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Analysis Goals

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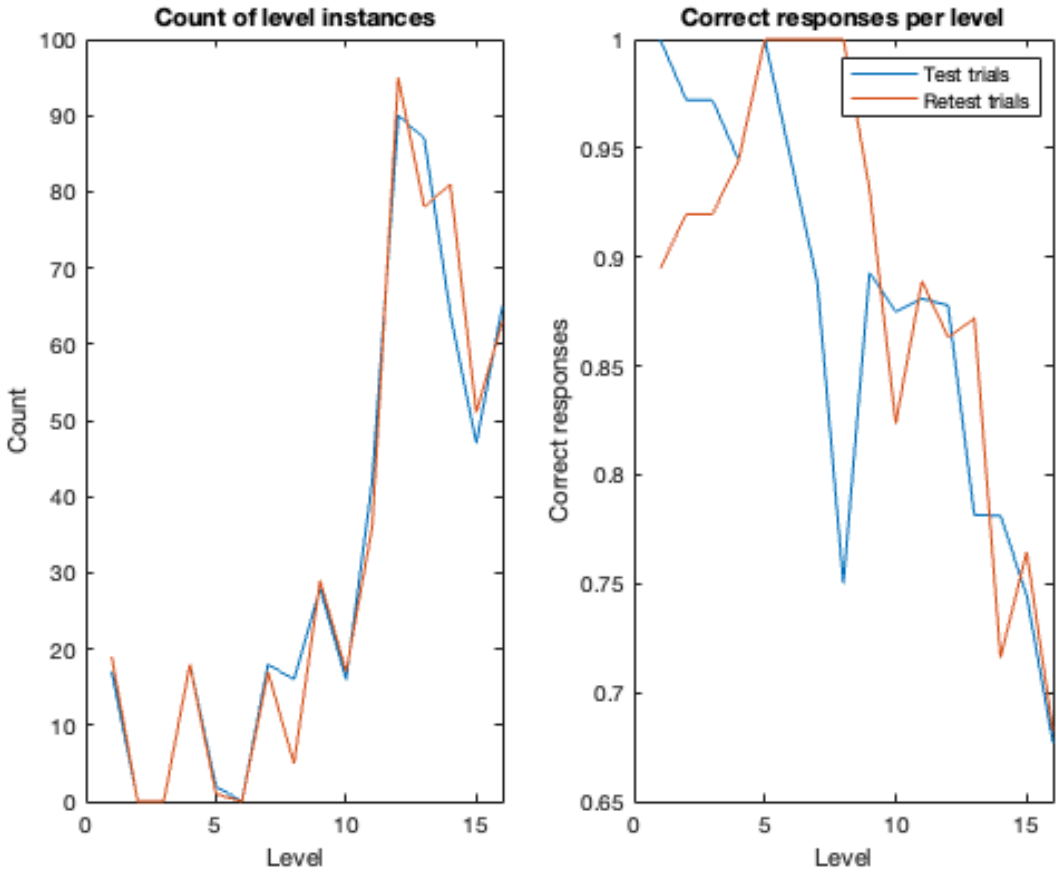
1)Find the best metric to assess participants performance. 2)Estimate
 test-retest reliability. 3)Find the optimal number of test trials based on
 reliability scores.
Metrics used to assess participants performance: level ended, aggregate
 difficulties score, logistic regression slope
Reliability metrics: Cronbachs alpha, correlation
Range of trials tested: 12 to 30
```

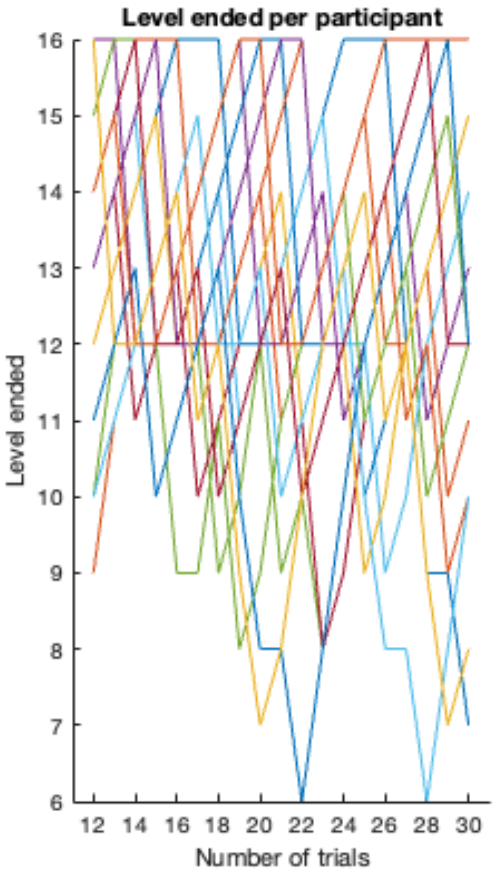
Percentage of correct responses per level

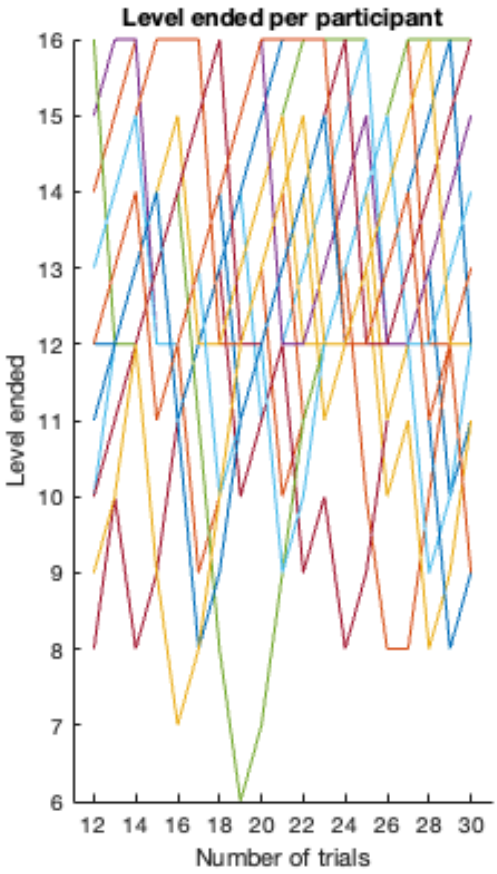
```
Percentage of correct responses across all trials: 81.96
Percentage for 1st test: 81.57
Percentage for retest: 82.35
```

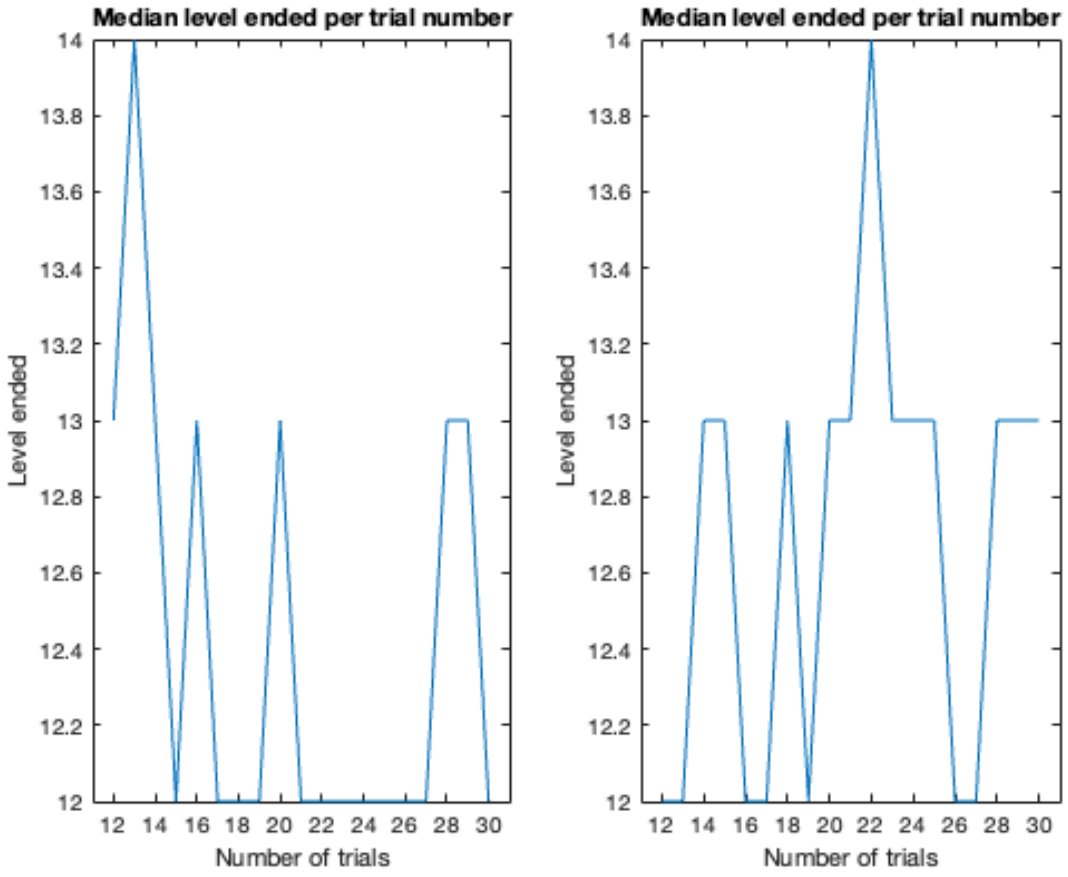


Level ended

The level the participant reached in the last trial

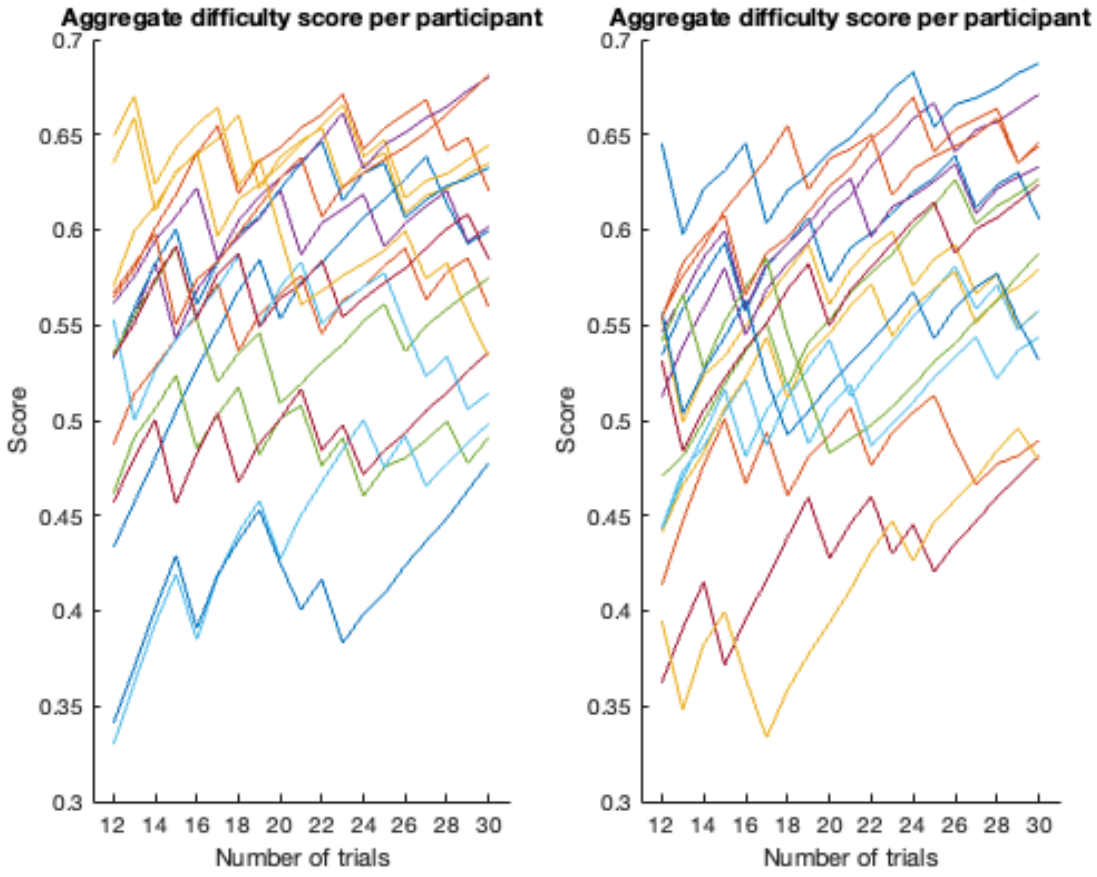

Level ended per participant
Level ended
Number of trials
16
15
14
13
12
11
10
9
8
7
6
12 14 16 18 20 22 24 26 28 30


Level ended per participant
Level ended
Number of trials
16
15
14
13
12
11
10
9
8
7
6
12 14 16 18 20 22 24 26 28 30



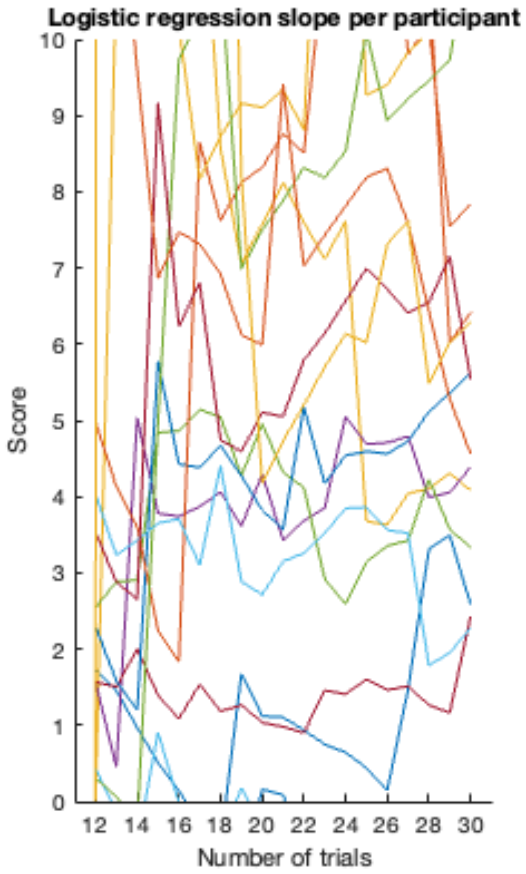
Aggregate difficulties Score

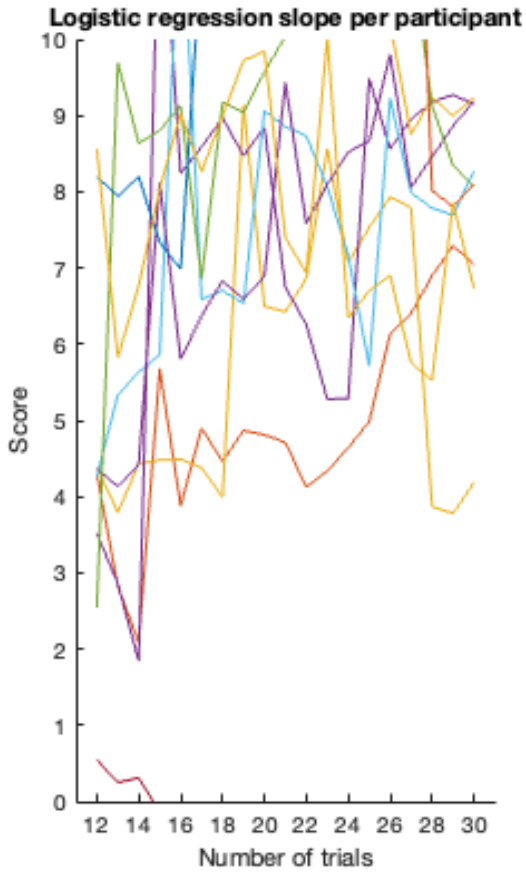
Score based on difficulty of each trial. Difficulties rescaled to [0,1] interval. Score = sum(correct responses difficulty) - sum(1-incorrect responses difficulty)

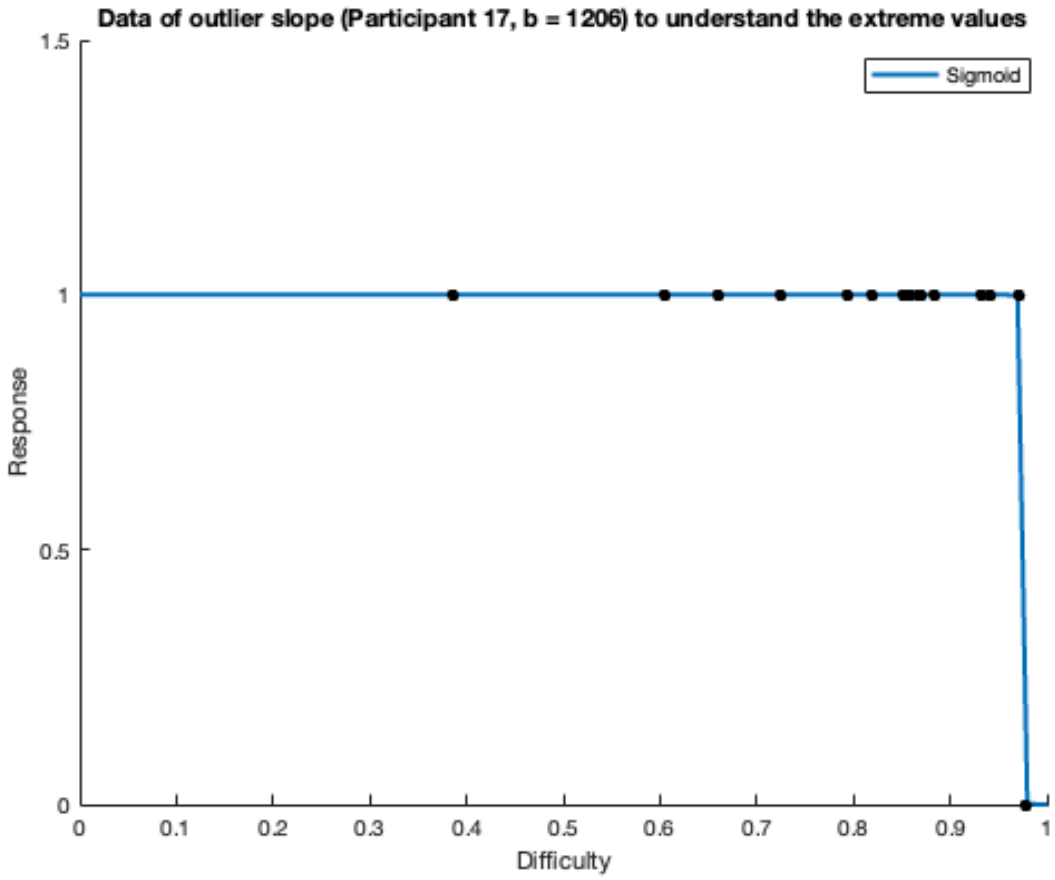


Logistic regression slope

Slope of logistic regression, X=trial difficulty, Y=correctness of response


Logistic regression slope per participant
Score
Number of trials
0
1
2
3
4
5
6
7
8
9
10
12
14
16
18
20
22
24
26
28
30


Logistic regression slope per participant
Score
Number of trials
0
1
2
3
4
5
6
7
8
9
10
12
14
16
18
20
22
24
26
28
30

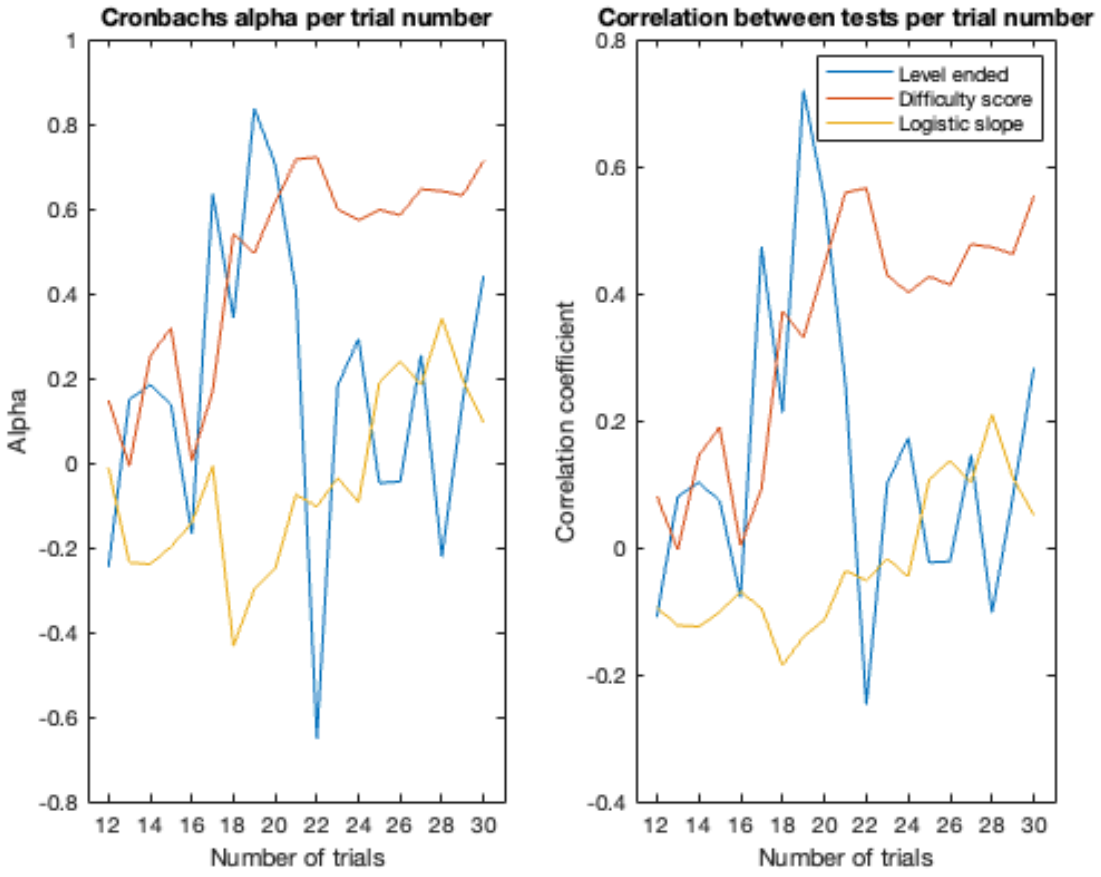


Test-retest reliability

Calculating Cronbach alpha and test-retest correlation
Highest reliability score per method

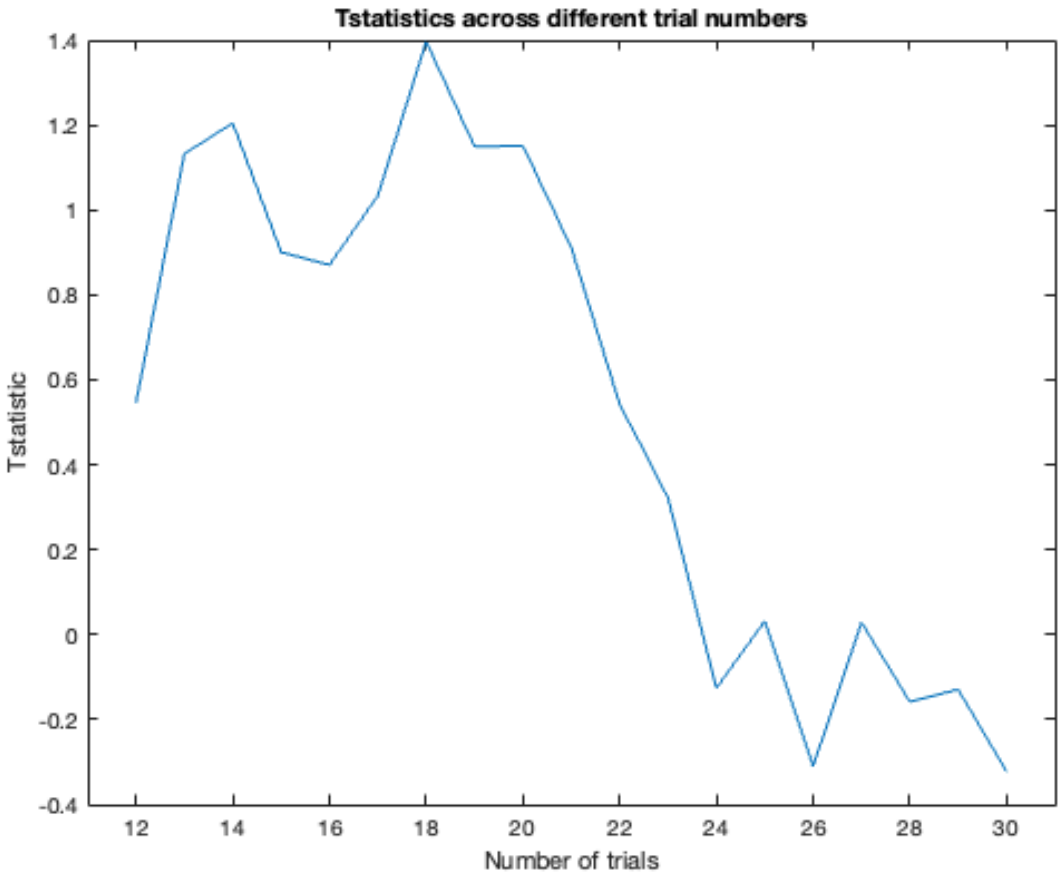
	Cronbachs Alpha	Number of trials
Level ended	0.83702	19
Difficulty score	0.72188	22
Logistic slope	0.34067	28

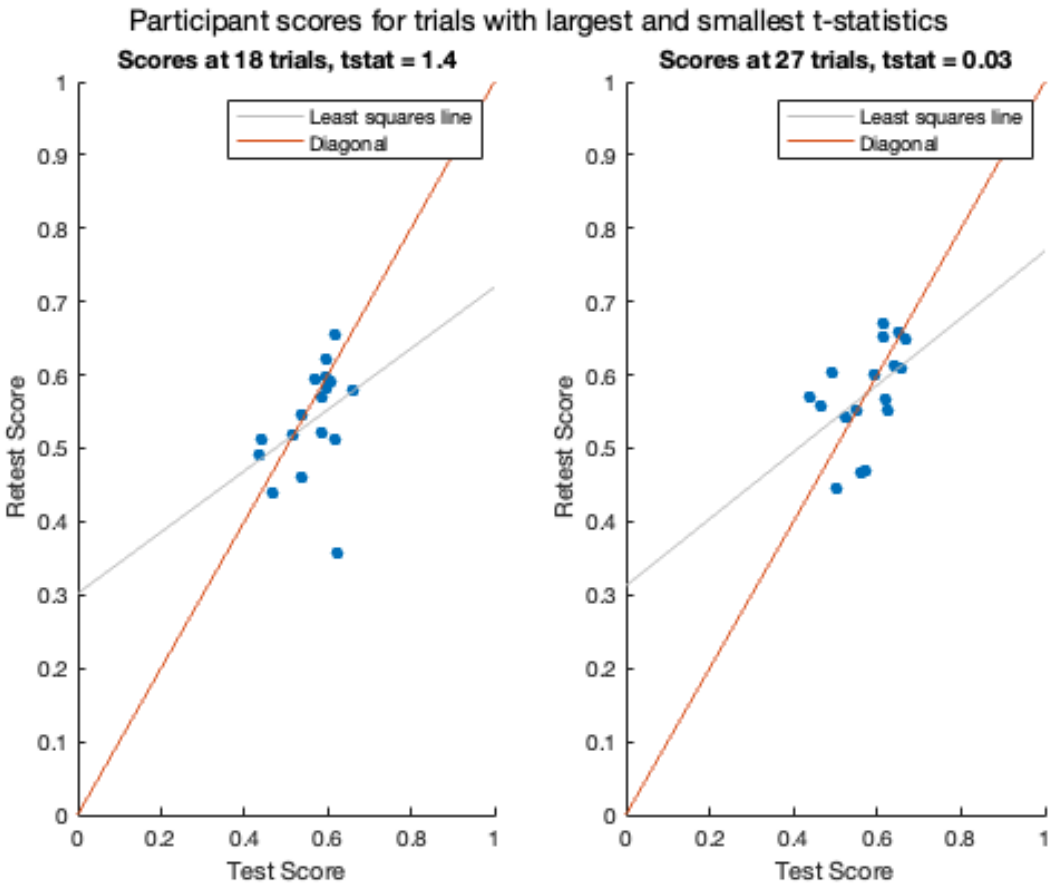
	Correlation Coefficient	Number of trials
Level ended	0.72019	19
Difficulty score	0.56569	22
Logistic slope	0.20935	28



Explore test-retest differences

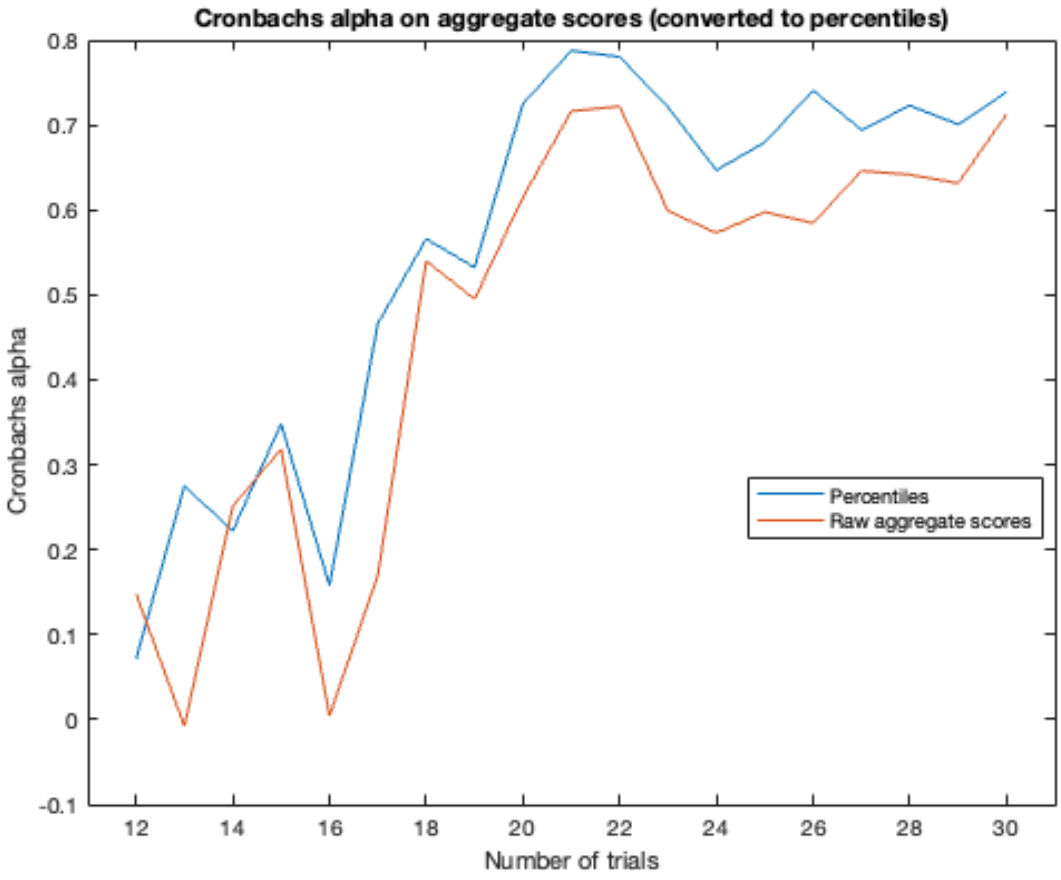
Paired sample ttests between test and retest aggregate scores. Positive tstatistics denote higher test scores,negative values higher retest scores.


Tstatistics across different trial numbers
Tstatistic
Number of trials
1.4
1.2
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
12
14
16
18
20
22
24
26
28
30



Percentile reliability

Participants aggregate scores are converted to percentiles (calculated separately for test and retest).



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