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Background

Preterm birth is associated with **atypical socio-emotional and cognitive development**. Evidence has been found for **altered social orienting** in preterm populations for both visual and auditory stimulations. This research contributes to understanding the socio-emotional development of preterm children and may aid in **identifying** children at risk of **psychopathology** or **subclinical socio-emotional difficulties**.

Methods

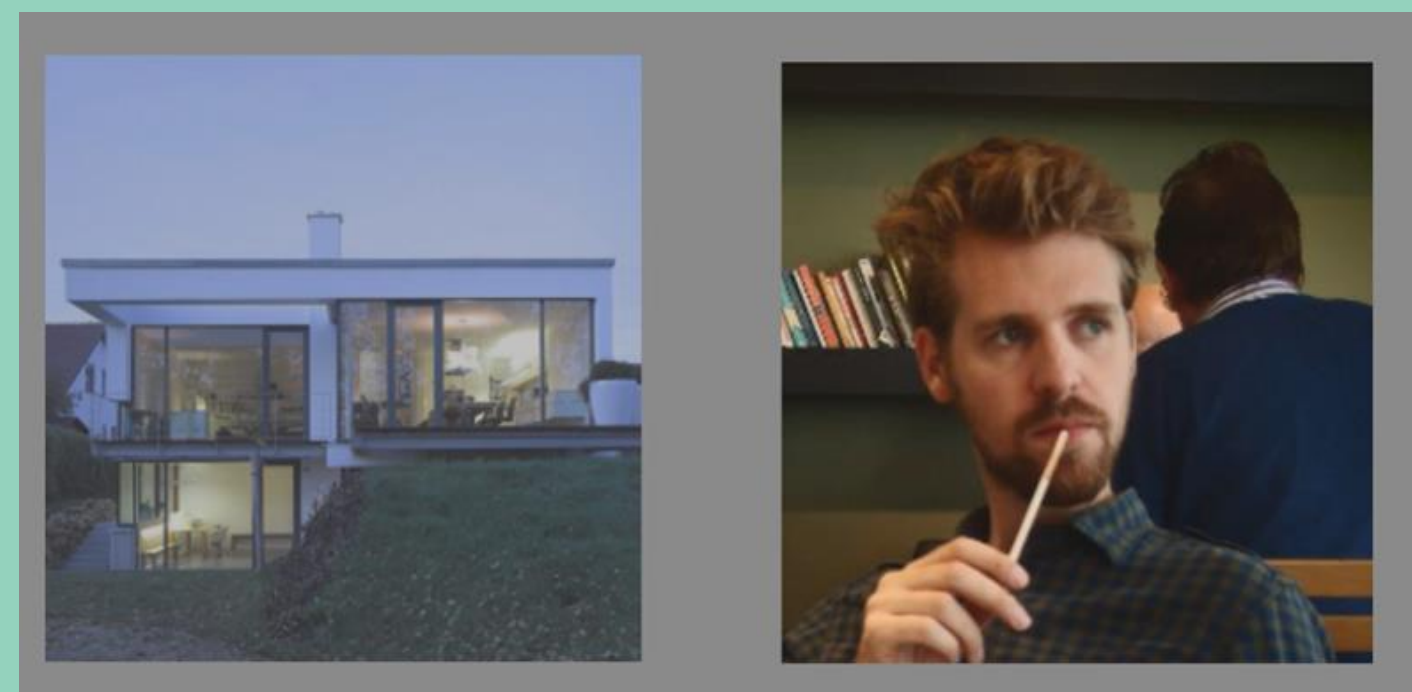
Frequency-tagging EEG:

Periodic brain stimulation at a predetermined frequency leads to EEG responses at stimulation frequency

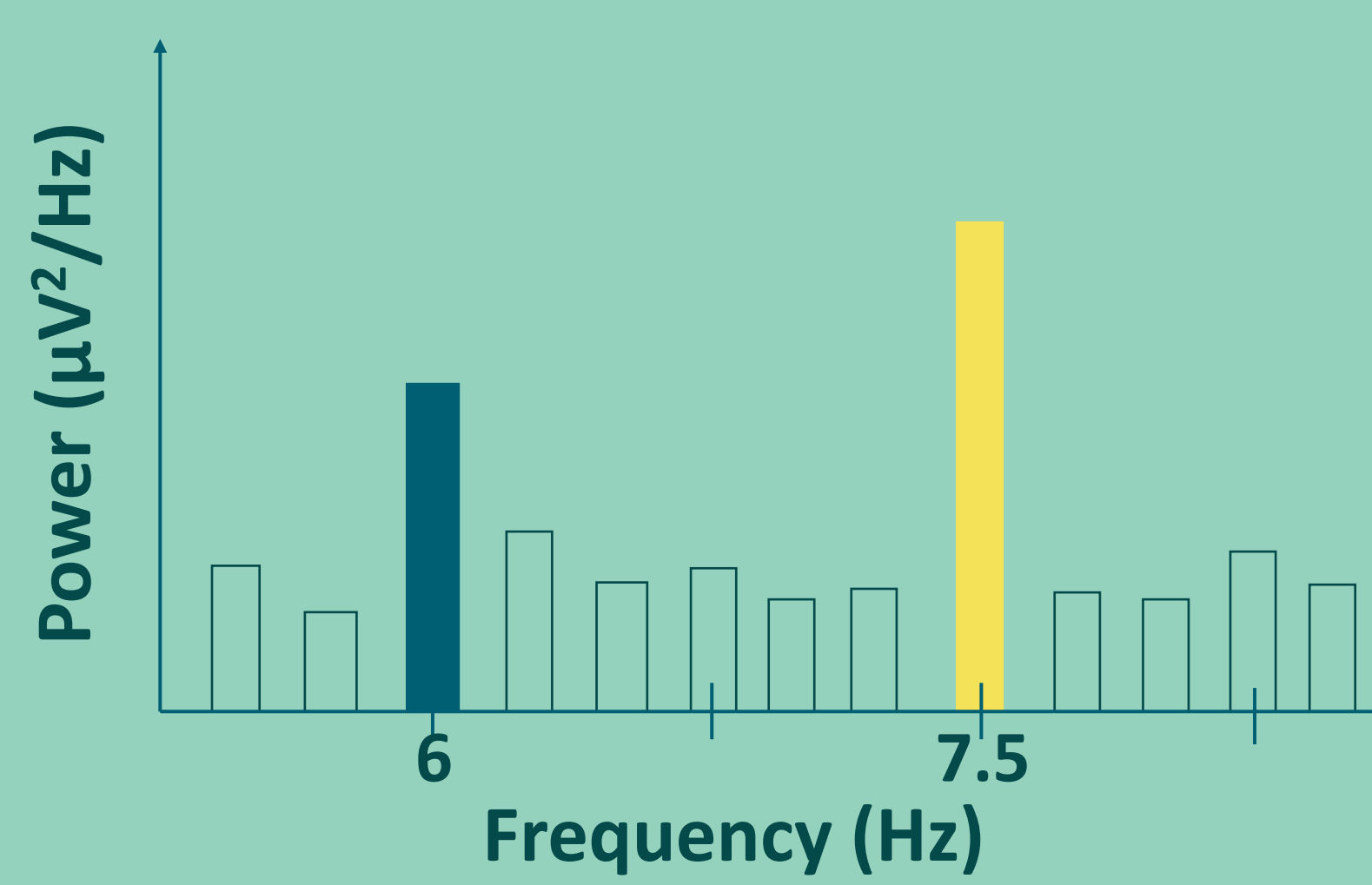


Multi-input paradigm:

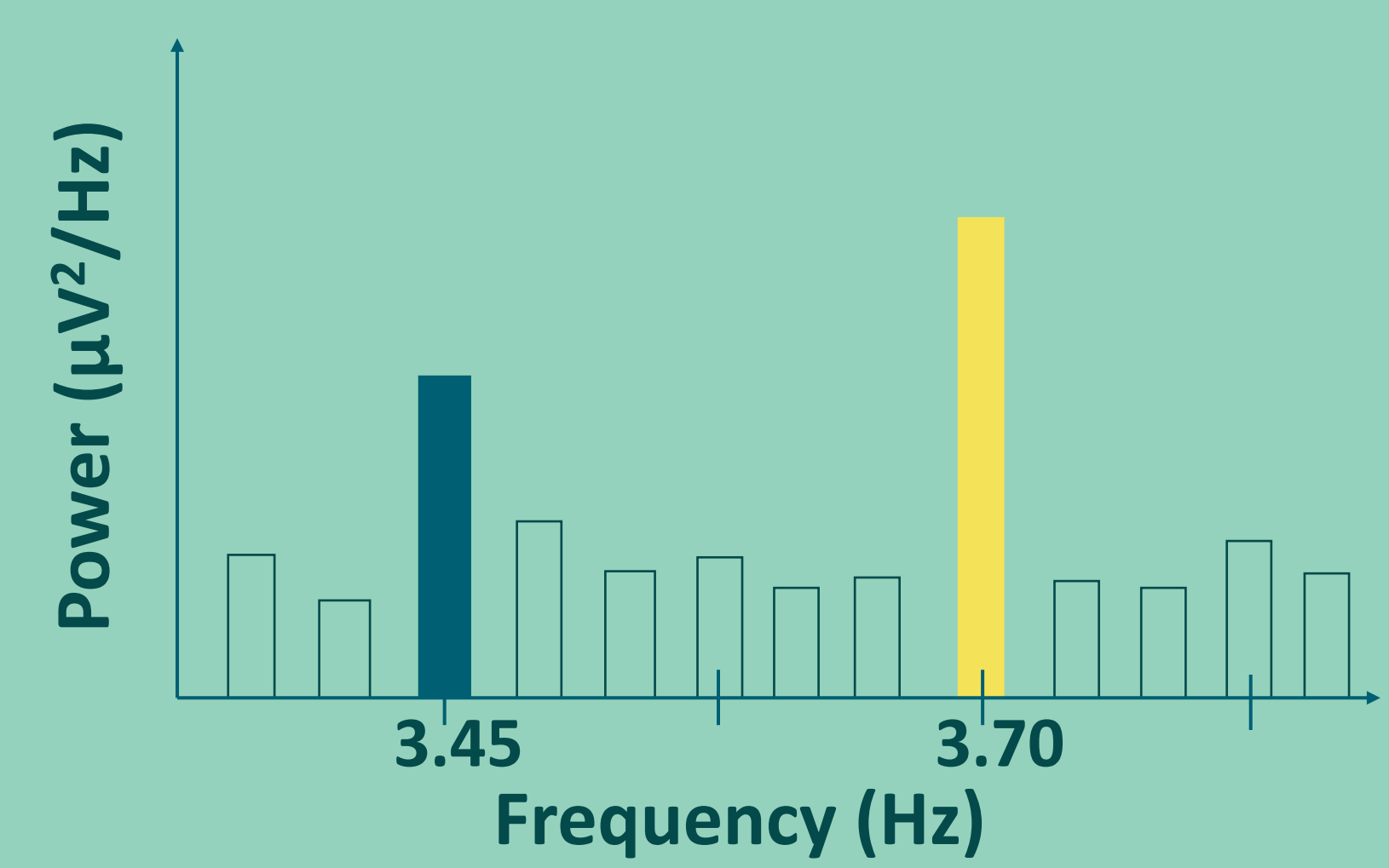
Simultaneous presentation of non-social and social stimuli, tagged at different frequencies, allows us to determine which stimulus category is preferentially processed



6 Hz ↔ 7.5 Hz



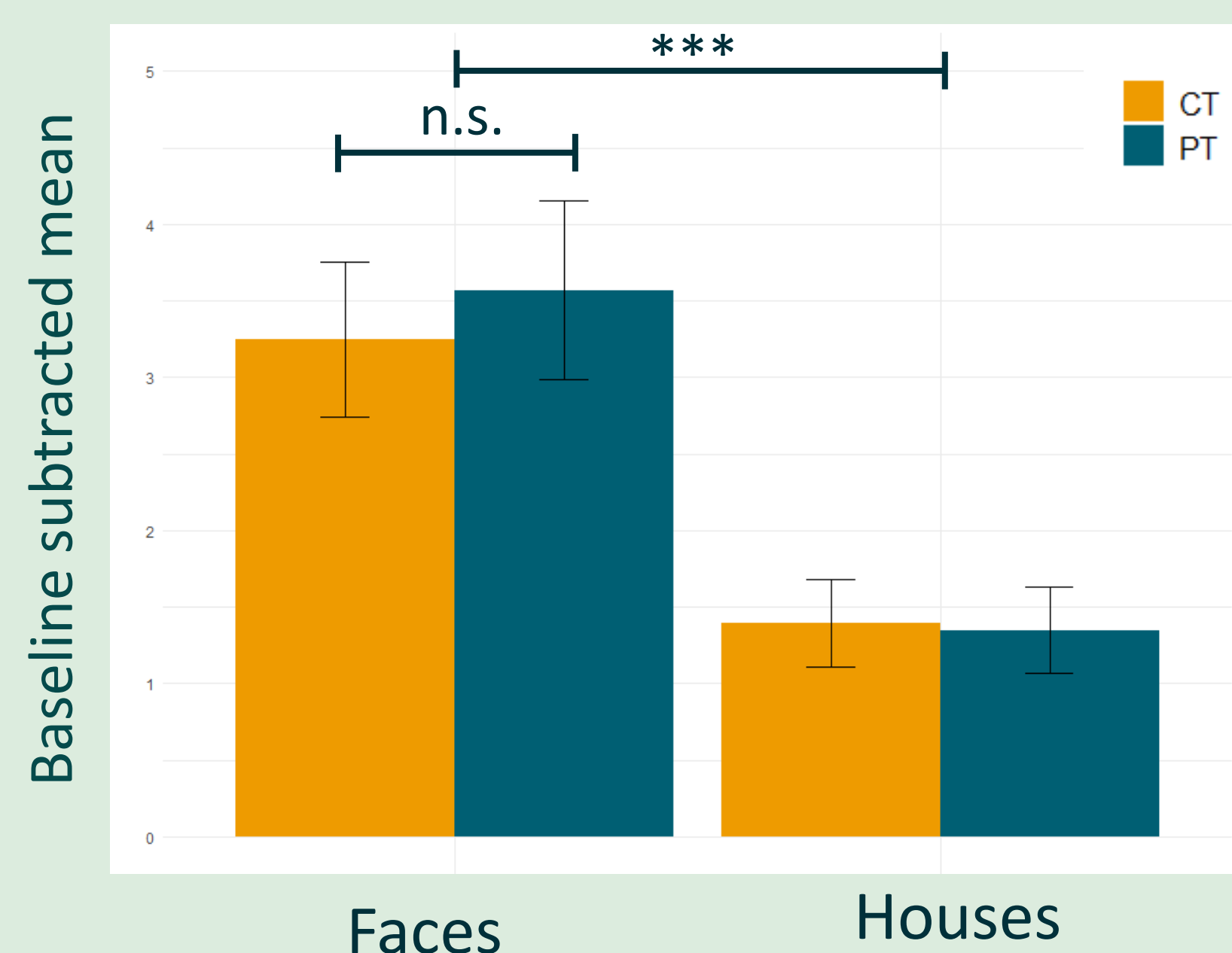
3.45 Hz ↔ 3.70 Hz



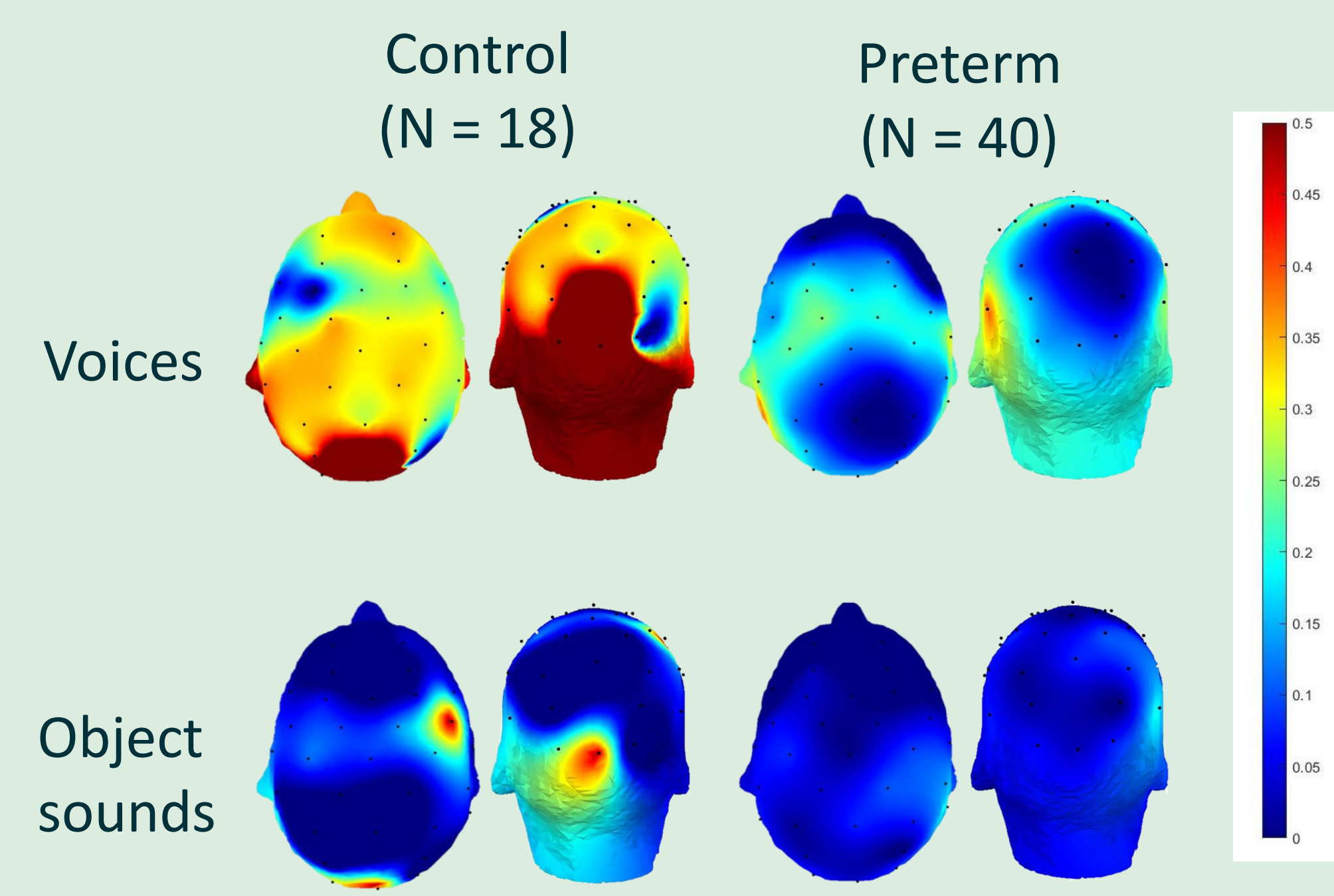
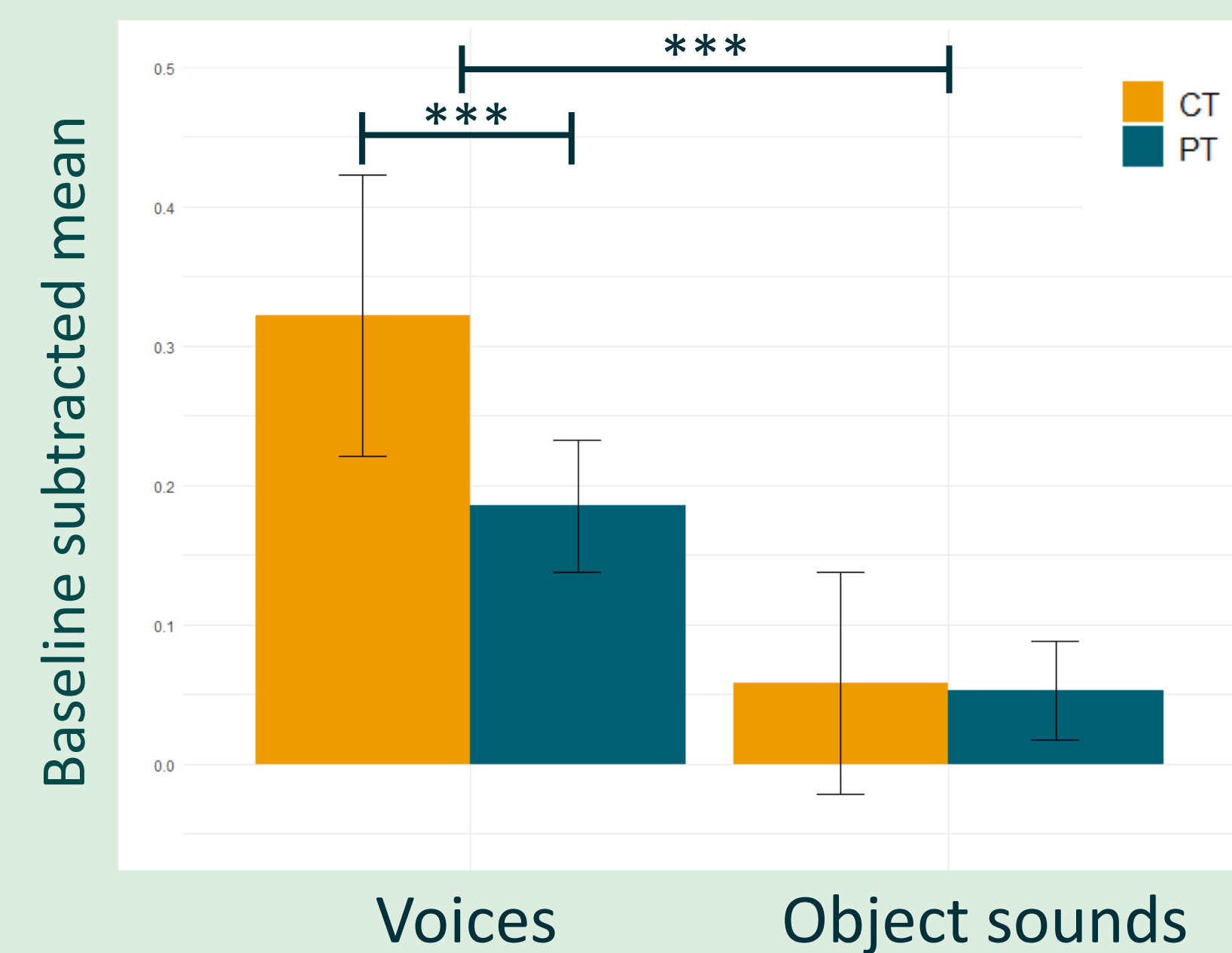
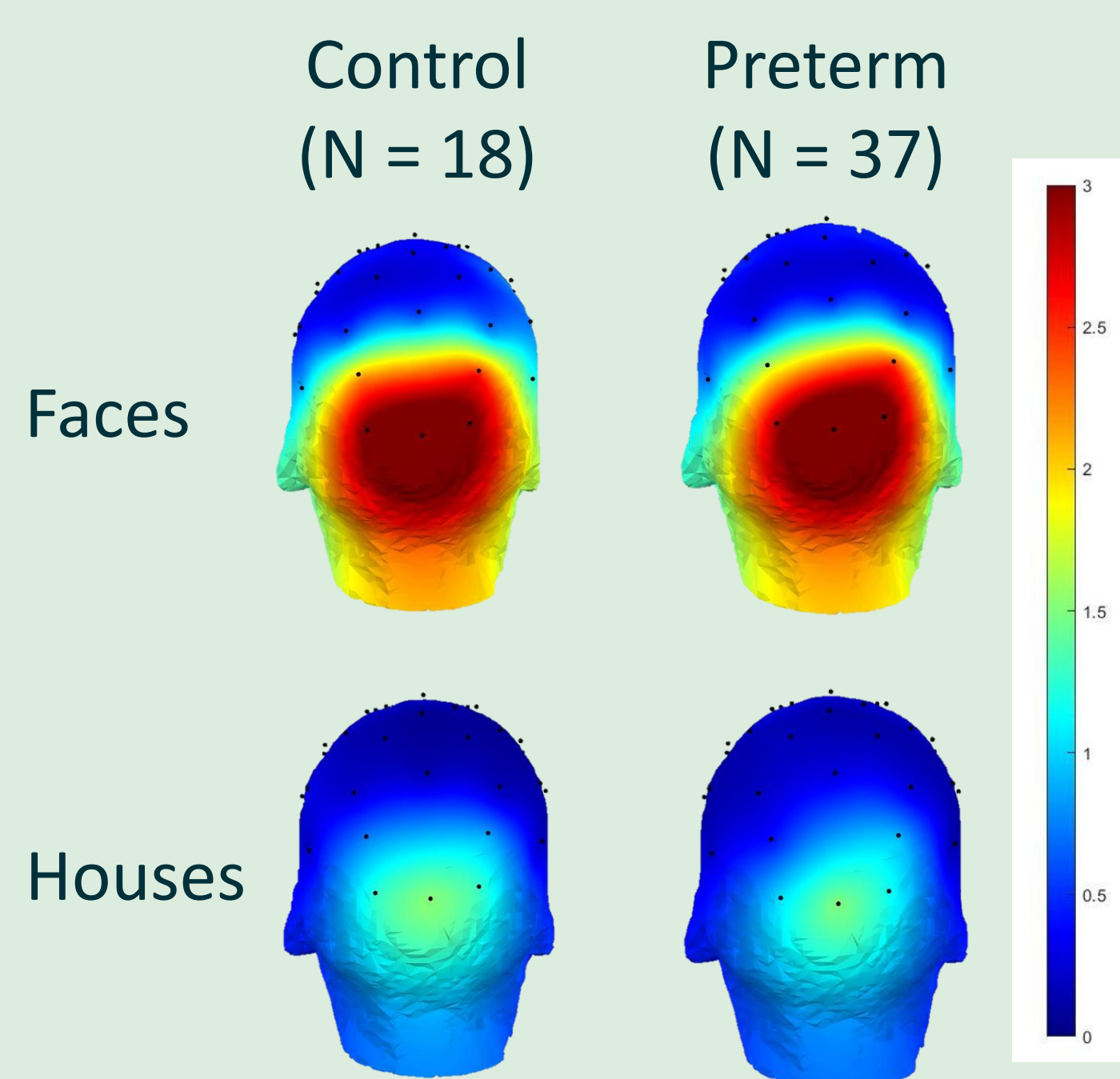
Preliminary sample:

	Preterm (N = 40)	Control (N = 18)	
Age (years)	5.45 ± 0.06	5.56 ± 0.17	p < 0.05
Birth weight (g)	1691 ± 503	3559 ± 488	p < 0.001
Gestational age (weeks)	31.39 ± 2.82	38.67 ± 1.08	p < 0.001
Gender (M F)	24 M 16 F	5 M 13 F	
Handiness	12.5% lefthanded	11.11% lefthanded	

Results



*** p < .001



Conclusion

Preliminary results comparing full-term and preterm preschoolers show **deficient neural tuning in the auditory but not in the visual domain**. The reduced spontaneous tuning towards voices in the preterm population can be interpreted against the background of atypical auditory and premature visual stimulation in the NICU environment. Because of the intact processing of object sounds, we can dismiss a general auditory deficit as the underlying cause.