

Supplement to MOTHER-INFANT SOCIAL GAZE DYNAMICS RELATE TO INFANT BRAIN ACTIVITY AND WORD SEGMENTATION

Supplementary Material 2

In order to follow the best practices for fNIRS studies (Yücel et al., 2021), the present supplement provides analysis and results for HbR signal to complement the analysis and results of HbO reported in our paper.

Analysis I (HbR data)

Analyses paralleled that reported in the paper for HbO. The dependent variable was normalized RR (log-transformed) of infants' brain activity and social gaze, and we entered an interaction of social gaze dynamics type (i.e., infant's coordination, maternal coordination, dyadic coupling; with Helmert contrast coding) and brain regions (i.e., prefrontal, left TPJ, right TPJ) in the fixed part. Participants were added as random intercept with a random slope for dynamics type by participant.

Results I (HbR data)

During the 5-min free-play interaction, normalized RR of infants' brain activity and social gaze ranged from 0.01 to 1.00 ($M = 0.21$; $SD = 0.22$). As depicted in Figure S2_1, normalized RR was highest for the gaze type maternal coordination ($M = 0.28$; $SD = 0.17$), followed by infant's coordination ($M = 0.22$; $SD = 0.28$) and dyadic coupling ($M = 0.14$; $SD = 0.19$). Normalized RR was consistent across ROIs: prefrontal ($M = 0.22$; $SD = 0.24$), left TPJ ($M = 0.22$; $SD = 0.21$), right TPJ ($M = 0.22$; $SD = 0.22$).

The model (see Table S2_1), including Helmert contrast coding, estimated that intrapersonal maternal coordination of social gaze had a higher normalized RR with infants' 'social brain' activity than the pooled social gaze data of intrapersonal infant's coordination and interpersonal dyadic coupling ($\beta = 0.91$; $p < .001$). No other main effects nor interactions reached significance.

Figure S2_1

Normalized RR of infants' brain activity (HbR) and social gaze by types of social gaze dynamics

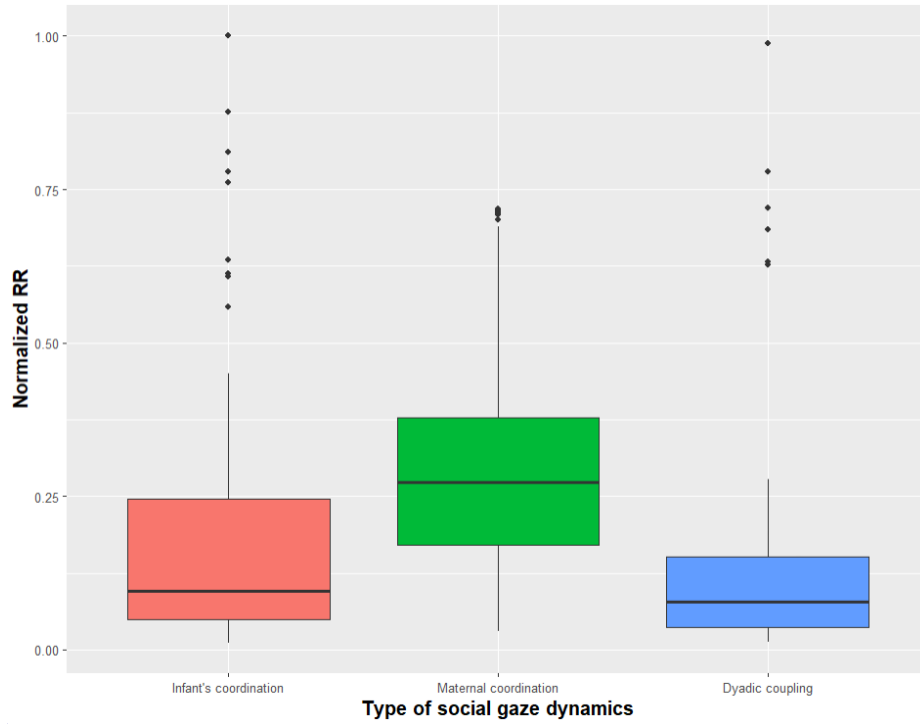


Table S2_1

*RR of infants' brain activity (HbR) and social gaze predicted by ROIs and types of social gaze dynamics. R formula: lmer (log RR ~ ROI * dynamics type + (1 + dynamics type | dyad))*

log (normalized Recurrence Rate)			
<i>Predictors</i>	<i>Estimates</i>	<i>CI</i>	<i>p</i>
(Intercept)	-2.06	-2.27 – -1.85	<0.001
ROI [ITPJ]	0.03	-0.04 – 0.10	0.428
ROI [rTPJ]	0.01	-0.06 – 0.08	0.852
Contr maternal coord. vs other	0.91	0.43 – 1.40	<0.001
Contr infant's coord. vs coupling	-0.36	-0.91 – 0.19	0.194
ROI [ITPJ] * Contr maternal coord. vs other	-0.04	-0.19 – 0.10	0.567
ROI [rTPJ] * Contr maternal coord. vs other	0.04	-0.11 – 0.19	0.572
ROI [ITPJ] * Contr infant's coord. vs coupl.	-0.15	-0.32 – 0.02	0.085
ROI [rTPJ] * Contr infant's coord. vs coupl.	0.02	-0.15 – 0.20	0.809
Random Effects			
σ^2	0.05		
τ_{00} Dyad	0.28		
ICC	0.95		
N _{Dyad}	26		

Note. Number of observations: 222. The reference level for ROI is *prefrontal*.

References

Yücel, M. A., Lühmann, A. V., Scholkmann, F., Gervain, J., Dan, I., Ayaz, H., Boas, D., Cooper, R. J., Culver, J., Elwell, C. E., Eggebrecht, A., Franceschini, M. A., Grova, C., Homae, F., Lesage, F., Obrig, H., Tachtsidis, I., Tak, S., Tong, Y., ... Wolf, M. (2021). Best practices for fNIRS publications. *Neurophotonics*, 8(01).
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