The role of categorization experience in the induction strategies and in the generalization development in infancy

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Introduction

Is conceptual representation necessary to the conceptual development in infancy?

According with one position infants can't make generalizations and inductive inferences only on the basis of perceptual similarity (Mandler, McDonough, 1996). Therefore, conceptual representation necessary to the induction.

According with the other position we haven't convincing evidence about conceptual knowledge up to 4-5 year (Colunga, Smith, 2005).

Both positions agree that it is most important to understand the infant conceptual development to uncover accessible resources for information transfer from familiar objects to the new ones.

Method

Subjects: N = 80 children

40 children from 18 to 24 month (two experimental groups (N=15x2) and control (N=10))
40 children from 24 to 36 month (two experimental groups (N=15x2) and control (N=10))

1.Sequential touching task

We offered all children to play with the set of toys in two conditions:

Basic-level contrast - provides a perceptual attitude to the objects

Superordinate contrast – provides a conceptual attitude to the objects

In control conditions children performed only induction task

2. Induction task

After the play we modeled action appropriate only for dogs feeding dog bone. Following modeling induction task was given. Different target animals were brought out and put on opposite modeled item.

We **evaluated** which toy animal, and in which order, children have feed.

We examined whether the performance in induction task depends on previous categorization experience which we suppose to be more intense in condition with superordinate contrast between objects.

1.Sequential touching task

Basic-level contrast:
Dogs VS Horses

Superordinate contrast:
Dogs VS Cars
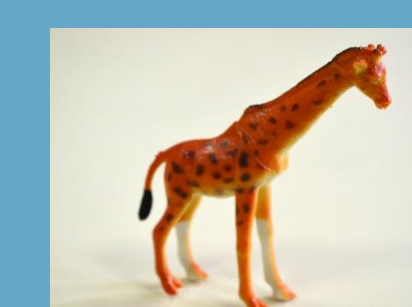

2. Induction task

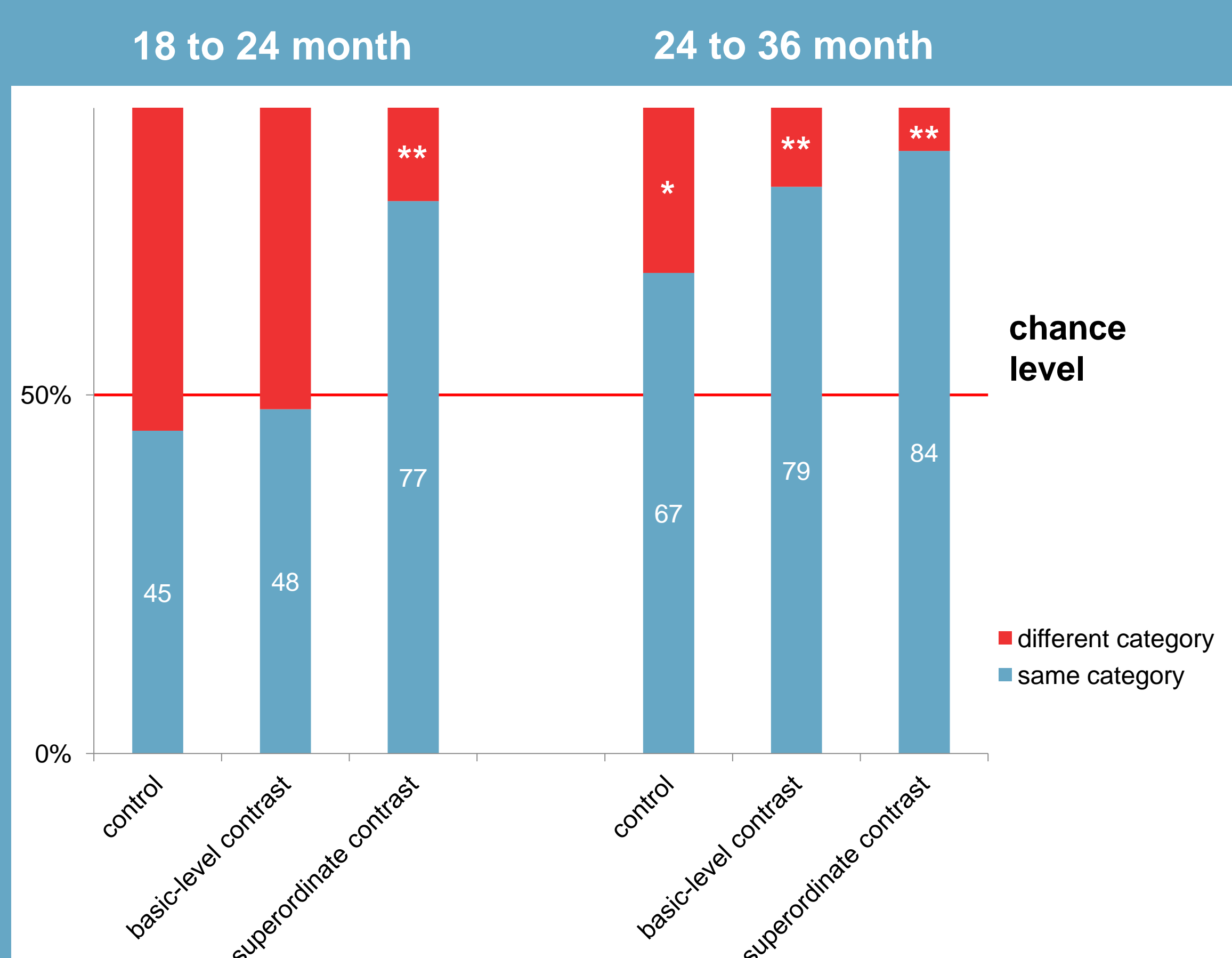Model object

Similar typical object

Dissimilar atypical object

Two objects from different category

Results

Proportion of relevant target objects (dogs) on which were transferred modeled actions

18 to 24 month   24 to 36 month

chance level

** ** * ** **

77   67   79   84

45   48

■ different category
■ same category

50%

0%

control / basic-level contrast / superordinate contrast / control / basic-level contrast / superordinate contrast

Additionally we analyzed the type of selected items of the same category (typical and atypical) only for experimental conditions where subject was mostly successful in induction task.

The results of both age groups in condition with superordinate contrast were very similar, the first selection of target animal was atypical one (about 75% in younger group and 60% in elder group).

But elder group subjects in condition without superordinate contrast more often selected the similar target animal (about 80%).

Discussion

These data show us that categorization experience affects inductive inference in infants: only in superordinate contrast condition 18-24 month-olds make right transfer.

The analysis of selected items type reveal surprising result because they resemble the different strategies of inductive inference in adults (Osherson, 1990). When children pick on dissimilar target object it looks like they verify their expectations on most distant examples (diversity effect). But they prefer to rely upon the shape overlap when choose similar object (similarity effect).

According with dominant opinion children exhibited "diversity" reasoning around eight years (Lopez et al., 1992) but don't in infancy. Our results contradicts this opinion. We assume that even infants can apply various generalization strategies based on memory tracks without selective attention.

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