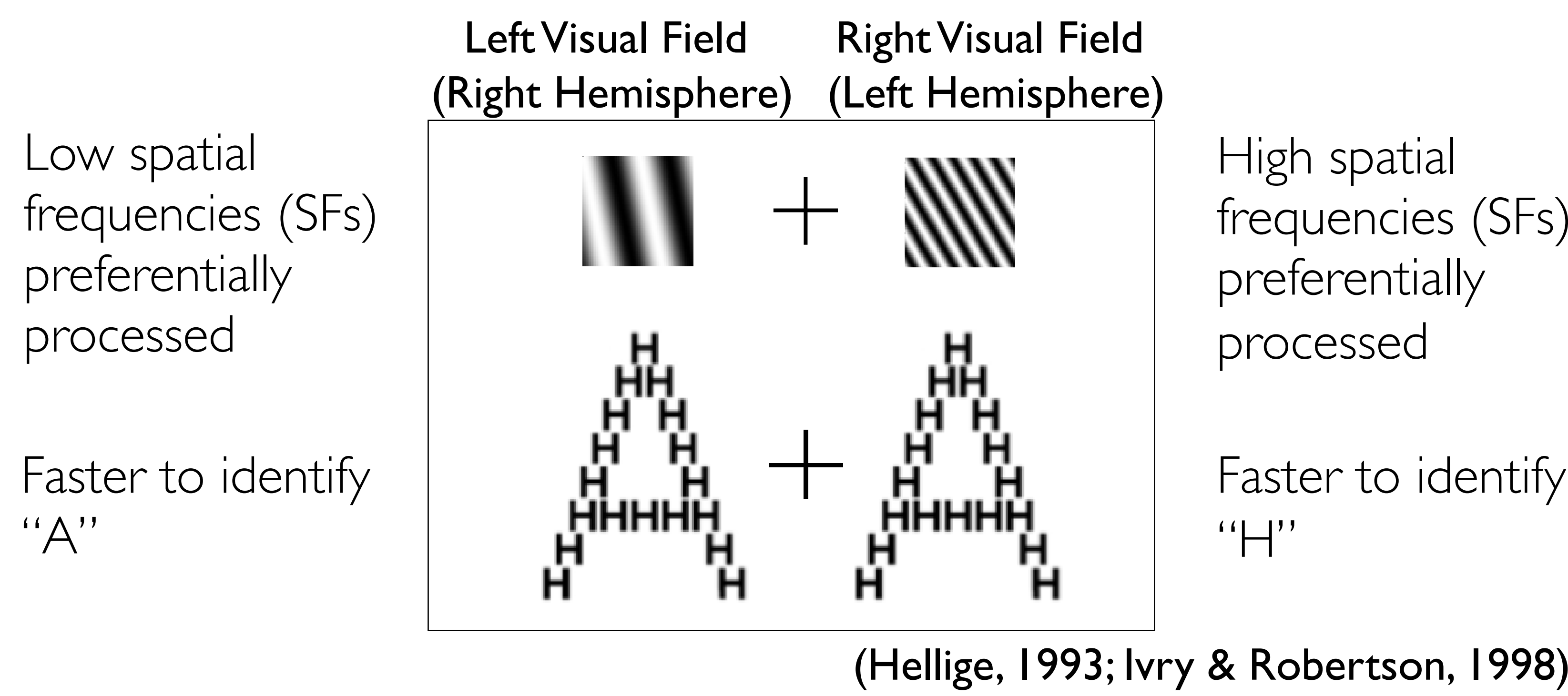


Background + Motivation

Hemispheric asymmetries in spatial vision are well-documented

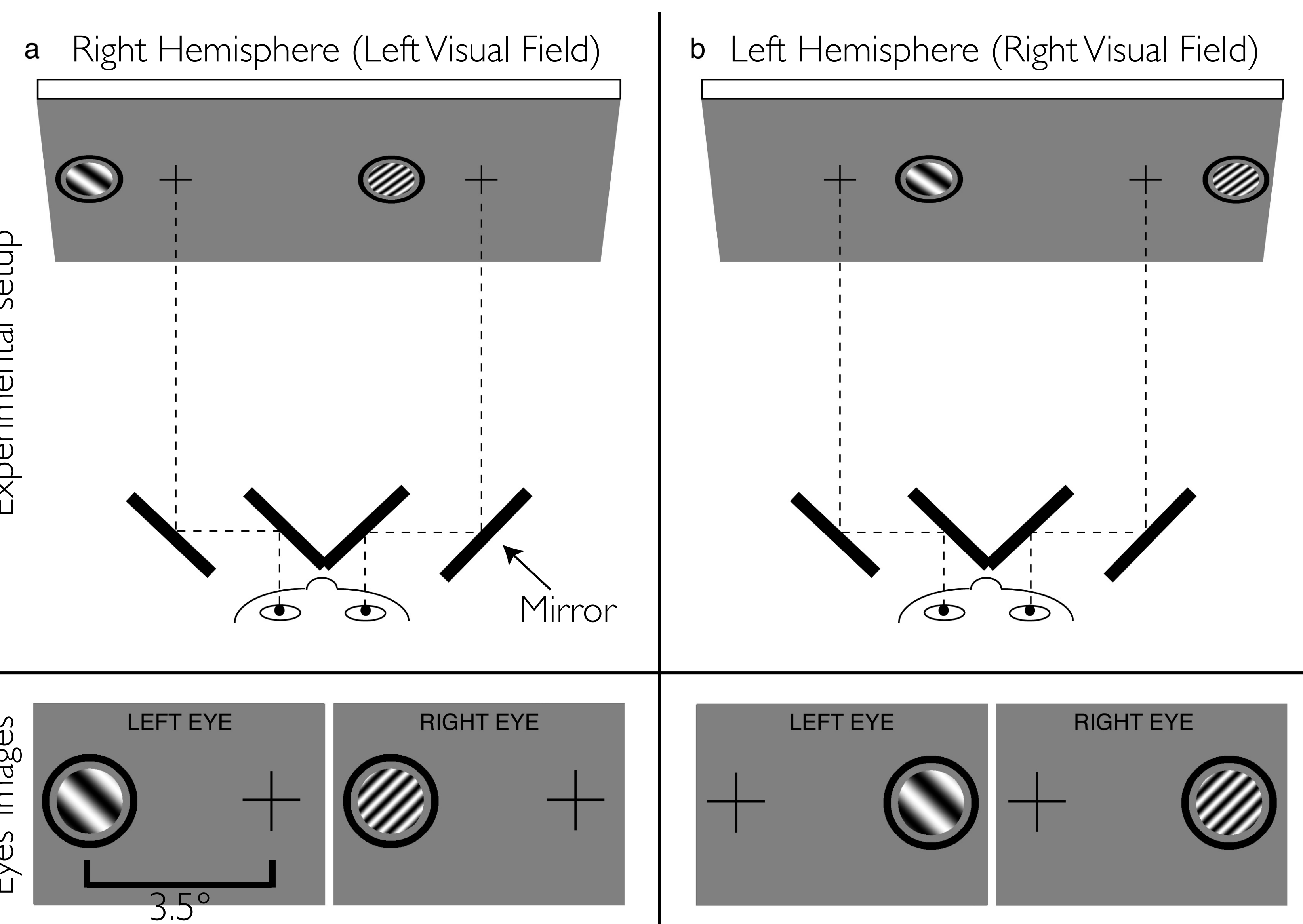


1. Are there hemispheric differences in perceptual selection from **multiple SFs simultaneously present in the environment?**

2. What is the **time course of this asymmetry?**

3. Is this asymmetry due to **relative or absolute SF processing?**

We used binocular rivalry to measure continuous perceptual selection from multiple frequencies competing for conscious awareness



Methods

2 orthogonal gratings of differing SF (1 cpd and 3 cpd, or a broader range in Part 3; see Results) at 3.5° eccentricity viewed through a mirror stereoscope

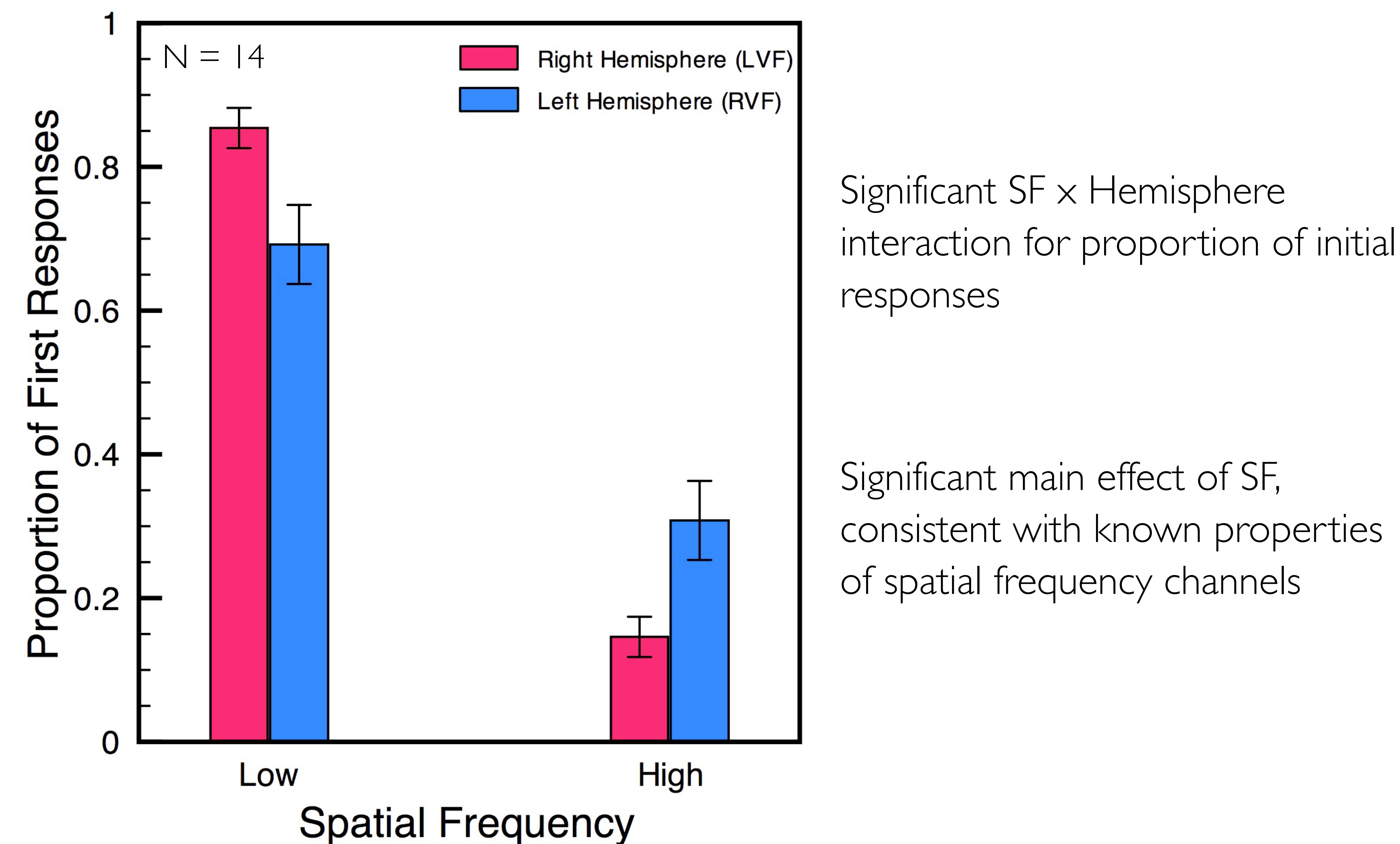
Subjects fixated on the alignment cross

Observers perceived alternation between the gratings over time and responded by continuously reporting the tilt they perceived at any moment

30-second stimulus duration

Results

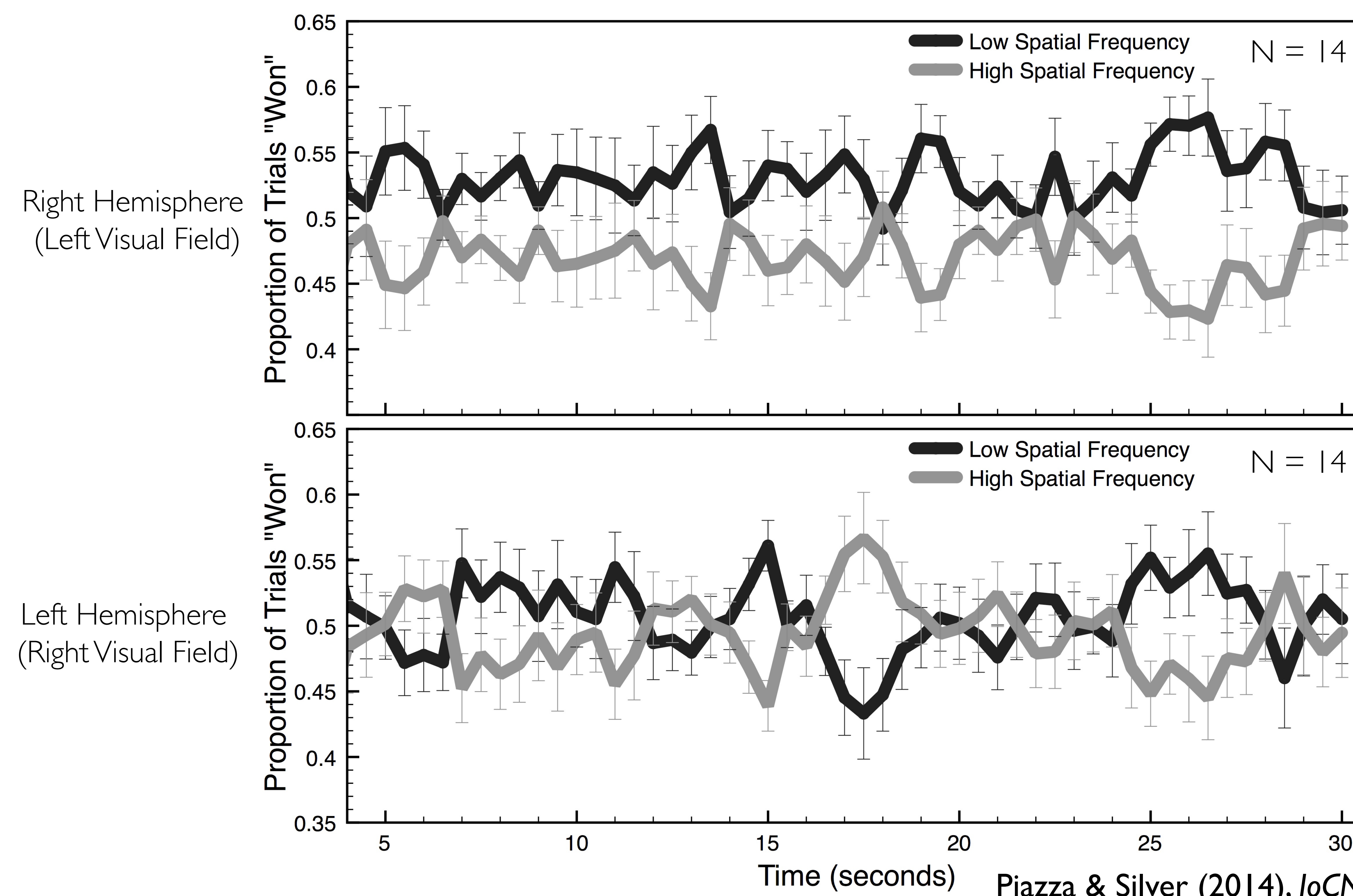
1. Initial Response Analysis: Are there hemispheric differences in initial perceptual selection of rivaling spatial frequencies?



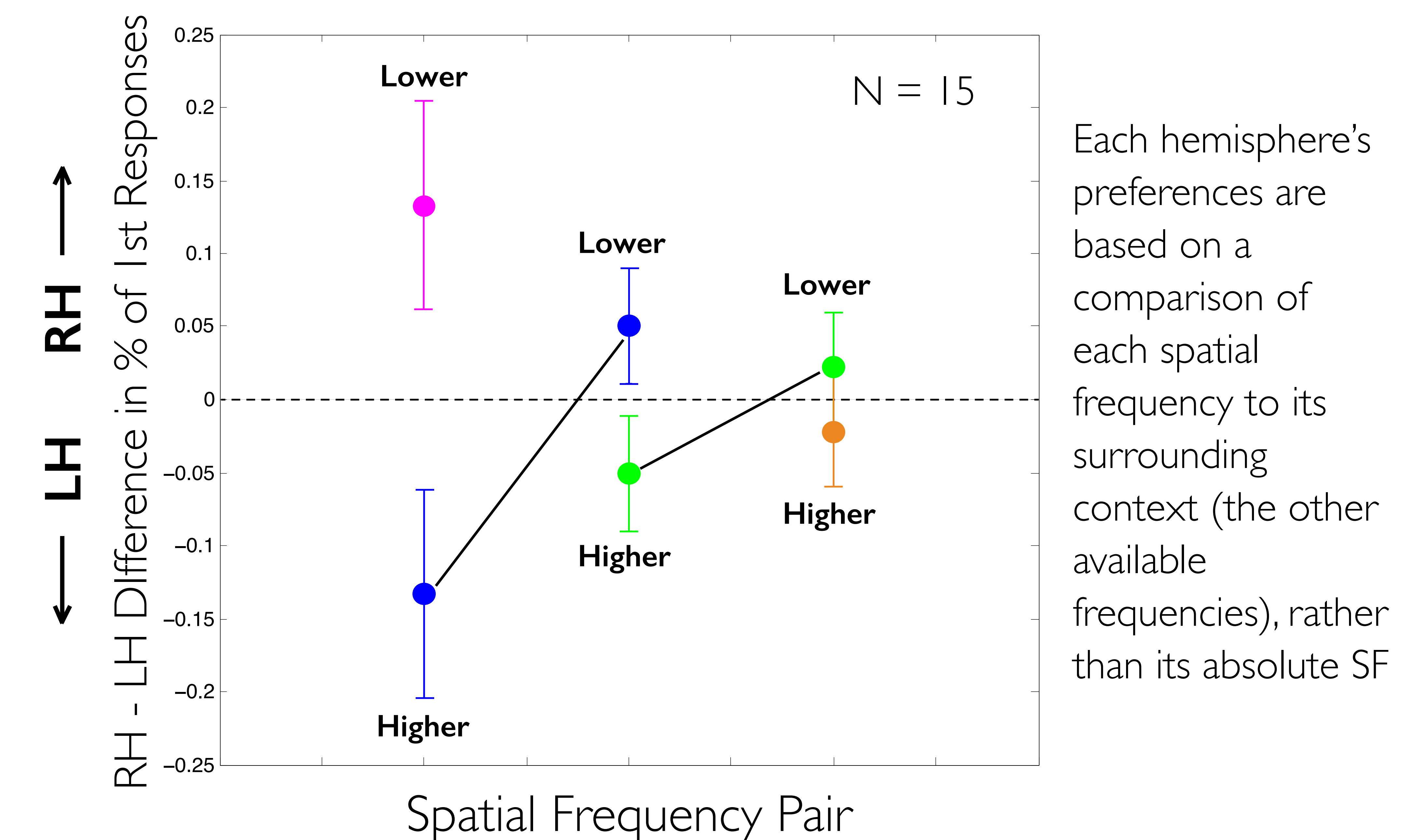
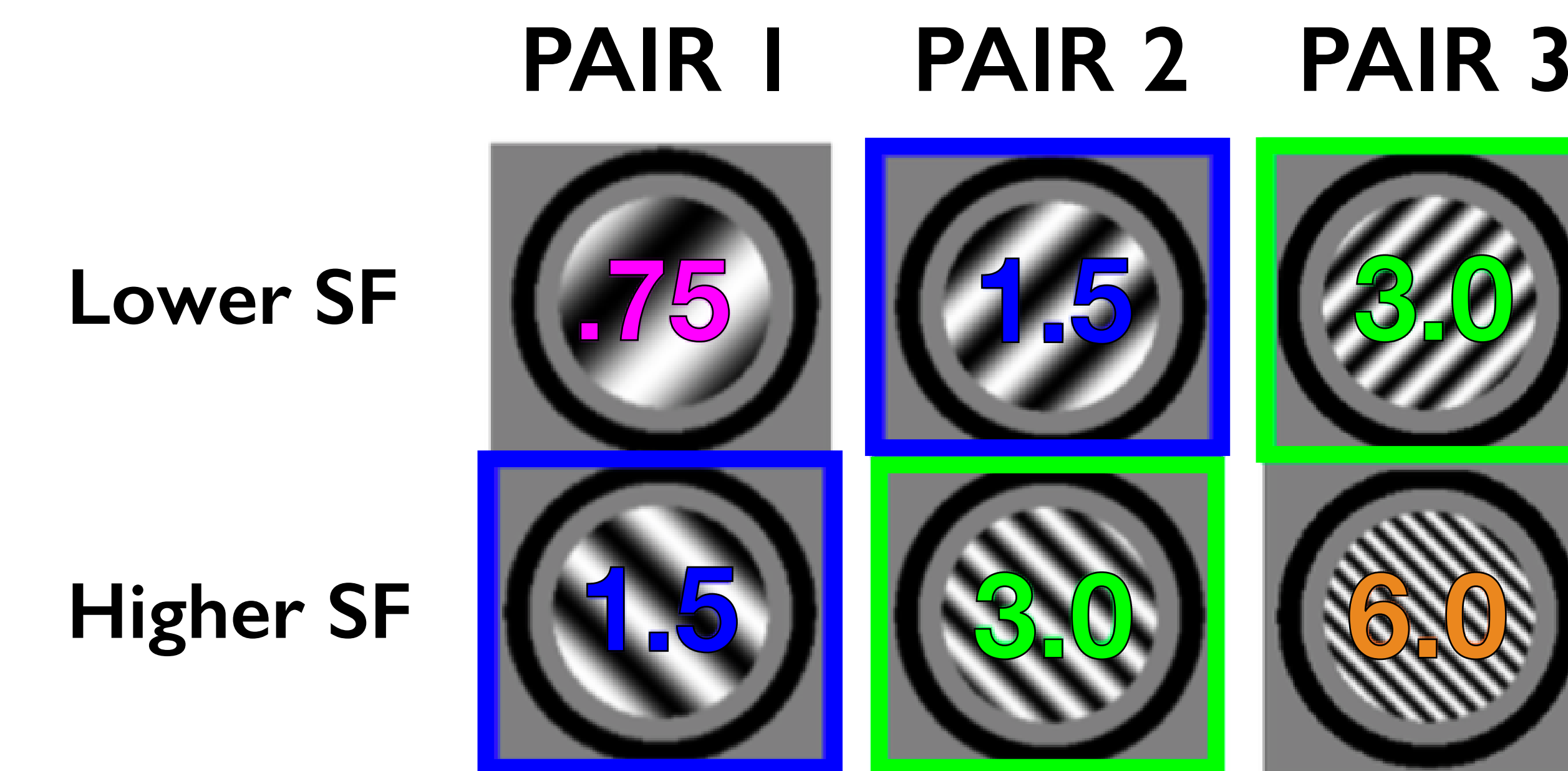
2. Time Course Analysis: Does this asymmetry dissipate quickly after stimulus onset or persist beyond the initial response?

The initial response ended at ~3.5s, on average, so the plot below shows the overall predominance of each SF for the remainder of the 30-second trial.

From the conclusion of the initial response onward, we again found a significant SF x Hemisphere interaction (for data collapsed across all time points), demonstrating persistent asymmetry beyond the initial response.



3. Is this asymmetry due to relative or absolute spatial frequency processing?



Conclusions

Spatial frequency selection differs between the two hemispheres both during the initial response and throughout the remainder of stimulus presentation

Relative, not absolute, frequency information drives these hemispheric differences

References

Hellige, J. B. (1993). *Hemispheric Asymmetry: What's Right and What's Left*. Cambridge, MA: Harvard University Press.

Ivry, R. & Robertson, L. (1998). *The Two Sides of Perception*. MIT Press.

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Acknowledgments

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*Corresponding author. Please contact Elise Piazza at elise.piazza@gmail.com.