

Learning emotion+mental state adjectives from linguistic context

Ayush Singh, Deshik Iyengar, Prof. Kristen Syrett

Rutgers Department of Linguistics and Center of Cognitive Science (RuCCS)

Introduction

Children must acquire **words that describe mental states and emotions**, like *happy*, *sad*, *confident*, or *curious*. Factors such as caregiver interactions, non-linguistic context, cognition support the understanding of the concepts these words express. But how do children acquire this word meaning? One cue is the linguistic context in which these words appear (Gleitman, 1990; Landau & Gleitman, 1985; Naigles, 1990; Syrett & Becker, 2024).

This study further explores **linguistic context** as a resource for acquiring word meaning for these adjectives. The findings are relevant to the development of early emotional intelligence and have broad implications for educational practices and clinical work aimed at supporting children's socio-emotional growth and neurodivergent learners who cannot rely on social cues.

Objective

We aim to better understand how children can recruit the linguistic context (sentence syntax and subject animacy) as cues to support the acquisition of words that express emotions and mental states.

Background

We capitalize on the concept of **syntactic bootstrapping**: the idea that children can narrow down the possible meaning of a word given the syntactic context (or structure) in which it appears (Gleitman, 1990; Landau & Gleitman, 1985). Some **adjectives**, like verbs, take **complements** (*happy about doing something*, *surprised that something is happening*). We ask if children can use this cue to learn emotion/mental state adjectives.

Introduction to study for parents on the Children Helping Science online platform

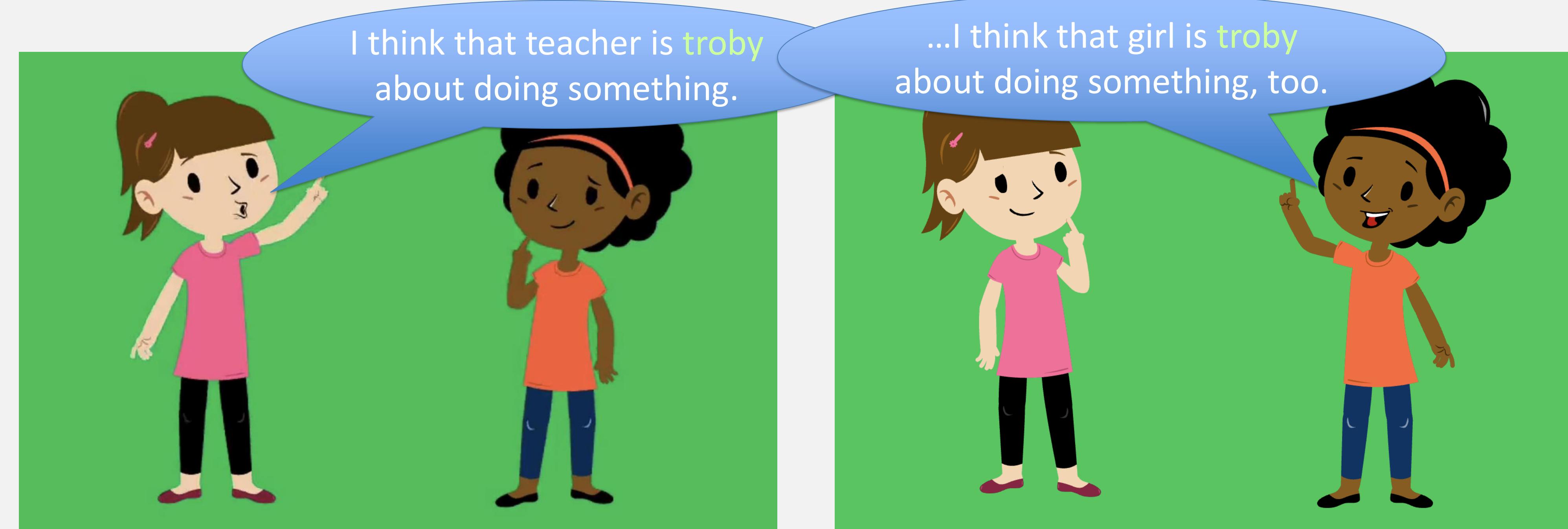
You will access our study through an external url after providing video consent. In this study, you will watch a series of videos. Some of these videos will feature new words. When prompted, your child will type in their guess about what the word means. The guess should be a word they know, which would make sense in that same spot.

Purpose: We are interested in how children use information about language they know to figure out the meaning of new words they don't yet know. We are particularly interested in whether children notice patterns about how people describe things, which could be informative about different kinds of adjective meaning. Knowing more about the information children recruit to determine the meaning of a new word helps us understand more about how language develops in children acquiring different languages and who have different cognitive profiles.

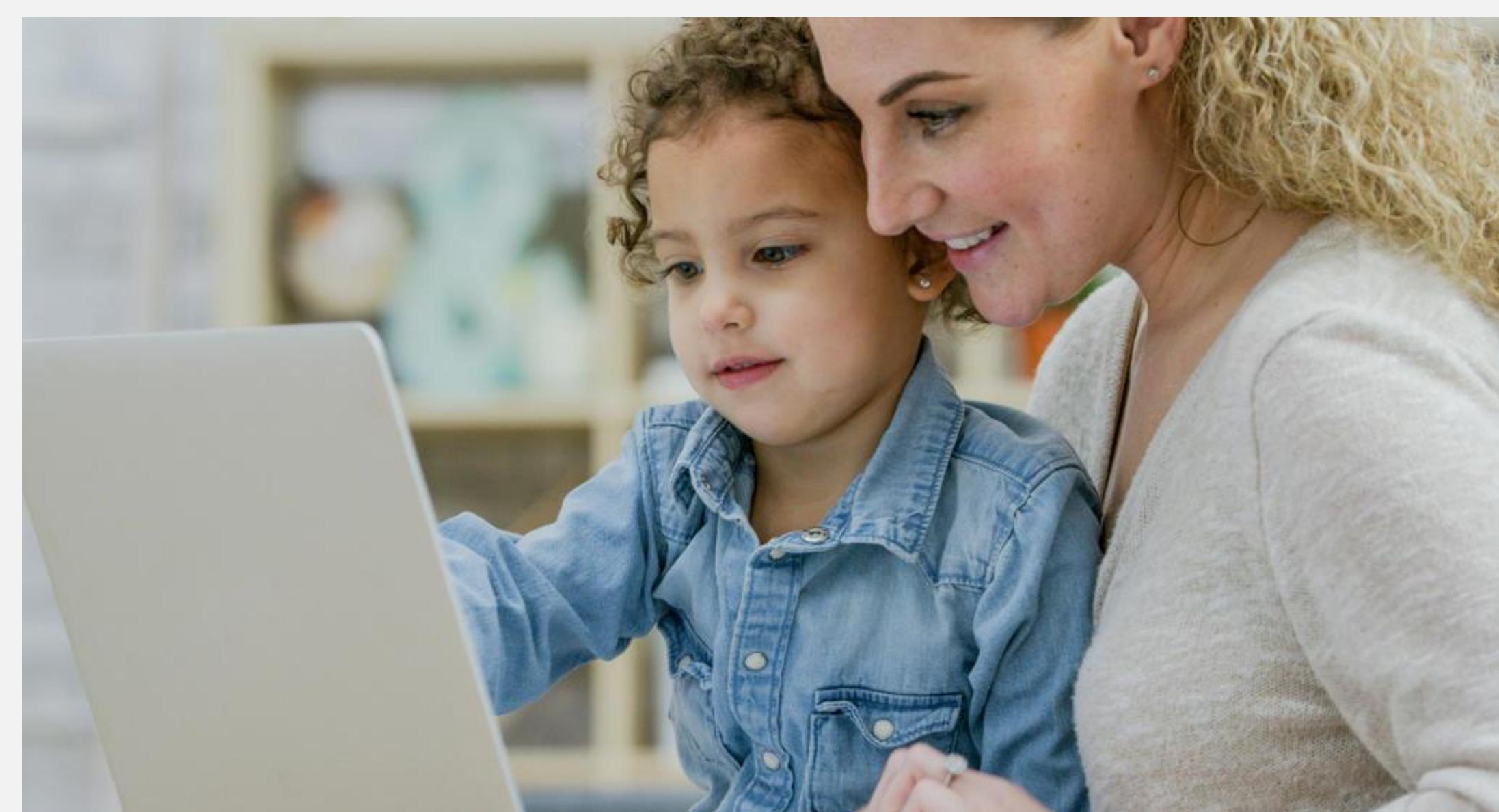
Duration: 15 minutes **Exit URL:** https://rutgers.ca1.qualtrics.com/jfe/form/SV_a4dha7vigAXzPyS

Participant eligibility: For 5- to 7-year-olds **Compensation:** \$5 Amazon.com gift card. We will email you a \$5 Amazon.com gift card within a week of participating. You are eligible for the gift card even if your child does not finish, or we can't use the data. Your child needs to be in the age range for the study, you need to submit a valid consent form, and your child must be present and visible in the consent video in order for you to be compensated.

Scenes from a Powtoon video, capturing one experimental trial, with speech



Parent watches and listens alongside child (age 5-7), and helps the child type in word meaning guess.



Experiment Setup and Expected Results

We created **videos** in Powtoons featuring **scripted dialogues** with a novel adjective appearing with an animate subject, manipulating syntax.

These videos are fed into an experiment hosted on a platform maintained by MIT called **Children Helping Science**.

Children and their caregiver watch the video and guess the meaning of the adjective. In between trials, they help a koala family proceed on an adventure.

We predict that children's guesses will reflect an emotion/mental state meaning, given the constraints of the linguistic context in which the novel adjectives appear.

References

- Gleitman, L. R. (1990). The structural sources of verb meanings. *Language Acquisition: A Journal of Developmental Linguistics*, 1, 3–55.
- Landau, B., & Gleitman, L. R. (1985). *Language and experience: Evidence from the blind child*. Cambridge, MA: Harvard University Press.
- Naigles, L. (1990). Children use syntax to learn verb meanings. *Journal of Child Language*, 17(2), 357–374.
- Syrett, K. & Becker, M. (2024). More hard words: Learning emotion and mental state adjectives from linguistic context. *Language Acquisition*.