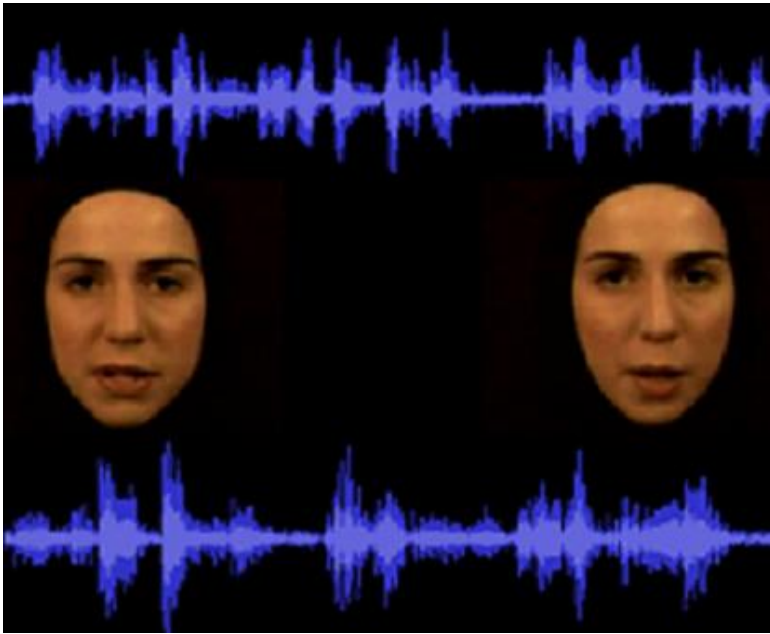
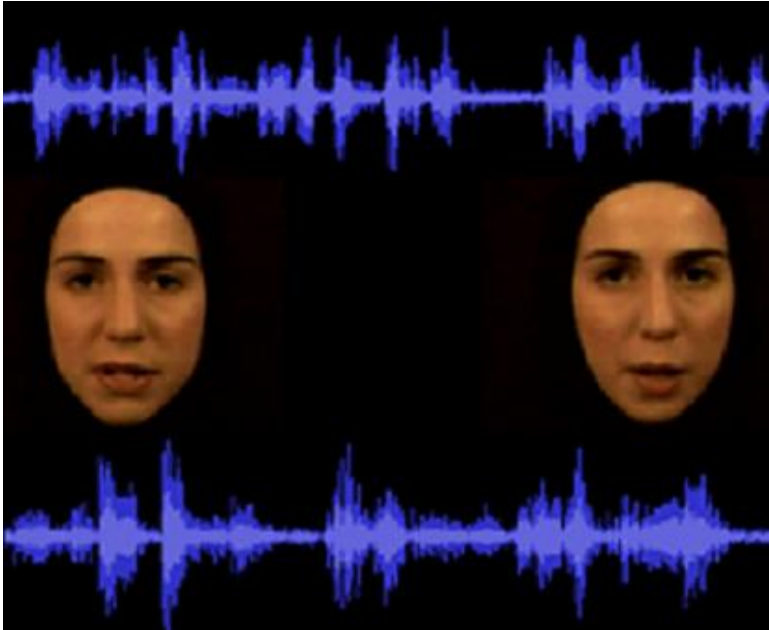


Counterbalancing: averaging out potential confounds



- Suppose we find that infants do spend more time looking at the face on the right which matches the 'Cat in the Hat' audio.
- Maybe it's intermodal speech matching...
- Maybe infants tend to look to the right
- Maybe that recording is just more interesting to look at (more expressive, faster, more eye contact, etc.)

Counterbalancing: averaging out potential confounds



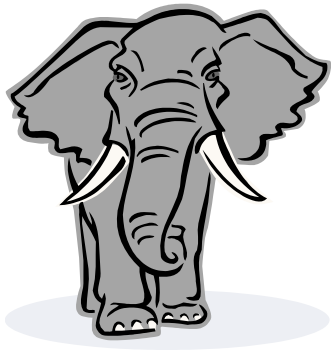
- ‘Best practices’ try to minimize the SIZE of these effects (e.g. by using the same face)
 - Counterbalancing allows us to actually rule out low-level explanations like “in general infants prefer to look right” for a positive (or negative) result
 - NOT the same as introducing extra independent variables!
-
- Show half of the subjects this video with the ‘correct’ face switched to the left: is that enough?
 - Show half of the subjects this video but play the other story: is that enough?
 - Should we flip the entire video (reflect left-right) or translate the face areas?
 - Is ‘individual infants have side preferences’ ruled out? How?

Order effects

- Both perseveration (continue doing the same thing you did earlier) and alternation are reasonable alternative explanations for a pattern of results
- Showing four videos: a child looking left, left, left, left should not be compared to chance performance of $1/16$... neither should a child looking left, right, left, right.

“Folding factors together”

- Often there are lot of alternative “boring” explanations for results.
- We want to rule out all of them
- ...and don’t care which ones actually affect the results (or there would be too many conditions to fully counterbalance)



It’s a modi!



It’s a dax!



Left/right

Order of speaking

Order experimenter summarizes

Order experimenter introduces

Which animal to trust

Voice used

Animal’s name

Object name given

For almost all experiments, need to think about...

- Left/right
- Order
- Particular stimuli (sounds, appearances)

