

Neuro-ophthalmic assessment based on the spatiotemporal properties of oculomotor behavior during **continuous eye-tracking**

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NOG Groningen, 4 september 2020

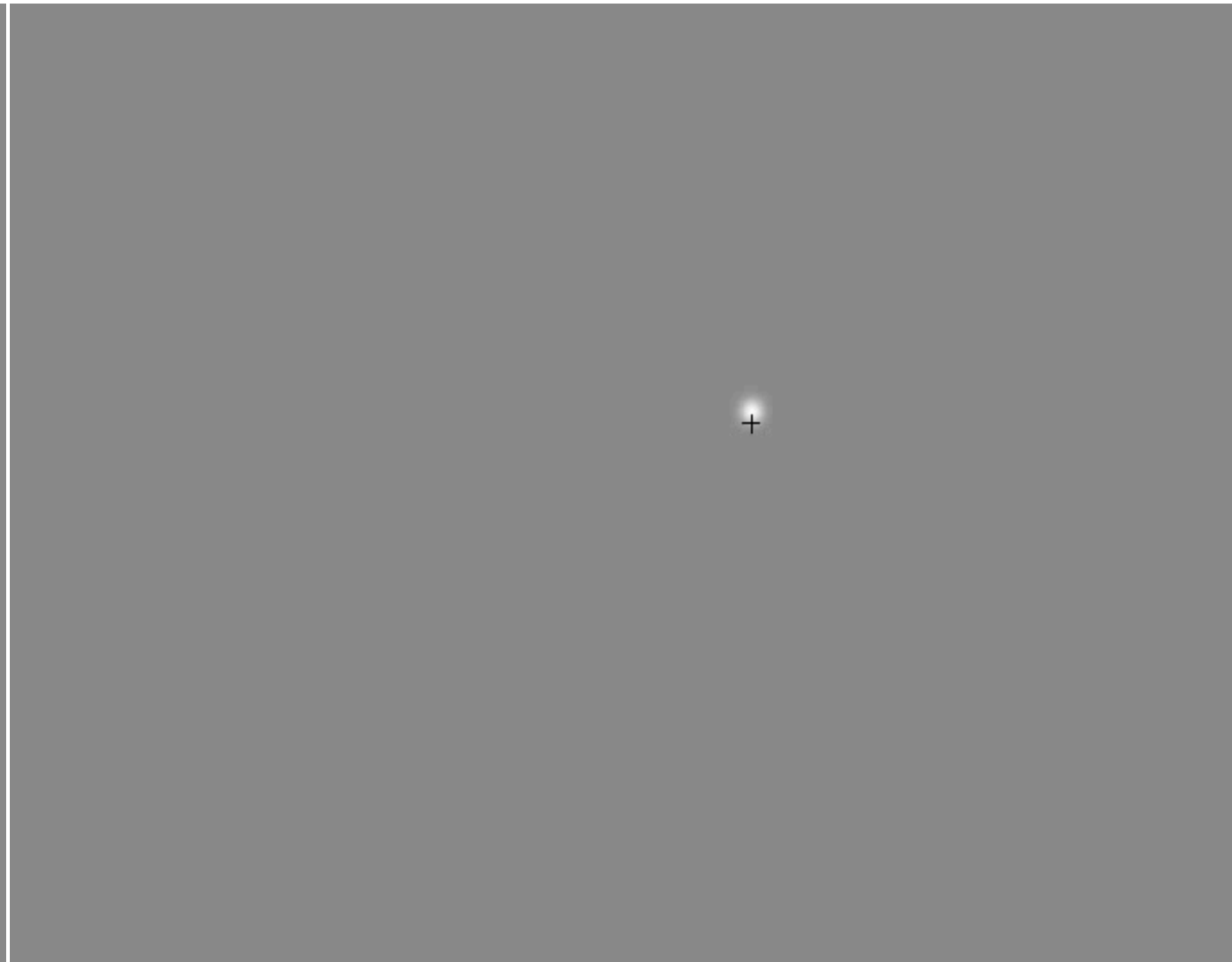
Disclosure belangen spreker

(potentiële) belangenverstrengeling	Zie hieronder
Voor bijeenkomst mogelijk relevante relaties met bedrijven	Visio, Reperio
<ul style="list-style-type: none">• Sponsoring of onderzoeksgeld• Andere relatie	<ul style="list-style-type: none">• Novum, Uitzicht, EU• UMCG heeft patent aangevraagd op bepaalde aspecten van de gepresenteerde methode

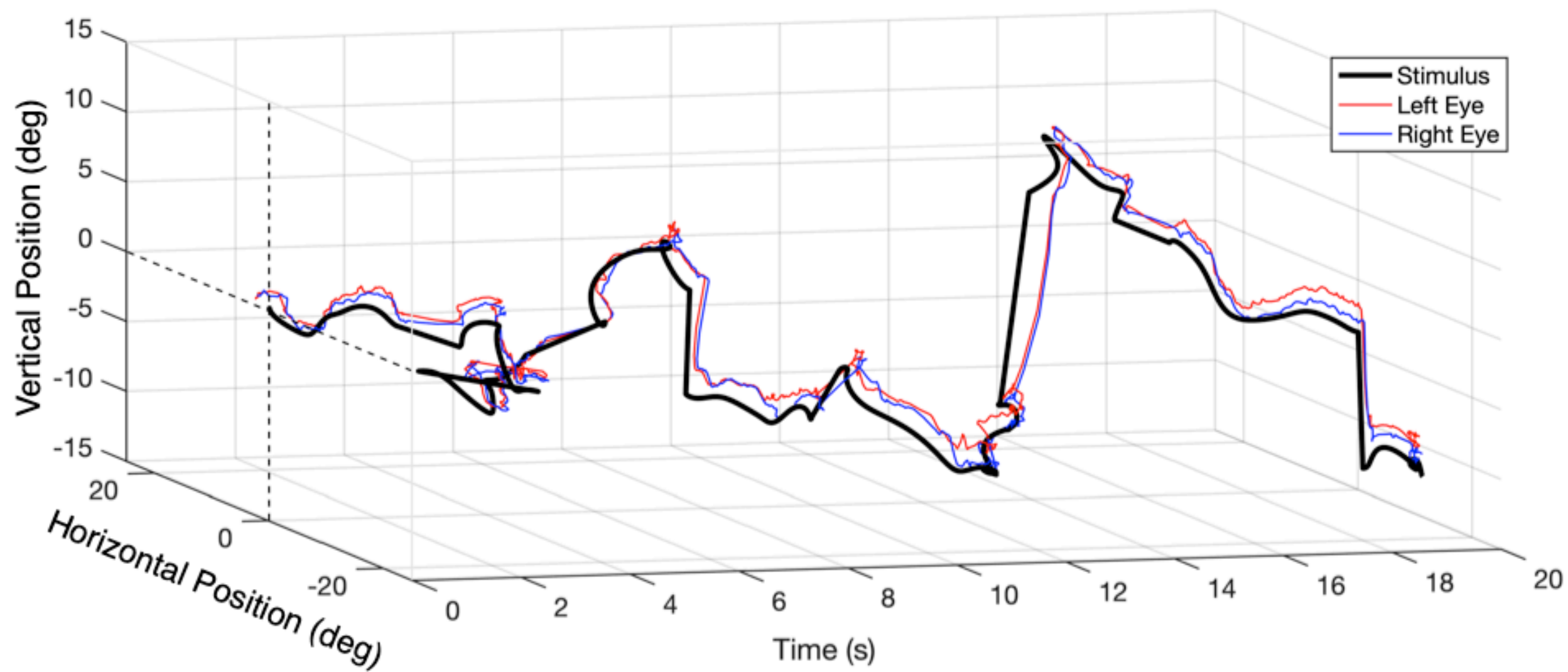
Smooth pursuit



Saccadic pursuit

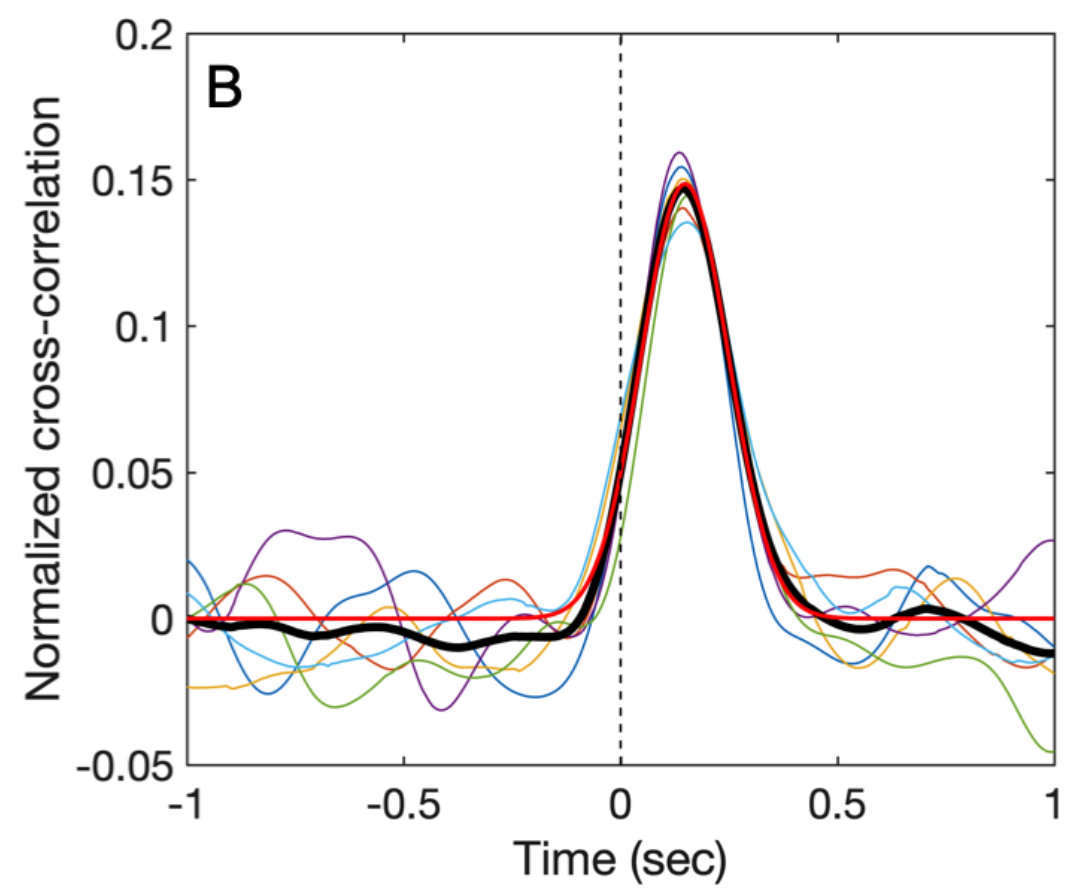
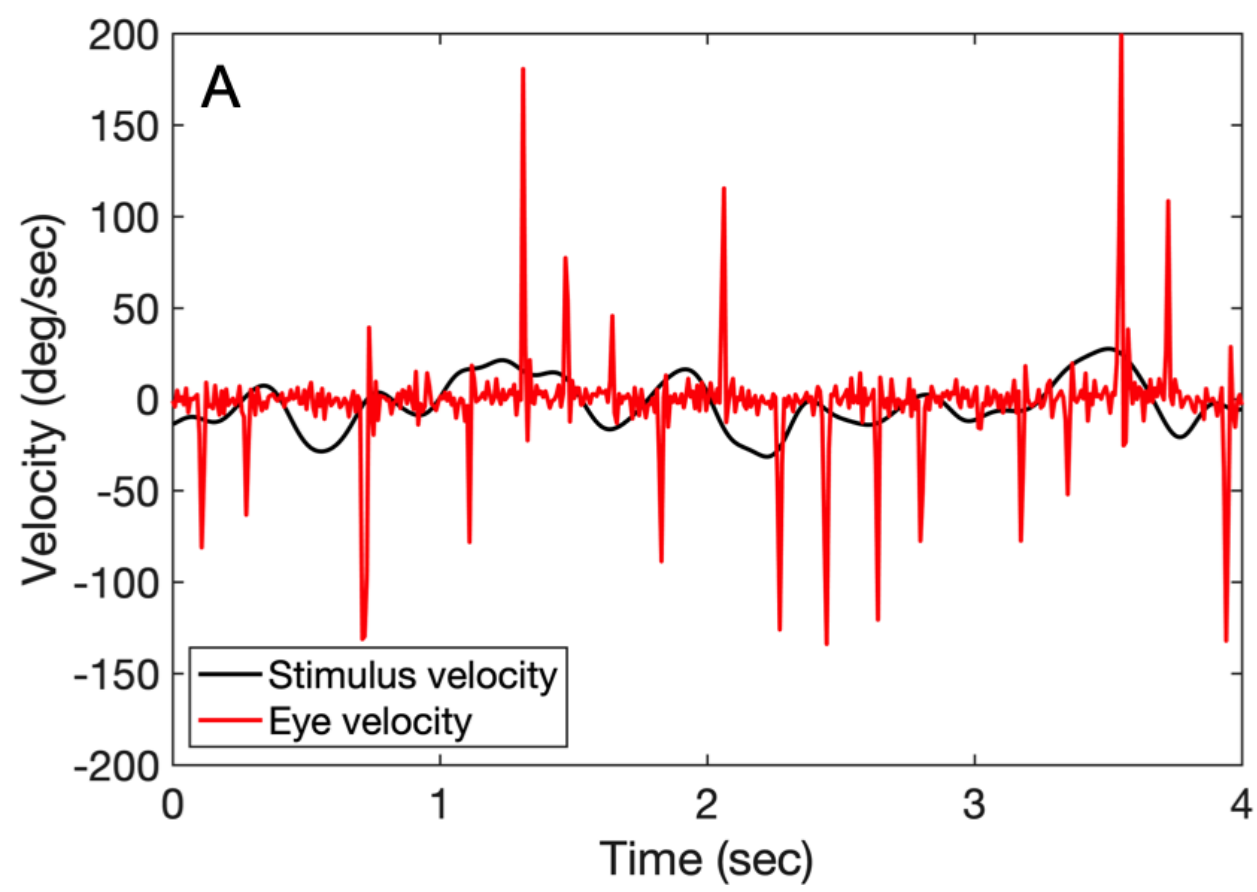


Continuous eye tracking

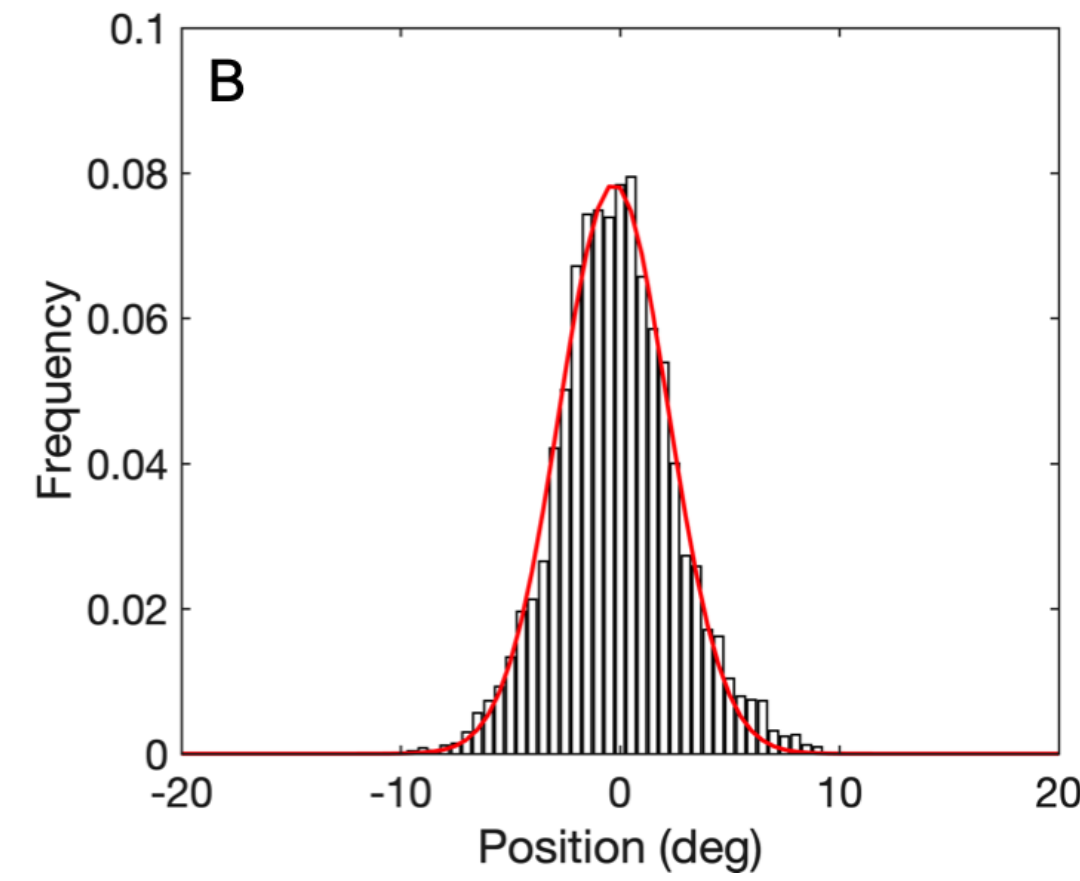
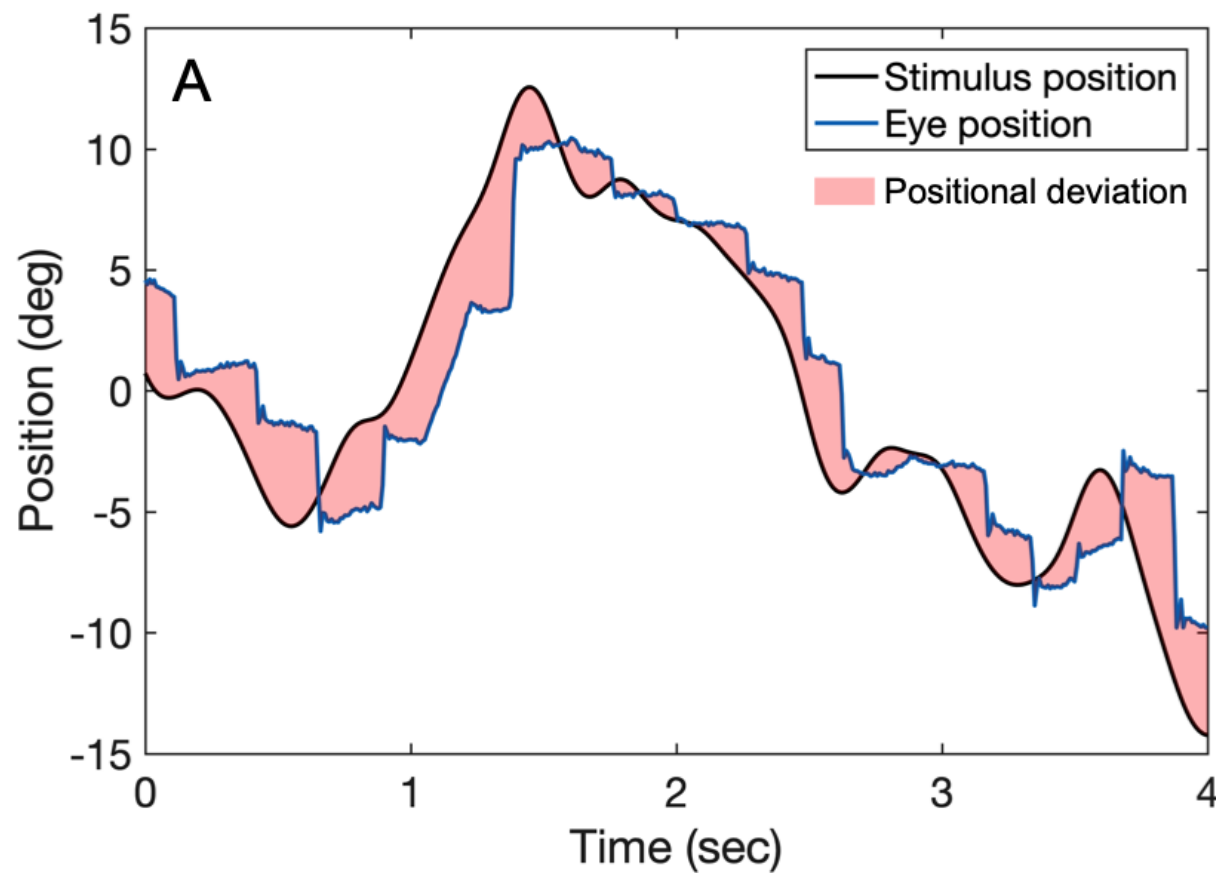


Smooth pursuit

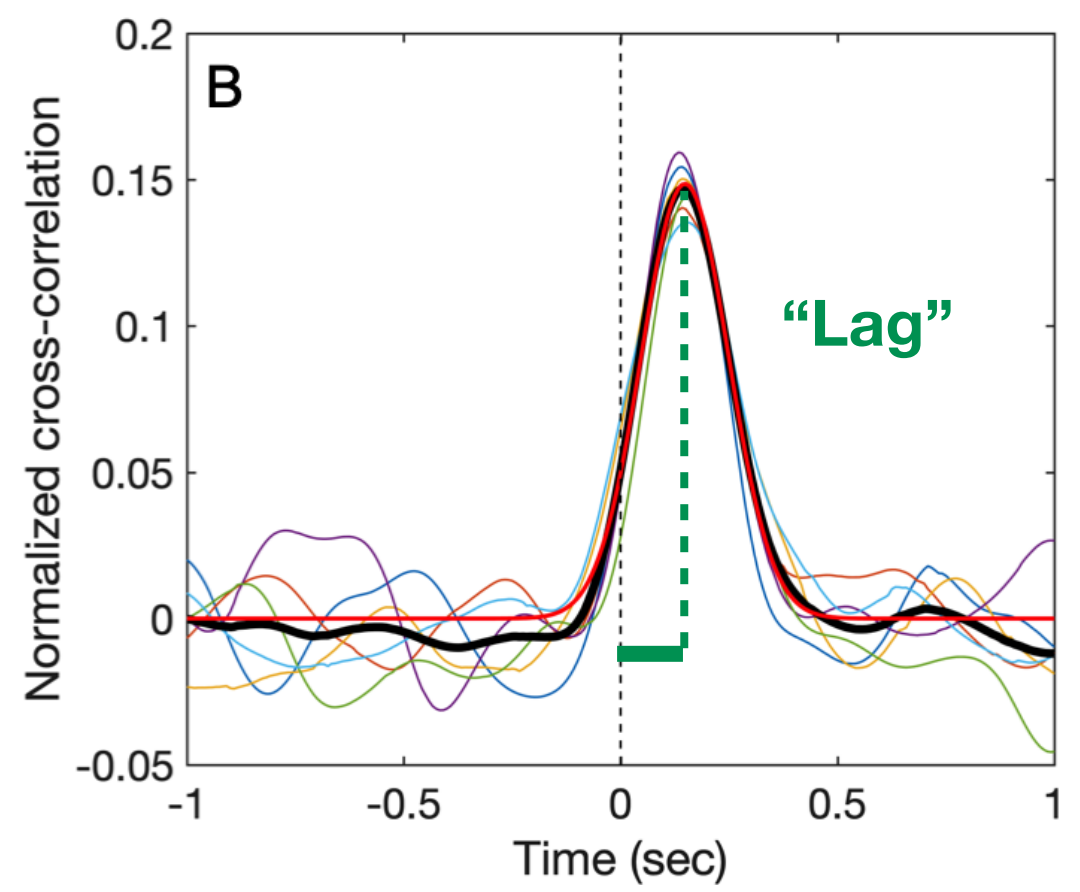
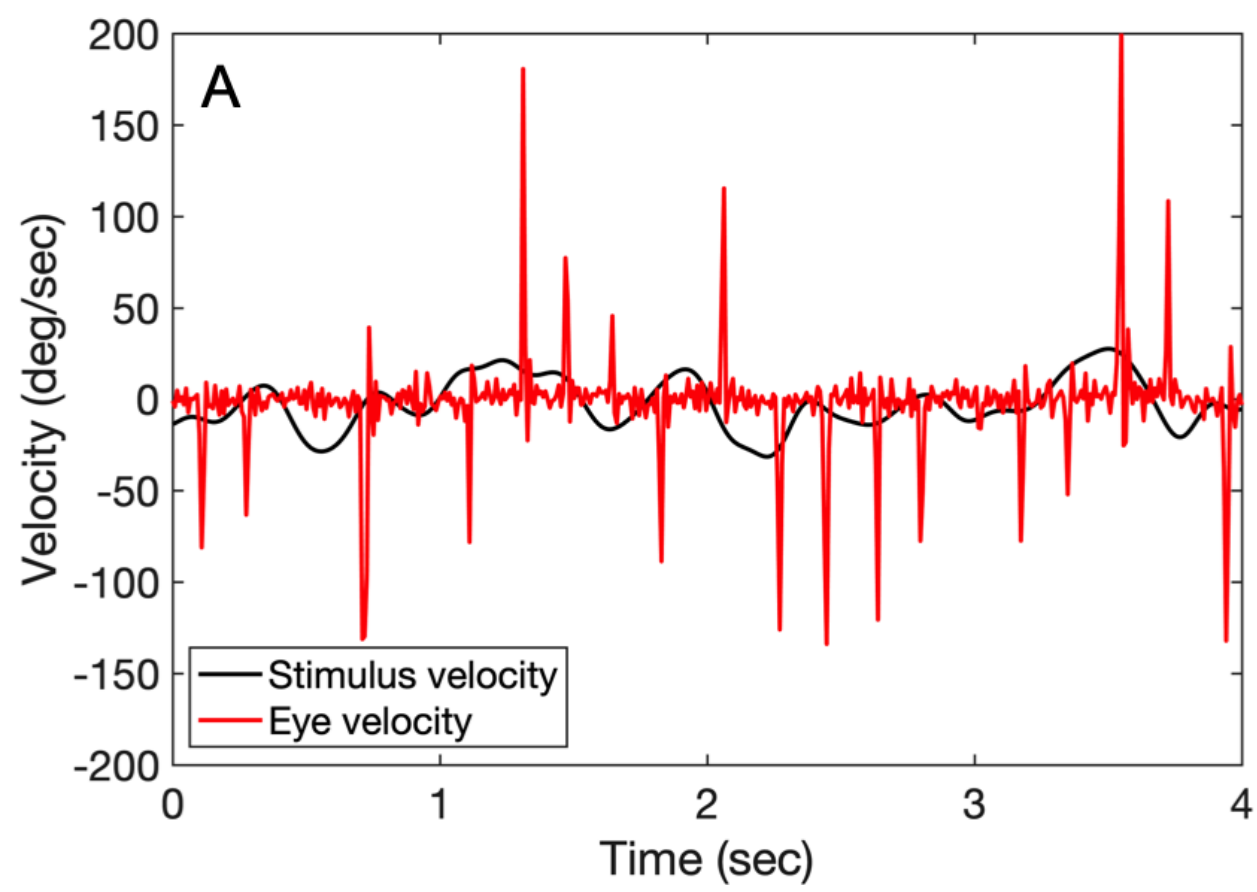
Temporal properties



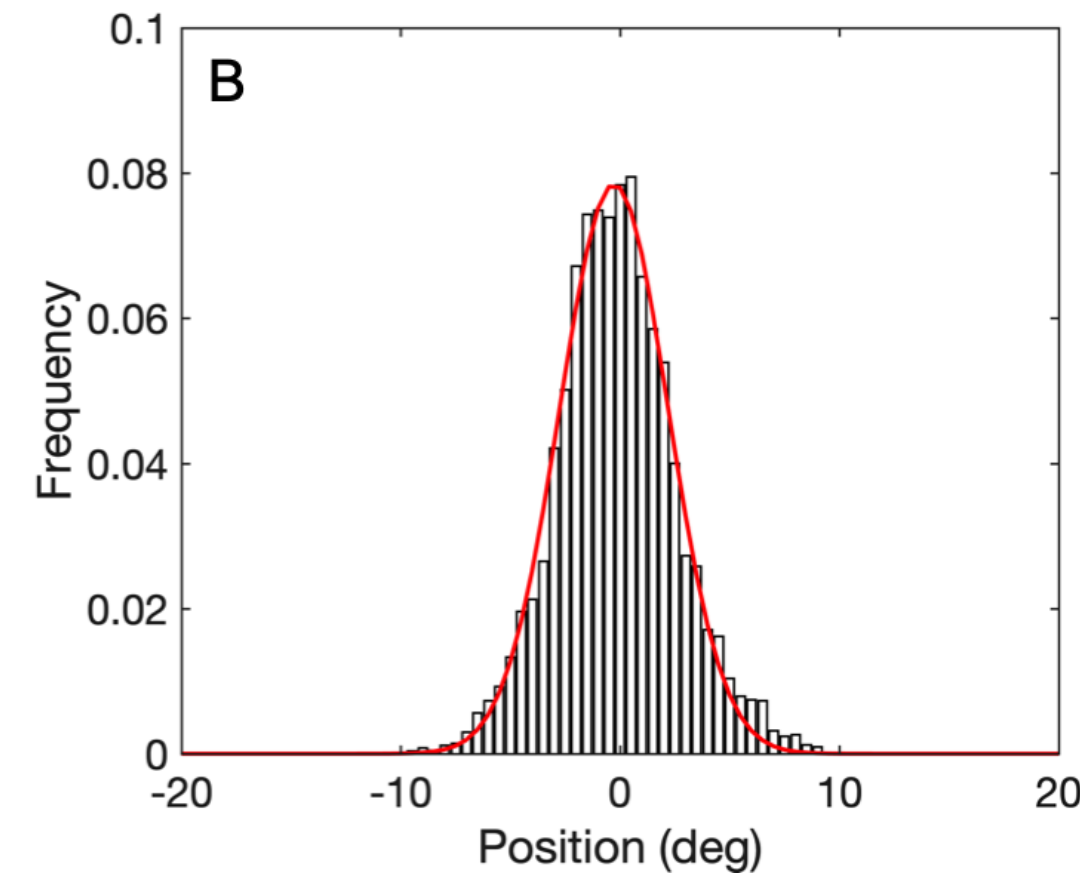
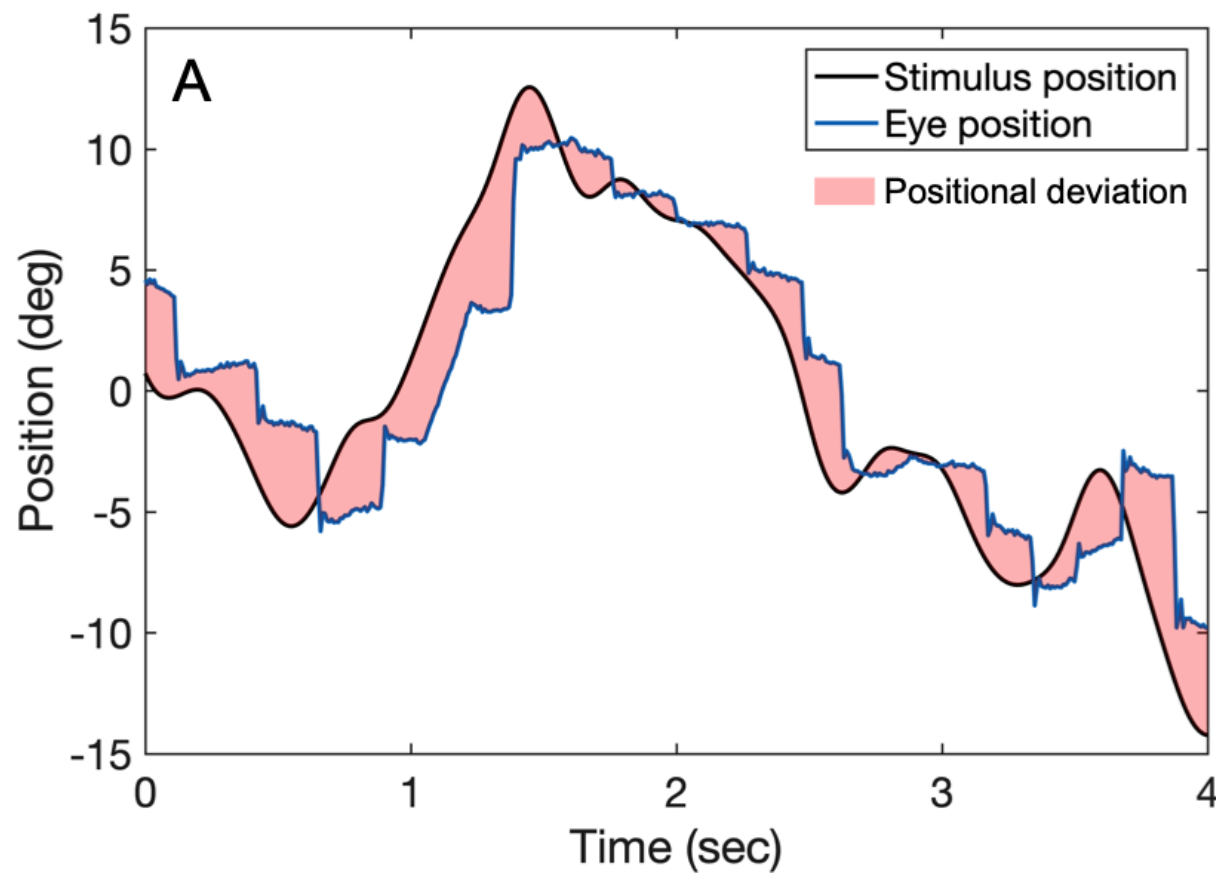
Spatial properties



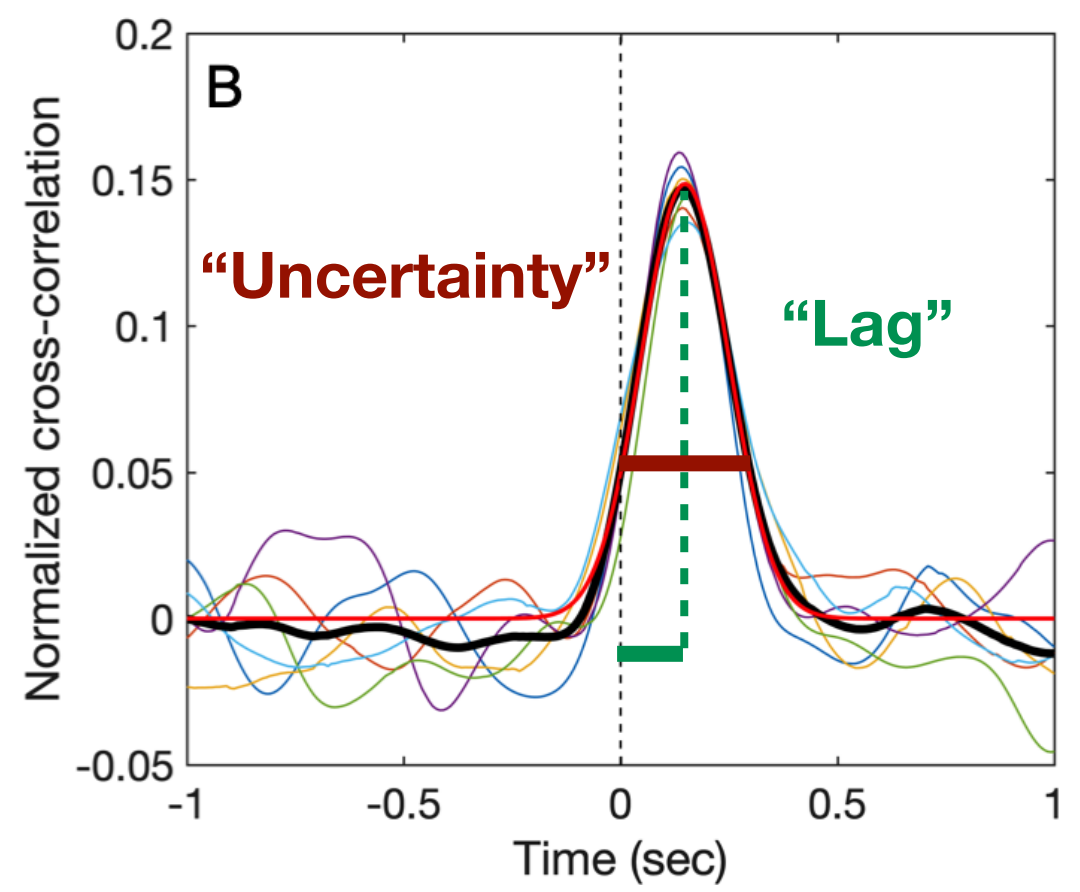
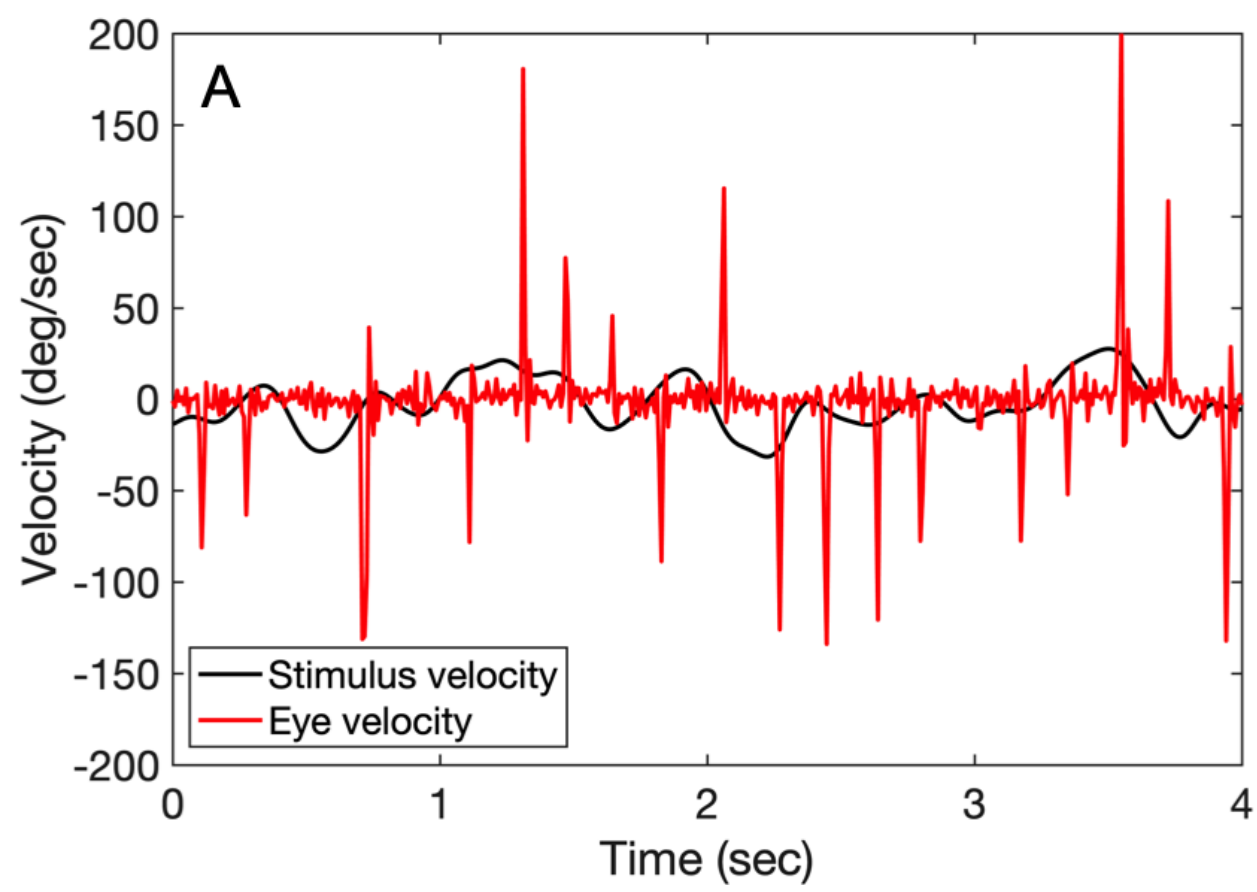
Temporal properties



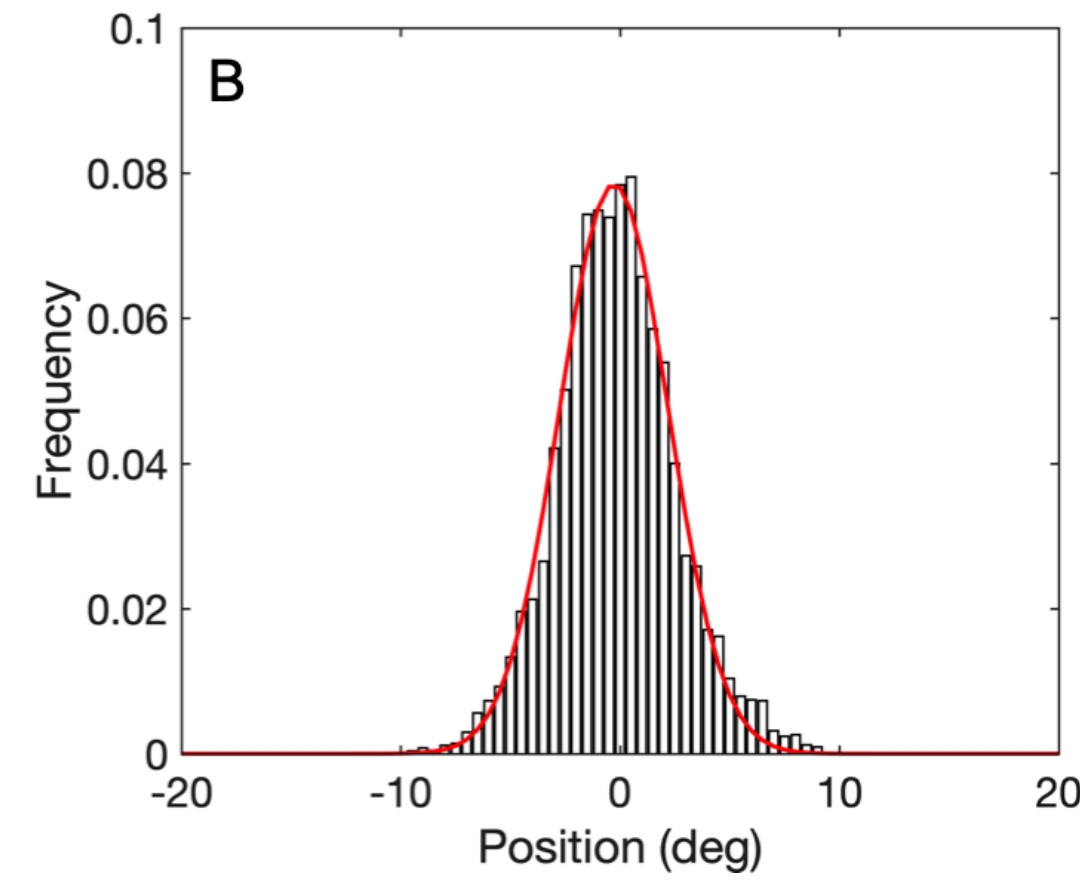
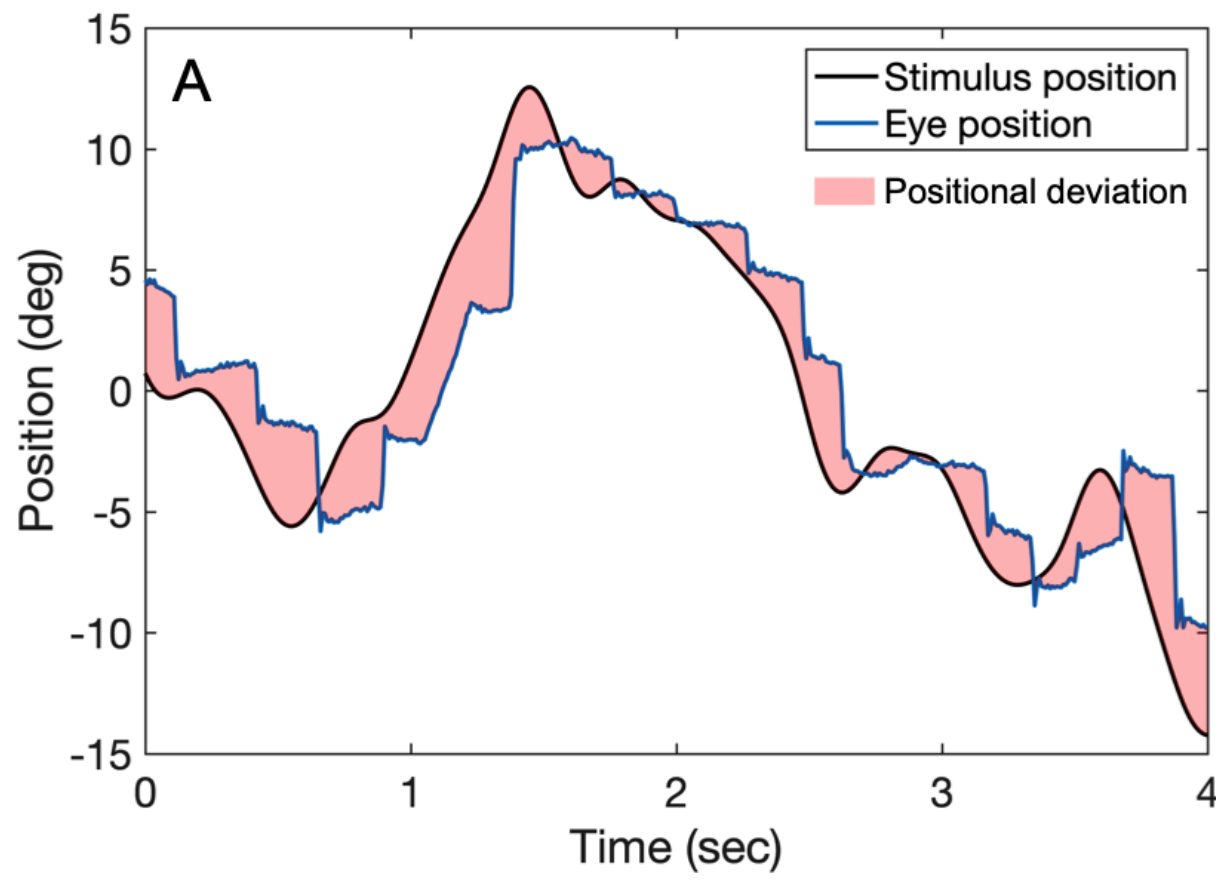
Spatial properties



Temporal properties

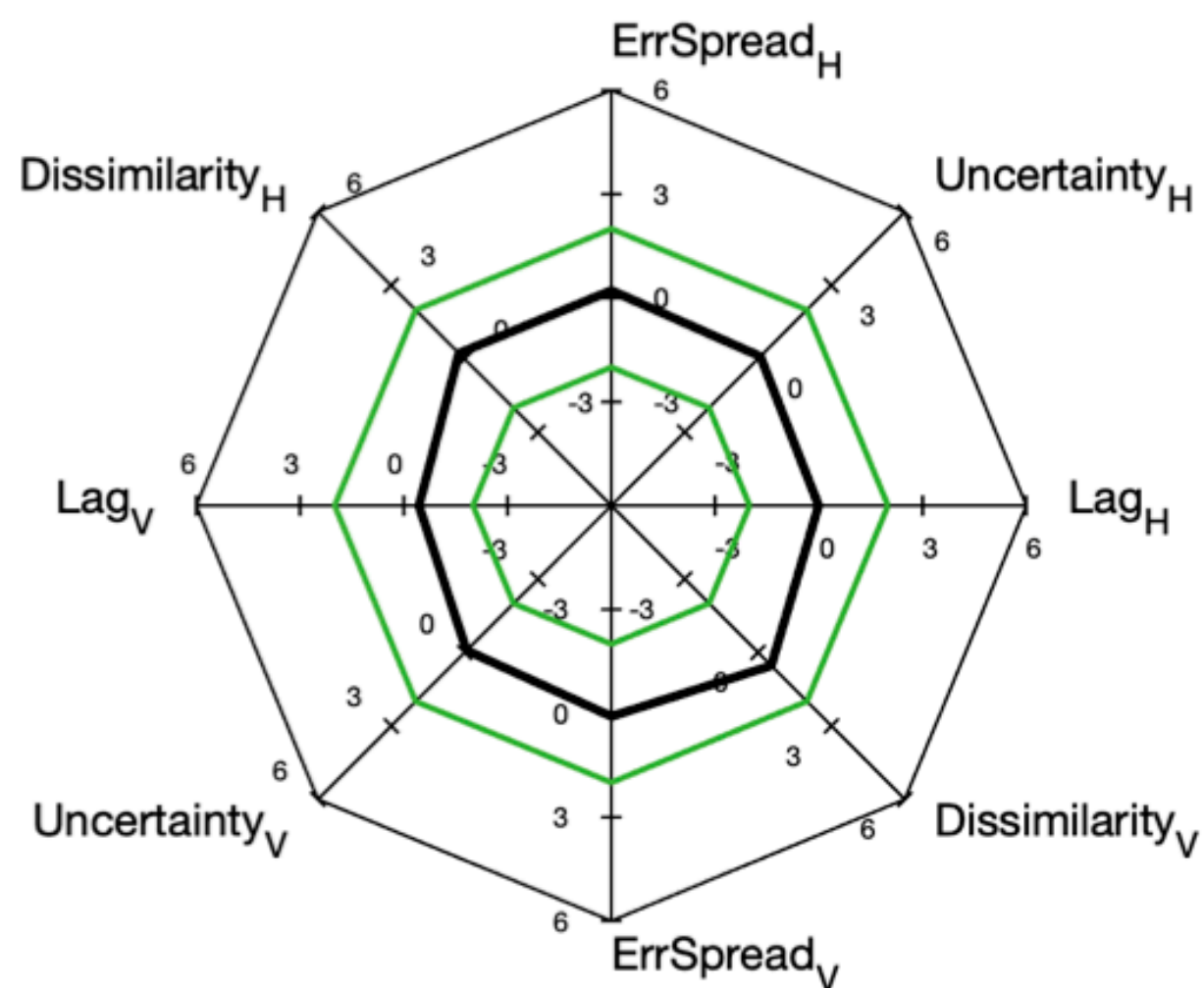


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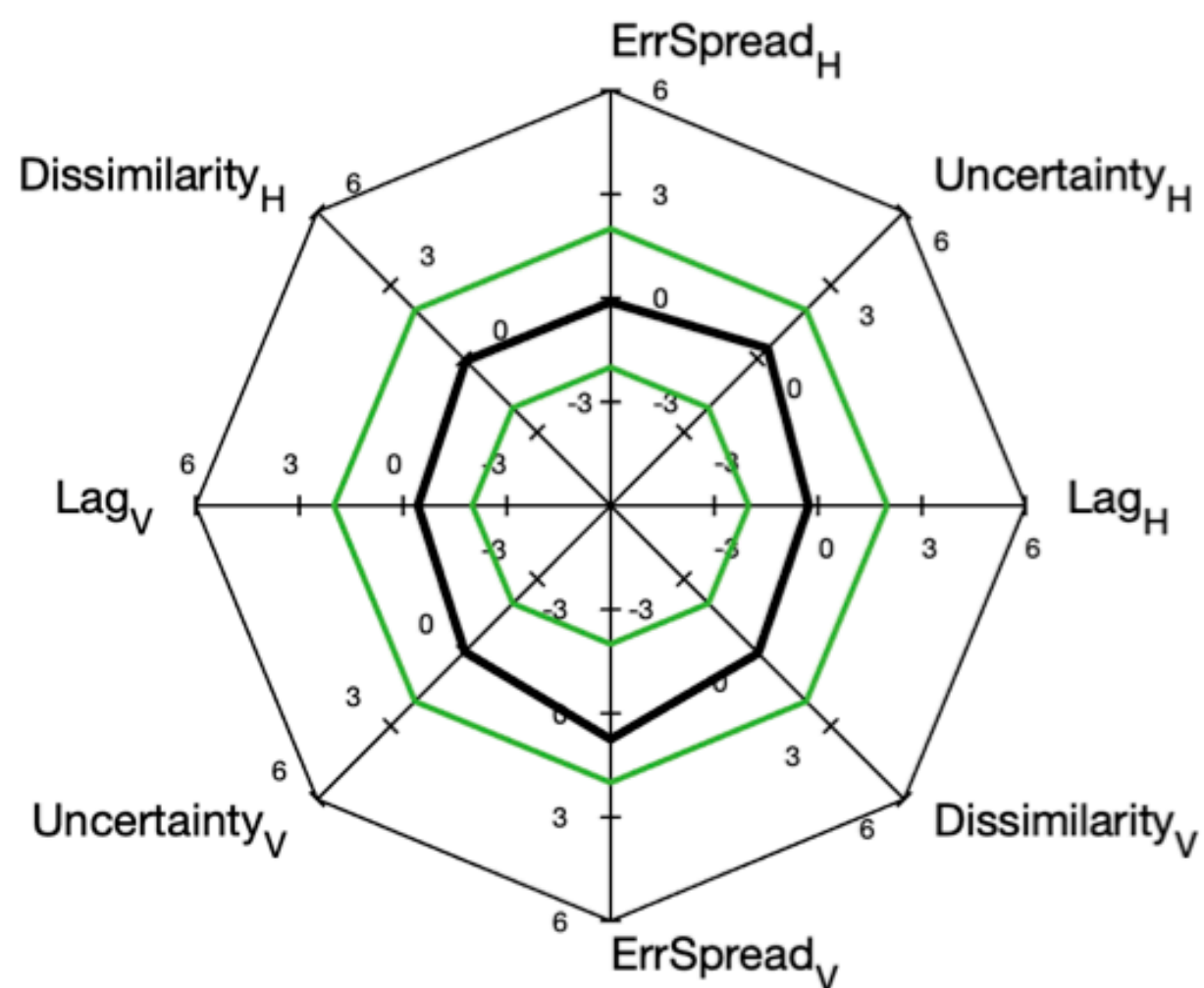


Age-matched control

Left eye



Right eye

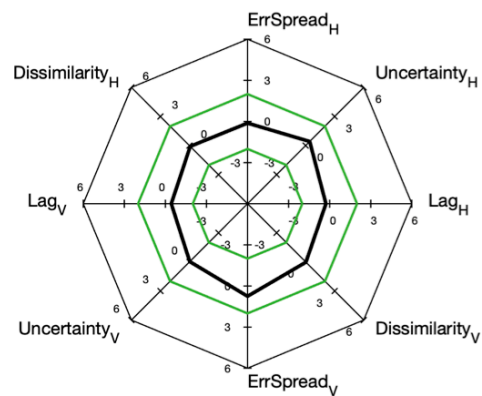
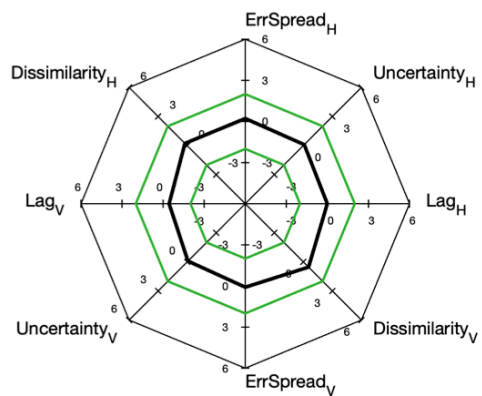


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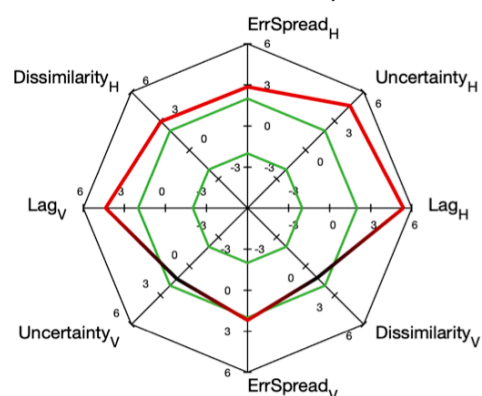
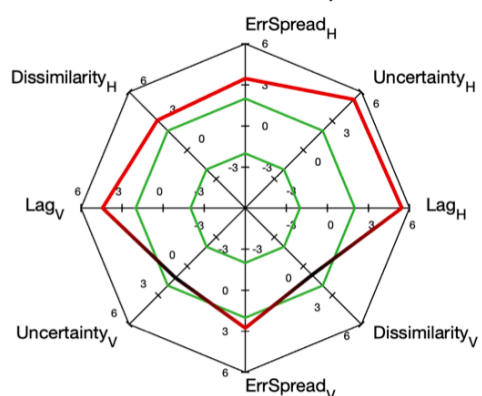
Left eye

Right eye

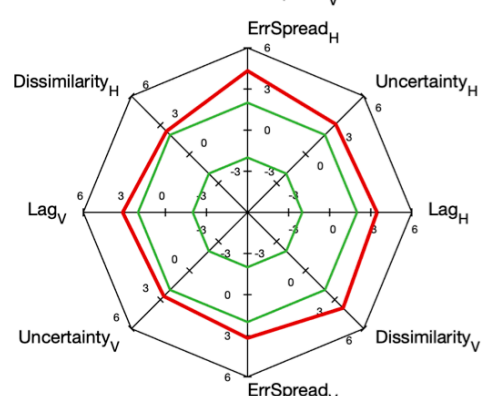
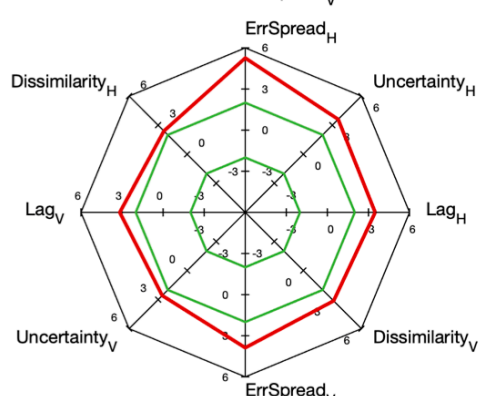
Age-matched control



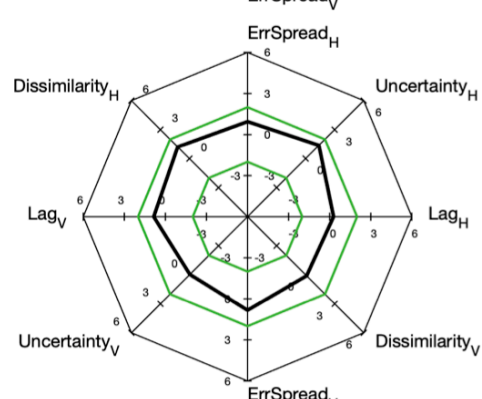
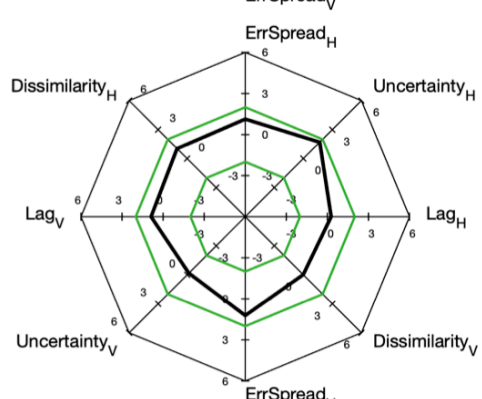
PD#1



PD#2

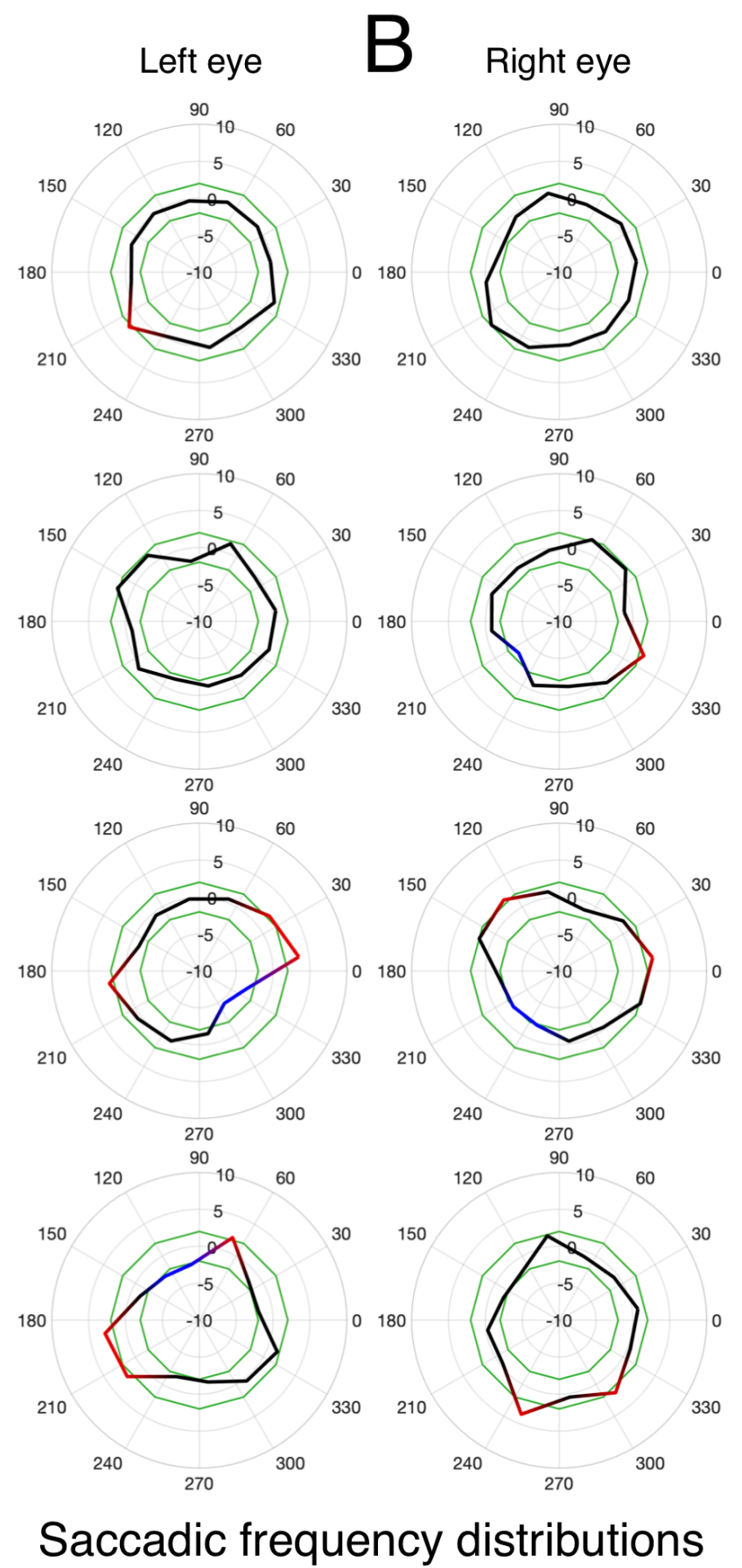
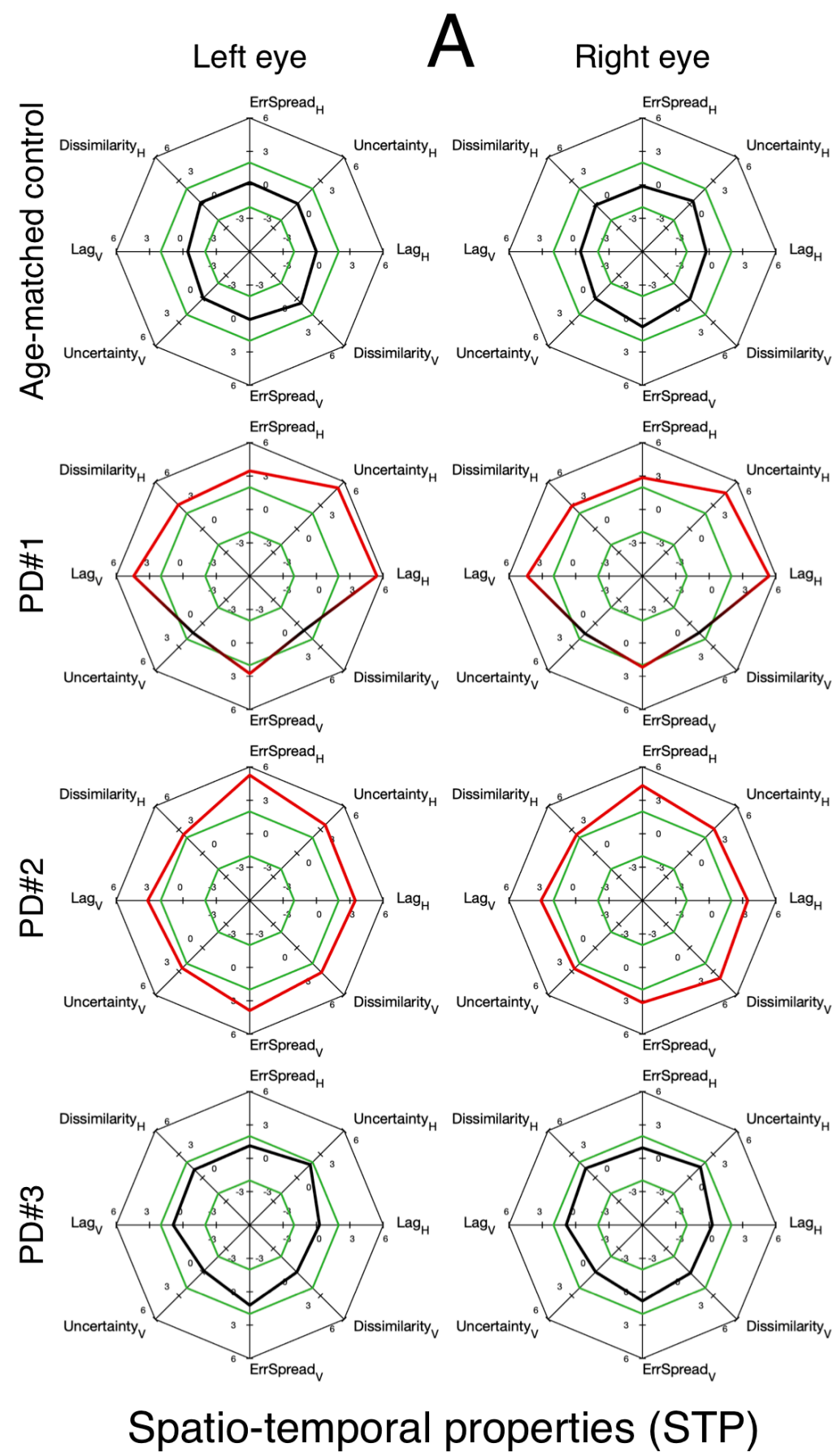


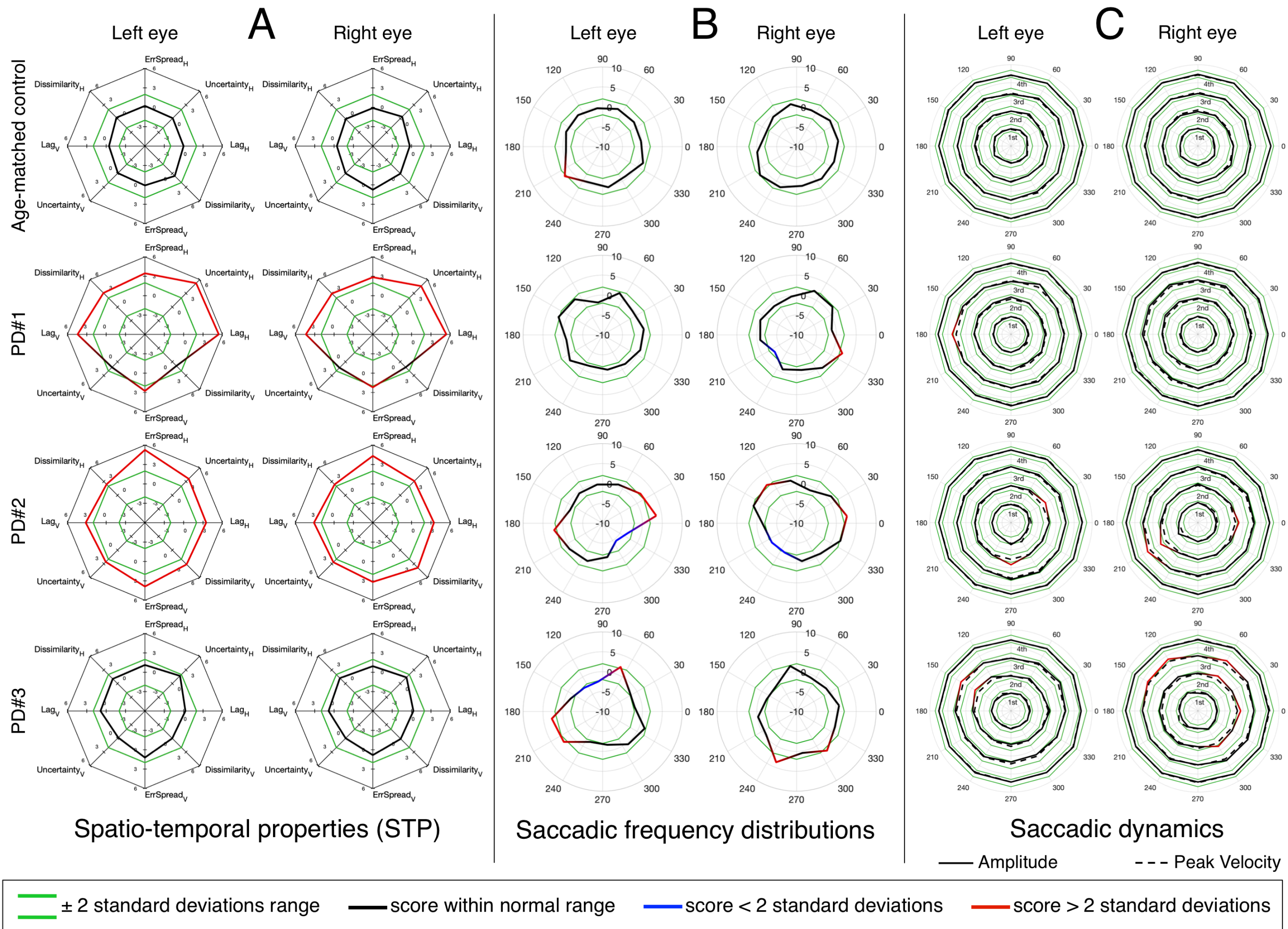
PD#3

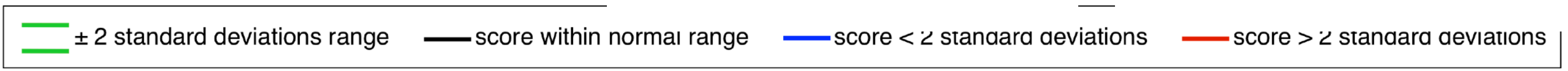
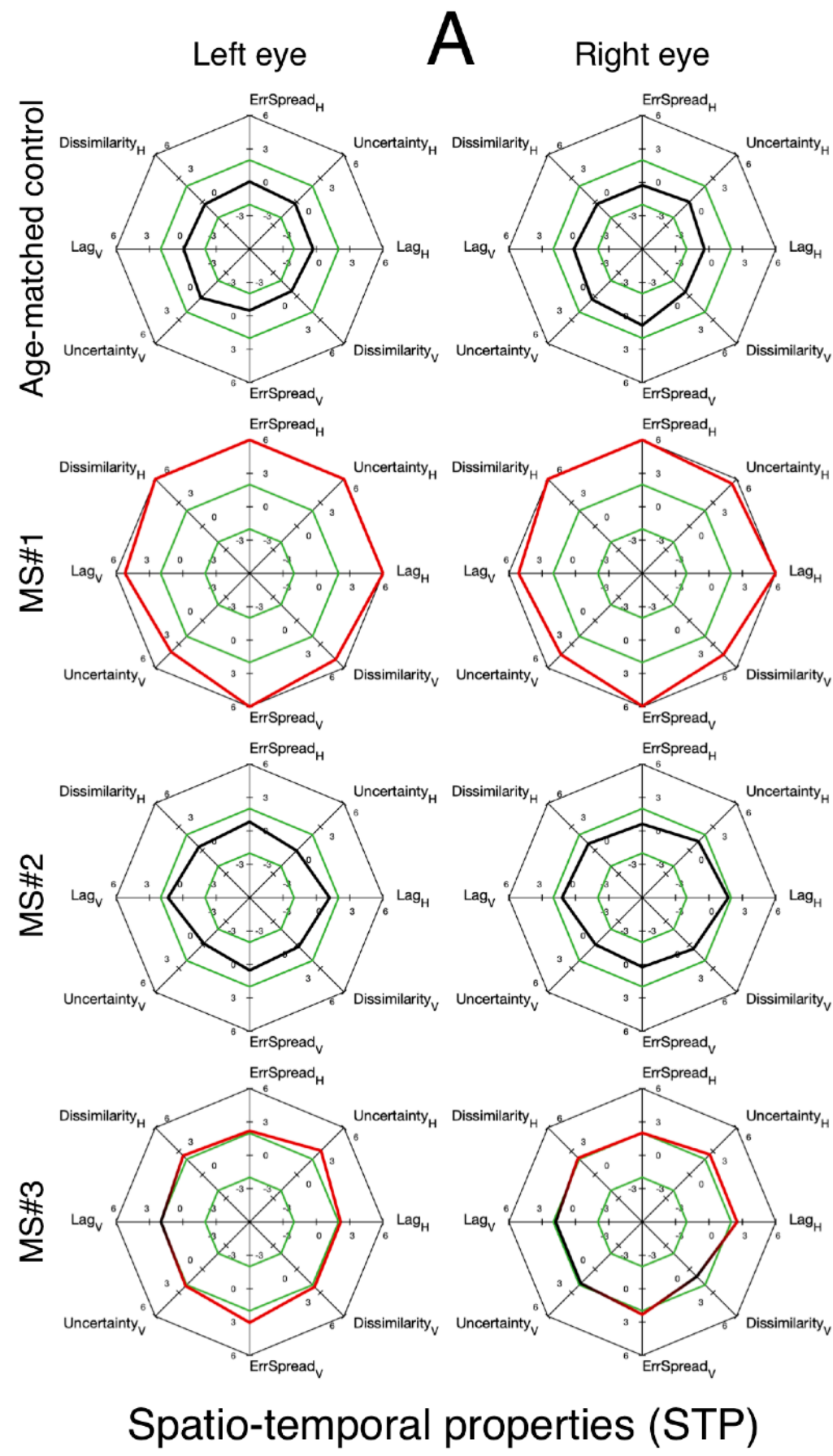


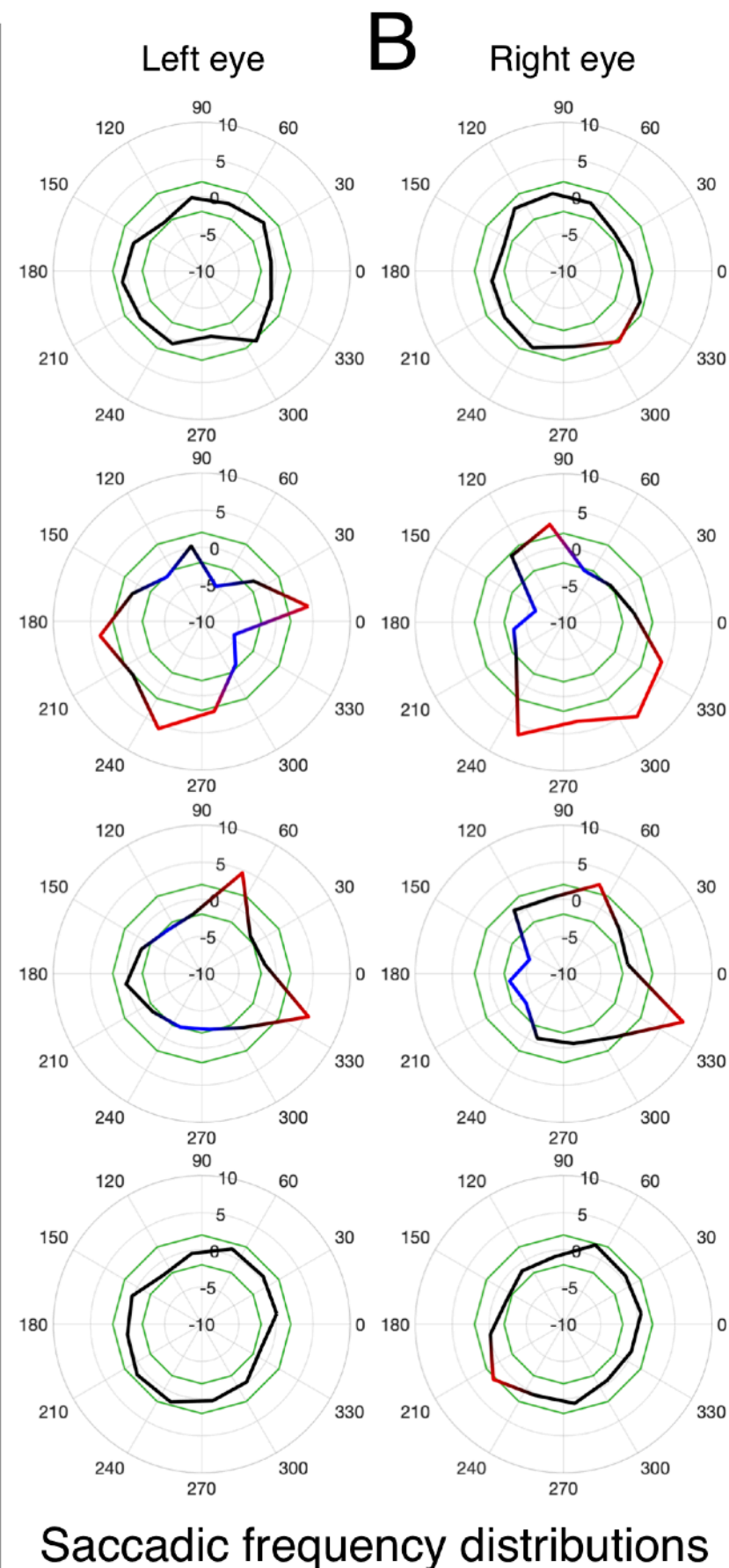
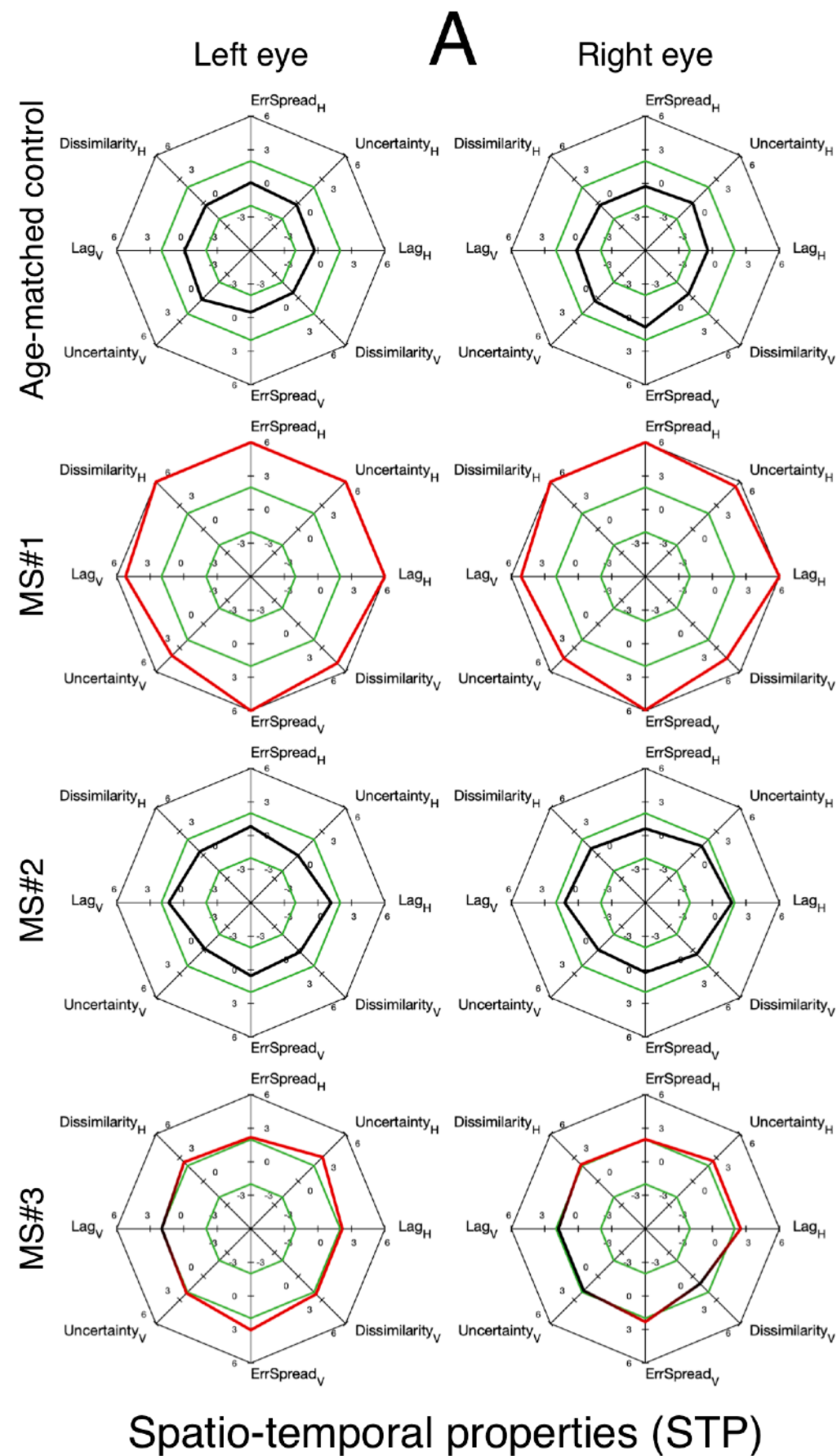
Spatio-temporal properties (STP)

— ± 2 standard deviations range
 — score within normal range
 — score < 2 standard deviations
 — score > 2 standard deviations

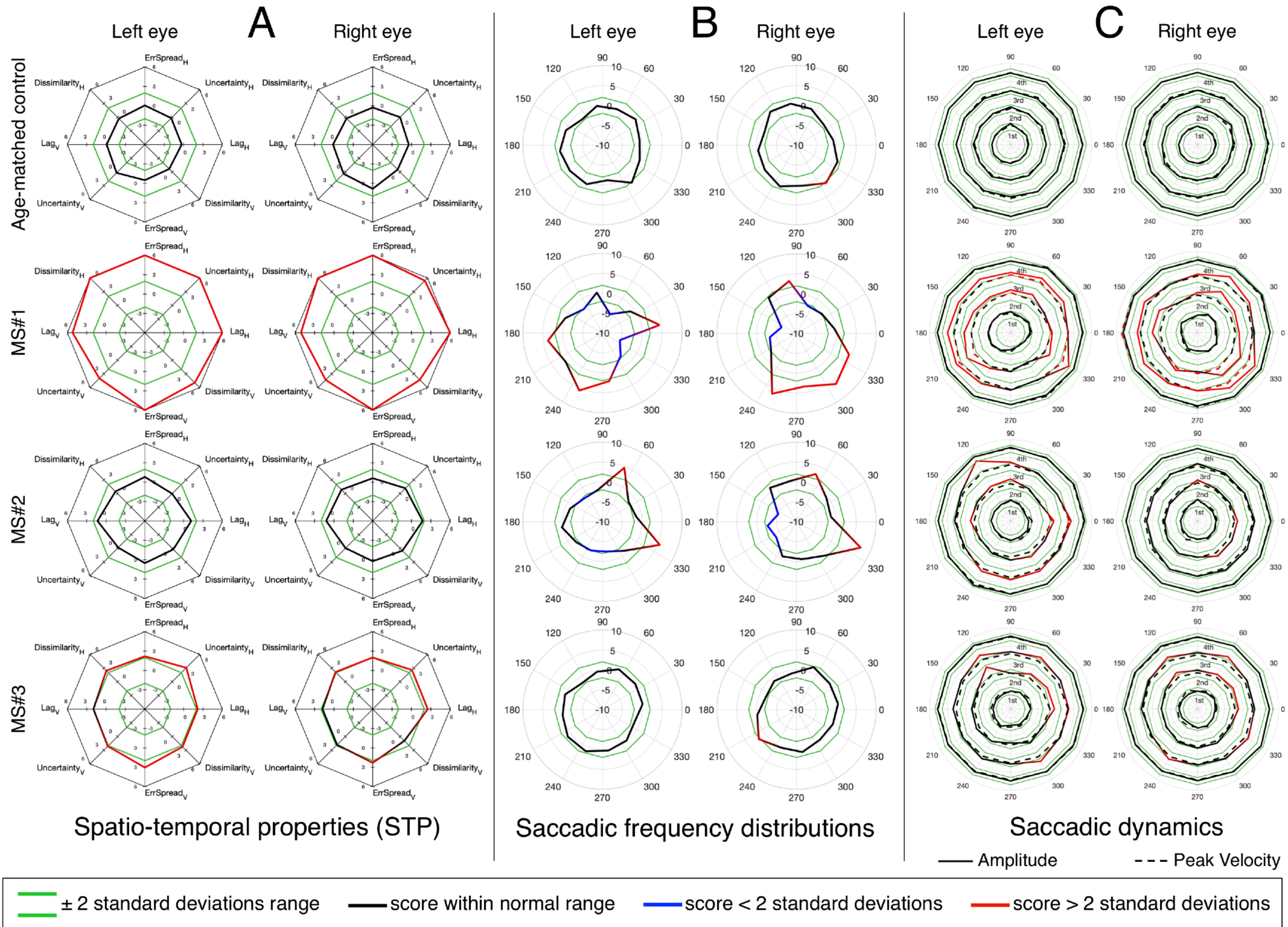








— ± 2 standard deviations range
 — score within normal range
 — score < 2 standard deviations
 — score > 2 standard deviations



Conclusions

- The spatio-temporal properties of smooth and saccadic pursuit, combined with statistical and dynamic properties of individual saccades enables identifying oculomotor abnormalities in both MS and PD patients.
- Intuitive, fast (<5 min) and quantitative method for assessing oculomotor behavior
- SONDA (Standardised Oculomotor and Neurological Disorder Assessment) can complement confrontational testing
- Outlook: (simultaneous) perimetric assessment

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