Children's Acquisition of Emotion Adjectives

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- Two experiments using novel adjectives
- Conclusions and next steps

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Two Approaches to the Acquisition of Emotion Concepts

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How do emotion concepts develop? Two approaches...

- **"basic emotions" approach**:
  certain emotion concepts are innate
- **constructionist approach**:
  emotion concepts are constructed based on our experiences

"Basic Emotions" Approach

Johnson-Laird & Oatley (1989)

- Humans are born with five "basic" emotions:
  - happiness
  - sadness
  - anger
  - fear
  - disgust

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These emotions "should be universally accepted as discriminable categories of direct experience."

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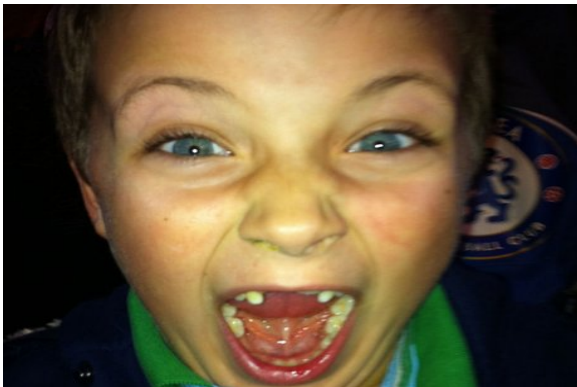
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SURPRISED

EXCITED

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- emotions can be broken down into more basic features (valence and arousal)
- measurements of neuromuscular movements in facial expressions do not reliably predict emotional states
- there is suggestive evidence of cultural variation in emotion perception (Gendron et al. 2014)

Another idea: we are born with more basic, underlying emotion features: valence (pleasant vs. unpleasant) and arousal (active vs. calm).

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$\rightarrow$ How do we acquire concepts of discrete emotions?

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Lindquist & Gendron (2013), p.66

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> ...**language** *plays a role in emotion because it helps acquire, organize, and use the concept knowledge that is an essential element in emotion perceptions ...and perhaps even experiences.*

Lindquist et al. 2015, p.100

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- Semantic dementia
  Patients sort faces into 3 piles, distinguished by valence (e.g. pleasant, unpleasant, neutral); Control group formed roughly 6 piles (happy, sad, afraid, angry, etc.)

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This is taken to support the view that emotion **language** helps **construct** specific emotion **concepts**.

A common assumption is that children hear words and (magically!)
map them onto some salient thing in their environment

$\rightarrow$ Word-to-world mapping

- This might work for (some) concrete nouns,

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- and we don't know much about how adjectives or words for abstract states are learned.

  "sad"

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$\rightarrow$ Sentence-to-world mapping

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. . . But what about verbs that label internal states or abstract properties? And what about the category of adjectives?

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  - or a video scene involving an obvious false belief
- People were more likely to guess a mental verb with the sentences.

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Syrett et al. (2018): "The vep is sad" → animate? inanimate? (3 years)

Learning Labels for Internal States: Adjectives

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Syrett et al. (2018): "The vep is sad" $\rightarrow$ animate? inanimate? (3 years)

$\Rightarrow$ Many open questions about how adjectives are acquired and when/whether children reason about their meanings and sentence structures similarly to verbal predicates.

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- Becker (2014): control adjectives (denote desires, emotions) vs. *tough*-adjectives given short video scenes.

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Taking Stock...

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   - Maybe, but adjectives also present some complications
   - Situational context is (somehow) informative about word meaning

How are emotion adjectives used in speech to children?

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Shablack (2017) examined spontaneous use of emotion adjectives by children and by parents speaking to children.

CHILDES database: 12 children ages 2–3 years

A Corpus Study

Positive		Negative	
happy, happiness	afraid	angry, anger	
glad	mad	sad, sadness	
excited	fear, fearful	scared	
calm	nervous	worry, worried	
joy	gross	disgust, disgusted, disgusting	
cheer, cheerful	gloomy	depressed	
interested	upset	annoyed	
content	frustrated	furious	
	jealous	unhappy	

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Part of speech of emotion words:

	Parent	Child
Noun	1.65%	0.43%
Verb	2.83%	4.35%
Adjective	**95.40%**	**94.13%**

Preceding Environment	Following Environment
be	of
get	that
look	at
make	to
feel	about
	because/since
	when

Sentence Environments of Use
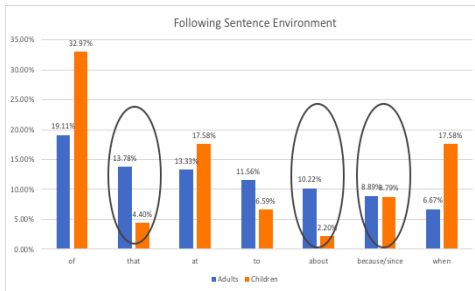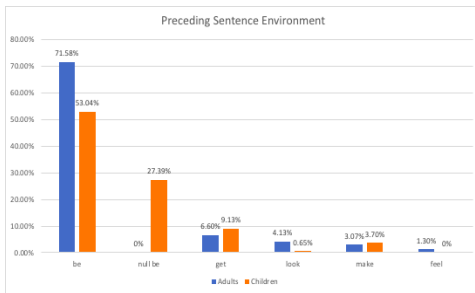
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Experiments: Comparing Contextual Cues and Syntactic Cues to Emotion Words

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We conducted two novel word studies:

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In both studies children had to choose the picture of an alien that illustrated the meaning of the novel word

Experiment 1: Sentence Context

Three sentence frames (between subjects):

1. be+Adjective: Palooza is binty
2. feel+Adjective: Palooza feels binty
3. feel+Adjective+about: Palooza feels binty about something

be Adj	happy, sad, tired, cold, tall, red
feel Adj	happy, sad, tired, cold, *tall, *red
feel Adj about	happy, sad, *tired, *cold, *tall, *red

Puppet A: I know an alien who is binty!
Puppet B: Really? You know an alien who is binty?
Puppet A: Yes! This alien is binty.
Puppet B: Wow! You know an alien who is binty!

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. . . is binty/feels binty/feels binty about something

Participants: 135 children ages 3–5 years

Procedure:

- 3 warm-ups (inclusion criterion: 2/3 correct)
- 4 target videos
- 3 fillers ("I know an alien who is serding!")
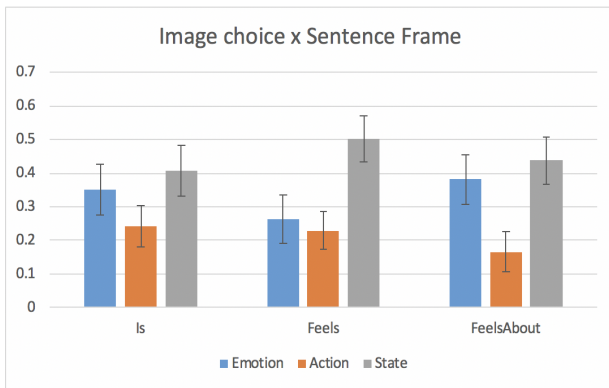- After each video conversation, point to 1 of 3 alien pictures
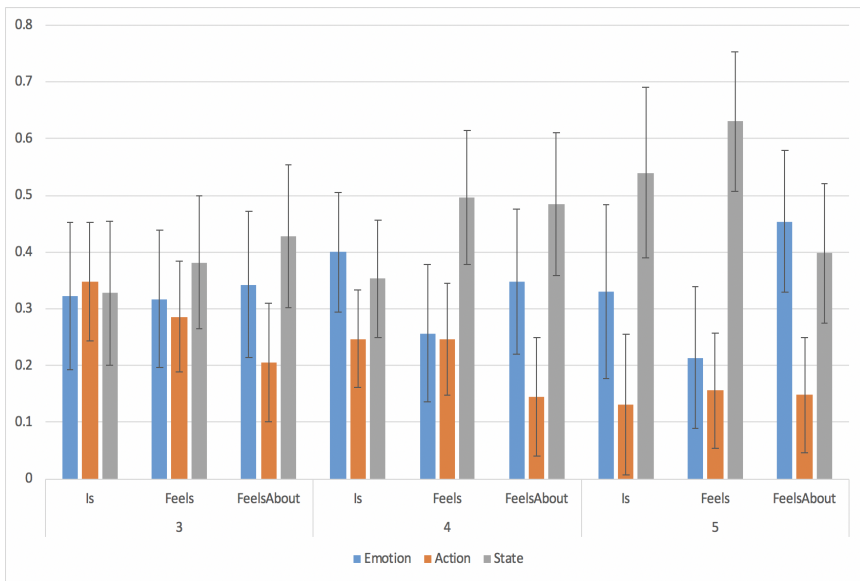
- Moderate effect of sentence frame: kids pick emotion images more in "feels about" than "feels", but not sig. more than in "is" condition.
- Sig. effect of age: older kids pick more emotion images than action images
- No 3-way interaction (Age x Sentence x Choice)

Image choice x Age

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- Lack of 3-way interaction means that although older children picked more emotion images and children overall picked more emotion images for "feels about" than "feels", the effect of sentence frame did not increase with age.
- Would additional contextual information help?

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It was Palooza's birthday. All her friends came to her birthday party and gave her presents. Palooza jumped up and down.

Now, Palooza is binty. What do you think binty means? Point to where Palooza is binty!

Point to where Palooza feels binty.
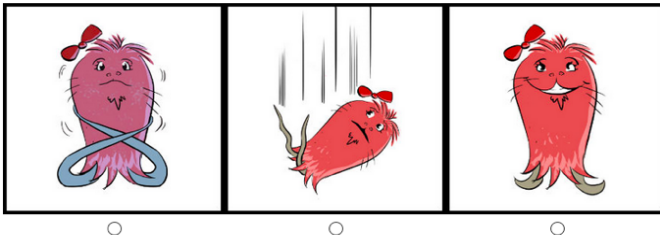
Participants: 113 children ages 3–5 years

Procedure:

- 3 warm-ups (inclusion criterion: 2/3 correct)
- 7 stories highlighting a positive or negative emotion for a character
- After each story children hear the novel adjective used in one of 3 sentence frames
  - Now Palooza is binty! What do you think binty means? Point to where Palooza is binty!
  - Now Palooza feels binty! . . .
  - Now Palooza feels binty about something! . . .
- Children point to one of 3 alien images
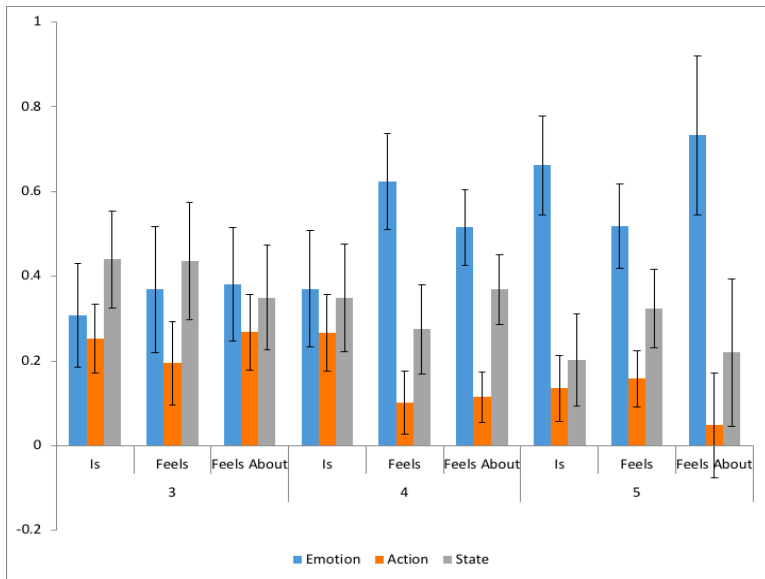
- Significant effect of age
  - older kids pick more emotion images (5>4 and 4>3)
  - 3-year-olds pick more action images than 4 or 5
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- 3-way interaction between Age x Sentence Frame x Image choice
  - 4-year-olds were significantly influenced by sentence frame, picking the emotion image sig. more in "feels/feels about" than "is", but about the same in "feels" and "feels about" conditions.
  - 5-year-olds were marginally influenced by sentence frame, picking the emotion image more in "is" and "feels about" than in "feels" condition.

Experiment 2: Discussion

- Story context appears to boost children's mapping of the novel adjective onto an emotion.
- Older children (age 4, 5) are more susceptible to this influence than younger children (3).
- Sentence frame is additionally helpful for 4-year-olds: given the sentence frame "feels Adj." or "feels Adj. about" they were more likely to pick the emotion picture
- Contrary to expectation this did not happen for 5-year-olds: they picked emotion pictures equally given "is Adj." or "feels Adj. about".

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There is a role for both language and situational context in learning the meanings of emotion words.

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Lots of open questions! For example. . .

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Our corpus study suggested other sentence frames that could be helpful, or combinations of these frames:

- make/get Adj. (also compatible with physical states)
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If we increase the range of sentence frames used (make/get/feel Adj about/to/that. . .) does this help in a novel word learning task?

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If we increase the range of sentence frames used (make/get/feel Adj about/to/that...) does this help in a novel word learning task?

What if we use photographs of real kids instead of cartoon aliens?

Broader questions. . .

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- What are the kinds of sentence frames that emotion words select in other languages?
- What are the important questions to ask about bilingual acquisition of emotion words?
- For children who have difficulties recognizing emotion in faces (e.g. children with autism), is language intervention helpful? Or does the problem recognizing emotions hinder learning emotion words?

THANK YOU!

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