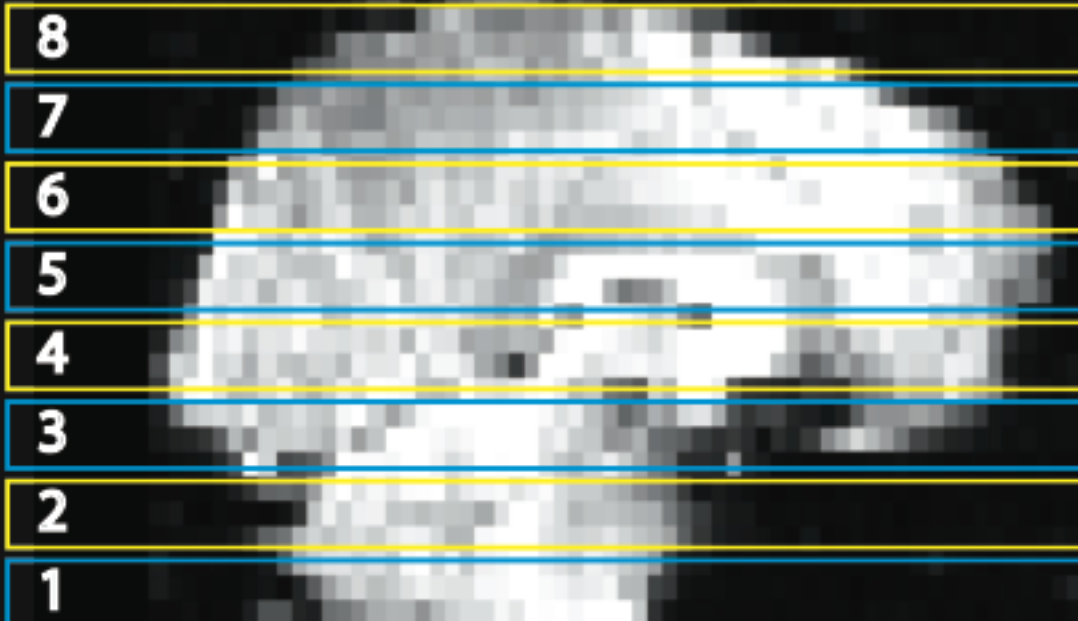


Quick explanation of pros/cons  
slice timing of correction

# Slice Timing Correction

- All slices aren't imaged simultaneously
  - Can collect from top to bottom
  - Interleaved (even and then odd slices)



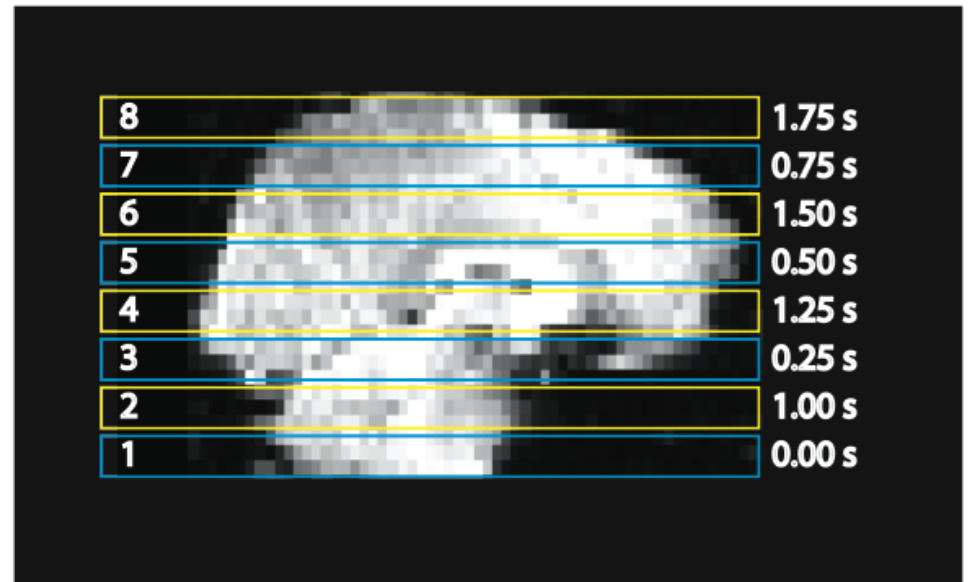
<b>8</b>	<b>1.75 s</b>
<b>7</b>	<b>0.75 s</b>
<b>6</b>	<b>1.50 s</b>
<b>5</b>	<b>0.50 s</b>
<b>4</b>	<b>1.25 s</b>
<b>3</b>	<b>0.25 s</b>
<b>2</b>	<b>1.00 s</b>
<b>1</b>	<b>0.00 s</b>

# Slice Timing

- Data are not acquired at the same time
- Our model assumes the data are collected at the same time

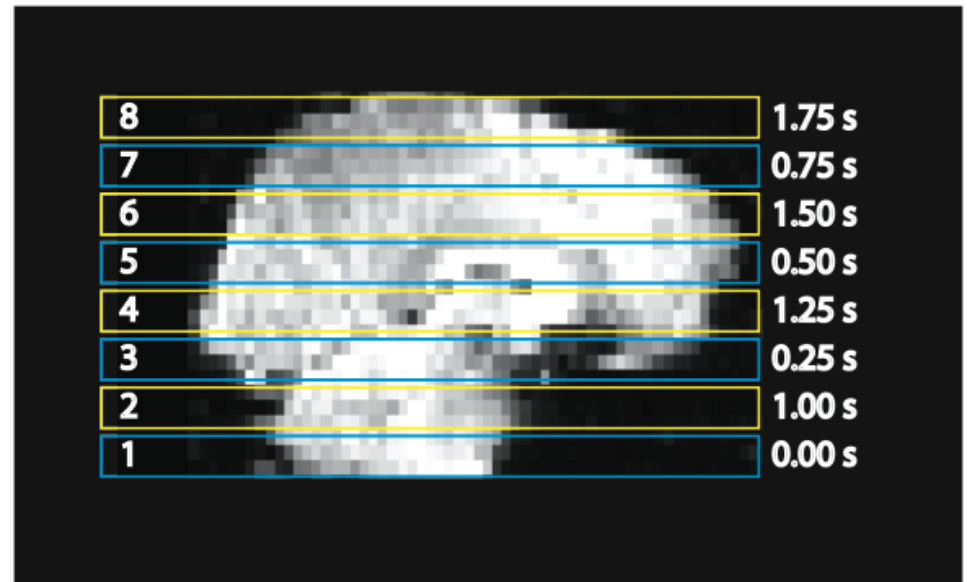
# Think about it

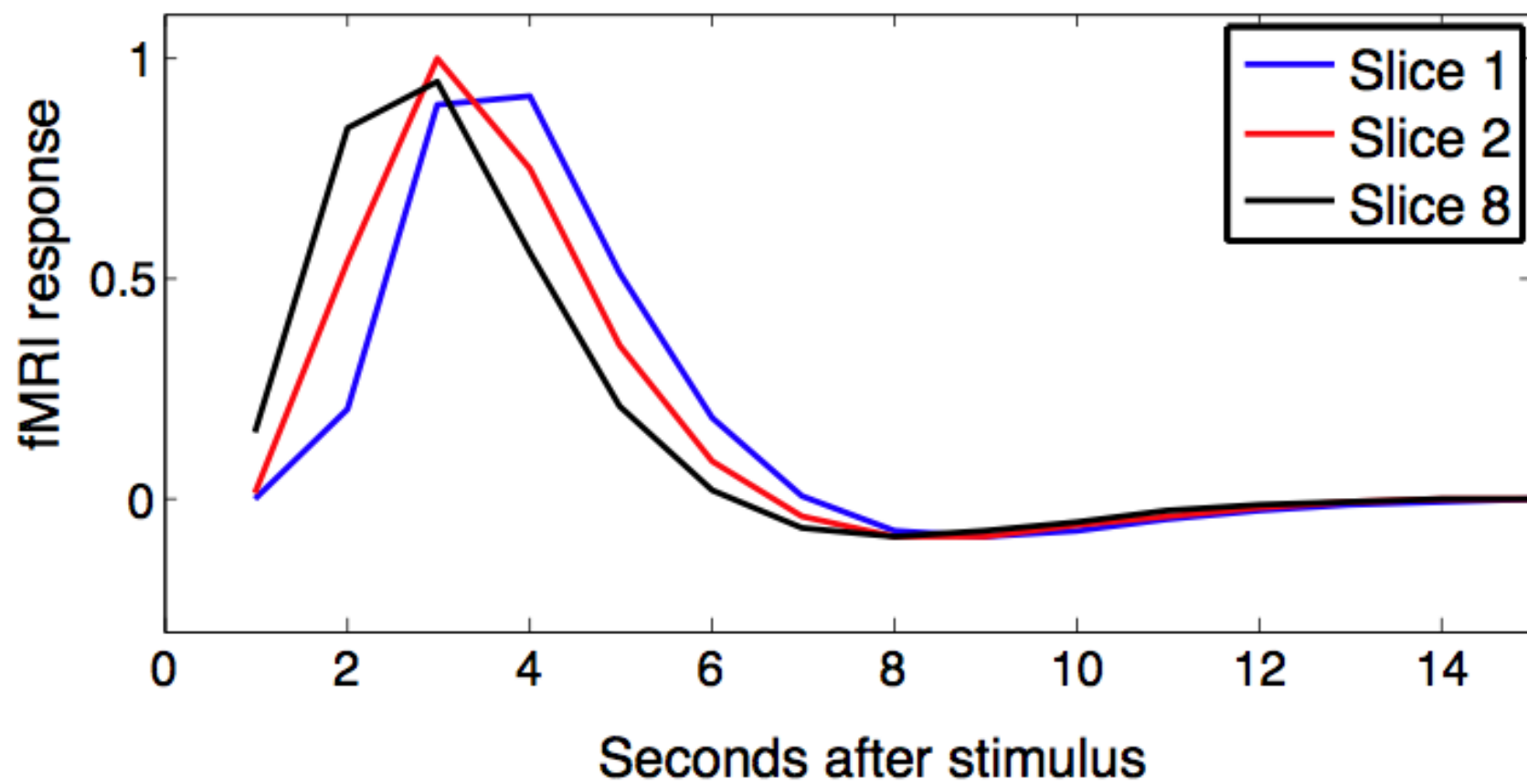
- If something happens in the brain at 3s, when will we see it in
  - slice 1?



# Think about it

- If something happens in the brain at 3s, when will we see it in
  - slice 1?
  - slice 2?





# Slice timing problems

- Worse with ER design or blocked design?



# Slice timing problems

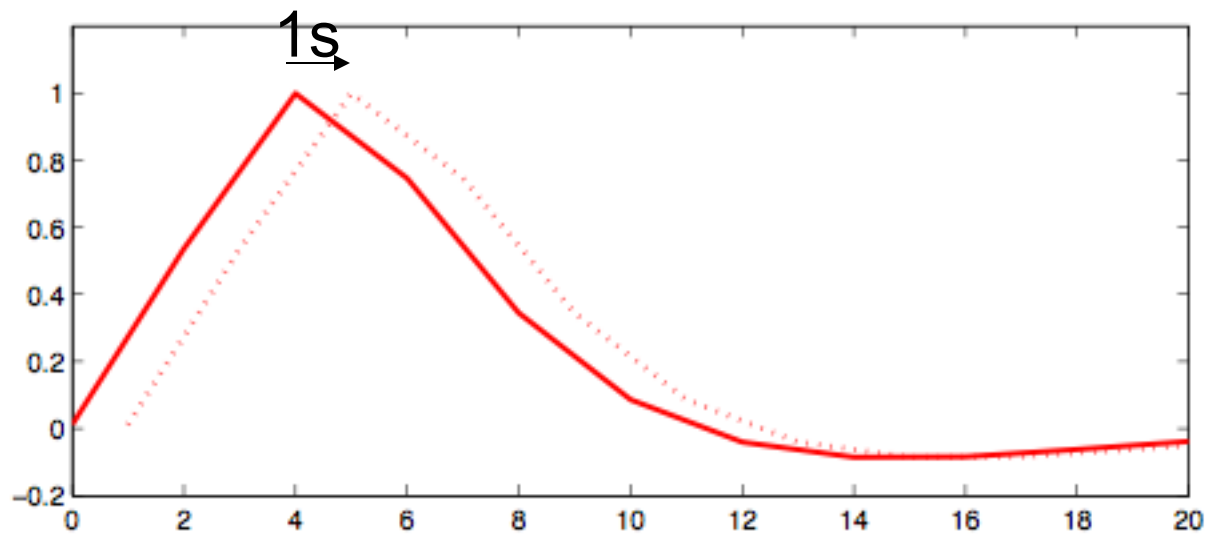
- Worse with ER design or blocked design?
  - ER design (isolated trials)

# Slice Timing Correction

- Tries to fix timing issue so the assumption that data were collected at the same time is more closely met
- Uses interpolation
- Must know exact timing of acquisition

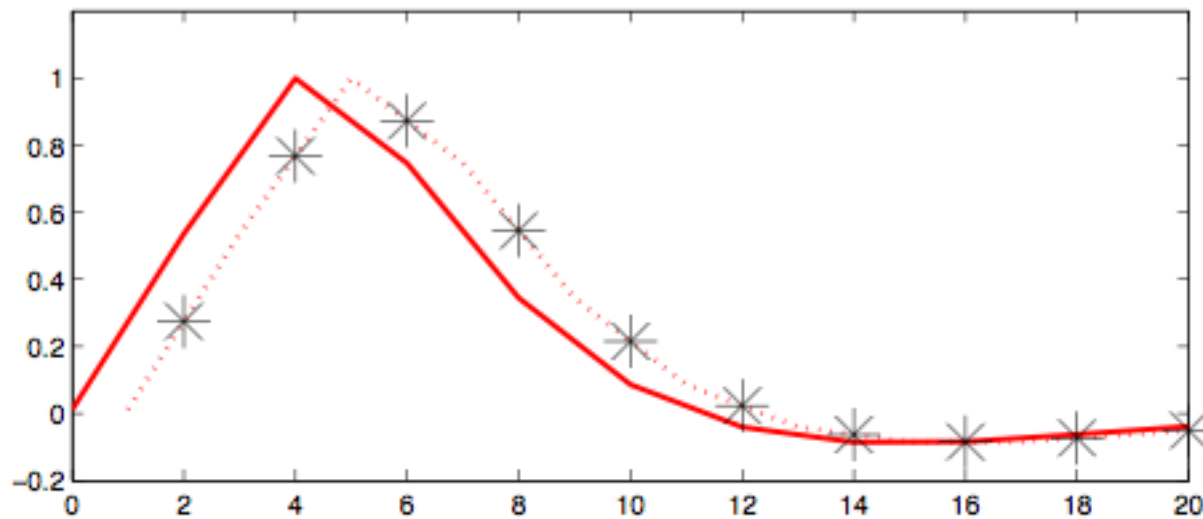
# Example: slice 2

- Step 1: Shift response



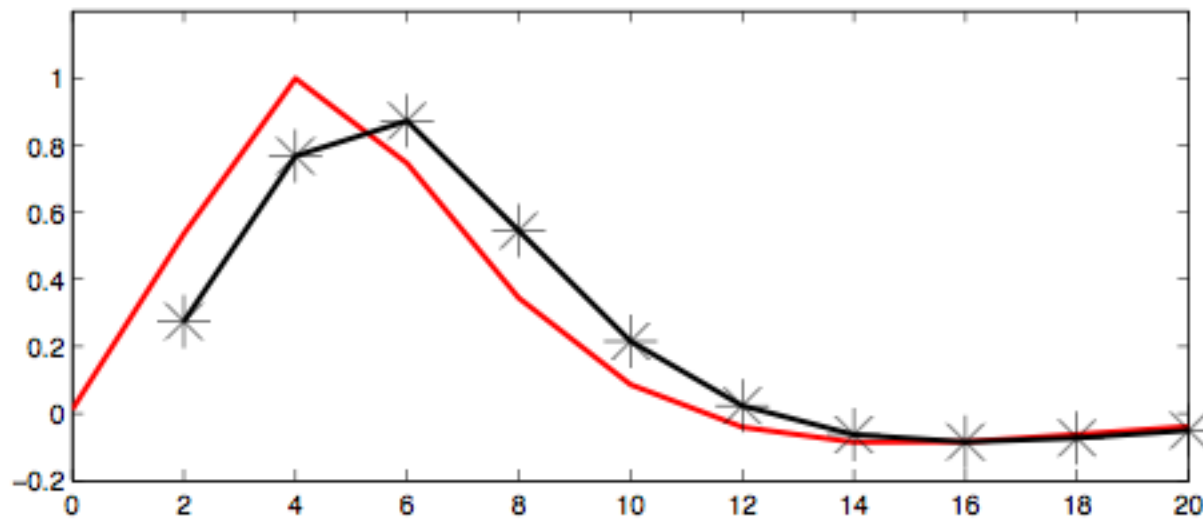
# Example: slice 2

- Step 2: Interpolate @ TR



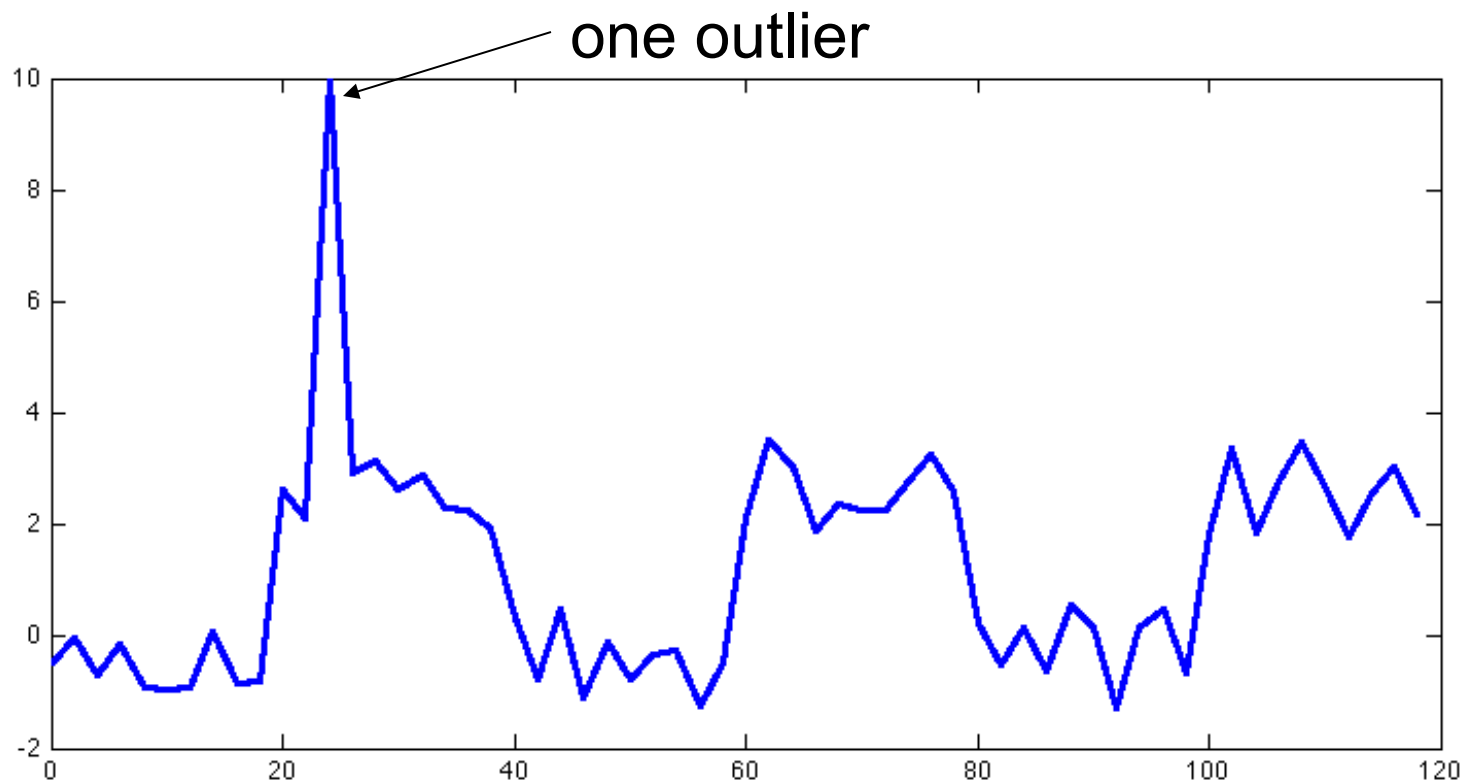
# Example: slice 2

- Step 2: Interpolate @ TR



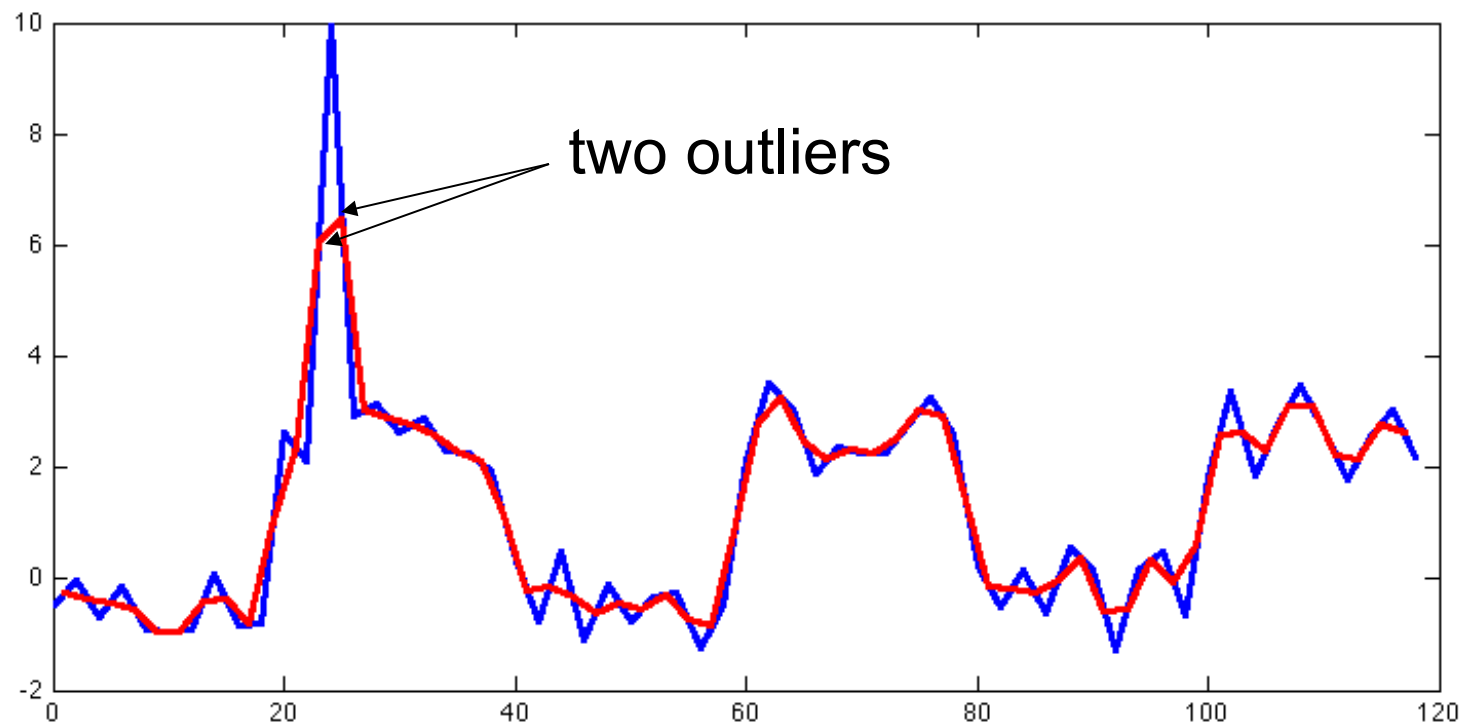
# Slice timing issues

- One bad scan gets spread to other time points



# Slice timing issues

- One bad scan gets spread to other time points



# Slice Timing Correction

- Not used much
- $TR \leq 2$  + interleaved acquisition + spatial smoothing
  - Reduces slice timing effects
- Adding temporal derivatives to model helps