N-Back Task

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| **Measure** | **Logic** |
| Hit Rate (N\_XB\_hitRate\_...) | total number of correct button presses in response to targets |
| False Alarms (N\_XB\_falseAlarm\_...) | total number of incorrect button presses in response to targets |
| Accuracy (N\_XB\_accuracy\_...) | 100 \* ((hitRate - falseAlarm) / (hitRate + falseAlarm)) |
| Sensitivity (N\_XB\_sensitivity\_...) | hitProportion = hitRate / (hitRate + falseAlarm)  falseProportion = falseAlarm / (hitRate + falseAlarm)  Note: If either of the above values are 0 or 1, we add or subtract 0.01 respectively  **Sensitivity** = log( (hitProportion \* (1 - falseProportion)) / ((1 - hitProportion) \* falseProportion) ) |
| Bias (N\_XB\_bias\_...) | **hitProportion** = hitRate / (hitRate + falseAlarm)  **falseProportion** = falseAlarm / (hitRate + falseAlarm)  Note: If either of the above values are 0 or 1, we add or subtract 0.01 respectively  **Bias =** 0.5 \* log( ((1 - falseProportion) \* (1 - hitProportion)) / ((hitProportion) \* falseProportion) ) |

Distractor Tasks

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| **Measure** | **Logic** |
| Mean Reaction Time (VS\_DT\_meanRT\_...) | sum of all reaction times / number of trials |
| Processing Response Time (VS\_DT\_totalPRT\_...) | sum of all distractor task reaction times |
| Speed Errors (VS\_DT\_speedErrors\_...) | sum of all distractor tasks trials where participant ran out of time |
| Accuracy Errors (VS\_DT\_accuracyErrors\_...) | sum of all distractor tasks where participant failed to provide the correct answer |
| Maximum Reaction Time (VS\_DT\_maxRT\_...) | highest reaction time from all distractor tasks trials |
| Total Number of Correct Trials (VS\_DT\_totalCorrect\_...) | sum of all correctly answered distractor task trials  the percentage variant of this measure is calculated using the formula below:  (sum of all correctly answered distractor task trials / sum of all distractor tasks trials) \* 100 |

Block Recall

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| **Measure** | **Logic** |
| Perfect Score (VS\_BL\_perfectScore\_...) | sum of all sets that have 100% recall accuracy |
| Total Number Correct (VS\_BL\_total\_...) | total number of correctly recalled blocks |
| Partial Credit Score (VS\_BL\_partialCredit\_...) | spatialCount = total number of block recall trials  spatialTotal += accuracy / set size  (Note: for each block recall set, the accuracy / set size is calculated and added to spatialTotal. We are adding the proportions of correctly recalled blocks)  **Partial-Credit Score =** spatialTotal / spatialCount |
| Total Recall (VS\_RT\_totalRecall\_...) | total amount of time spent on all block recall sets |