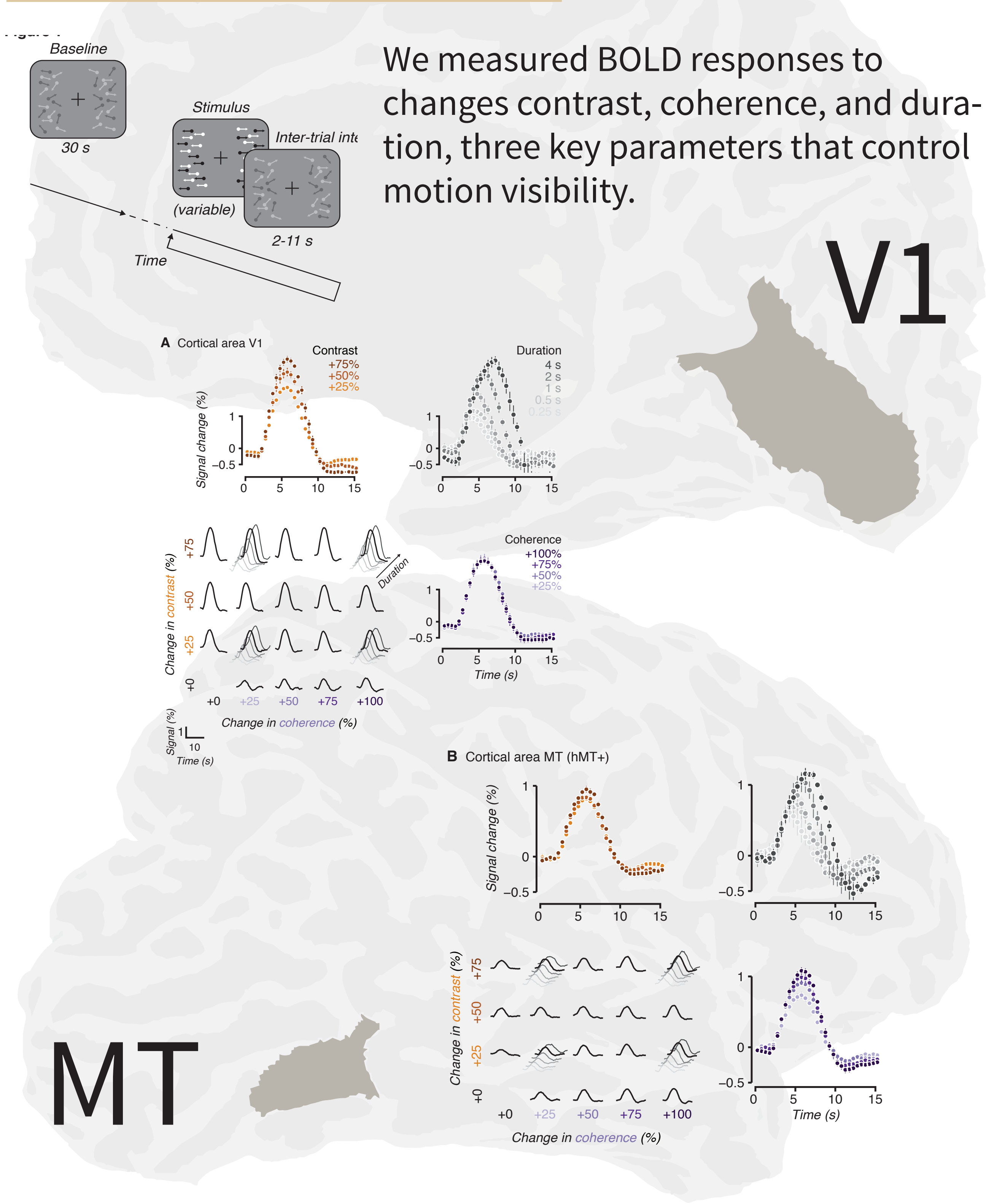


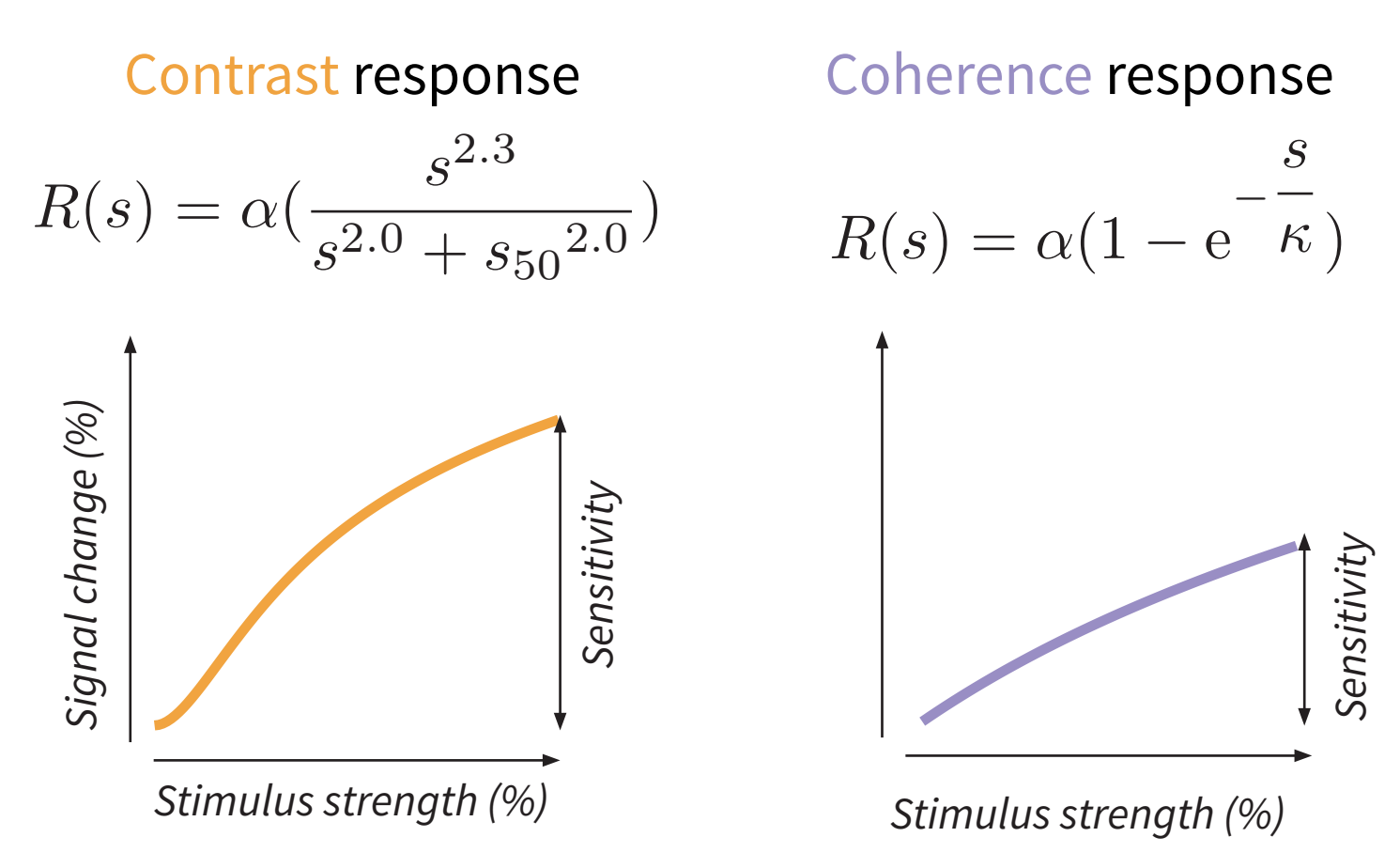
1. Introduction: Features

The manipulation of motion visibility features has been a key tool in cognitive neuroscience. Are representations of motion visibility stable or do they change when subjects are reporting different features?

2. Cortical measurements

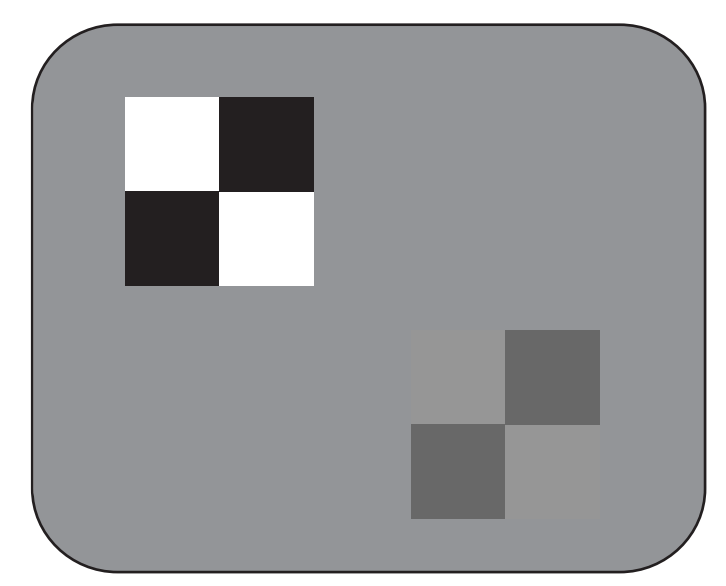


We fit a quantitative framework to these measurements to understand how sensitivity to motion visibility varies across cortex.



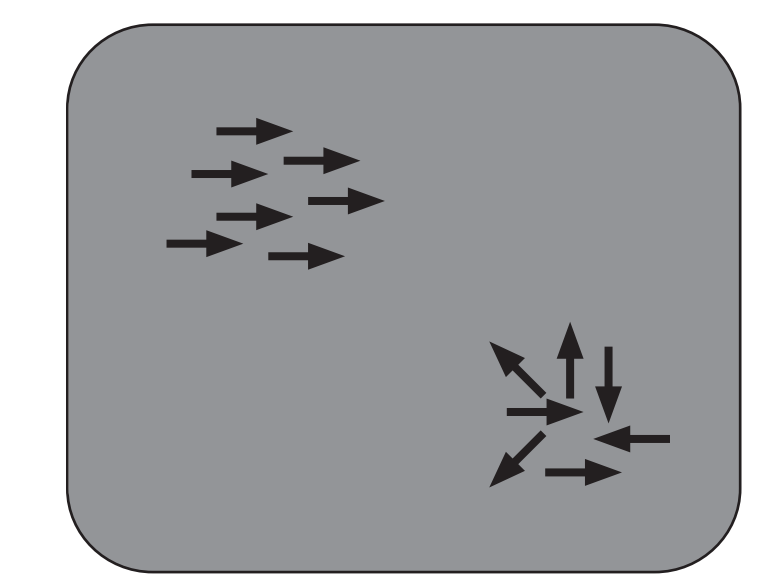
Contrast

The relative luminance to a gray background



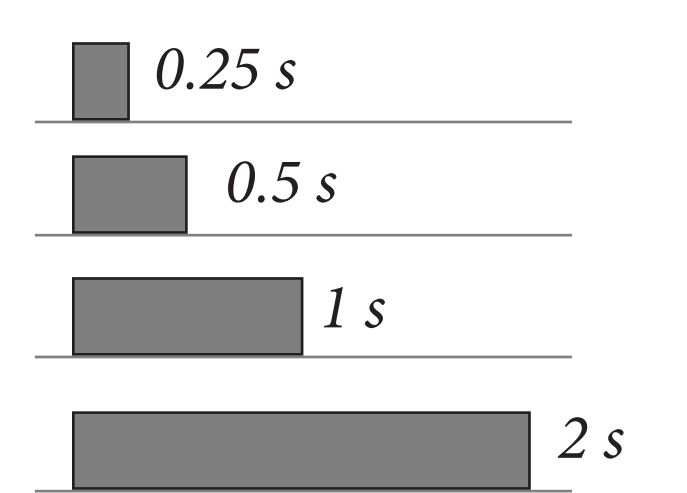
Coherence

The proportion of dots moving in the same direction



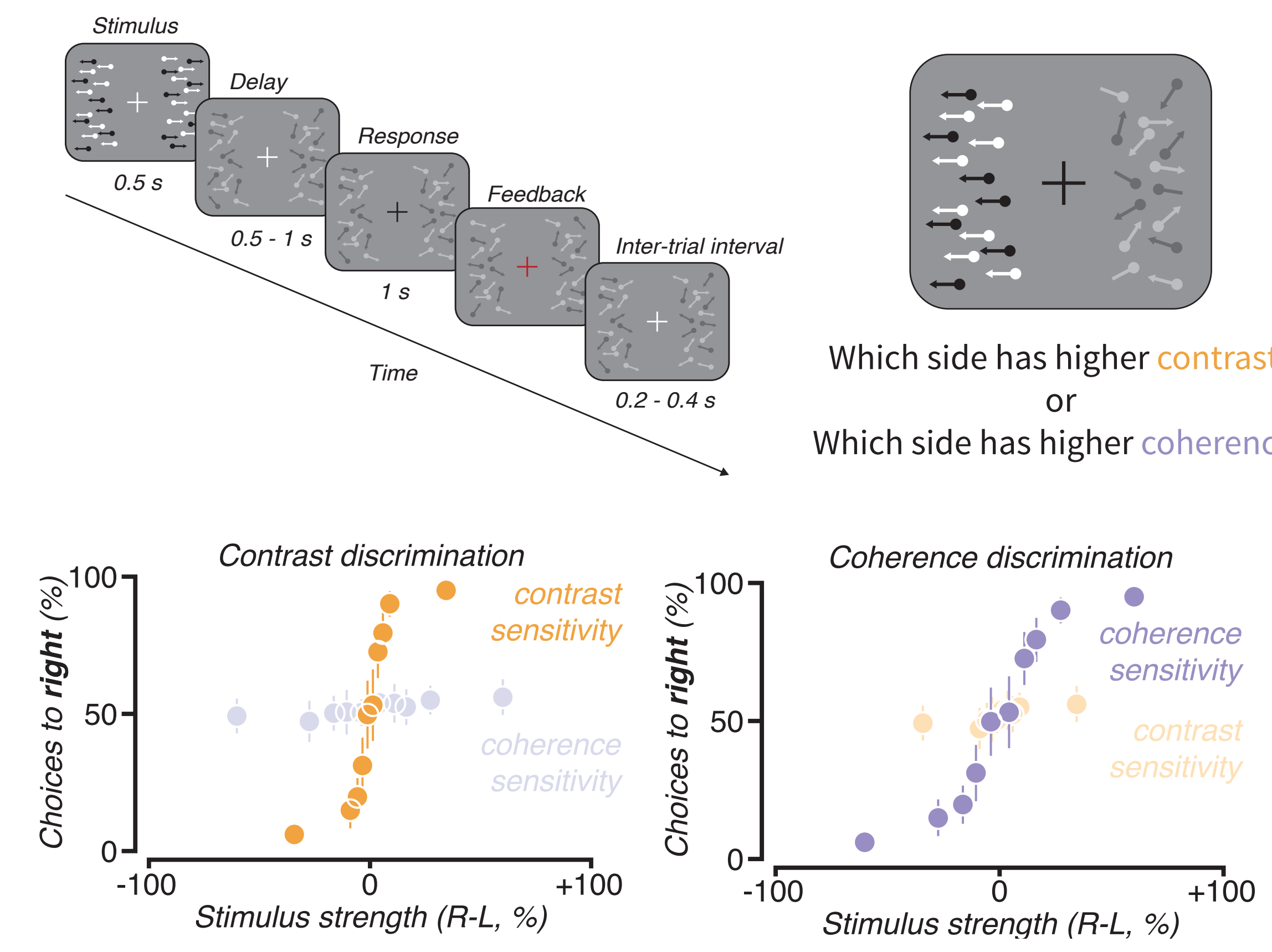
Duration

The length of time a stimulus was visible



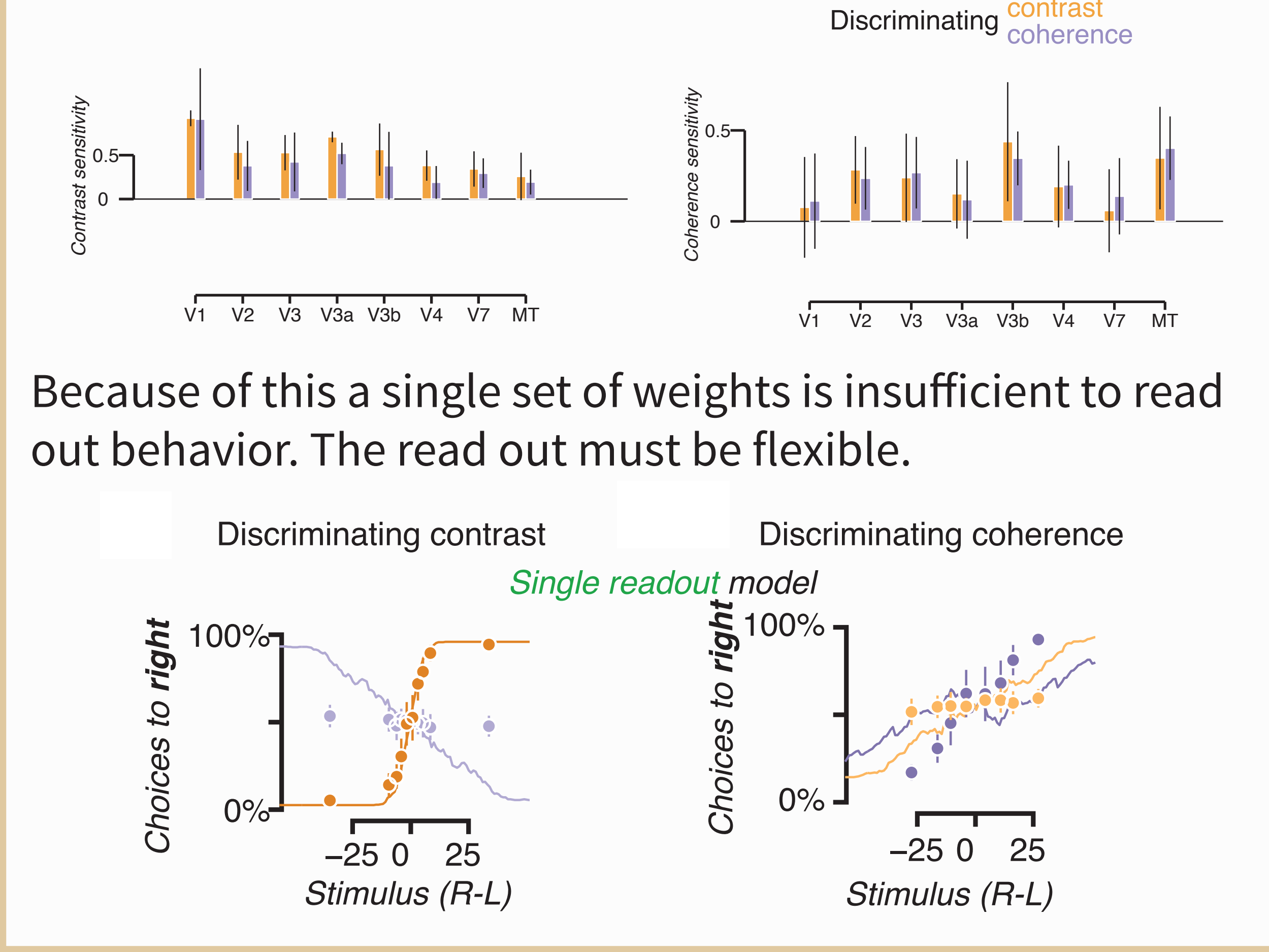
3. Behavior

We collected data on how well observers could discriminate small increments in the motion visibility features.



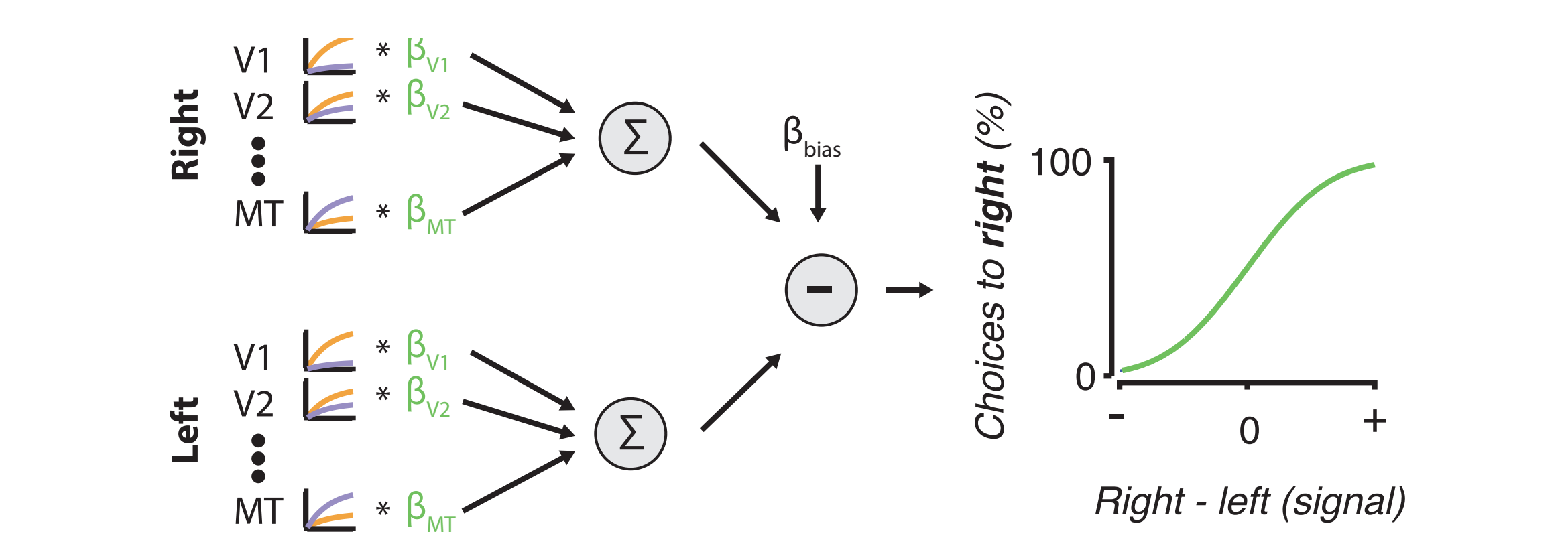
5. Stability

When observers performed the discrimination task in the scanner we found no evidence that contrast or coherence sensitivity shifted to support discrimination -- cortical representations remained stable.

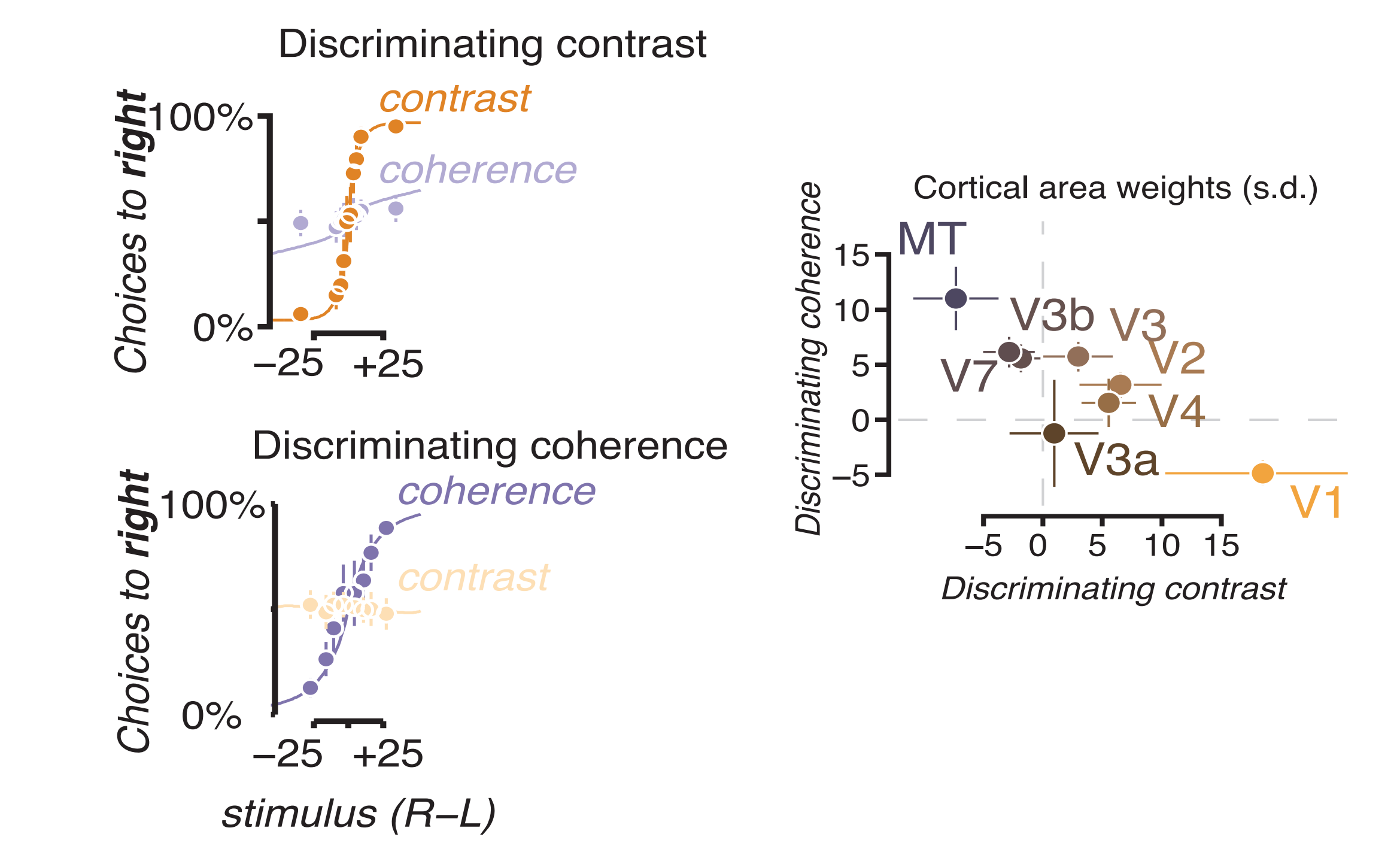


4. Linking model

To read out from visual cortex for perception, the linking model linearly weights areas in visual cortex.



The weighted responses are compared for the left and right dot patches, subject to Gaussian noise, to determine the probability of rightward choice on each trial.



Linking model: noise

Our linking model suggests that behavioral read out of sensory signals is subject to additive noise (independent of signal strength). A model with increasing (Poisson) noise failed to fit the data.

