Introduction

• Children with Developmental Language Disorders (DLD) have difficulties in word learning [Kan & Windsor, 2010].
• Bayesian theories of cognition offer an interesting approach to study word learning [Xu & Tenenbaum, 2007]:
  • Based on the idea of a strong mechanism of inductive inference as a chore mechanism of learning processes, they highlight the importance of:
    • Prior knowledge, such as semantic biases,
    • Environmental data to which the learner is exposed,
    • The interaction between prior knowledge and environmental data;
  • They can account for quick abstract acquisitions [Tenenbaum, Griffiths, & Kemp, 2006].
• Categorization and generalization processes are involved in word learning. The biases a learner has acquired could accelerate word learning and help generalization [Perry & Samarkian, 2011].

Our aim is twofold:
• Determine if children with DLD can use inductive inference in order to acquire and generalize new biases in a categorization task;
• Explore if children with DLD can identify and use relevant prior knowledge in a categorization task.

Methods

• Participants
  • DLD
  • Age-matched control
    N = 17
  • Similar non verbal IQ
  • N = 23
  • Special schools
  • Language profile

• Materials and procedure
  • Word learning task - categorization
    First order inference: bias acquisition
    • 40 items from 2 categories
    • Stop: 5 consecutive CR
  • Generalization
    2nd order inference: Category extension
    • Use of the bias

• Learning association task
  • Learning of new knowledge
    • Same prior knowledge
    • Use of new knowledge

Results

• No significative differences (t student tests, Mann-Whitney, bayesian t tests)

Ca to learn the bias

b. to generalize

c. to use prior knowledge

No significative differences

Conclusion

• DLD children seem able to:
  • Discover a categorization rule based on 1 perceptual feature when resorting to prior knowledge is unable;
    ➔ What about the quantity (one vs several) and nature (functional/relational) of the relevant features?
  • Abstract the rule at a 2nd level in order to generalize and extend it at a larger superordinate category;
    ➔ As they can verbalize it: what about children who reach the stopping criteria but fail to generalize?
  • Identify and use relevant semantic knowledge in order to classify items;
    ➔ Further investigations with eye-tracking
  • Results are in line with Bayesian models of cognition but
  • Difference between inference and generalization: What about this mechanism when the rule has to be modulated by prior knowledge?