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- ***Morphological awareness***, or the ability to understand and make use of word morphemes, plays an essential role in language and literacy development
- Children begin to show awareness of morphemic units from 4 years old, before they learn to read¹
- Reading-age bilingual children develop specialized neuro-cognitive mechanisms to process multi-morphemic words²
- It remains ***unknown*** if these differences in brain functions between bilingual and monolingual readers come from their experiences with the written language, or if they have their origins before they learn to read

How does the developing brain ***begin*** to support bilingual and monolingual children's emerging understanding of word morphemes prior to learning to read?

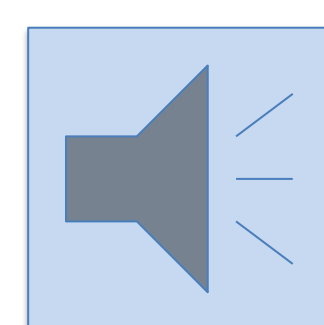
Participants to date

$N = 12$ (5 bilinguals, 6 girls) $M_{\text{Age}} = 4.90$ (4.17-5.58)

Experimental Task

Pancake

Cupcake



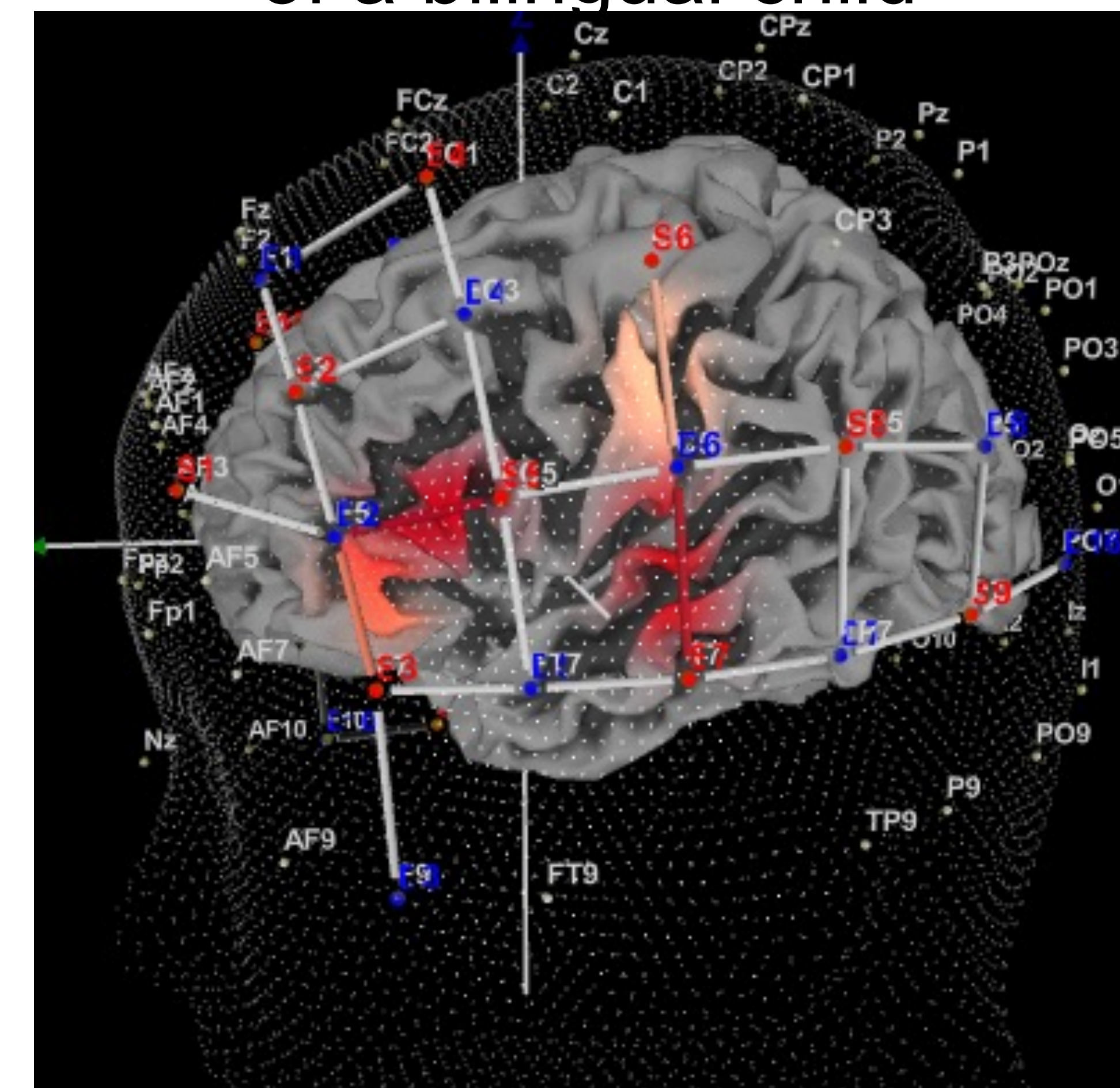
Stomachache

fNIRS setup and preliminary results

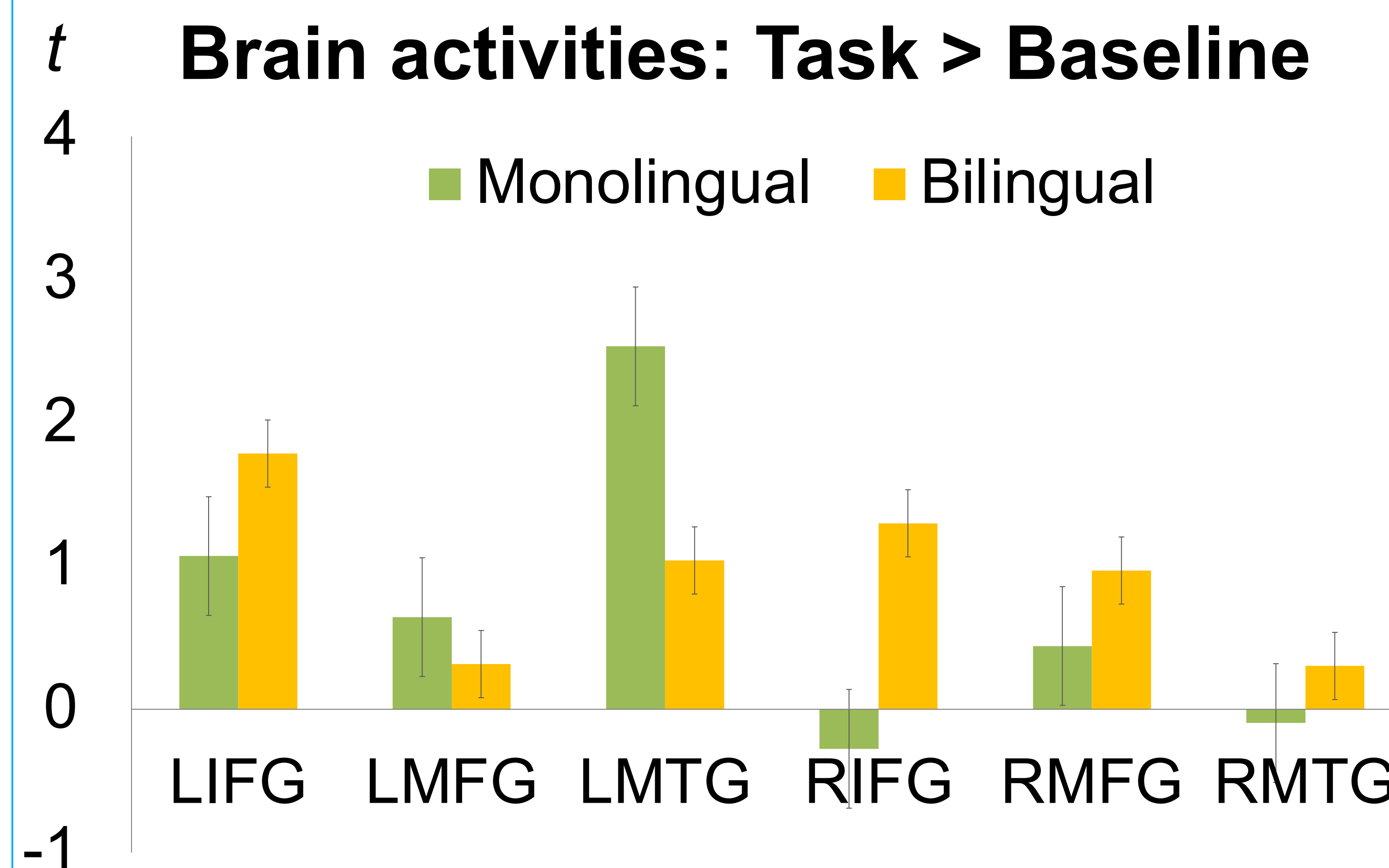
fNIRS setup on a monolingual child



Task > Baseline activation of a bilingual child



Brain activities: Task > Baseline



- Overall, the morphological task activated children's ***inferior frontal*** and ***middle temporal regions***, which was also found in reading-age children^{2,3}

- Bilingual children engaged more ***bilateral inferior frontal***, whereas monolingual children engaged more ***left middle temporal*** regions

Conclusion

The preliminary results suggest that, at pre-literate ages, early bilingualism may influence children's neural organizations for morphological processes.