INFORMATION ABOUT DATA FORMAT

Classification
Classified with respect to commitment. Stimuli were classified with the following, simple rules;

Easy trials
Last 7 tokens (wrt to commitment) if at least 4 are > 0.5, including most recent one.
Misleading trials
Last 7 tokens if at least 3 are < 0.5 with most recent one > 0.5
Ambiguous trials
Last 7 tokens if at least 3 are == 0.5 with most recent >= 0.5

To note:
Since a trial might be classified as both misleading and ambiguous,
(e.g. prob = 0.35, 0.5, 0.3, 0.5, 0.25, 0.5, 1), misleading classification will be prioritized.

Since a trial might be classified as both ambiguous and easy
(e.g. prob = 0.6, 0.5, 0.6, 0.5, 0.75, 0.5, 1), ambiguous classification will be prioritized .

Since a trial might be classified as both misleading and easy
(e.g. prob = 0.2, 0.27, 0.37, 0.5, 0.6, 0.77, .9), misleading classification will be prioritized .
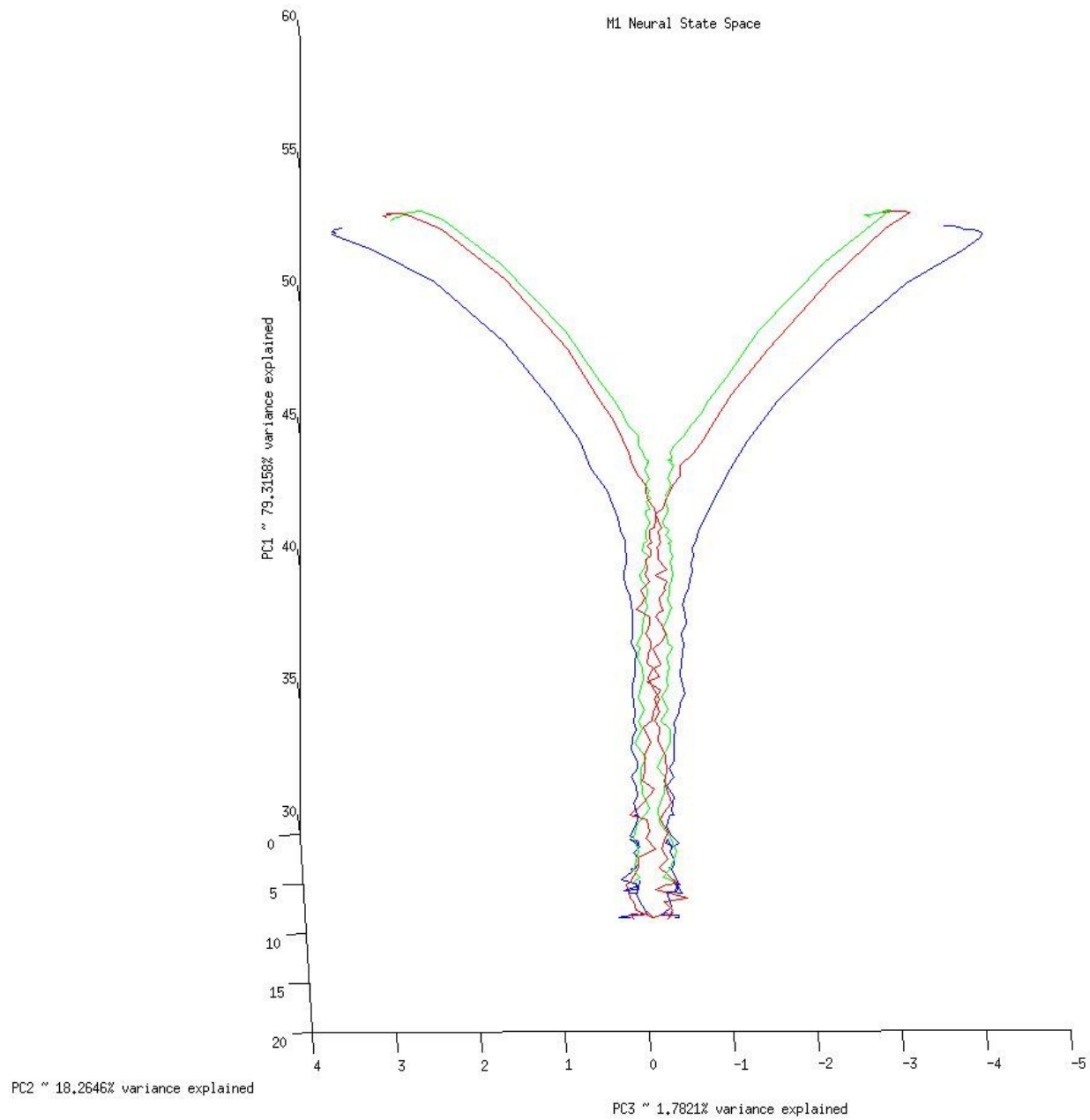
These classification rules allow approximatively a similar number of trials in each class. (easy trial are a little more common, but ambiguous and misleading are almost identical)

Averaged without smearing time
As requested, each trial was average without compressing time. If some trials are shorter, NaNs will fill up the bins that are missing. Nanmean is used subsequently.
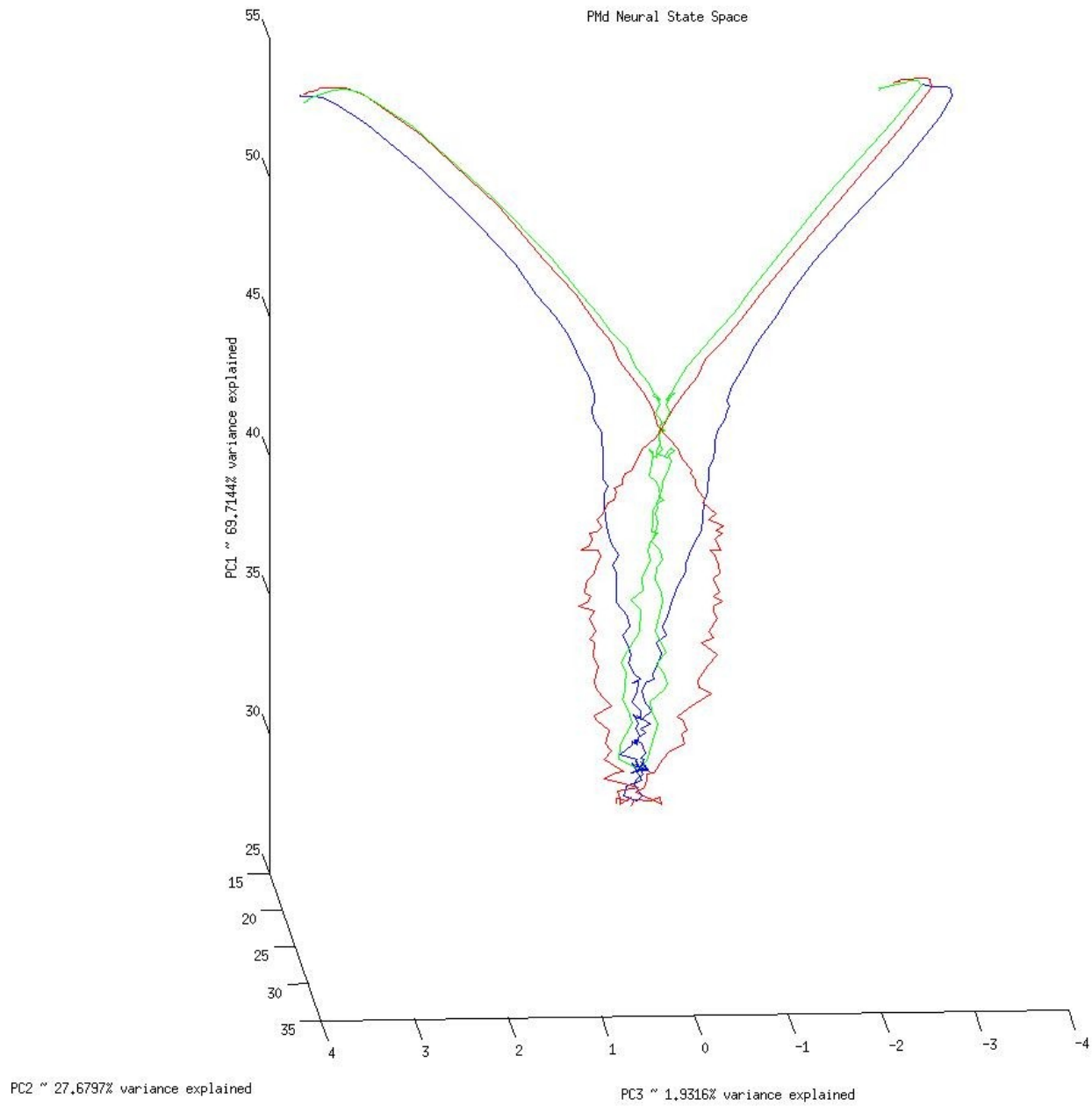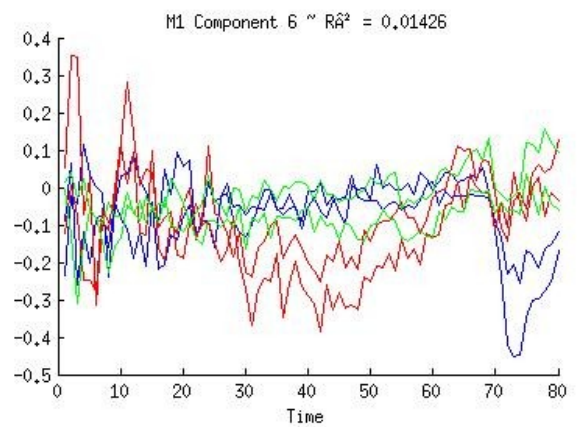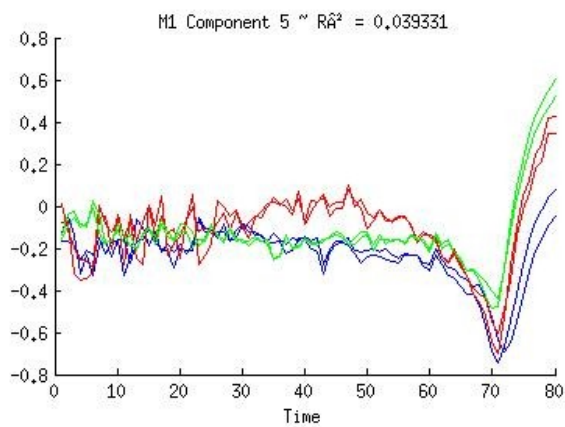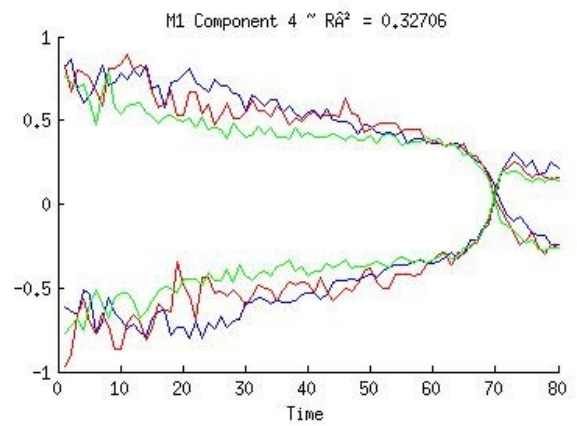
MODEL'S NEURAL STATE SPACE

M1

M1 Neural State Space

PC1 ~ 79.3158% variance explained

PC2 ~ 18.2646% variance explained

PC3 ~ 1.7821% variance explained

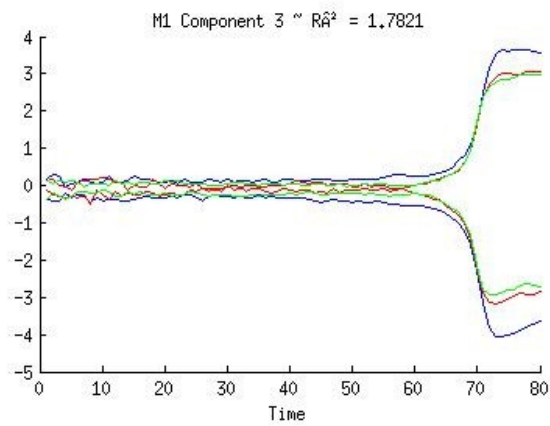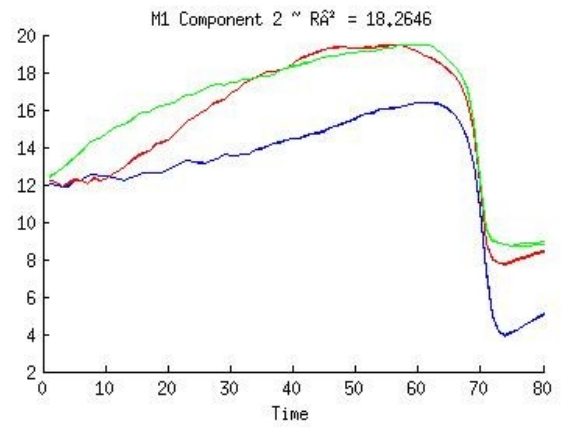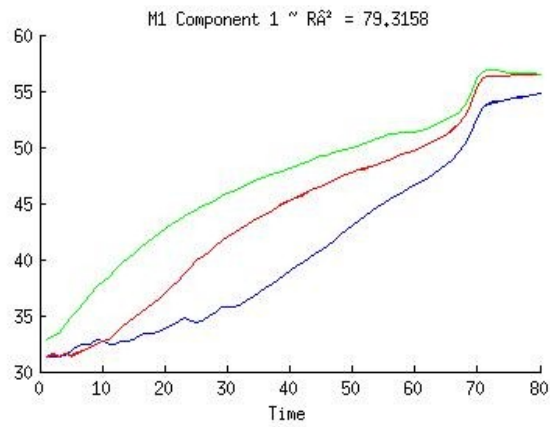# MODEL'S NEURAL STATE SPACE

PMd

PMd Neural State Space

PC1 ~ 69.7144% variance explained

PC2 ~ 27.6797% variance explained

PC3 ~ 1.9316% variance explained

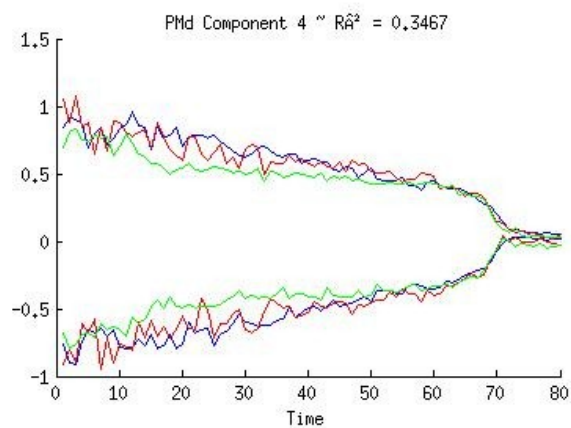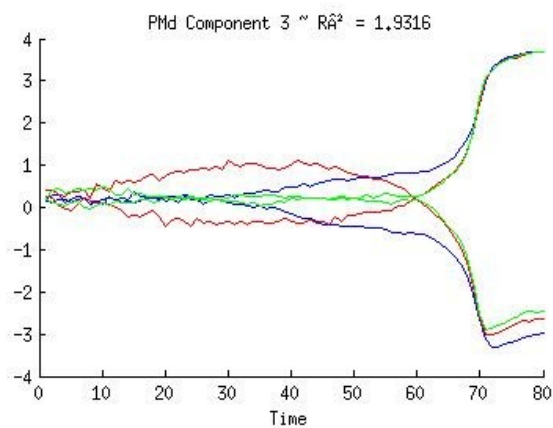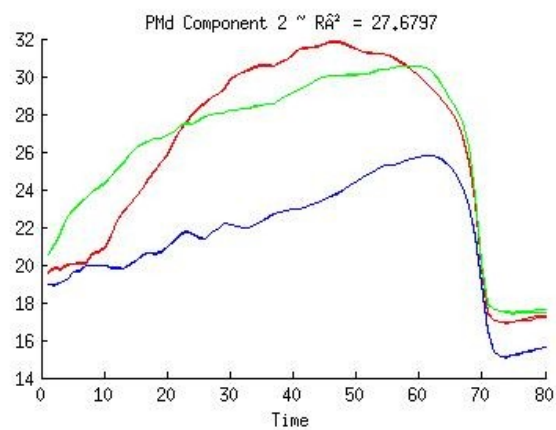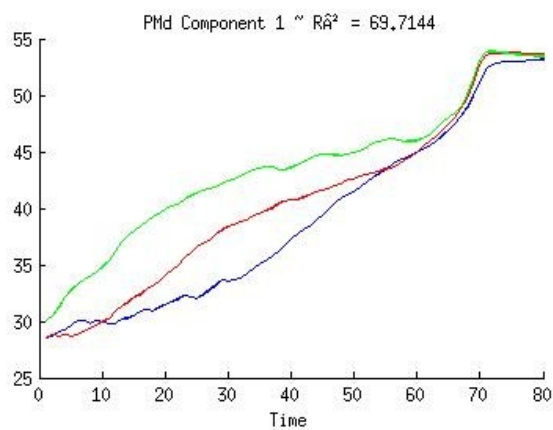# MODEL'S PRINCIPAL COMPONENTS

M1

MODEL'S PRINCIPAL COMPONENTS

PMd
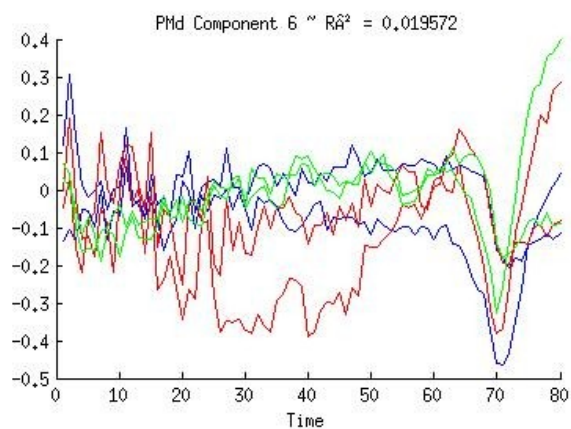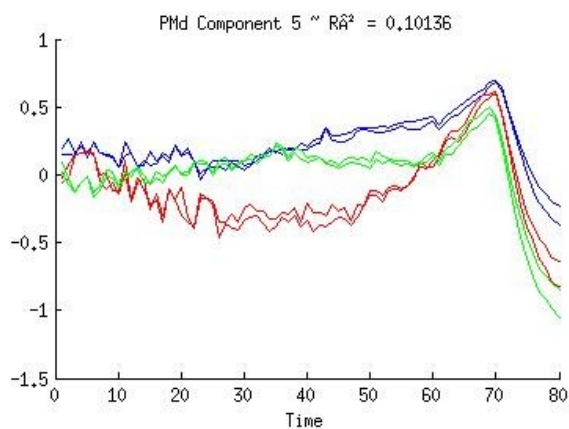
COMMENTS

I think the general shape is pretty good, but a few things are "off".

Width of decision manifold
Seems like the change in firing rate of the population is too drastic close to commitment. In the real data, it's much smoother (decision manifold is wider and progressively expands).

Variance explained by evidence
Most likely linked to the first problem, but it feels like evidence (comp 3) should have more influence.

Difference in C1 & C2 between conditions
Ambiguous and misleading are much higher initially, which might be caused by the way averaging is done.

Currently exploring how to modulate the parameters to get a better looking shape. These plots were generated with only 300 trials and 76 neurons. I only keep the relevant neurons, as things are much less clean if we include the others. Perhaps it's because as they are all involved in the decision, PCA will still try to explain the weak neurons as there will be patterns depending on the trials. In real data, these neurons are probably ignored.