



HUMAN  
**Connectome**  
PROJECT

WU-Minn HCP Q3 Data Release:  
Reference Manual

Appendix VI – Task fMRI E-Prime Key  
Variables

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## E-Prime Key Variables

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This document provides the definitions of the key variables set in E-Prime for HCP Task fMRI for each task in the HCP protocol. For tfMRI analysis, one needs to know the timing and task condition for each trial presented. Key variables in the E-Prime data files provide the information to determine this for each trial. The following E-Prime 'data dictionary' allows the user to know how to compute timing and define task conditions in different ways from what HCP has provided in the TAB.txt files for each task run

### Gambling

- Procedure[Block] - establishes list of total number of blocks and type of block, predominantly reward or predominantly punishment trial types
- Procedure[Trial] - establishes current type for each trial within block, allows recognition of "FixationBlockPROC" events
- TrialType - establishes "Reward", "Punishment", "Neutral" designation for correct EV category sorting
- QuestionMark.OnsetTime - onset time of presentation of current trial in ms from script startup
- SyncSlide.OnsetTime – onset time of countdown slides before task; the first row in the SyncSlide.OnsetTime column reflects the onset of the first TR in E-Prime clock; to ensure correct EV timing, that value should be subtracted from clock time for other trials
- QuestionMark.RT - establishes time of response after question mark appears prompting for user input, also establishes if no response was made

### Emotion Processing

- Procedure - Used to discriminate between "InitialTR", "TrialsPROC", "ShapesPromptPROC", "FacePromptPROC" and also assign correct events to "Faces" and "Shapes" EV's
- StimSlide.OnsetTime[Block] or StimSlide.OnsetTime - onset time of presentation of current trial in ms from script startup
- StimSlide.ACC[Block] or StimSlide.ACC - used for summary statistics only

- SyncSlide.OnsetTime - onset time of countdown slides before task; the first row in the SyncSlide.OnsetTime column reflects the onset of the first TR in E-Prime clock; to ensure correct EV timing, that value should be subtracted from clock time for other trials
- StimSlide.RT or StimSlide.RT[Block] - used for summary statistics only

## Motor

- Procedure[Block] - Used to discriminate between "CountDownPROC" and "MOTORrun" trial blocks
- Procedure[Trial] - Used to discriminate between left hand, foot, right hand, foot conditions to assign trials to appropriate EV's
- LeftHandCue.OnsetTime - Used to establish timing for cue prior to left hand block
- LeftFootCue.OnsetTime - Used to establish timing for cue prior to left foot block
- RightHandCue.OnsetTime - Used to establish timing for cue prior to right hand block
- RightFootCue.OnsetTime - Used to establish timing for cue prior to right foot block
- TongueCue.OnsetTime - Used to establish timing for cue prior to tongue block
- CrossLeft.OnsetTime - Used to establish timing for individual movements in left hand and left foot EV's, foot or hand designation is decided by the cue.OnsetTime
- CrossRight.OnsetTime - Used to establish timing for individual movements in the right hand and right foot EV's, foot or hand designation is decided by cue.OnsetTime
- CrossCenter.OnsetTime - Used to establish timing for individual movements in the tongue condition
- SyncSlide.OnsetTime or CountdownSlide.OnsetTime - onset time of countdown slides before task; the first row in the SyncSlide.OnsetTime column reflects the onset of the first TR in E-Prime clock; to ensure correct EV timing, that value should be subtracted from clock time for other trials

## Relational Processing

- Procedure - used to distinguish between "InitialTR" and trials ending in "-PROC"
- RelationalSlide.ACC - used to record accuracy for "Relational" trials, used in summary statistics and to establish error.txt EV
- ControlSlide.ACC - used to record accuracy for "Control" trials, used in summary statistics and to establish error.txt EV
- RelationalSlide.OnsetTime - records timing for "Relational" type events for EV
- ControlSlide.OnsetTime - records timing for "Control" type events for EV
- RelationalSlide.RT - used in summary statistics, and to detect "NLR"
- ControlSlide.RT - used in summary statistics, and to detect "NLR"
- SyncSlide.OnsetTime - onset time of countdown slides before task; the first row in the SyncSlide.OnsetTime column reflects the onset of the first TR in E-Prime clock; to ensure correct EV timing, that value should be subtracted from clock time for other trials
- RelationalPrompt.OnsetTime - used to account for "Relational" trial cue timing and detect start of new block
- ControlPrompt.OnsetTime - used to account for "Control" trial cue timing and detect start of new block

## Social Cognition

- Procedure - Used to detect "CountDownPROC" opposed to "SOCIALrunPROC"
- Type - Used to sort trials by "Mental", "Random"
- MovieSlide.OnsetTime - Used to establish onset of trials
- CountdownSlide.OnsetTime - onset time of countdown slides before task; the first row in the SyncSlide.OnsetTime column reflects the onset of the first TR in E-Prime clock; to ensure correct EV timing, that value should be subtracted from clock time for other trials
- ResponseSlide.RESP - used to detect "NLR" and sort responses based on "mental", "random", "uncertain" to sort trials into correct EV's by response type
- ResponseSlide.RT - used in summary statistics

## Language Processing

- Procedure[Block] - used to sort events by "StoryProc", "MathProc", "DummyProc", "PresentChangePROC"; "DummyProc" is the final, open-ended block of math trials
- GetReady.FinishTime - onset time of countdown slides before task; the first row in the SyncSlide.OnsetTime column reflects the onset of the first TR in E-Prime clock; to ensure correct EV timing, that value should be subtracted from clock time for other trials
- SubBlock - Used to track number of trials presented before task change
- PresentStoryFile.OnsetTime - Onset timing for presentation of story audio file to participant
- PresentMathFile.OnsetTime - Onset timing for presentation of math problem to participant
- PresentStoryFile.OffsetTime - Offset timing for end of presentation of story audio file
- PresentMathFile.OffsetTime - Offset timing for end of presentation of math problem to participant
- ResponsePeriod.OnsetTime - Onset timing for start of response period where the participant is allowed to answer the question posed
- ResponsePeriod.OffsetTime - Offset timing for the end of the response period where the participant is allowed to answer
- ThatWasAbout.OnsetTime - Onset timing for the question posed after story audio presentation
- ThatWasAbout.OffsetTime - Offset timing for the question posed after story audio presentation, end of question
- PresentMathOptions.OnsetTime - Onset timing for the question posed after math problem audio presentation
- PresentMathOptions.OffsetTime - Onset timing for the question posted after math problem audio presentations
- FilteredTrialStats.ACC - Used for summary statistics only
- FilteredTrialStats.RTFFromFirstOption - Used for summary statistics and to establish "NLR" trials

## Working Memory

- Procedure[Block] - used to detect changes from "TRSyncPROC" to "TrialsPROC"
- BlockType - used to establish "0-back" and "2-back" block designations
- StimType - used to establish type of stimuli presented - "faces", "places", "tools", "body parts"
- Stim.OnsetTime - used to establish timing information for trials when the stimulus was presented
- Stim.ACC - used for summary statistics
- Cue2Back.OnsetTime - used to establish cue onset timing for "2-back" trials, start of a block
- CueTarget.OnsetTime - used to establish cue onset timing for "0-back" trials, start of a block
- SyncSlide.OnsetTime- onset time of countdown slides before task; the first row in the SyncSlide.OnsetTime column reflects the onset of the first TR in E-Prime clock; to ensure correct EV timing, that value should be subtracted from clock time for other trials
- Stim.RT - used for summary statistics and to establish "NLR" trials
- CorrectResponse or Stim.CRESP - used to compare against subject responses for "err" EV's
- Stim.Resp or Stim.RESP - used to compare against correct responses for "err" EV's
- TargetType: identifies individual trials as "lure", "nonlure", or "target" (see Reference Manual for description of those categories)