

Cognitive functioning and development among young children in Israel- A cross cultural study

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Introduction

- Cultures differ by beliefs, norms, values, religiosity etc.. which may contribute in various ways to the developmental trajectories of their members' cognitive functioning.
- Cultural differences in cognitive functioning were documented around the world (Freire & Pammer, 2020; Kö Ster et al., 2018; Sobeh & Spijkers, 2013a).
- Children from collectivistic culture are more context sensitive than children from individualistic culture (Imada, 2013).
- Religious people manifest lower cognitive flexibility than non-religious (Zmigrod et al., 2019)
- Surprisingly, although Israel is a unique multi-cultural country, as far as I know, no previous studies investigated the effects of cultural factors on cognitive functioning (attention, cognitive flexibility, response inhibition) and development among children.

Goal and Hypothesis

This study aim to examine cognitive functioning and development among young children from different cultures in Israel taking into account their values and the level of religiosity at home.

Hypothesis:
Stronger religiosity will be related to lower cognitive flexibility among children across cultures.
In the absence of previous relevant studies, I will explore whether religiosity will be related to other cognitive functions such as sustained attention and inhibitory control.

Participants:
112 children aged 5-8 years (mean= 6 years+ 6 months (6.51), SD=1.121);

Table 1: Participants

Age/culture	Jews	Arabs	
Pre-school	23	48	71
2 nd grade	18	23	41
	41	71	112

Results

Comparison between cultures in context sensitivity :

Arab children showed slightly higher context sensitivity than Jewish children but it was not significant.

Both groups tended to be more sensitive to the object and less for the context.

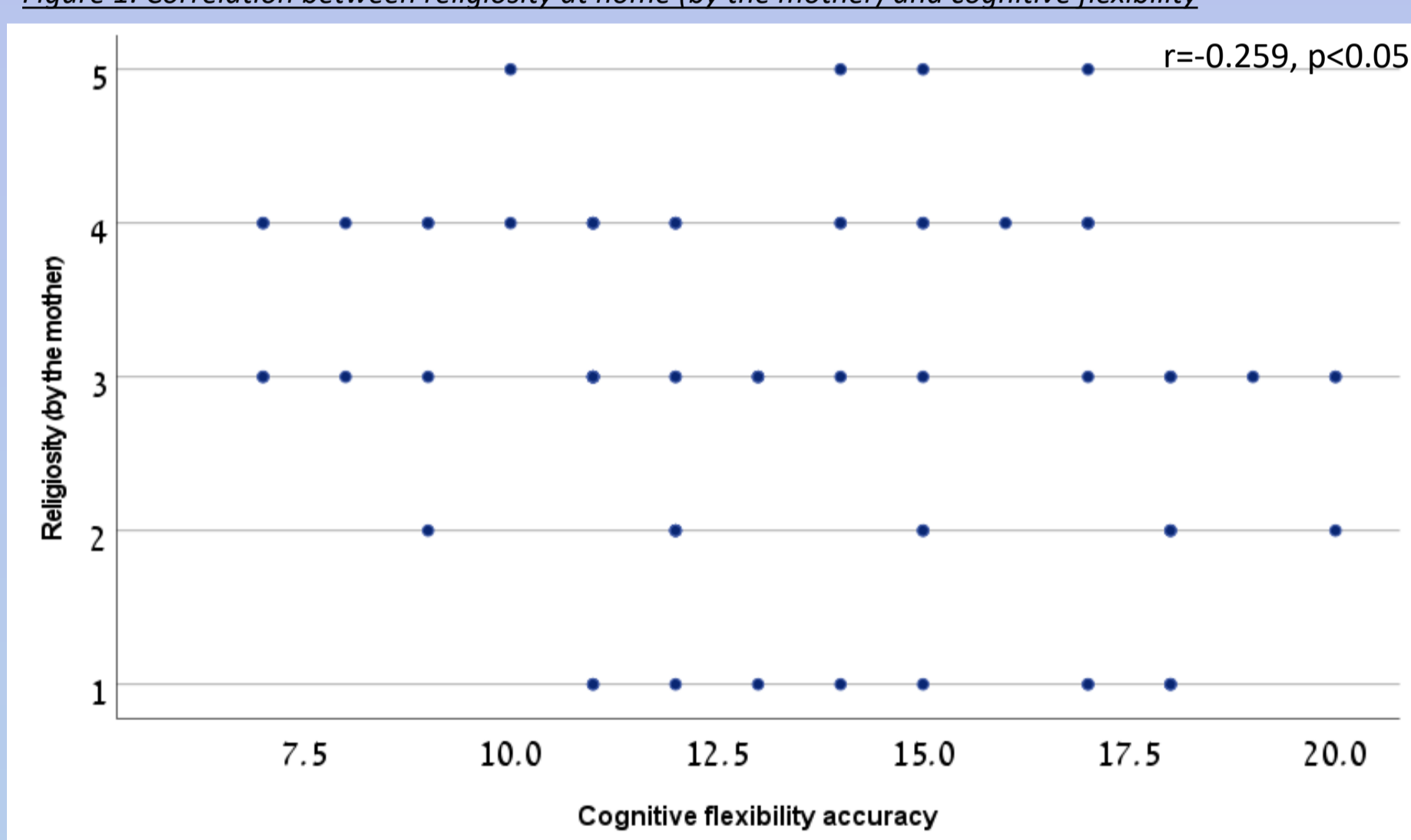
Table 2: Comparison between cultures in context sensitivity

	Jewish culture	Arab culture
N	29	59
Context sensitivity	-5.14(SD)	-4.63
t-test	t(86)=-0.495, n.s	

Religiosity and cognitive flexibility (n=71)

Negative Spearman correlation was found between religiosity at home perceived by the **mother** and cognitive flexibility (accuracy)

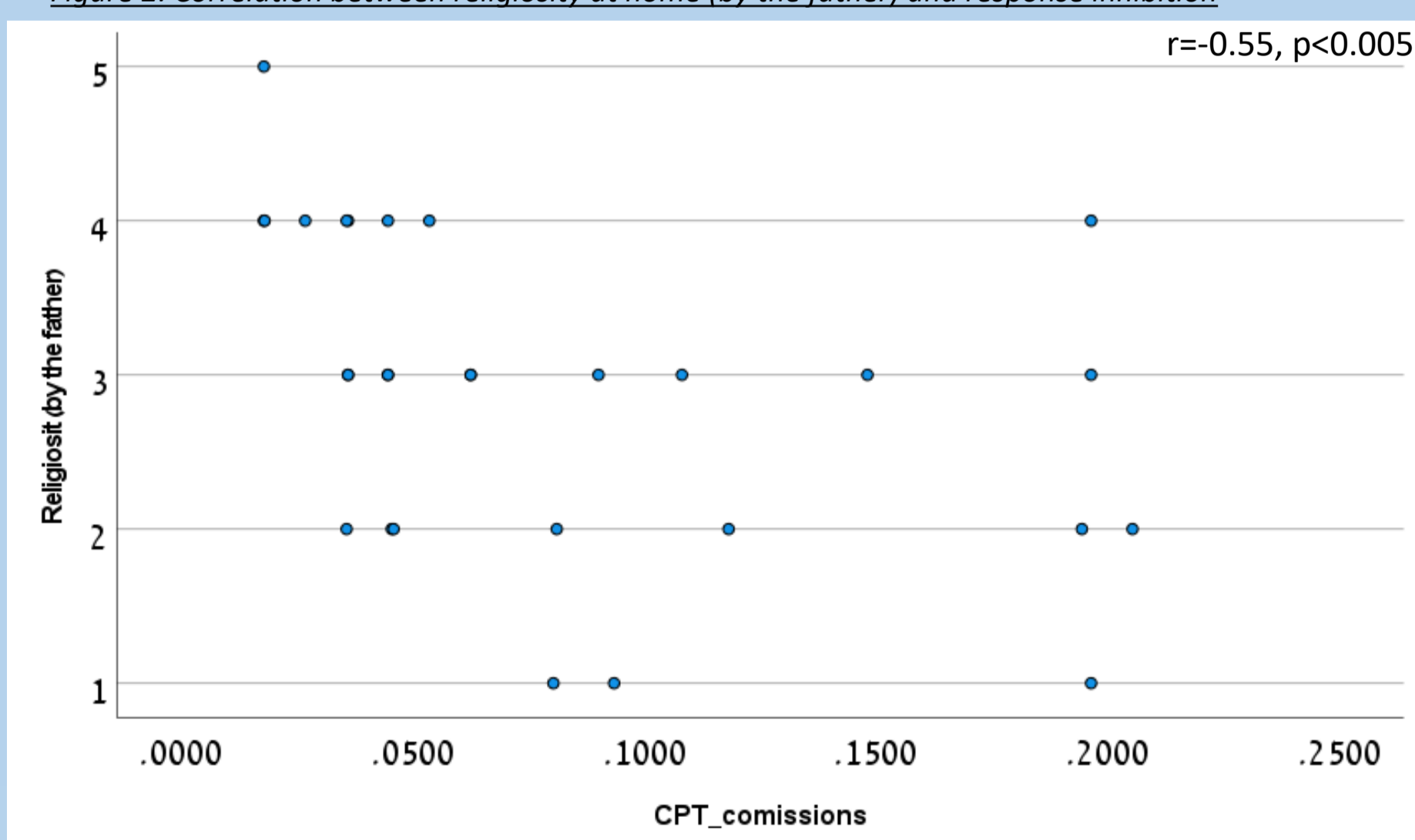
Figure 1: Correlation between religiosity at home (by the mother) and cognitive flexibility



Religiosity and response inhibition (n=29)

Negative Spearman correlation was found between the level of religiosity at home as perceived by the **father** and response inhibition (commission errors).

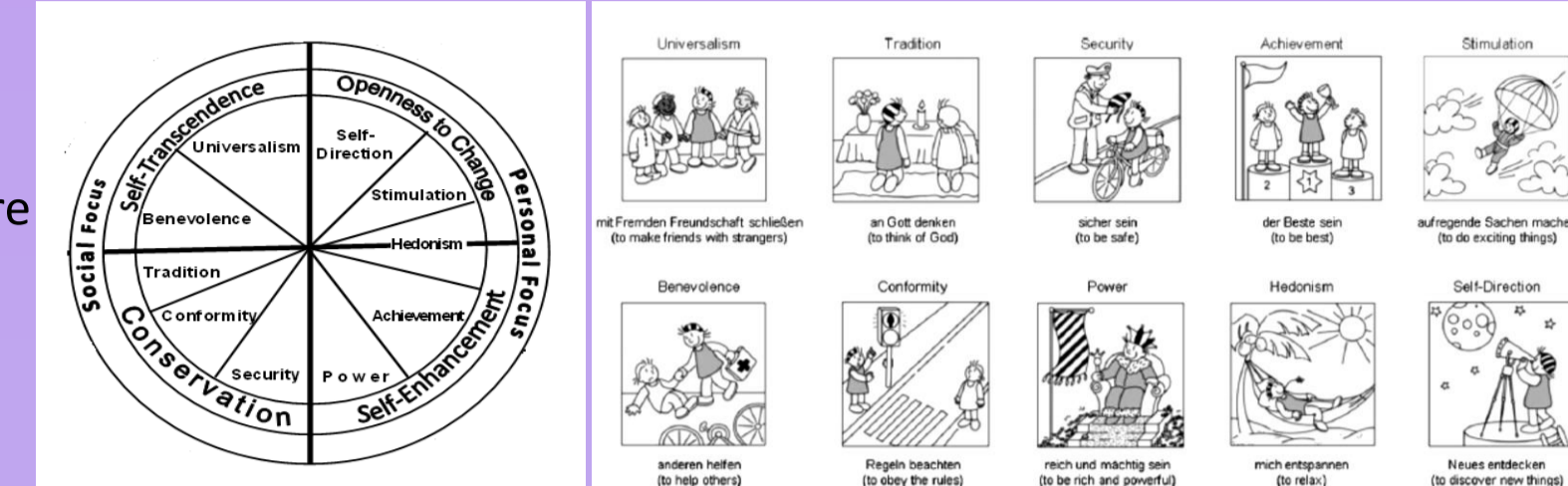
Figure 2: Correlation between religiosity at home (by the father) and response inhibition



Tools

Level of religiosity was assessed by a scale from the Social Survey of the CBS (2002) and by the Daily Spiritual Experience Scale (DSES questionnaire; Underwood, 2011) for parents.

Values – were assessed by the Picture- Based Value Survey for Children (PBVS-C; Döring et al., 2010). In this task participants are presented with pictures describing different values based on Schwartz's theory (Schwartz, 1999, 2009, 2012)

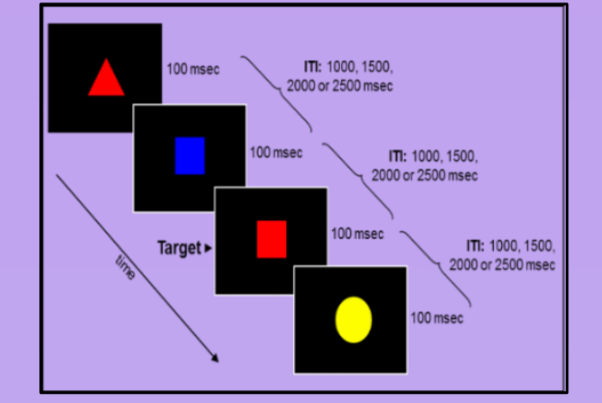


Context- sensitivity was measured by 'Free-description' task adapted from (Imada et al., 2013)- participants will be presented to 14 still pictures for 15 seconds each. After the presentation of each picture participants will be asked to freely describe what have they seen in the picture.

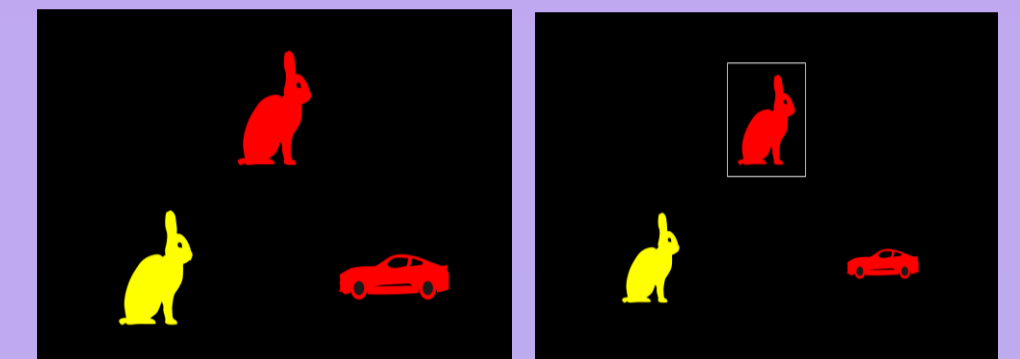
Measures: (1) the first object mentioned (number of focal vs. background objects mentioned first),(2) descriptive accounts (number of descriptives of focal vs. background objects mentioned) and (3) relational accounts (number of statements describing the relations between focal and background) . Higher score represents higher context-sensitivity (related to collectivistic cultures)



Sustained attention: Conjunctive Continuous Performance Task (CCPT) (Tsal, Shalev and Mevorach, 2005)

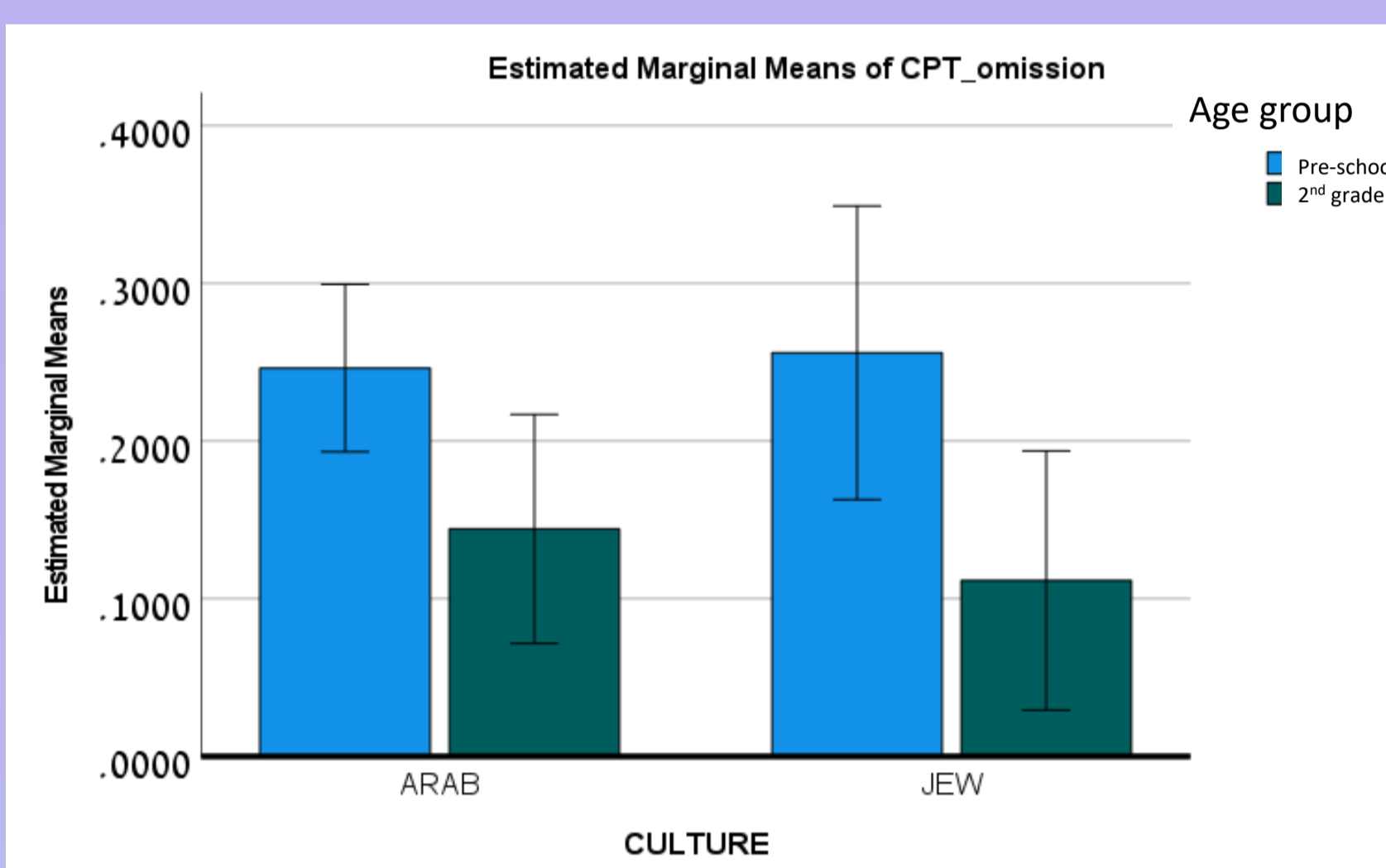


Cognitive flexibility was assessed by a computerized task based on the Dimensional Change Card Sort (DCCS) (Zelazo, 2006)



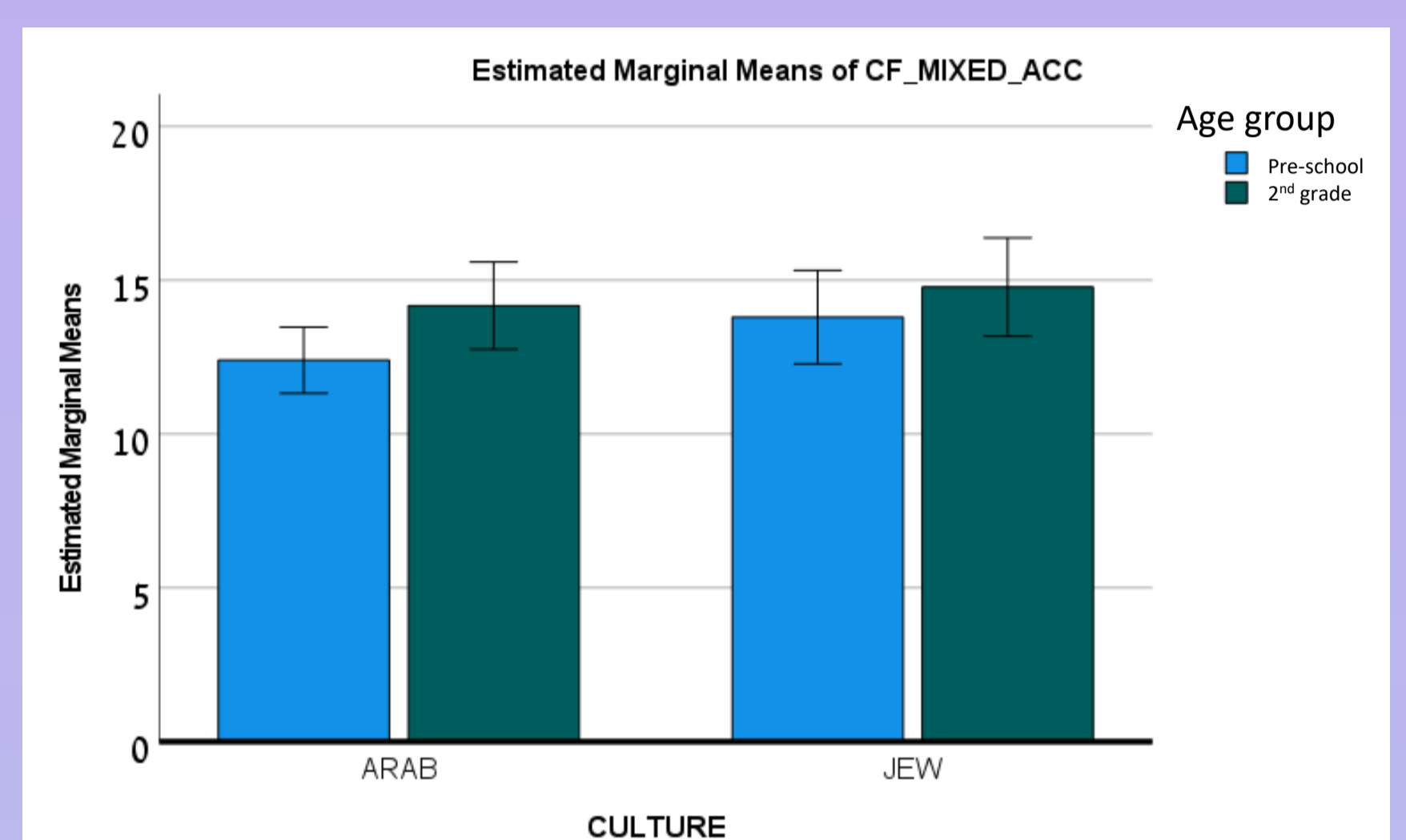
Age group and gender effects across cultures

Sustained attention



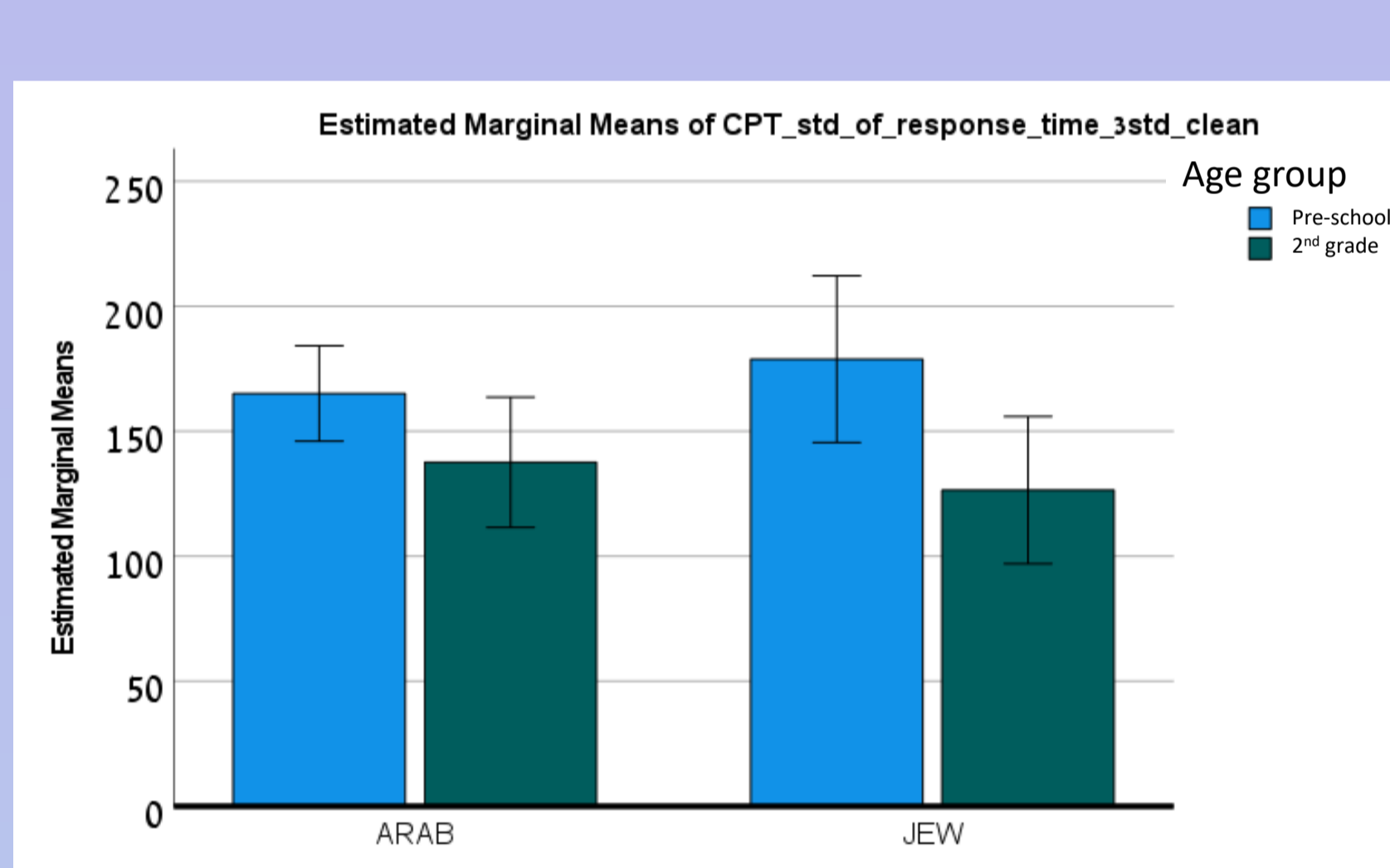
Main effect for age group ***p<0.005
Other effects n.s

Cognitive flexibility



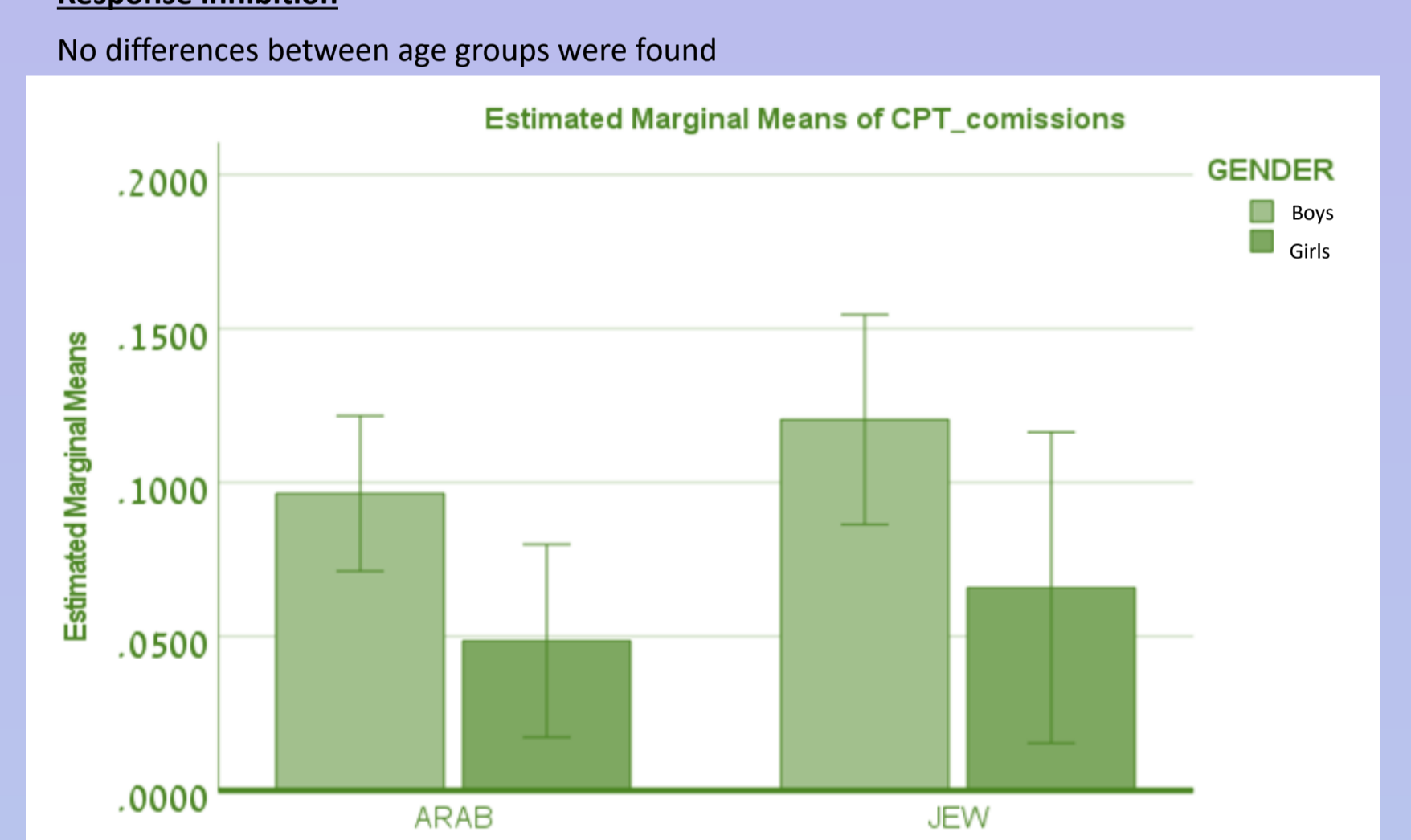
Marginal effect for age group , p=0.055
Other effects n.s

Sustained attention



Main effect for age group ***p=0.005
Other effects n.s

Response inhibition



Main effect for gender **p<0.01
Other effects n.s

Relations between values ranking and cognitive functioning – preliminary results

- Negative spearman correlation was found between *Universalism* and std of RT on sustained attention task ($r=-0.305, p<0.005$). Meaning children ranked *Universalism* higher showed better sustained attention (lower std of RT).
- Positive spearman correlation was found between *Universalism* and Cognitive flexibility ($r=0.241, p<0.05$). Meaning children ranked *Universalism* higher showed higher cognitive flexibility.
- Negative spearman correlation was found between *Tradition* and commission errors (response inhibition) ($r=-0.213, p<0.05$). Meaning children ranked *Tradition* higher showed better response inhibition (fewer commission errors)

Summary

- Level of religiosity at home as defined by the mother seem to be related to cognitive flexibility. The daily routines of religious families may emphasize rules and rituals that might be related to less flexibility. This finding is consistent with previous studies (Zmigrod et al., 2019).
- Level of religiosity at home as defined by the father seem to be related to better response inhibition. The daily routines of religious families may emphasize rules and rituals that require the inhibition of various responses.
- Children from both cultures are sensitive to the object and less to the context, but Jewish children are a bit less context sensitive (n.s).
- 2nd graders showed better sustained attention and cognitive flexibility (marginal) than pre-schoolers but no difference between age groups was found in response inhibition.
- Children from both cultures showed similar cognitive functioning (sustained attention, response inhibition and cognitive flexibility).
- Girls showed better response inhibition than boys across cultures.
- Universalism found to be related with better cognitive flexibility and with better sustained attention
- Tradition is associated to better response inhibition.

Next steps

- Continue data collection to create a more balanced sample.
- Run advanced statistical analyses to explore potential interactions between values, cultural factors and cognitive functioning

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