Language and Categorization

CG45
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Does language affect the way we perceive the world and group entities together?

Yes: Sound categories

What about higher level concepts?
Outline

Support for language as category builder
  Relational words
  Noun individuation
Nature of categories before language
  Pre-linguistic categories
  Developmental relationship
Why should we care?
Color

“It’s not that men can’t see fuschia, it’s just that they don’t know what to call it.”

– B. Balas

Results in the domain of color are, frankly, mixed. Furthermore, color perception has biological underpinnings. So maybe this isn’t the best place to start.
Spatial Relationships

Different languages talk about spatial relationships between objects differently: e.g., Korean: tight/loose fit
English: support/containment

Does this alter the way speakers of these languages conceptualize these relationships?
Korean

NOHTA
- put hat on head

SSUTA
- put cup on table

KKITA
- put ring on finger
- button a button
- close a drawer
- put piece in puzzle
- put cassette in case

NEHTA
- put fruit in bowl
How does this affect categorization?

Bowerman & Choi (1991, 2001 and others) have found that children as young as 17 months seem to group these events differently, depending on their language.

Casasola & Cohen (2002) find that neither of these categorizations is more natural for pre-verbal infants.
Individuation of Nouns

English distinguishes (grammatically) between mass nouns (like *spinach*) and count nouns (like *tomato*)

I ate the tomato. → I ate a tomato.
I ate the spinach. → *I ate a spinach.
Imai and colleagues tested word-meaning extension in English and Japanese speakers (adults & kids)

When novel words were associated with non-solid substances, Japanese speakers extended word meaning to the substance; English speakers responded randomly.

In the case of solid, simple objects, the pattern of extension was almost exactly opposite.
“Three long thin wax”

Yucatec Maya has a continuum of treatment for discrete vs. non-discrete nouns (Lucy). Plurals are not obligatory, if numerals are used, shape or material properties must be indicated.

Adult English speakers make similarity judgements based on shape; adult Yucatec speakers do so on material properties, regardless of object stability.
What about kids?

7-year-olds show no difference in categorization based on their native language (though their grammar is fine)

   Stable objects: bias toward shape
   Malleable objects: bias toward material

9-year-olds have begun to show patterns of categorization that are similar to those of same-language adults

Reorganization of categories with age
Pre-linguistic Categories?

Is it possible to have a word without understanding the category?

Is it possible to have a category without having a word for it?

In other words, what does this data predict regarding the categorization by pre-linguistic infants?
Pre-linguistic categories

Quinn et al 2001 demonstrated that even very young infants can categorize objects

In a novelty-preference task:

Newborns differentiate between open vs. closed shapes (e.g., cross vs. circle)

3 & 4 month olds have more refined categories (e.g., circle vs. triangle)
Quinn et al (2001) Stimuli

The stimuli presented to the infants in Expts 1, 2, and 3.
Developmental Relationship

If we form categories before we have language, what is the relationship between categorization and language?

Are pre-linguistic categories altered by language?

Are pre-linguistic categories discarded completely (or even non-existent)?