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Polonsky, Blake, Braun, and Heeger: Neuronal activity in human primary visual cortex correlates with perception during binocular rivalry.

This paper describes an experiment studying binocular rivalry. Each subject was first shown a different image to each eye: a different solid color in each (with differing contrasts), together with darkened stripes, vertical in one eye, horizontal in the other. The subject was asked to push one of three buttons at any time: one button if he saw horizontal stripes, another if he saw vertical stripes, and a third if the image was “composite”; that is, if less than 75% of a single image could be seen. A portion of the sequence was then played back to the subject in a non-rivalrous way (conflicting colors to each eye, but a striped pattern would only be present in one eye at a time), and the subject was asked to press the same buttons.

The experiment measured activity in V1 during these experiments with fMRI, and found that V1 activity was coupled with the reported perceptual alternations. However, the fluctuations in nearby visual areas was roughly the same. The experimentors conclusively stated that these results “could mean that neuronal events underlying rivalry are initiated in V1 and then propagated to later areas, or that those neuronal events are initiated at later stages of processing and then propagated via feedback to V1. It is also possible that both processes occur.”

This passage made me wonder:

To ensure that our conclusions did not depend critically on the assumptions of the model, we did a complementary analysis
This analysis produced similar state amplitudes to the model fits.

It seems like they fit the model to the data, and then made sure that the model in fact fit the data. This seems silly and doesn't ensure much of anything. Maybe I don't understand the process.