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Co-development of Theory of Mind and Humor in 18- to 37-month-olds

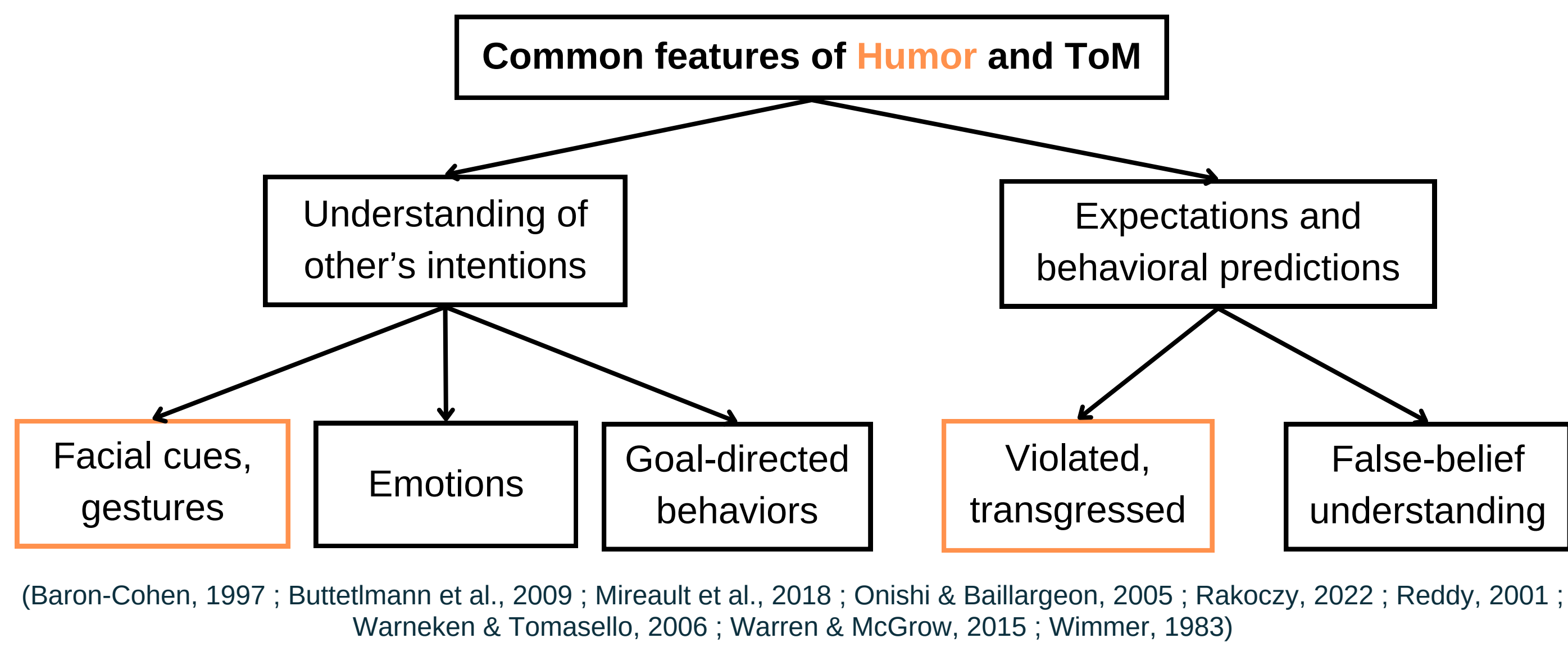
Julie CAYRON¹⁻² & Hiroko NORIMATSU²

¹ Master 2, Perspectives Pluridisciplinaires sur le Cognition, UFR de Psychologie, Université de Toulouse

² Laboratoire CLLE (Cognition, Langues Langage et Ergonomie) UMR 5263 – Université de Toulouse, CNRS
5 allée Antonio Machado, 31058 Toulouse Cedex 9, France

**Is there a relation between the development of Humor and Theory of Mind ?
Is humor (production and/or comprehension) a precursor to ToM abilities?**

THEORETICAL BACKGROUND



Theory of Mind (ToM) :

- ToM acquisition is **influenced by cultural factors** (Callaghan et al., 2005; Norimatsu et al., 2014)

Humor :

- Understanding and appreciating **incongruity** (Shultz, 1972)
- Understanding **others' intentions** in humoristic interactions (Baron-Cohen, 1997)
- Humor is produced **intentionally** (Hoicka & Akhtar, 2012)

◆ **Humor practice in childhood facilitates ToM acquisition** (Hoicka et al., 2008; Mayes et al., 1994; Paine et al., 2022).

◆ **Humor has a predictive role in the development of social cognition in young children** (Soy Telli & Hoicka, 2022)

HYPOTHESIS

- **H1** : Children with high Humor abilities will perform better in ToM tasks compared to those with lower humor abilities
- **H2** : The relationship between Humor and ToM will indicate that Humor predicts ToM

MATERIAL AND METHOD

Participants : **16 infants aged 18 to 37 months** (M = 28,4, SD = 5.64)

ToM assessment - False belief understanding :

Anticipatory looking paradigm: Replication of Senju et al. (2011)

Behavioral Helping paradigm: Replication of Buttelmann et al. (2009)

Reported measures: ToM & Social Skills questionnaire inspired by AESE (Comte-Gervais et al., 2008) & Vineland (Sparrow et al., 2012)

Humor assessment :

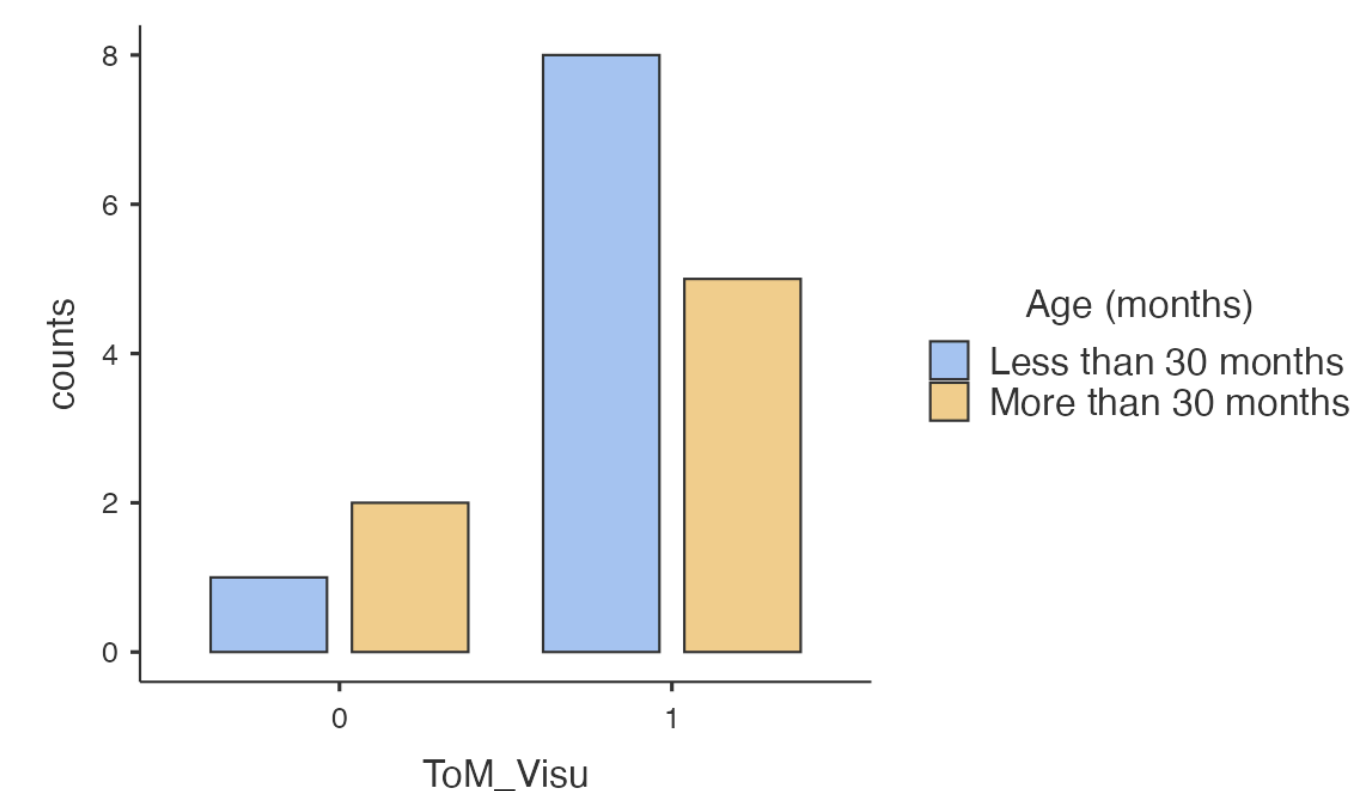
Task of humor comprehension: Behavioral reactions to non-verbal humoristic videos

Reported measures: Questionnaire on Humor practices within the family (Norimatsu et al., 2021 ; Solomiac et al., 2021)

RESULTS AND DISCUSSION

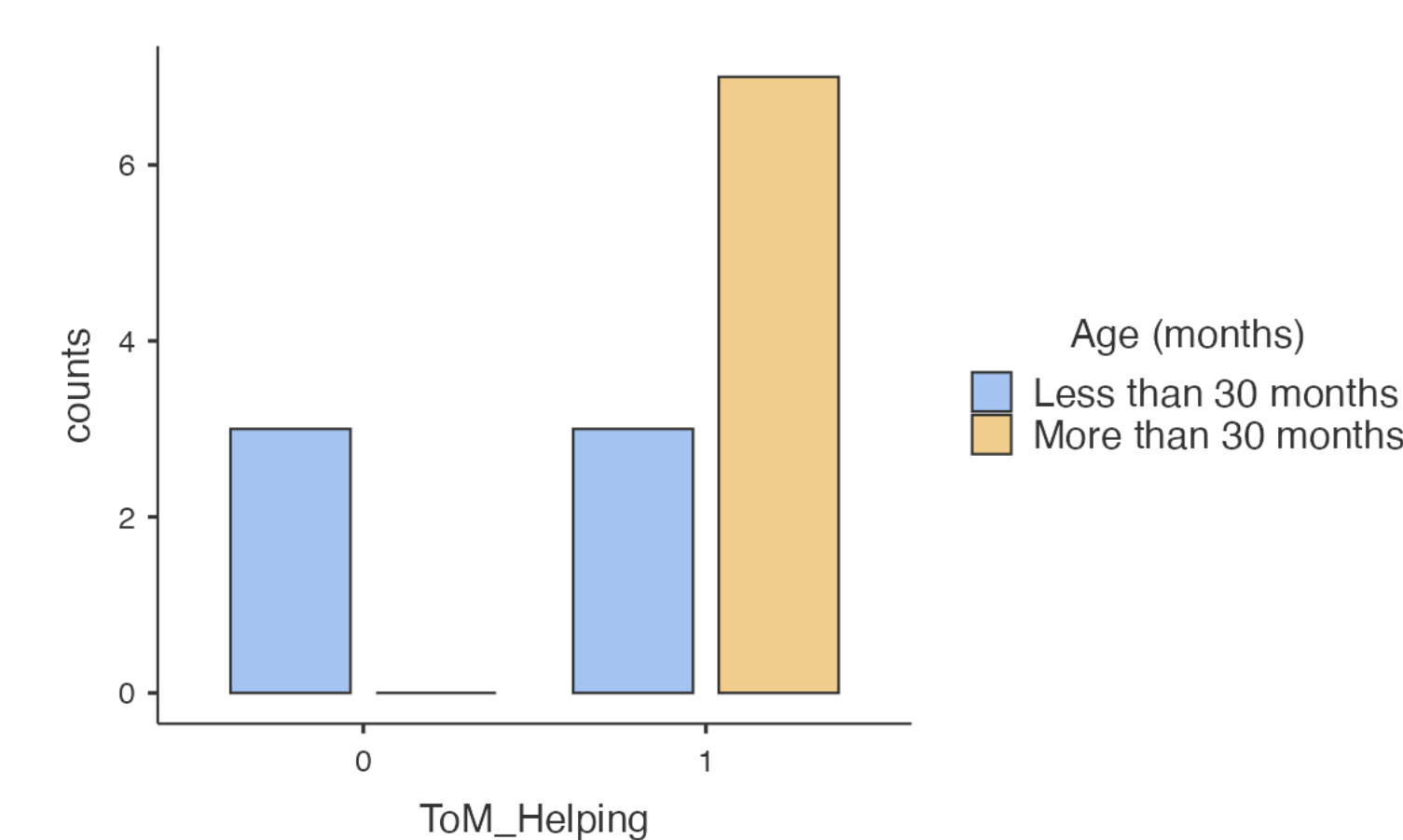
◆ Infants showed signs of **false belief understanding** before 3 years, starting at **18 months** (visual task) and **23 months** (Helping task)

Fig. 1
Infants' performance in the Anticipatory looking task.



- 88.9% of 18-to 29-month-olds and 71.4% of 30- to 37-month-olds succeed

Fig. 2
Infants' performance in the Helping task.



- 50% of the 18–29-month-olds, and 100% of the 30–37-month-olds succeeded

◆ Infants showed signs of **humor and incongruity understanding** from **18 months onwards**.

◆ **Positive tendencies (n.s)** were observed between **ToM and humor** measured by children's performance ($r=.09$, n.s, Spearman) and when combining direct and reported measurements ($r=.38$, n.s, Spearman).

✗ **H1 unconfirmed**

◆ **ToM performance was predicted by humor**. Parents' reported humor score (prod. & comp.) significantly accounts for 40.3% of the variance in **ToM task performances** (adjusted $R^2=.311$, $F=4.39$, $p<.05$)

◆ **Non-consistency between direct and indirect measurements** of ToM and Humor : Reliability of reported measures ?

✓ **H2 confirmed with caution**

➔ These results are consistent with literature suggesting **children understand false beliefs before 4 years**, and with the idea that **humor capacities may predict ToM abilities**.

CONTRIBUTIONS TO THE RESEARCH FIELD

- ➔ Better understanding of the **acquisition of ToM abilities**
 - Tailored protocols (visual and behavioral paradigms)
 - Replication on a French population
- ➔ Better understanding of the **development of Humor comprehension and production in young children**
 - Exploratory standardized task of humor understanding
- ➔ Better understanding of the **potential relationship between Humor and ToM abilities in children aged 18 to 37 months**

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