

Prosodic marking of allegedly attractive vs. unattractive objects in child-directed speech

Katharina Zahner-Ritter¹, Luisa Geib² & Bettina Braun²

¹ University of Trier, ² University of Konstanz

Background:

- Child-directed speech (CDS) differs from adult-directed speech in several linguistic aspects [1-3]:
 - CDS typically shows slower speaking rate
 - higher overall f₀
 - more variability in f₀ and voice quality
- So far, we know little about the factors that predict prosodic modifications *within* CDS
- We test *visual attractiveness* of objects as one potential factor (colourful picture vs. black-and-white line-drawing)

Hypotheses:

- As children like bright colours (even more than adults [4]), parents are expected to compensate for the *reduced attractiveness* of line-drawings by a *stronger prosodic marking*
- *Motivational speech* is characterized by higher and more variable f₀, faster tempo and a lower amount of non-modal voice quality (resulting in more periodic signals [5, 6]):
 - We expect parents to produce targets depicted in black-and-white with *shorter durations*, *higher and more variable f₀*, and *more modal voice quality* as compared to colourful pictures

Research question:

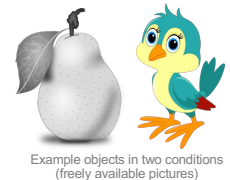
Does the type of visual rendition of objects, i.e. their visual attractiveness in a picture book affect parental prosody?

Methods:

Participants: 11 German mothers and their 1-2-year-old children (Ø = 19 months, SD = 3.9 months, 7 boys, 4 girls)

Materials: Two versions of a "picture-book" were created (PowerPoint)

- 12 high-frequent disyllabic words which are known to children [7]
- Paired with freely available pictures
- Manipulation *within* rendition: one half of the pictures in colour, one half in line-drawings (within-subjects), reversed rendition-order (between-subjects)

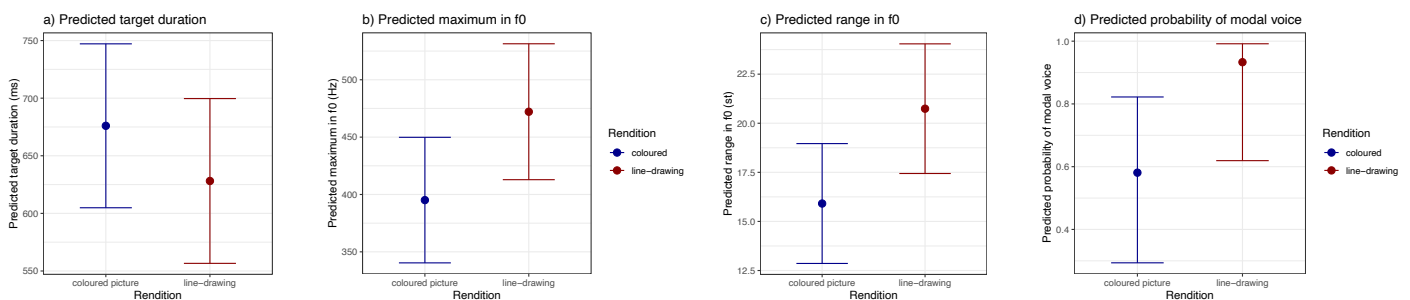


Procedure:

- Parents were recorded in a picture-book scenario via Zoom while they were talking about colourful vs. black-and-white drawings to their child (within-subjects)
- They received both orders with a delay of 24 days on average (between-subjects)
- After the second recording session, parents filled in a questionnaire, indicating for every target word whether their child knew the word (yes/no), and whether they think their child finds the respective object interesting (yes/no) → control predictors for the *lmer* model

Results:

Figure 1. Overview of predicted effects of *rendition* for the different dependent variables.



Main findings:

- Target words in black-and-white drawings
 - were significantly *shorter* than in colourful rendition ($p < 0.05$)
 - showed a *higher and more variable f₀* (maxf₀, $p = 0.06$; rangef₀, $p < 0.01$)
 - were more frequently produced with *modal voice* ($p < 0.05$)
- Analyses further revealed interactions between *rendition* and *familiarity* for the variables f₀ range and voice quality (such that the effect of rendition was stronger for unknown targets)

Modelling:

- Dependent variables modelled as a function of *visual rendition* in (g)lmer models
- *Familiarity* and *Interest* as control predictors
- *Subject* and *items* as crossed random factors (intercept; slopes did not converge)

Discussion:

Our results reveal visual rendition to be one factor that predicts parental prosodic modifications *within* CDS.

Together, the observed prosodic adaptations (i.e., more f₀ variation within a shorter duration) increase a given word's prosodic salience [8] and might hence increase a child's motivation for the activity.

Our findings bear implications for language acquisition [9]. In future work, we plan to test the effect parental prosody on word learning.

References:

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