disconfirmatory feedback

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2. Participants forget their hypothesis

3. Complex concepts

-Conjunctive Concept: Concept in which members must possess both of two separate attributes (" AND")

-Disjunctive Concept: Concept in which members must possess either one of two separate attributes (" OR")  
Family Resemblances-Members of a concept share in common family resemblances

°Ex. Bird-- wings, feather, but different colors

-The more resemblance something has the quicker the association is made

-According to Rosch and Mervis (1975) members of a concept share something in common with other members of a concept, although they may not all share the same thing

Hierarchical Organization  
1. Superordinate Level: the most generic and inclusive level of a conceptual category

°Ex. Food

2. Basic Level: the most useful level of a concept, characterized by neither too much or too little information

°Ex. Pizza

3. Subordinate Level: the most restrictive, specific level of a conceptual category

°Ex. Papa John's Pepperoni  
Why are concepts important?-Concepts allow us to categorize stimuli we have never encountered before

-Helps us navigate in an every-changing world

Theories of Concept Representation  
1. Feature List Theory

2. Prototype Theory

3. Exemplar Theory

4. Neural Network Model  
Feature List Theory-Concepts are represented

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mentally in terms of a list of features

a) Defining features: features necessary for inclusion in a particular concept;

**MUST HAVE**

b) Characteristic feature: aspects of a concept that most instances share in common

-Visually based

-Features of a particular object are compared to the features of the concept stored in memory

-If the object possesses enough relevant features it is recognized as a positive instance of the concept  
Prototype Theory: member of a conceptual category exhibiting a collection of typical features or attributes

-People abstract the common elements of a particular concept and then store an abstracted prototypical representation in memory

-PROTOTYPE= average of a large number of examples in the concept

-Evidence

1. easier to identify positive instances that closely resemble the prototype

2. Easier to identify a positive instance never encountered before that closely resembles the prototype than positive instances encountered before that do not closely resemble the prototype

-Problems

1. How do members that substantially differ from the prototype become included in the concept? Exemplar Theory-Concepts are represented by a variety of examples

-Each concept is represented by any number of specific members of the concept

-An object is similar to an existing exemplar it is considered a positive

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instance of the concept

-Evidence

1. People can learn poorly defined categories

-Problems

1. How are concepts formed in the first place? Neural Network Model-

Concepts are represented as nodes

-Networks connects various nodes

-SPREADING ACTIVATION: one node stimulates other nodes

Degree of activation dissipates as it spreads out across the network

Are nonhuman animals capable of conceptual behavior? -No, concepts require language

-Not really, performance in experiments are similar to performance on discrimination tasks

-Maybe, results from some experiments suggest that animals may have concepts

-Yes, animals have concepts same way as humans do What is the evidence?

1. Harry Harlow

2. Kohler

3. Perceptual Concept Learning

4. Relational Concept Learning

5. Associative Concept Learning Harry Harlow<sup>o</sup>1940s-1950s

-Results: improvement in rate of learning

-Apparatus with monkey, tray in middle with 2 objects, monkey had to select one object, experimenter defined one as correct, if monkey selected correct one monkey got a reward

-LEARNING SET: application of previously learned rules or responses to novel

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circumstances

• "Learning to learn" Kohler (1939)-Results= responding to the lighter shade

-TRANSPOSITION EFFECT: responding to a relationship between 2 stimuli

rather than to discrete characteristics of either stimulus

-Pecking at the lighter one because learned relationship of lighter shade, not

specific shadeHerrnstein, Loveland and Copeland-Perceptual Conceptual

Learning

-Took pictures of 40 trees, then 40 pictures of anything else but a tree,

projected pictures for pigeons tree was S+ and received food, showed

pictures in random order

-Alternative Explanations:

a) Pigeons memorized each picture?

Vaughn and Greene, categories vs. pseudocategories, novel stimulus

b) Natural categories-- innate categories? already known for survival? Bhatt,

Wasserman, Reynolds and Khauss-1988

-Presented box with 4 response keys to pigeons, like a multiple choice test

-2 natural, 2 man made categories

-Perceptual Conceptual LearningRelational Concept Learning-Depends on

identifying common perceptual relationships among different sets of stimuli

-Objects share a common relationship

-Same/different concept

-Nonhuman primates-- learn the same/different concept rapidly

• Oden, Thompson and Premack (1988)

-Absolute number discriminationAssociative Concept Learning-Depends on

identifying common associations

• No physical similarities

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-Associative concepts based on a common response

◦Vaughan

-Associative concepts based on a common outcome

Language Definition: Highly structured symbol system that allows for creative and meaningful communication between organisms

Universals Definition: Features of language that appear to be true of all language users, regardless of the language one speaks or the culture in which one lives

Language

Development: Newborns

Auditory Discrimination

1. Ability to recognize human speech

2. Ability to discriminate different languages

3. Preference for mother's voice

4. Preference for native language

5. Ability to distinguish all of the basic sounds that constitute human languages

-When babies are born babies can tell difference among all languages, but as grow lose this ability

◦Okay, because it helps person effectively and accurately learn own language

◦This is why it is easier to learn language at a younger age

Language Development: End of First Year

HOLOPHRASE: single word utterances ordinarily referring to important objects or events in an infant's

environment

Language Development: 18-24 Months

TELEGRAPHIC SPEECH: 2-3 word utterances that include only truly necessary words

Language Development: Preschoolers-Longer utterances

-Still miss some vocabulary

-Using prepositions and verb tenses, even if its not accurate

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-Just pick up language, no training needed  
Preparedness of Language-Formal training is not necessary

-Minimum environmental input  
Sensitive Period-Limited time period during which a developmental milestone can be most readily achieved

-Idea of being fluent and bilingual are different, hard to be

bilingual  
Psycholinguistic Approach  
PSYCHOLINGUISTICS: Discipline devoted to understanding the properties of human language and the mechanisms

responsible for language acquisition  
Phonemes vs. Morphemes  
PHONEMES:

w/o meaning

-Sound of " p"

-Can't differentiate vowel sounds (brazil vs. spanish)

MOPHEMES: actual meaning