Reading the figures.

- On the bottom row of each figure, there is a matrix whos elements represent the t-statistic from comparing pairs of conditions. The names of the conditions can be found on the row and column. Stars represent a significant difference and, if there is a difference, the t-value is shown .

PVT Data Analysis

For this analysis, data from 11 subjects were used.
Same as those in the original analysis (out of the 12 subjects, only subject 8 was removed)

Betweenness Centrality during PVT

Figure 1a: Time course of **Betweenness centrality** after awakening WITHOUT blue light exposure

Notes

- Betweenness centrality across all frequencies remains unchanged after awakening in the control condition

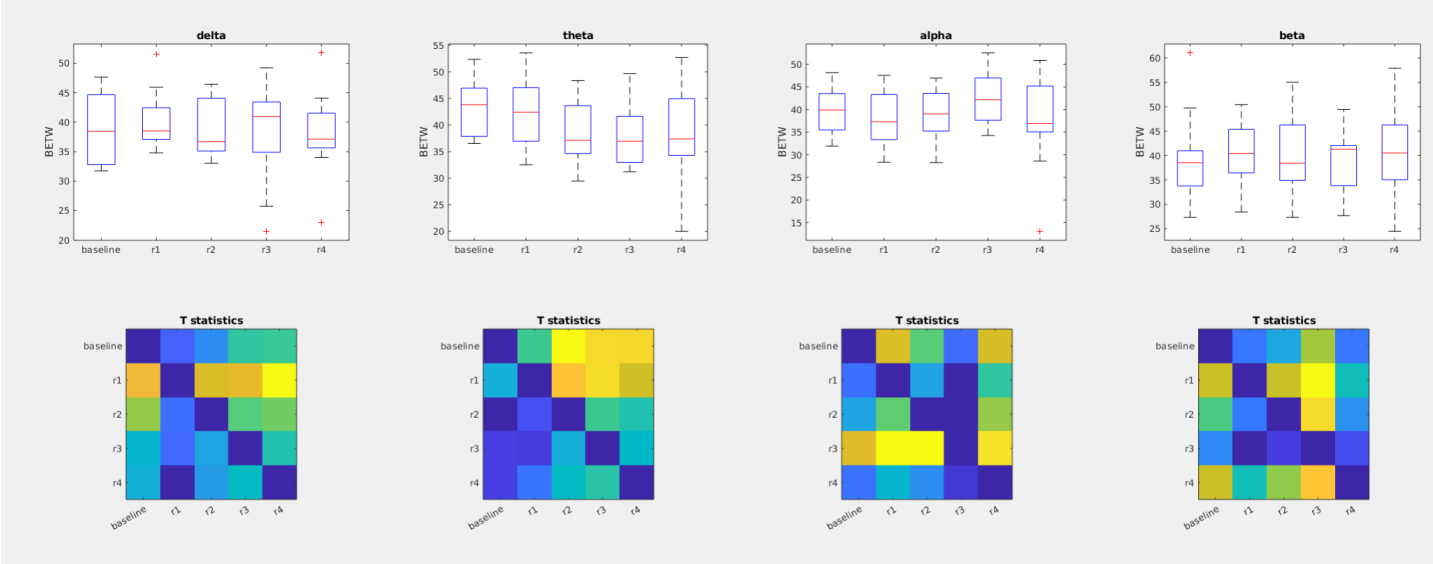


Figure 1b: Time course **Betweenness centrality** after awakening **WITH Blue Light Exposure**

Exposure to blue-light immediately after awakening reduces theta betweenness which reverts back to baseline within 30 minutes

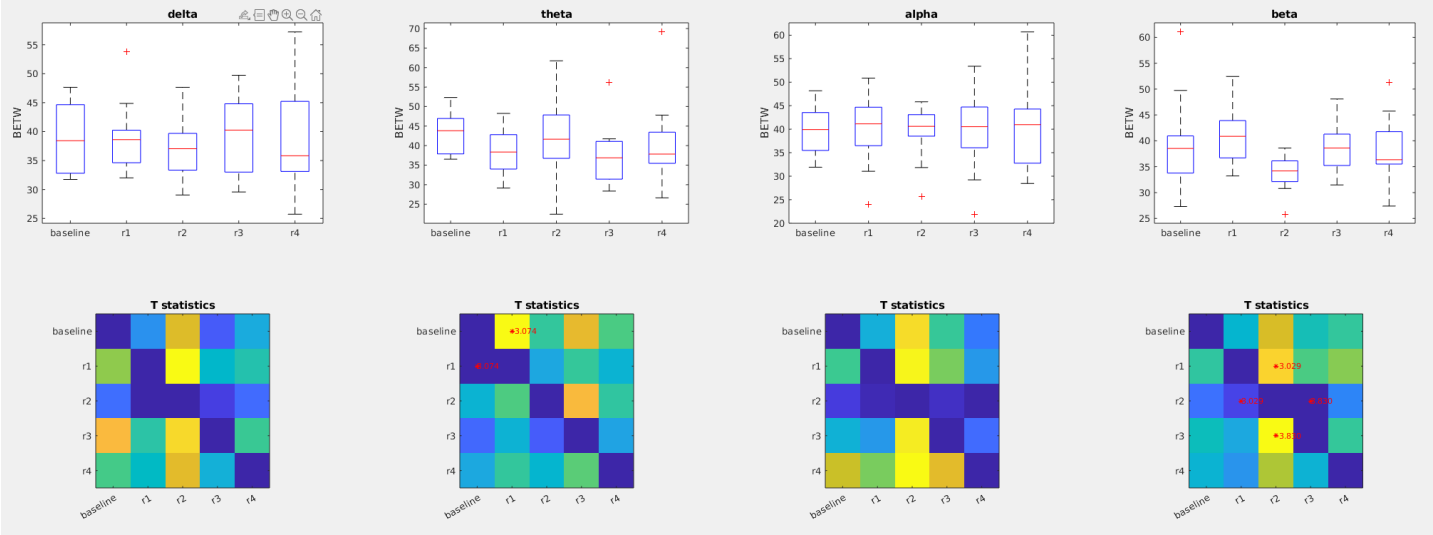
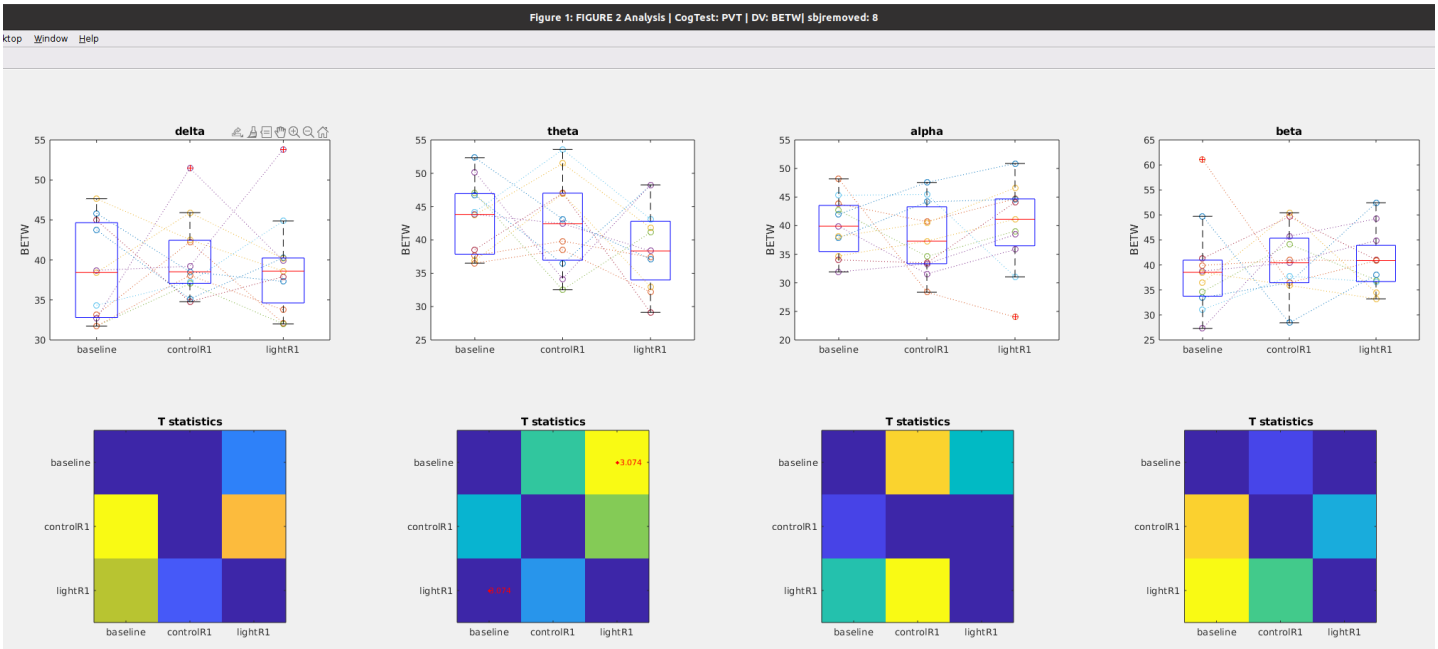


Figure 1c: **Betweeness Centrality** during preseleep (**baseline**) Vs awakening WITHOUT light exposure (**control_R1**) vs Awakening WITH light exposure (**light_R1**)



WPLI during PVT

Figure 2A: Time course of **WPLI** after awakening WITHOUT blue light exposure

Under control conditions, Theta WPLI decreases about 30 minutes after awakening and does not recover within 45 minutes (the 4th test)

Under control conditions, there are no changes in delta, alpha and beta WPLI after awakening

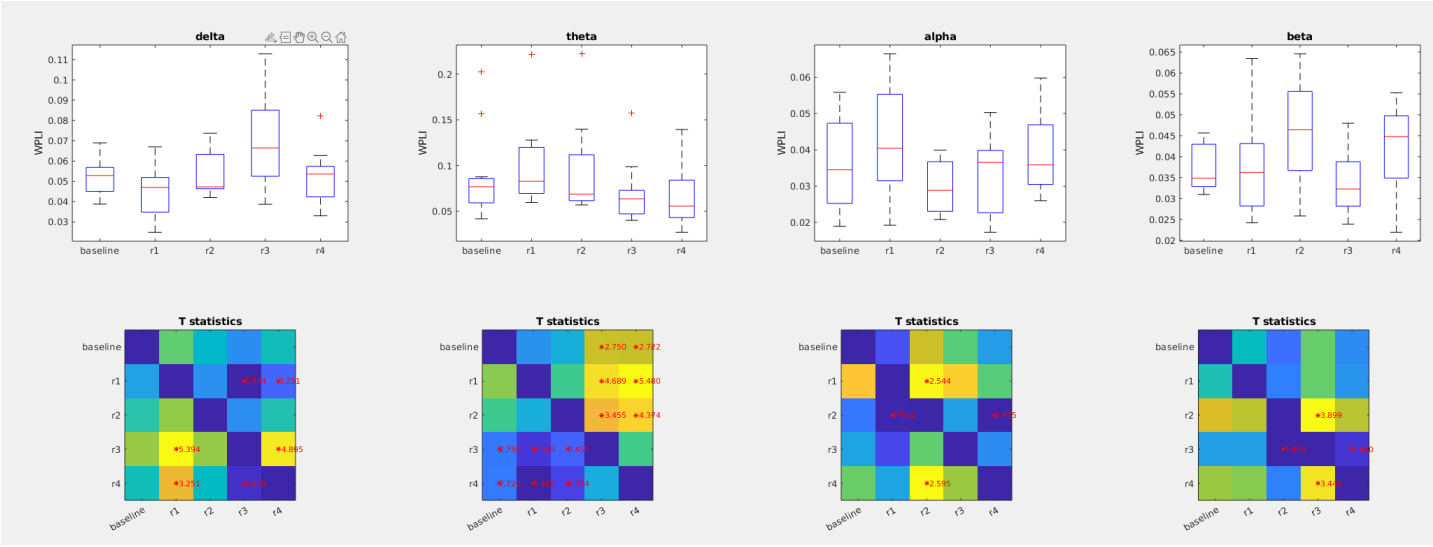


Figure 2B: Time course of **WPLI** after awakening WITH **Blue-Light Exposure** (eeg data gathered during performance on PVT task)

Blue light exposure increases WPLI in the delta band and does not recover back to baseline within 45 minutes (the 4th test) (see the first column)

Blue light exposure after awakening prevents changes in Theta WPLI (second column)

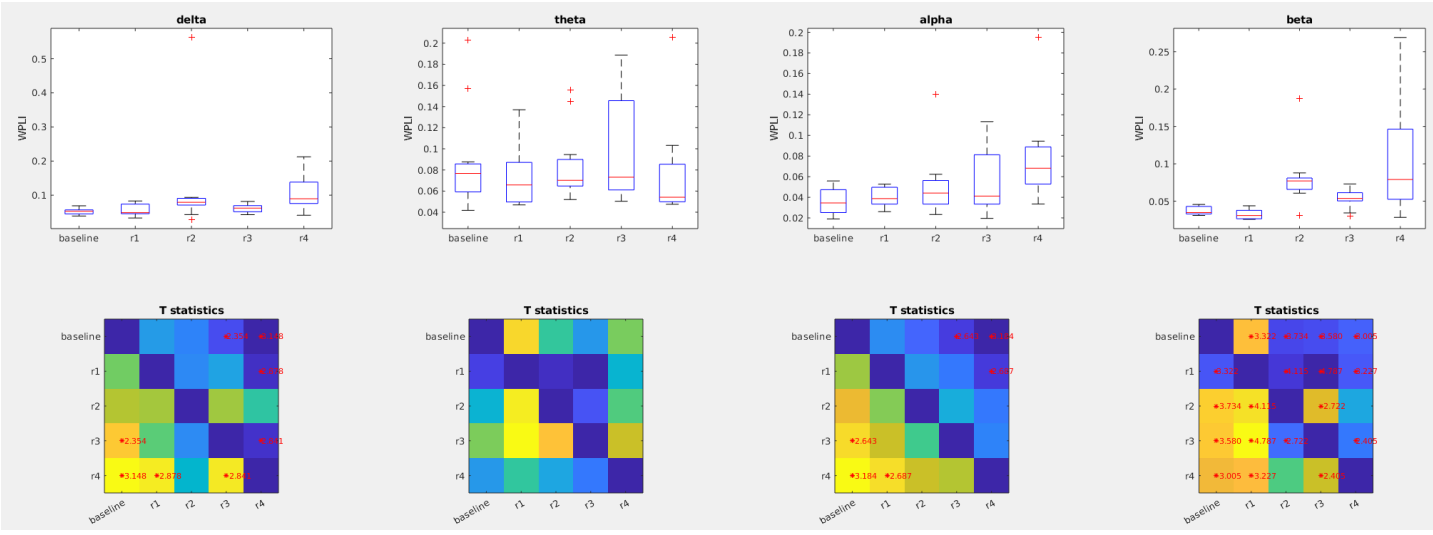
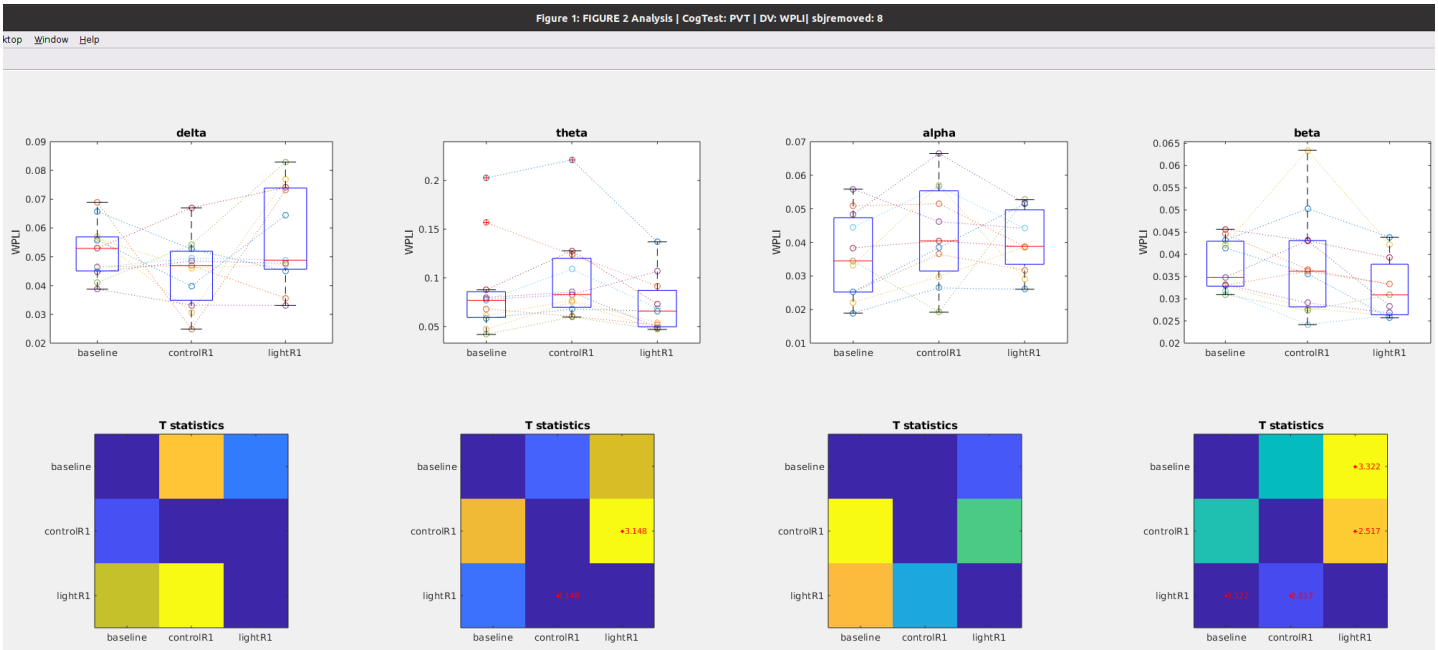


Figure 2c: **WPLI** during preseleep (**baseline**) Vs awakening WITHOUT light exposure (**control_R1**) vs Awakening WITH light exposure (**light_R1**)



KDT Task

Notes on Data Set

- For the KDT task, there was no data for the 12th subject
- Also note that for this analysis I dropped subject 7 because of no baseline data

Global Power during KDT

Figure 3a: Time course of **global** after awakening **WITHOUT** blue light exposure

Notes

- No changes in delta band (1st column) or theta band (2nd column)
- Late onset reduction in alpha band (3rd column)
- Immediate reduction in beta band (4rth column)Furthermore, there was no data for the 12 subject

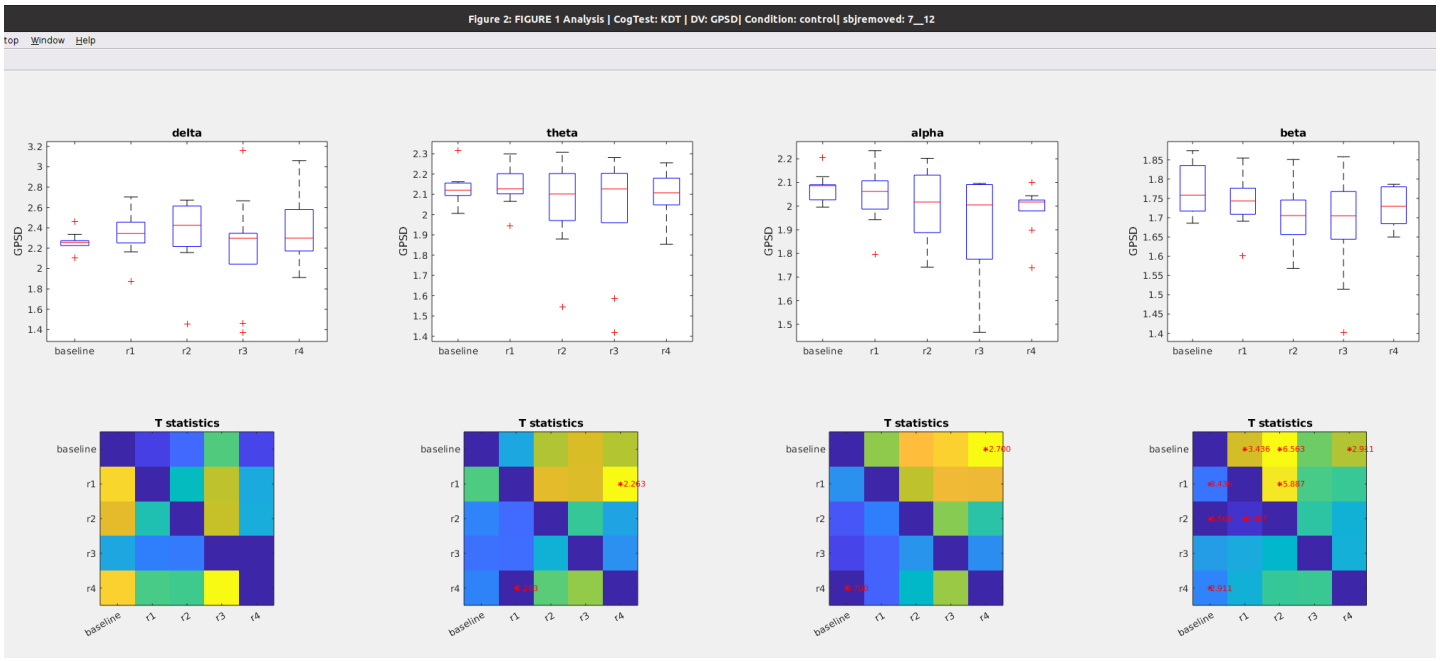


Figure 3b: Time course of **global power** after awakening **WITH** blue light exposure

Notes

- No changes in delta band (1st column) or theta band (2nd column)
- Late onset reduction in alpha band (3rd column)
- Immediate reduction in beta band (4rth column)
- These results roughly similar to the changes seen in the no light condition. Thus blue light doesnt seem to impact the time course of power.

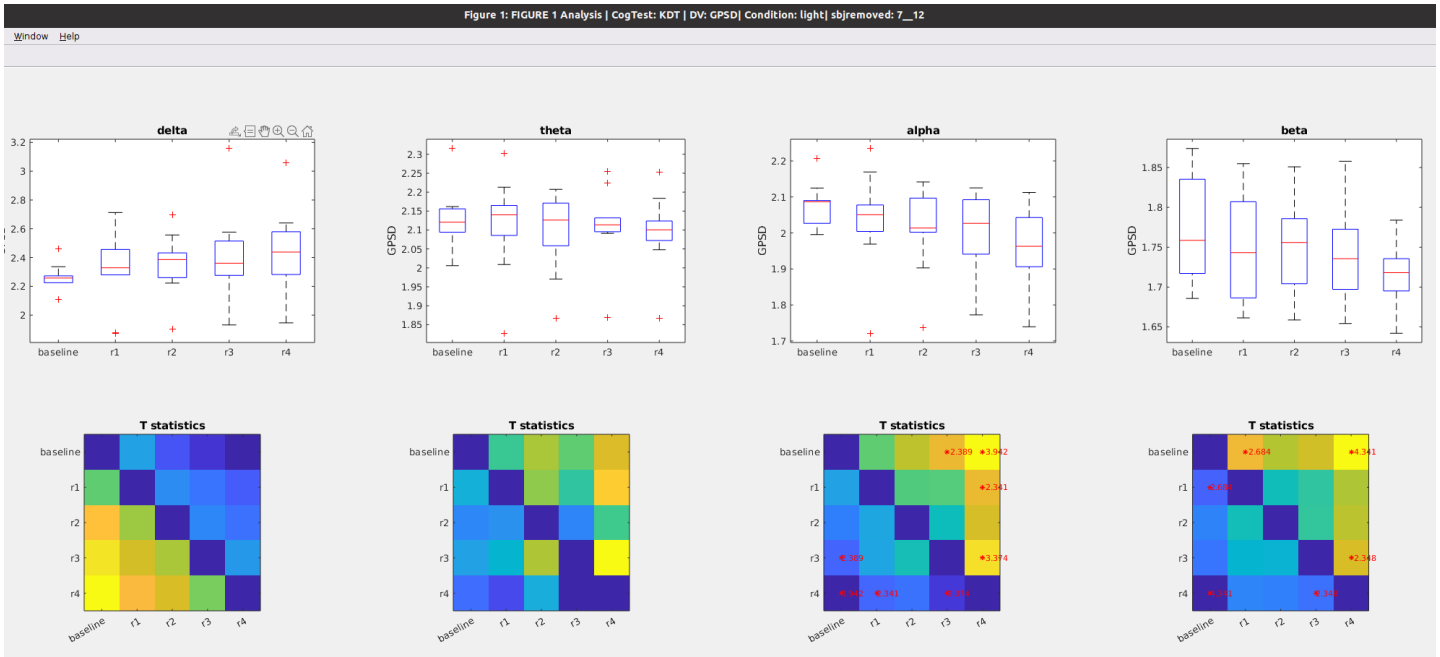
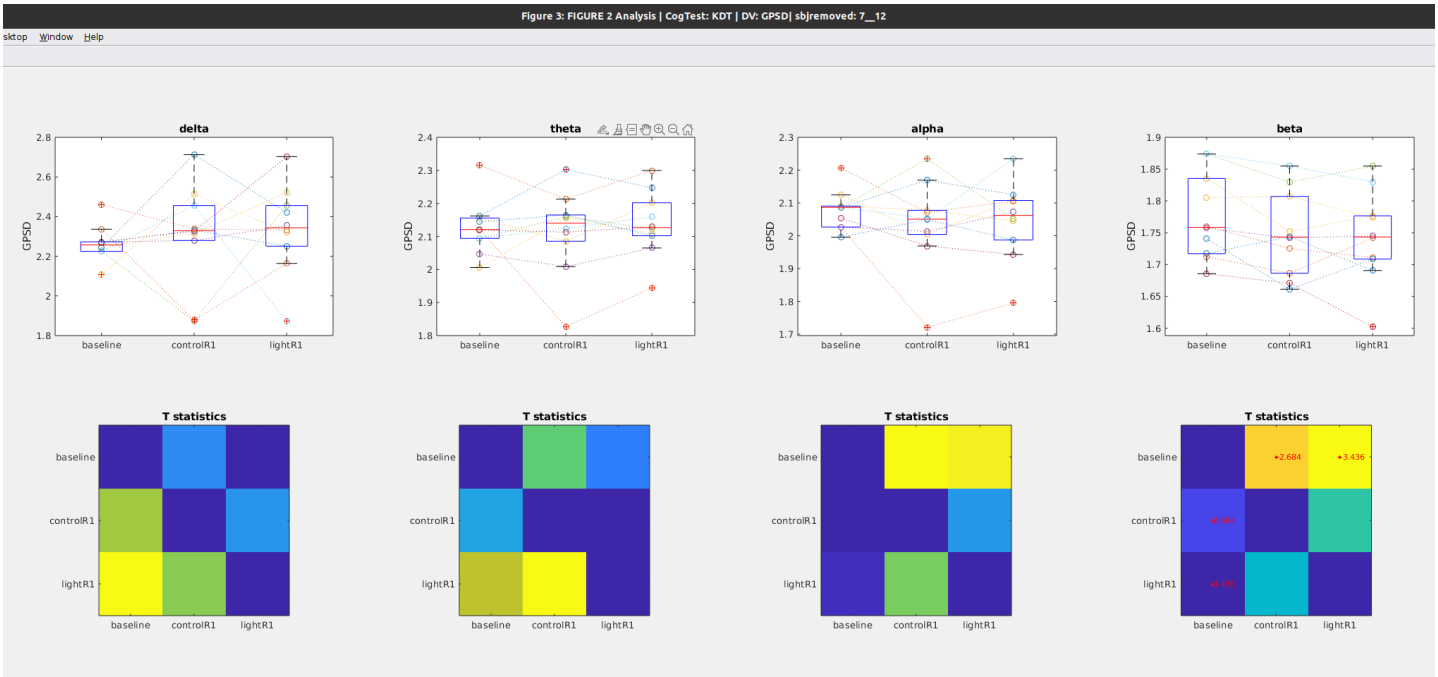


Figure 3c: **Global power** during preseleep (**baseline**) Vs awakening WITHOUT light exposure (**control_R1**) vs Awakening WITH light exposure (**light_R1**)



Path Length during KDT

Figure 4a: Time course of **Path Length** after awakening **WITHOUT** blue light exposure

Notes

- No changes in path length in any band

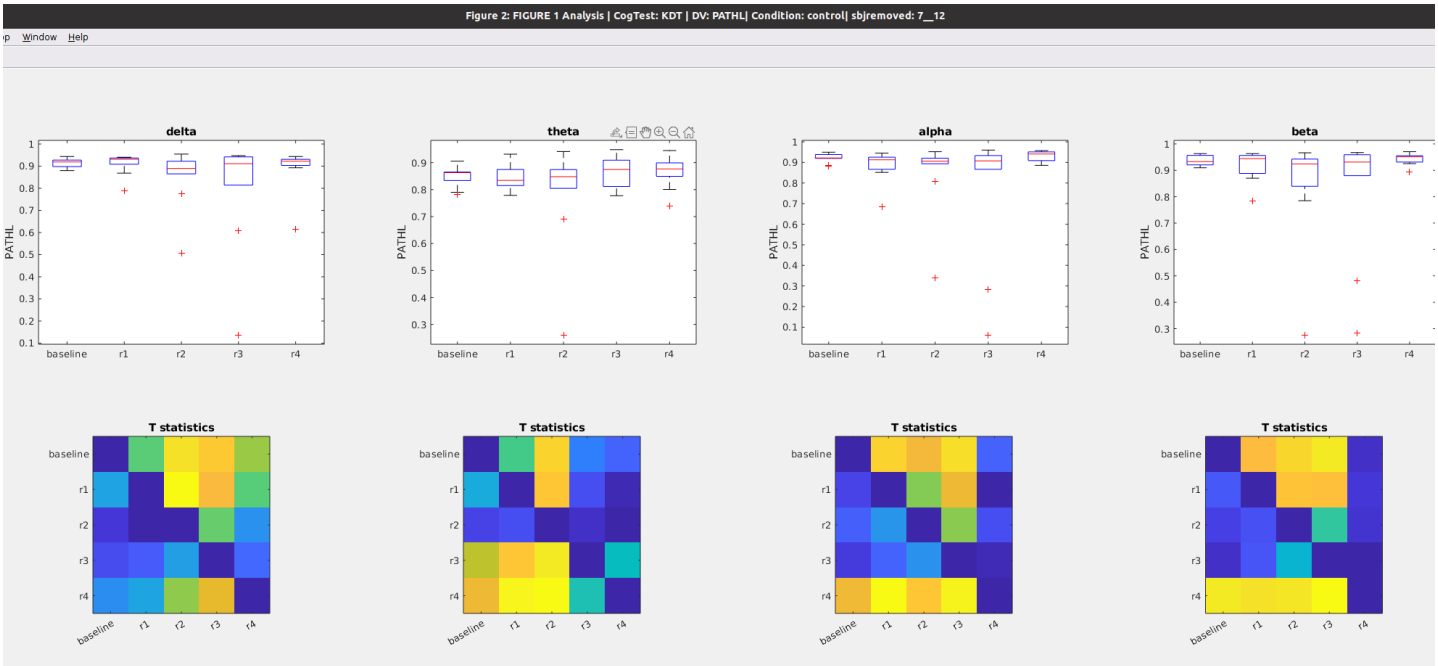


Figure 4b: Time course of **Path Length** after awakening **WITH blue light exposure**

Notes

- No changes in path length in any band
- These results roughly similar to the changes seen in the no light condition. Thus blue light doesnt seem to impact the time course of power .

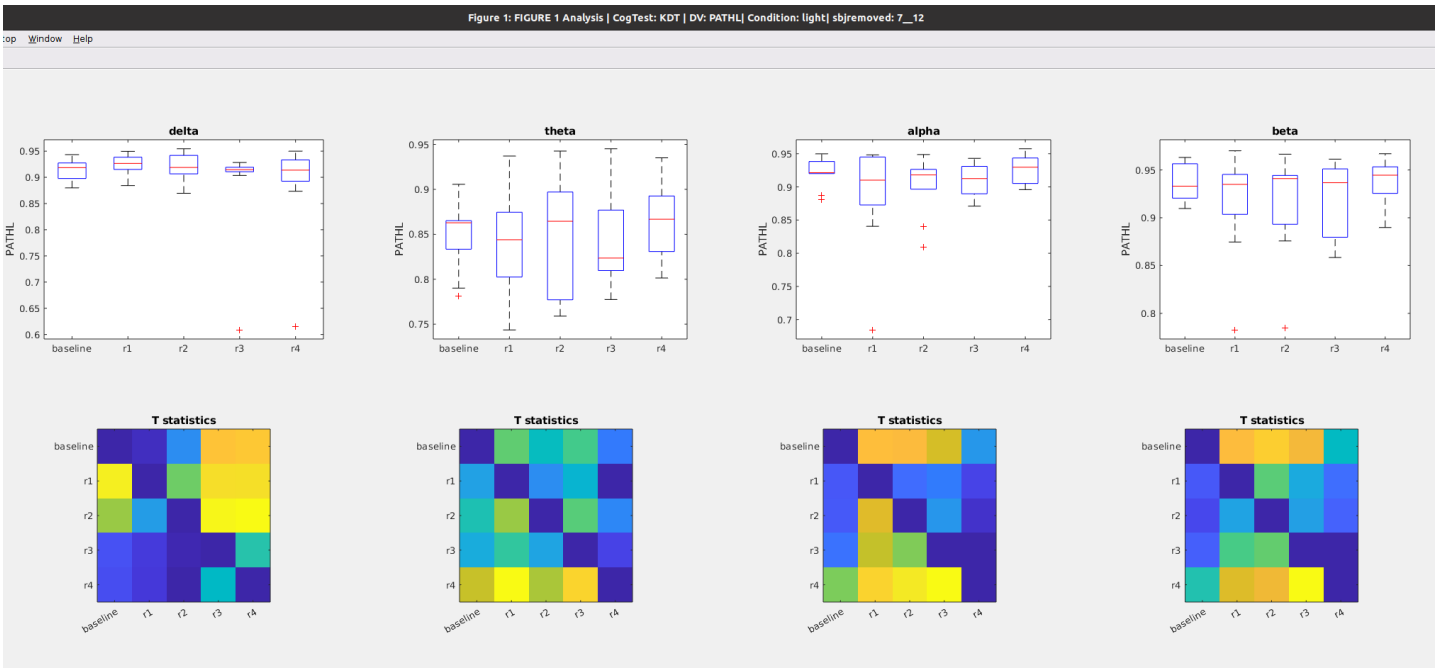
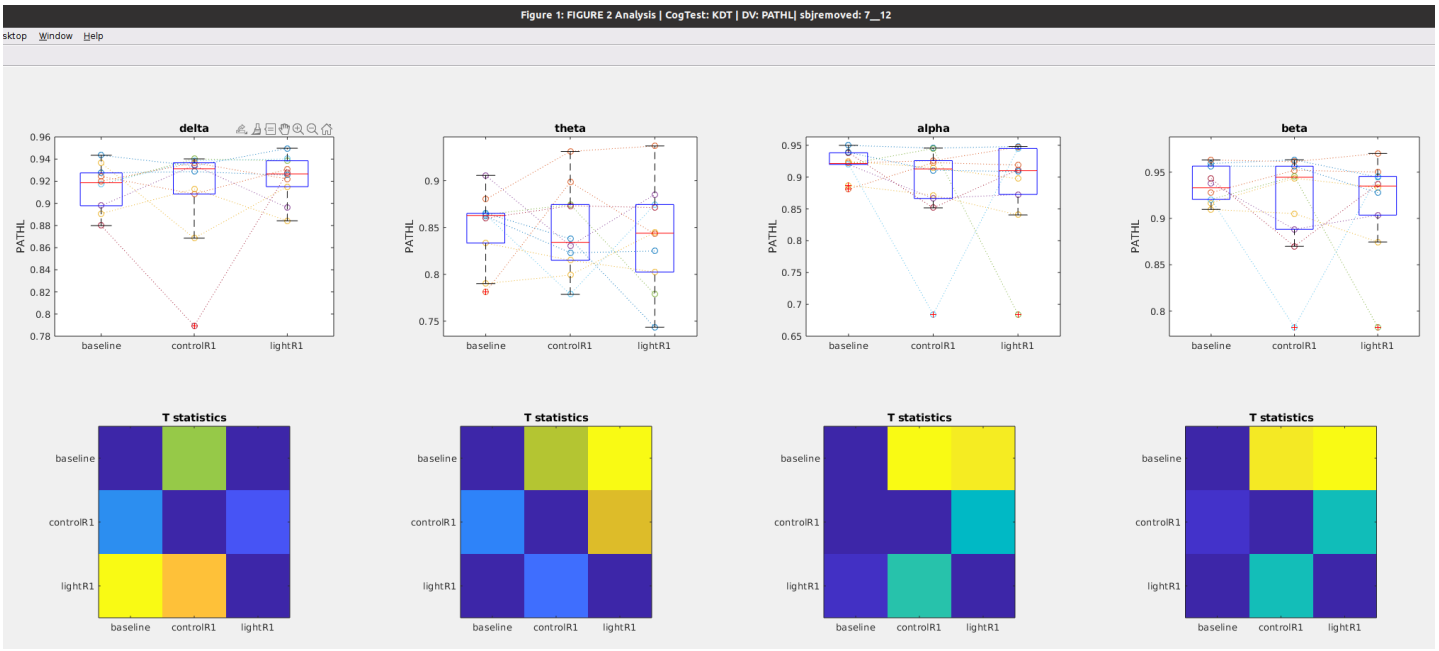


Figure 4c: **Path Length** during preseleep (**baseline**), Vs awakening WITHOUT light exposure (**control_R1**) vs Awakening WITH light exposure (**light_R1**)



Clustering during KDT

Figure 5a: Time course of **Clustering coefficient** after awakening **WITHOUT** blue light exposure

Notes

- No changes in path length in any band

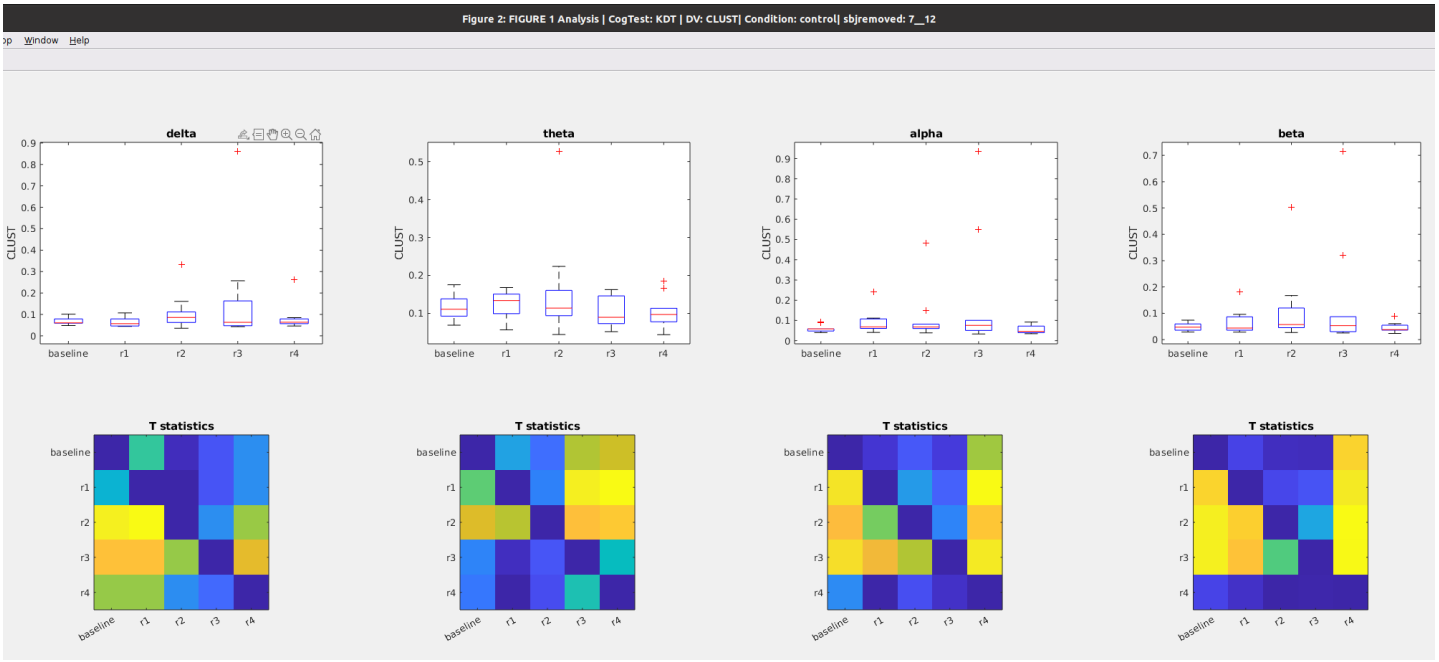


Figure 5b: Time course of **Clustering coefficient** after awakening **WITH** blue light exposure

Notes

- No changes (from baseline) in path length in any band. (althought there is a reduction in clustering in the 3rd run vs the first run)
- These results roughly similar to the changes seen in the no light condition. Thus blue light doesnt seem to impact the time course of power .

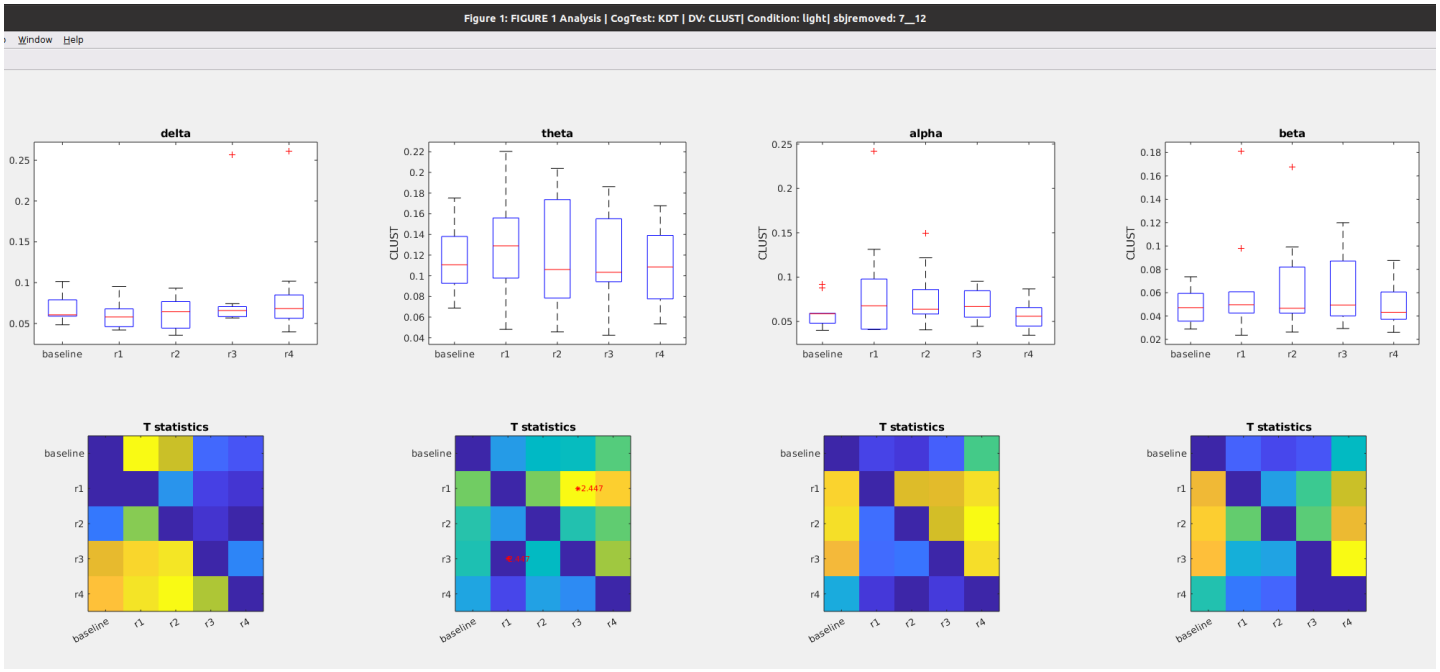
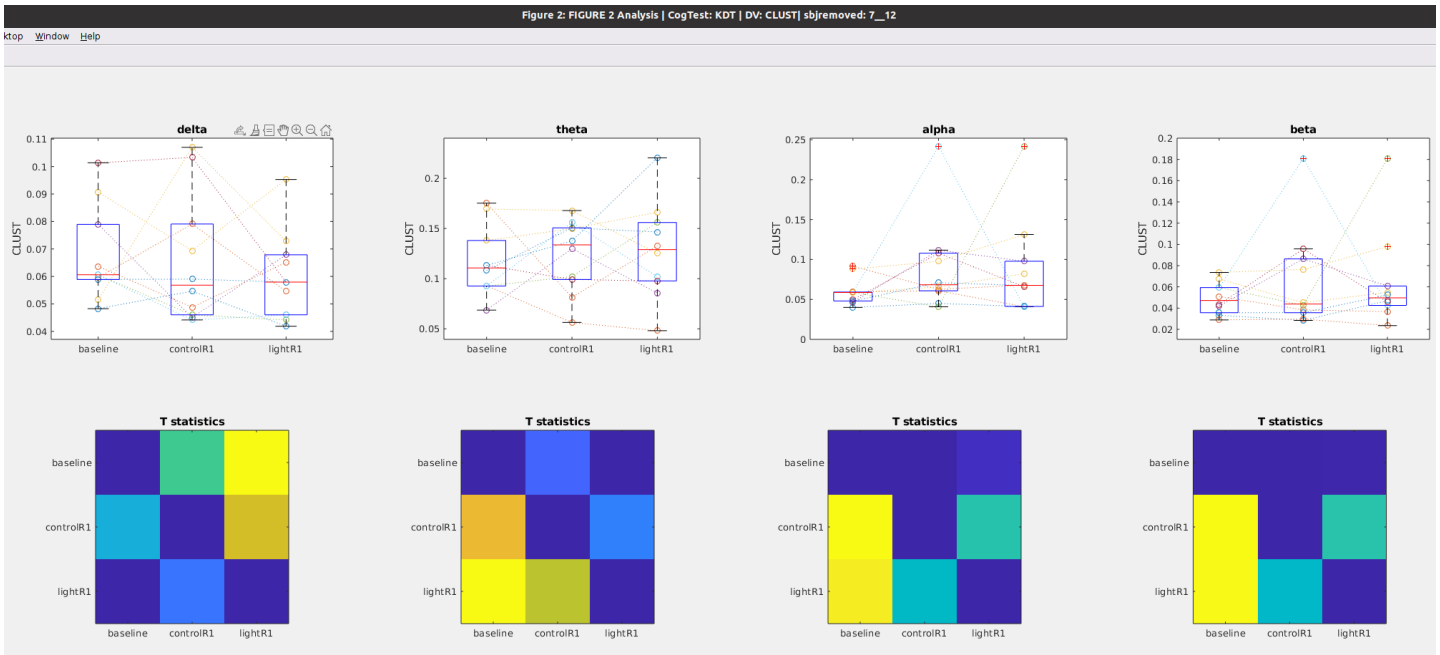


Figure 5c: **Clustering** during preseleep (**baseline**), Vs awakening WITHOUT light exposure (**control_R1**) vs Awakening WITH light exposure (**light_R1**)



Betweenness Centrality during KDT

Figure 6a: Time course of **Betweenness** after awakening **WITHOUT** blue light exposure

Notes

- No changes in delta betweenness (1rst column), alpha betweenness (1rst column),nor beta betweenness (1rst column) from baselin
- Reduction in alpha from baseline at the 4rth time point

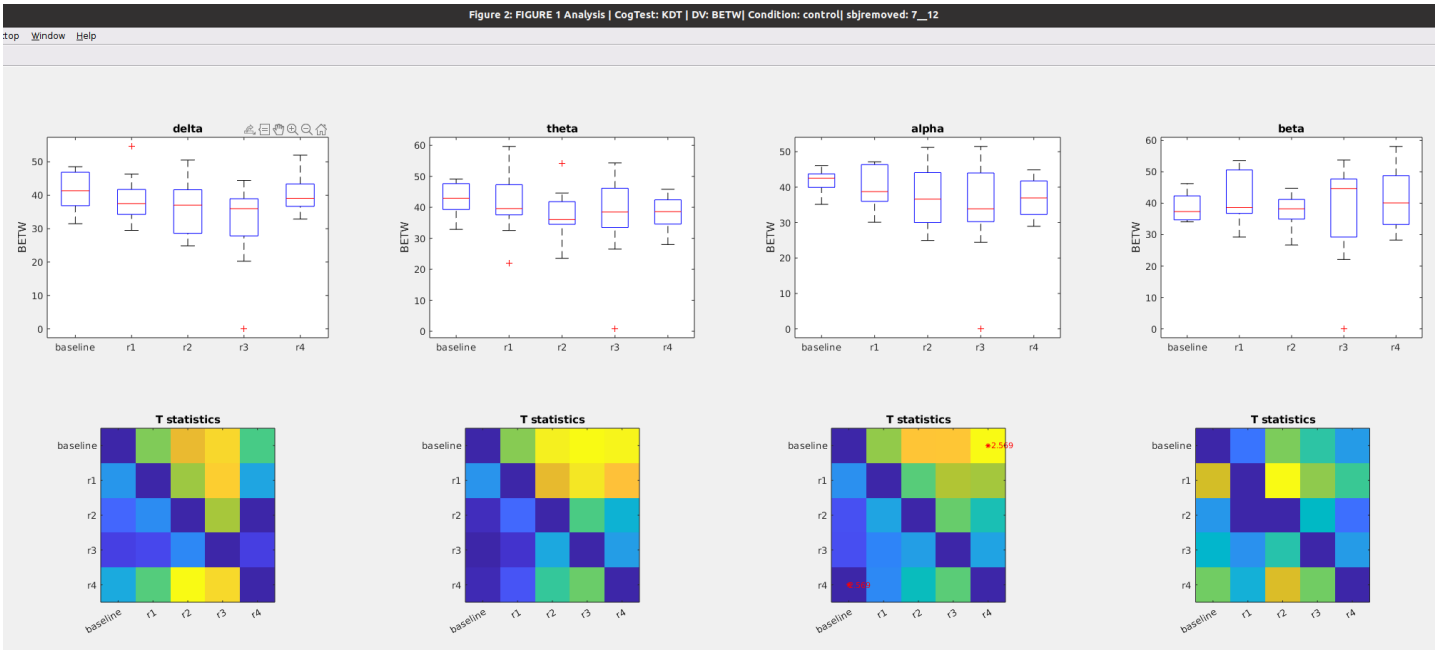


Figure 6b: Time course of **Betweenness** after awakening **WITH blue light exposure**

Notes

- No changes in delta betweenness (1rst column), alpha betweenness (1rst column),nor beta betweenness (1rst column) from baseline
- Reduction in alpha from baseline at the immediately and again at the 4rth time point

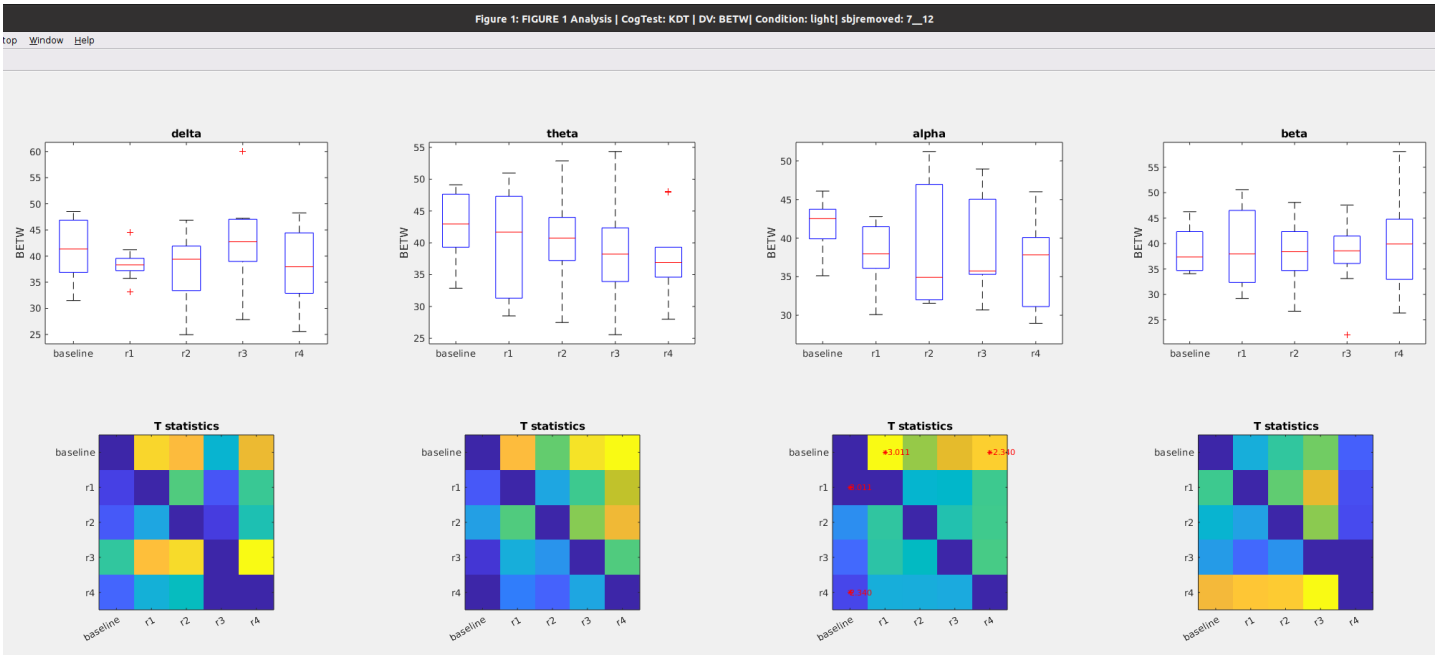
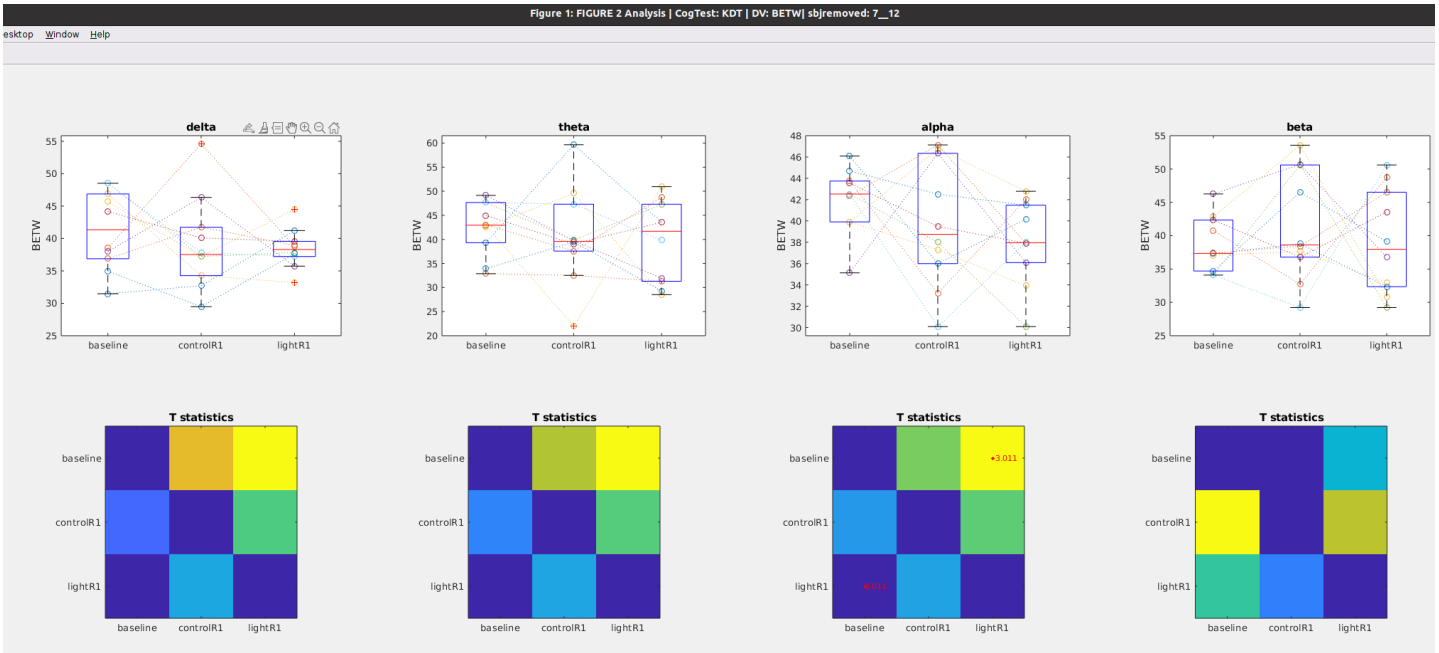


Figure 6c: **Betweennes** during preseleep (**baseline**) Vs awakening WITHOUT light exposure (**control_R1**) vs Awakening WITH light exposure (**light_R1**)



WPLI during KDT

Figure 7a: Time course of **WPLI** after awakening **WITHOUT** blue light exposure

Notes

- No changes in delta wpli after awakening (see 1rst column)
- Immediate Increase in theta wpli after awakening but quickly recovers by the second run (see 2nd column)

- Delayed increase in alpha wpli that recovers by the fourth run (see 3rd column)
- Delayed increase in beta wpli (on the second run) that does not recover (see 4rth column)

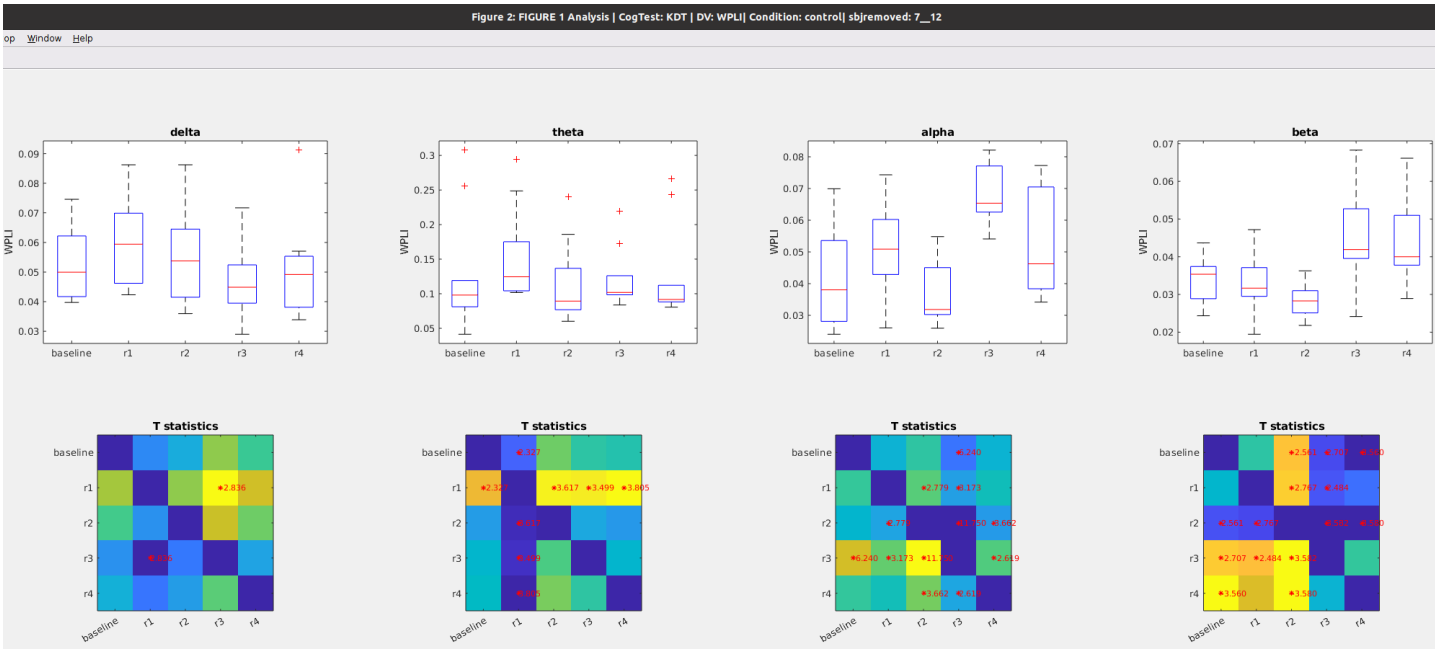


Figure 7b: Time course of **WPLI** after awakening **WITH** blue light exposure

Notes

- Alpha band shows a delayed reduction from baseline, at the 4rth timepoint
    - This is different from the no-light condition, where there are no changes in alpha band
- Theta wpli increases at the second time point, but returns back to baseline levels by the third time point
    -
- Alpha band increases from baseline at the second time point and does not recover,
    - In contrast, in the no light condition, alpha wpli increases at a later time and recovers immediately

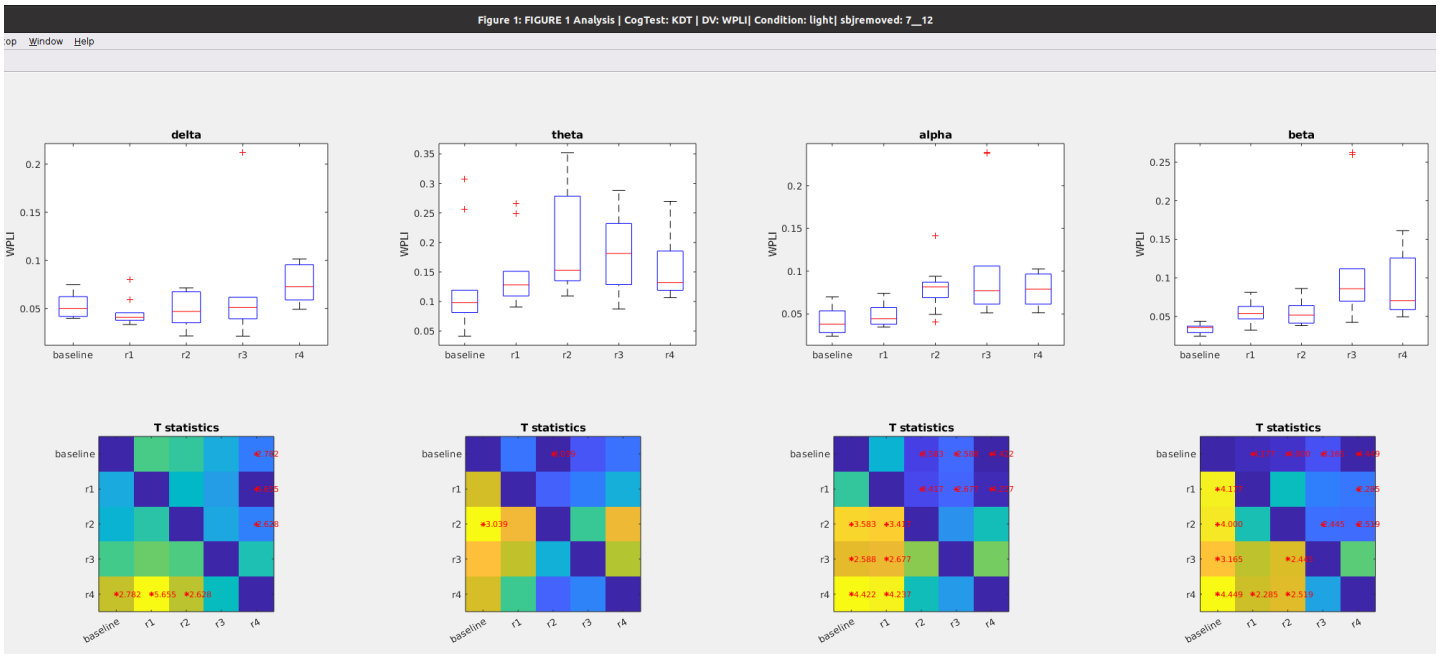
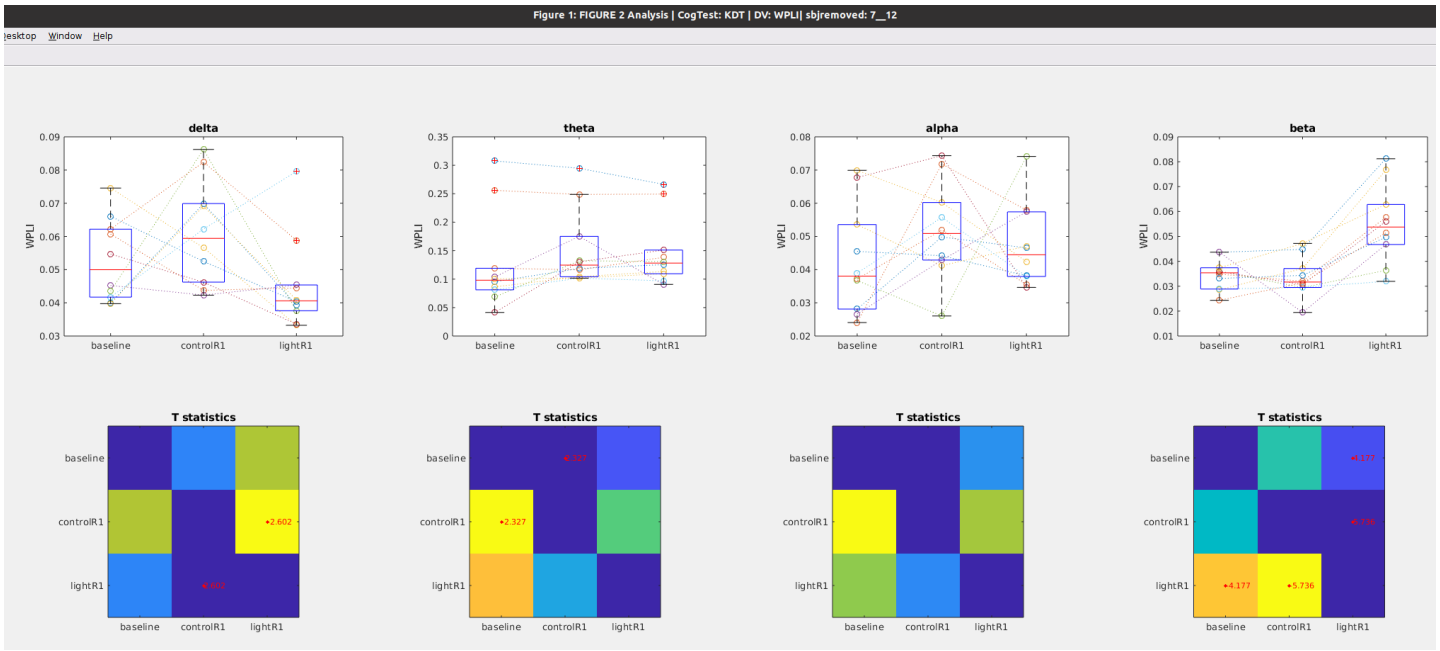


Figure 7c: **WPLI** during preseleep (**baseline**) Vs awakening WITHOUT light exposure (**control_R1**) vs Awakening WITH light exposure (**light_R1**)



Math Task

Notes on Data Set

- Removed subjects 5, 8 and 10 for missing data, so n = 9

Global Power during Math

Figure 8a: Time course of **global** after awakening **WITHOUT** blue light exposure

Notes

- Theta, alpha and beta global power all decrease by the second time point, but return to baseline levels by the 4rth time point
- No changes in the delta band (1rst column)

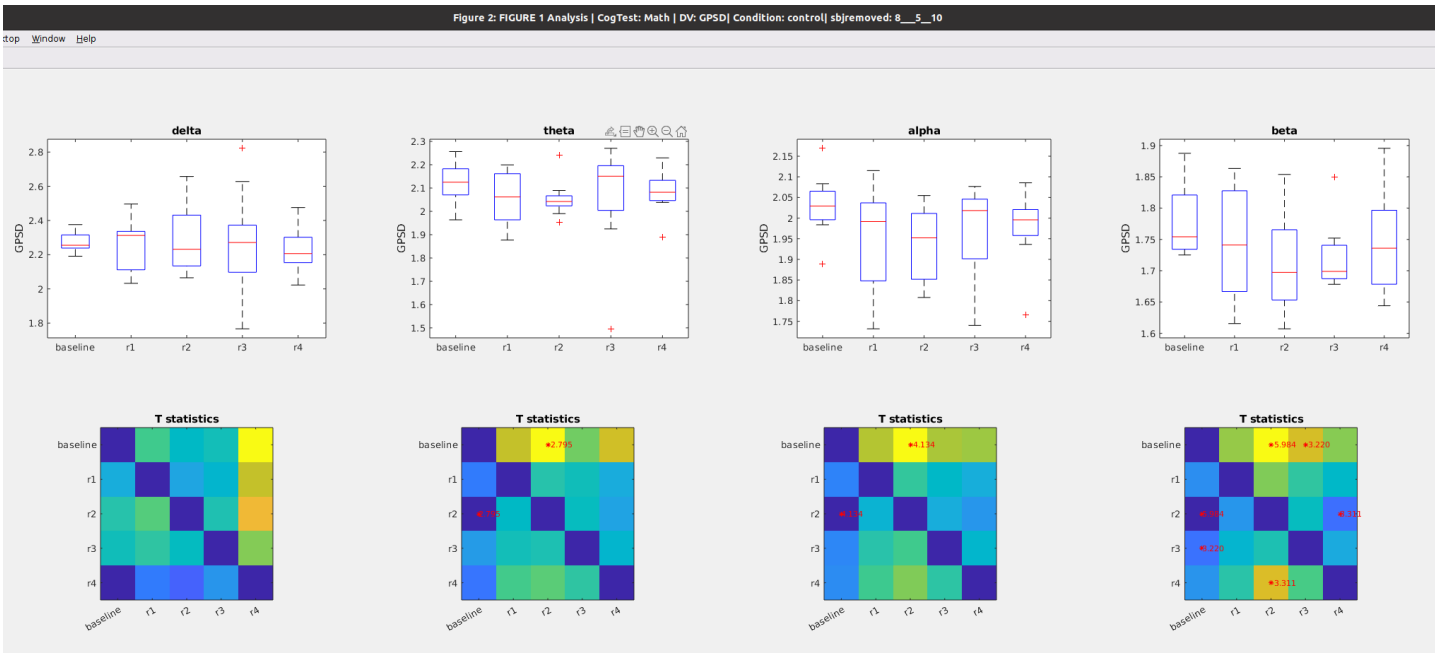


Figure 8b: Time course of **global power** after awakening **WITH** blue light exposure

Notes

- No changes in delta band with blue light exposure, same as when no-exposure
- No changes in theta band with blue light exposure, different from the reduction observed with no-exposure
- In the alpha band, when exposed to light a reduction occurs at a later time point and does not revert back to baseline, compared to the no light condition,
- In the beta band, reduction is observed immediately after awakening

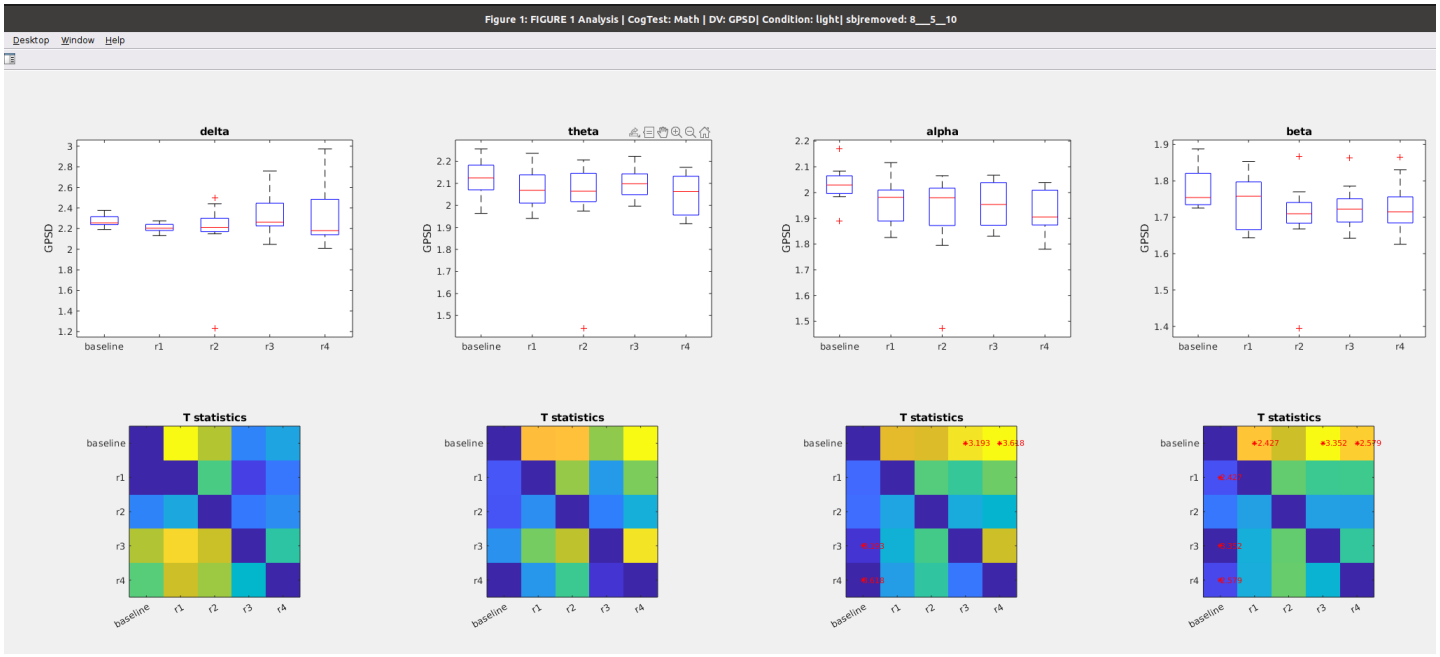
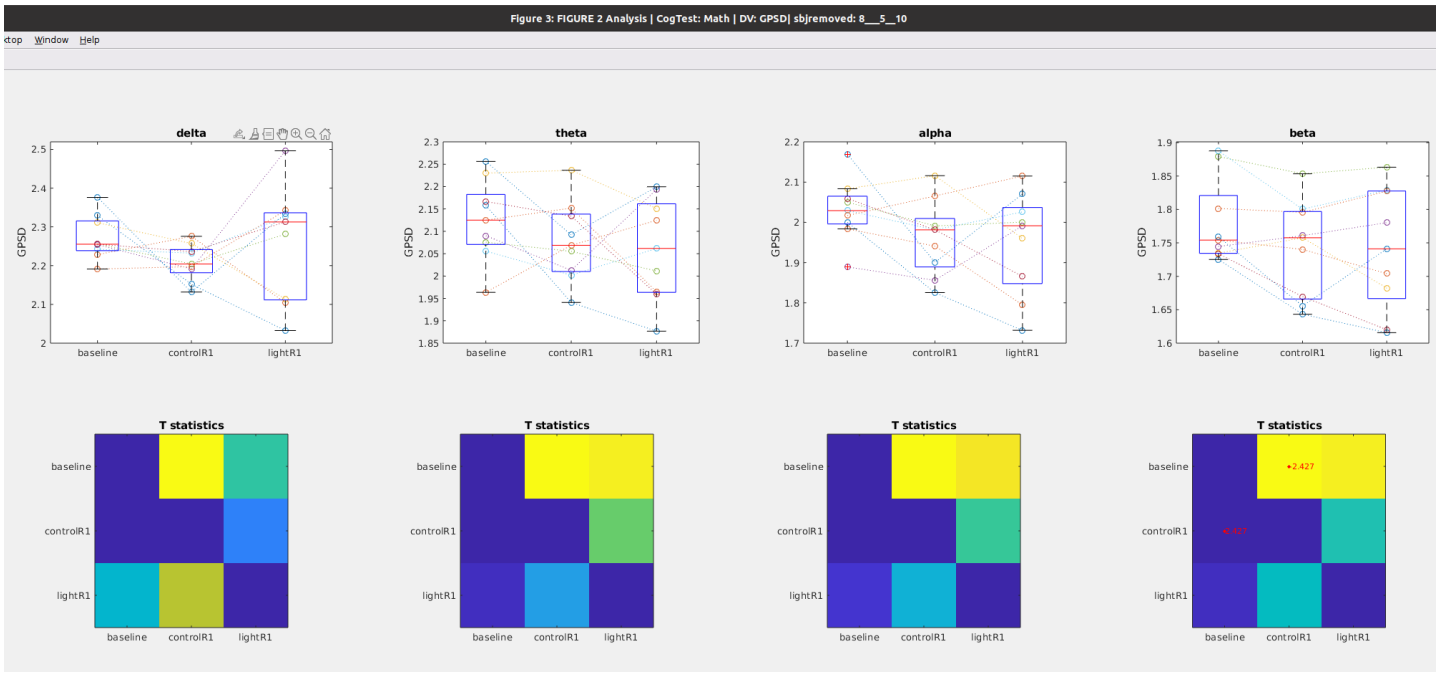


Figure 8C: **Global power** during preseleep (**baseline**) Vs awakening WITHOUT light exposure (**control_R1**) vs Awakening WITH light exposure (**light_R1**)



Path Length during Math Task

Figure 9a: Time course of **Path Length** after awakening **WITHOUT blue light exposure**

Notes

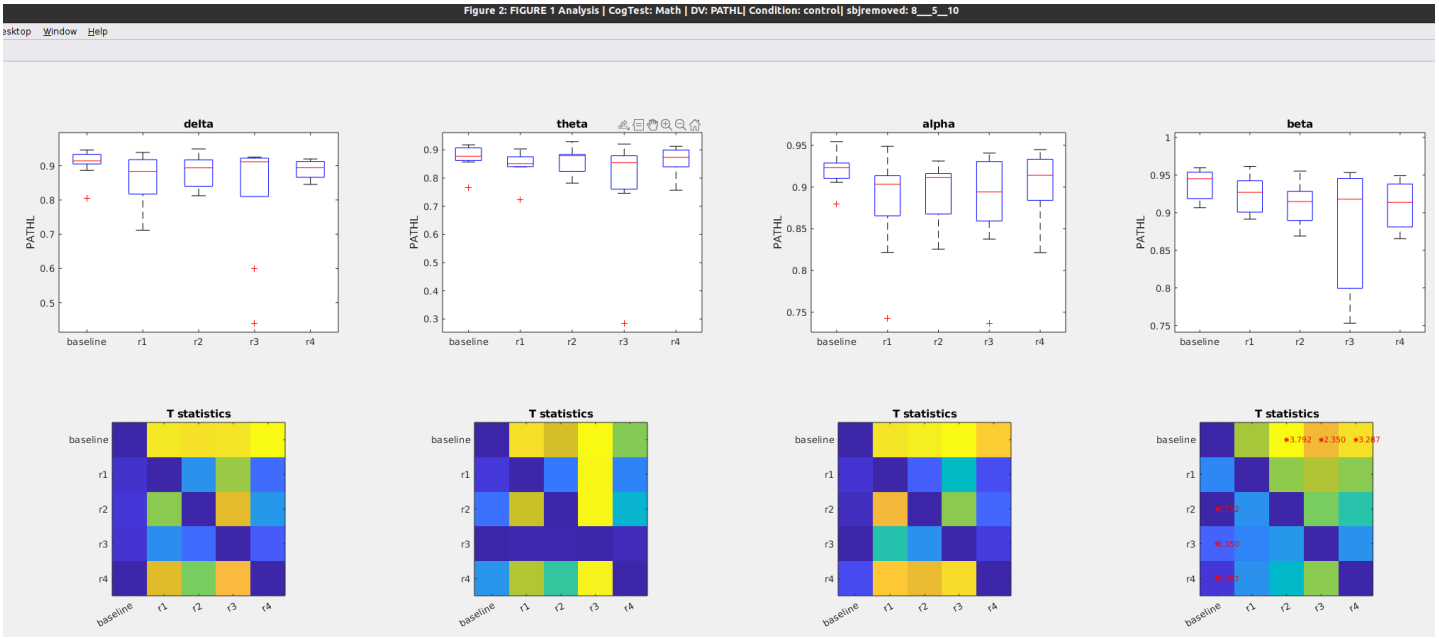


Figure 9b: Time course of **Path Length** after awakening **WITH blue light exposure**

Notes

-

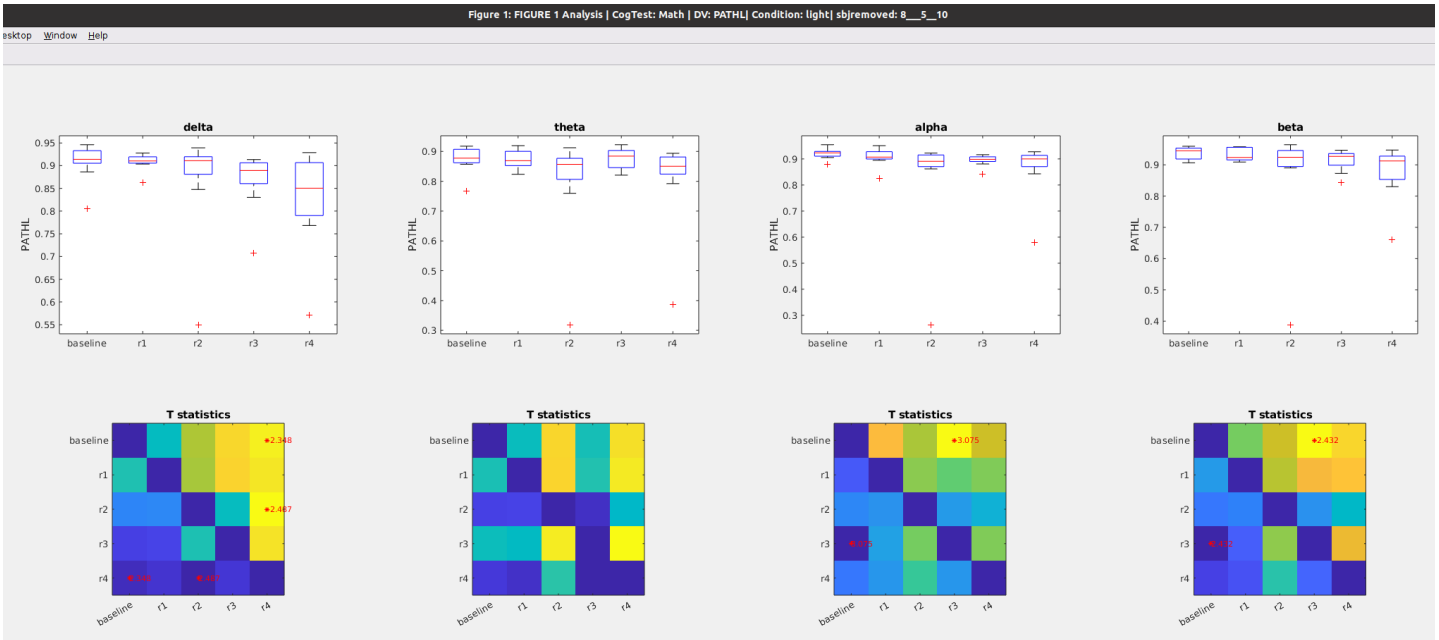
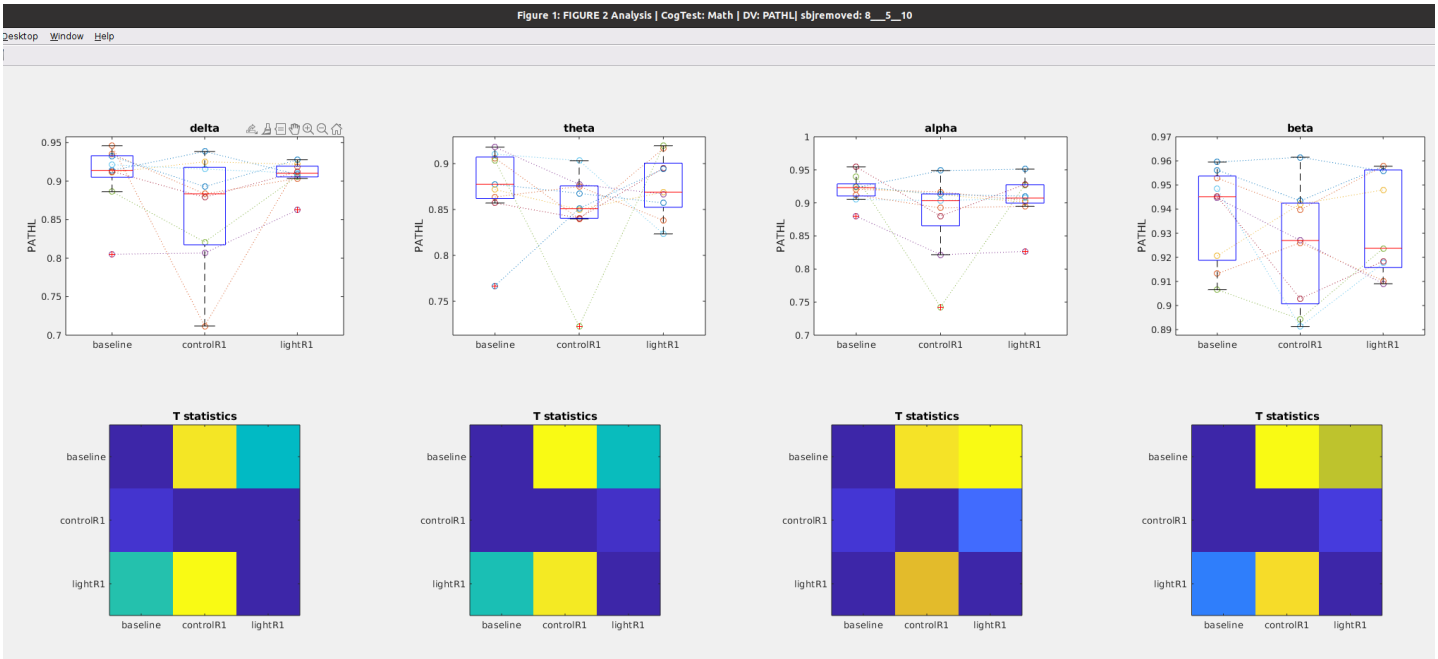


Figure 9C: **Path Length** during preseleep (**baseline**) Vs awakening WITHOUT light exposure (**control_R1**) vs Awakening WITH light exposure (**light_R1**)



Clustering during Math

Figure 10a: Time course of **Clustering coefficient** after awakening **WITHOUT blue light exposure**

Notes

-

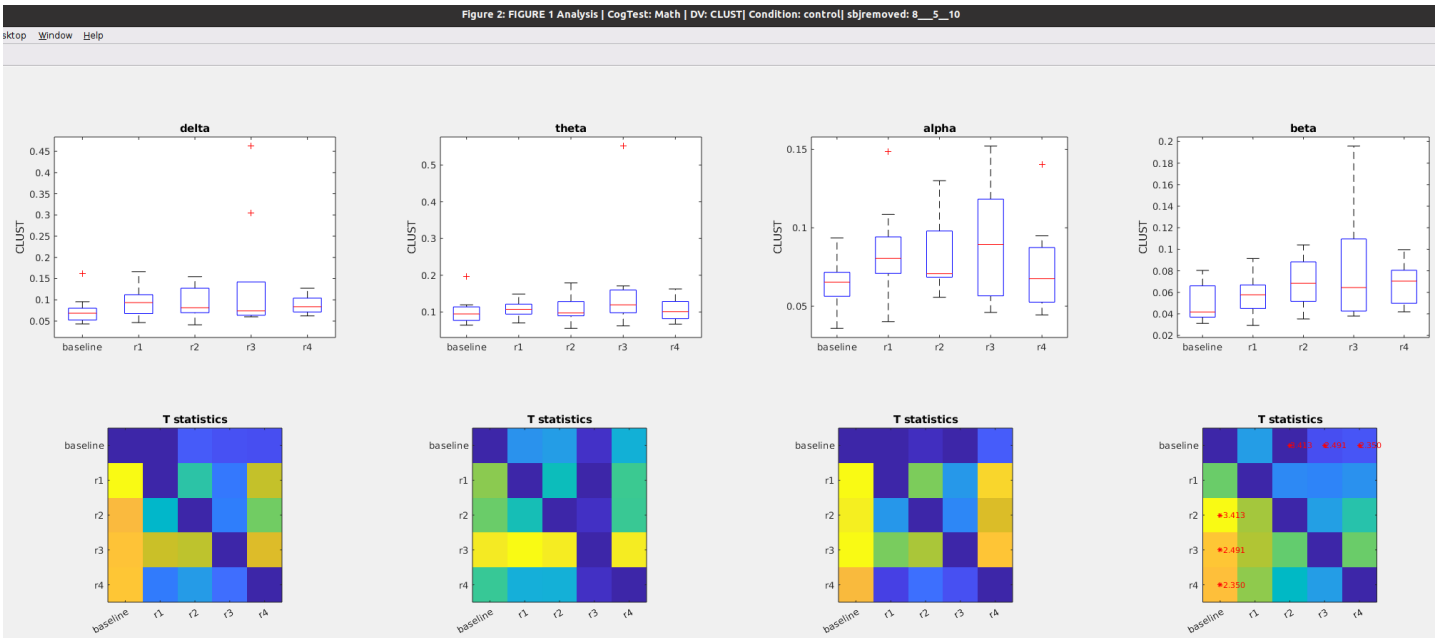


Figure 10b: Time course of **Clustering coefficient** after awakening **WITH blue light exposure**

Notes

-

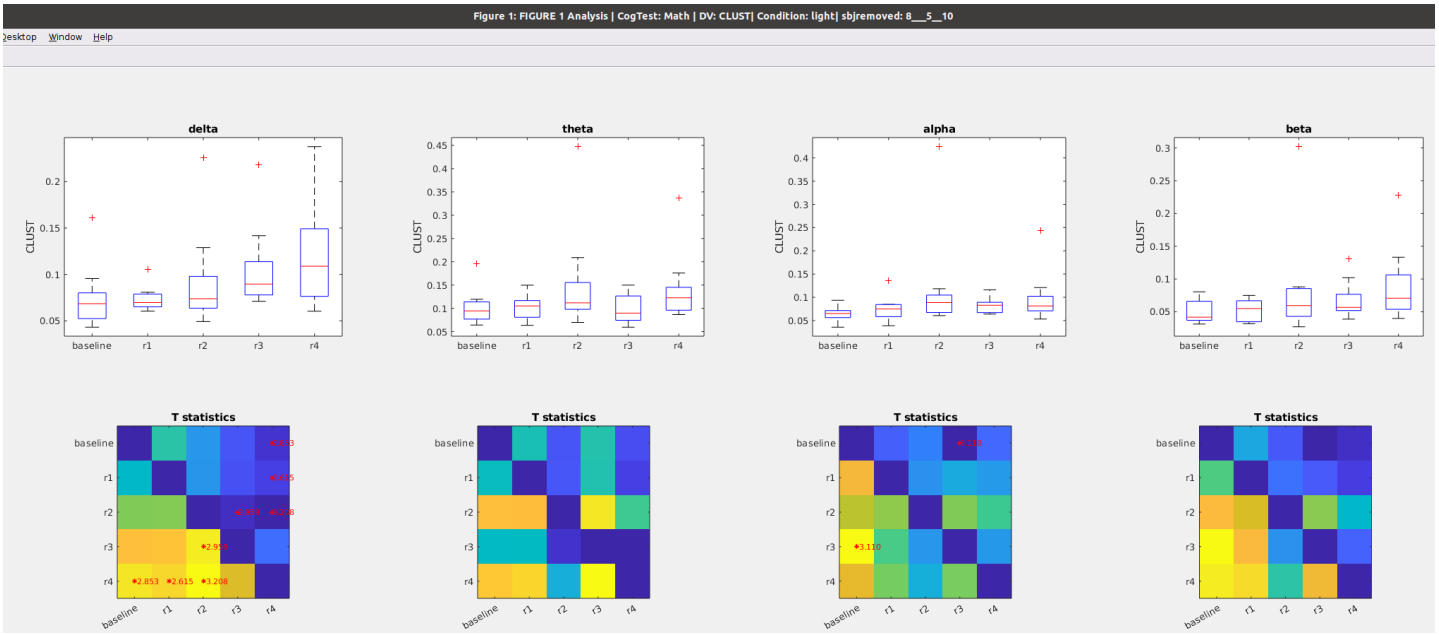
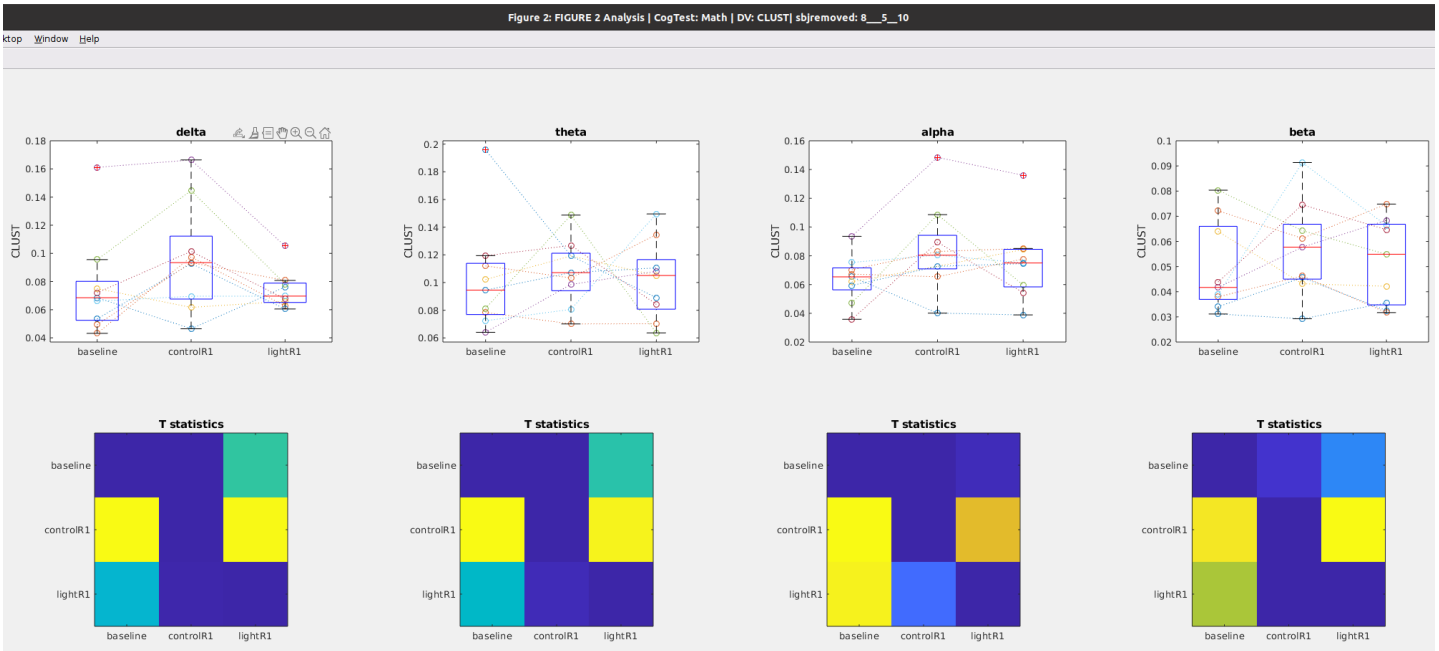


Figure 10C: **Clustering** during preseleep (**baseline**) Vs awakening WITHOUT light exposure (**control_R1**) vs Awakening WITH light exposure (**light_R1**)



Betweenness Centrality during Math

Figure 11a: Time course of **Betweenness** after awakening **WITHOUT** blue light exposure

Notes

-

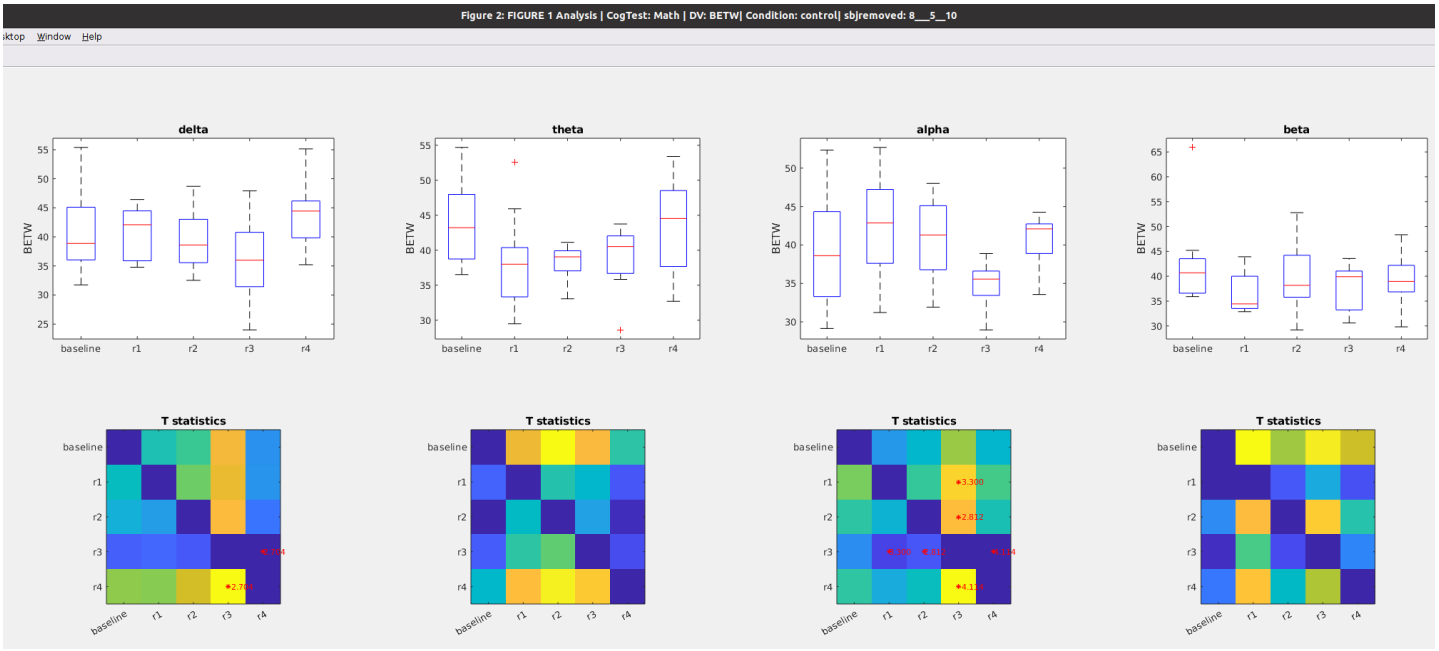
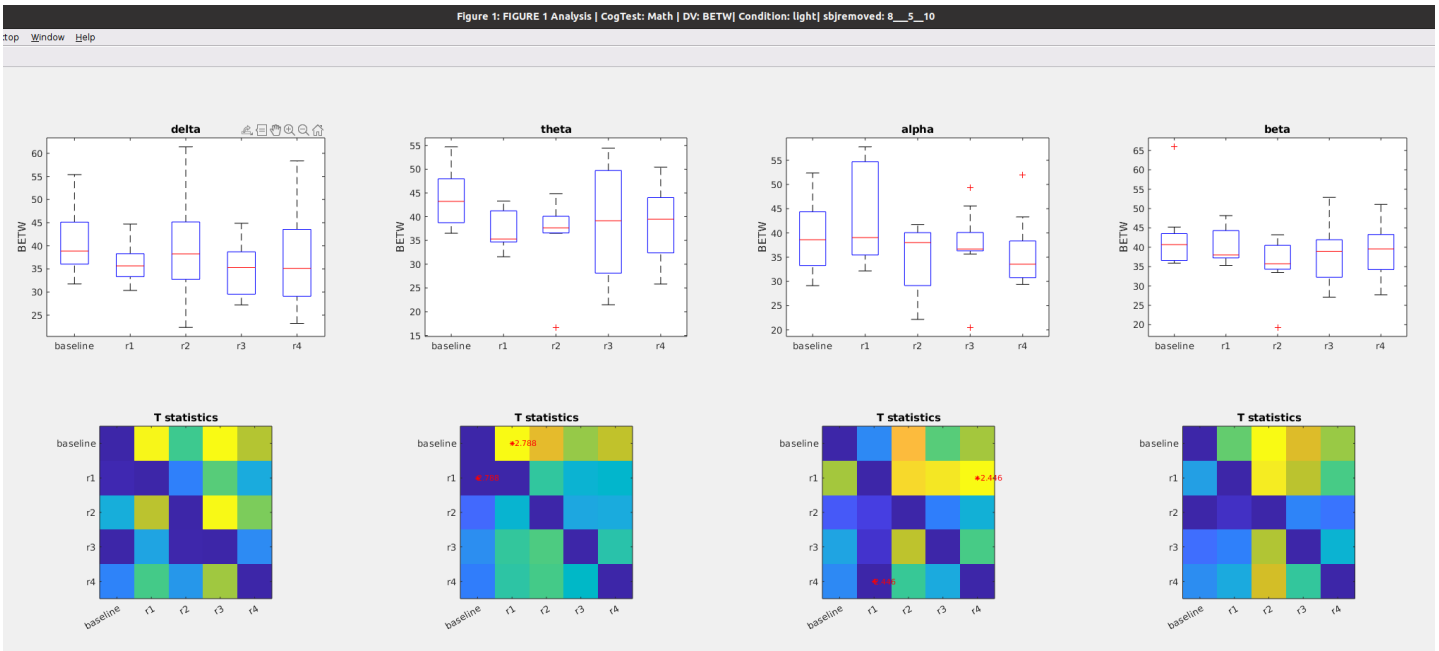


Figure 11b: Time course of **Betweenness** after awakening **WITH blue light exposure**

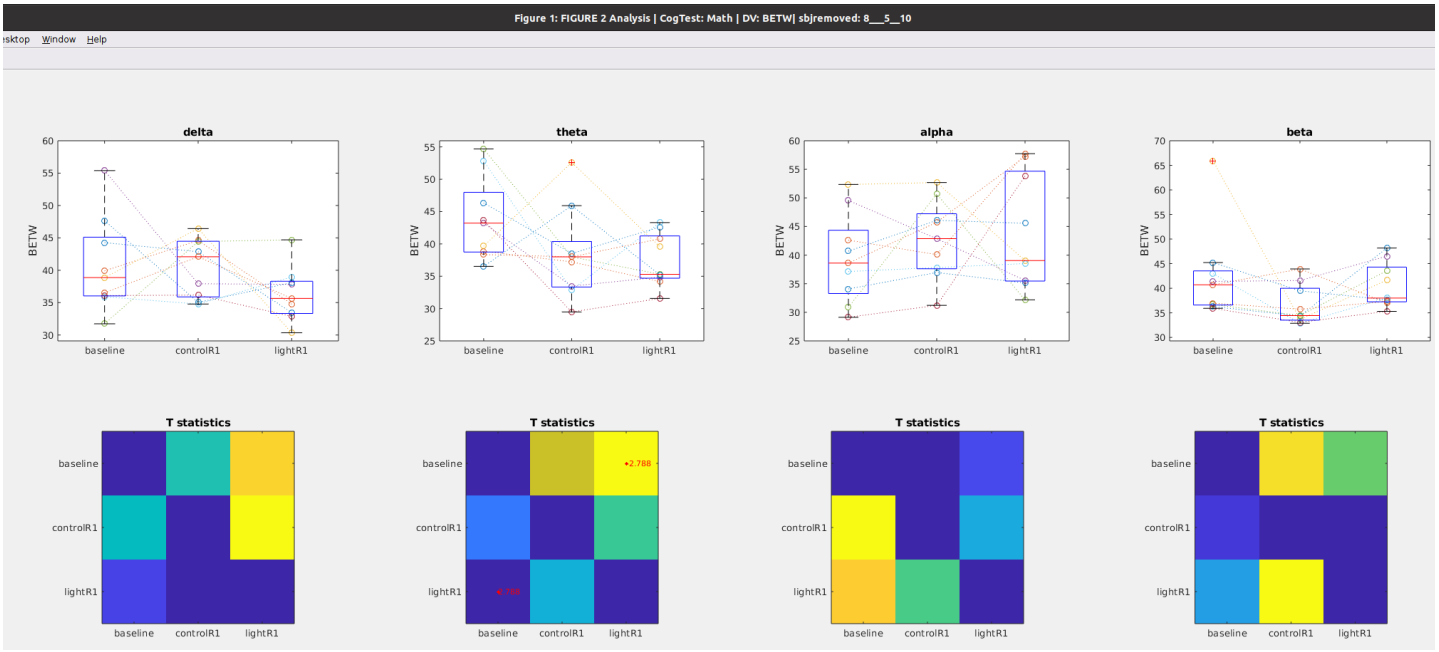
Notes

-



OBJ OBJ OBJ

Figure 11c: **Betweennes** during preseleep (**baseline**) Vs awakening WITHOUT light exposure (**control_R1**) vs Awakening WITH light exposure (**light_R1**)



WPLI during Math

Figure 12a: Time course of **WPLI** after awakening **WITHOUT** blue light exposure

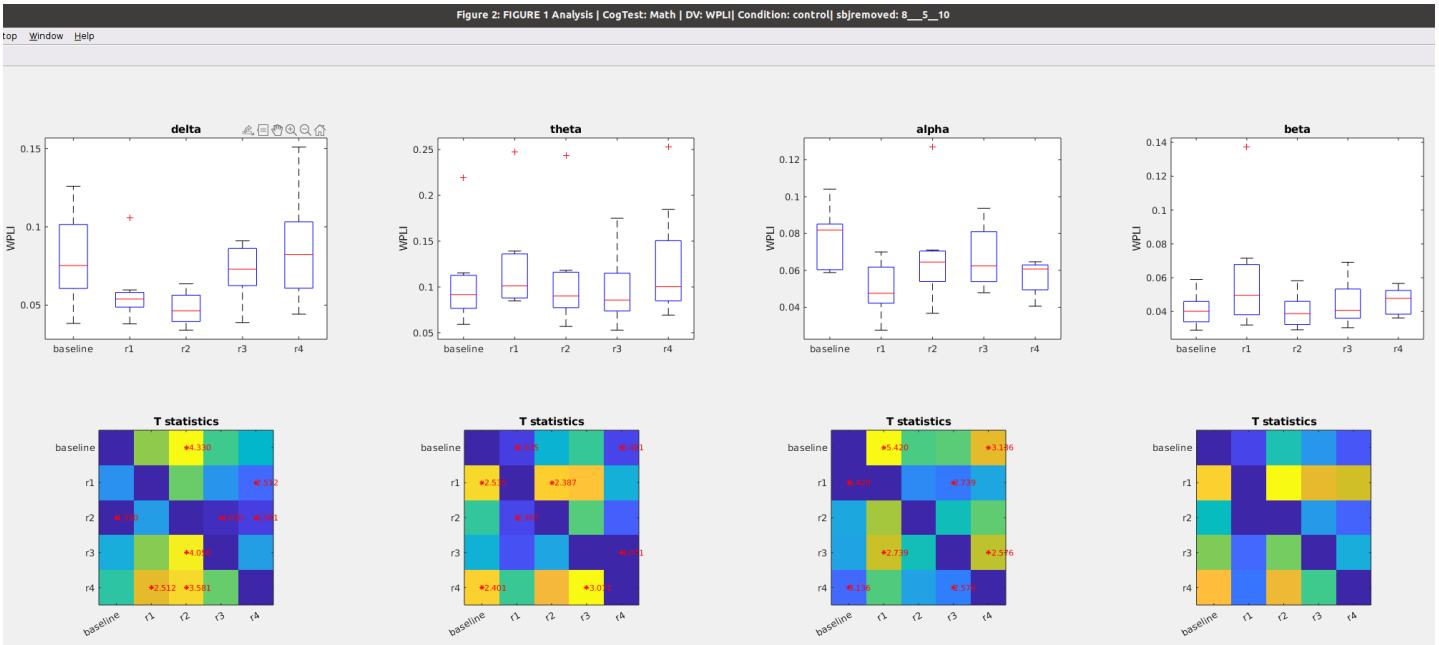


Figure 12b: Time course of **WPLI** after awakening **WITH** blue light exposure

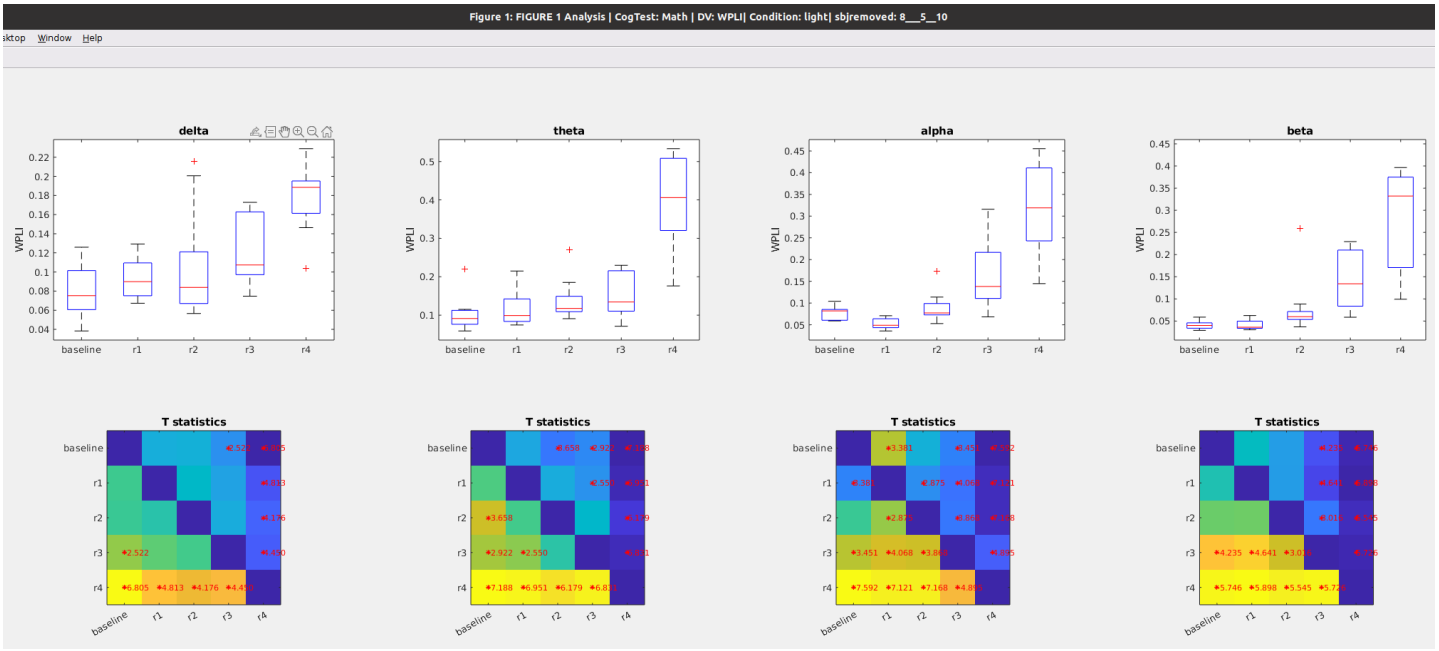
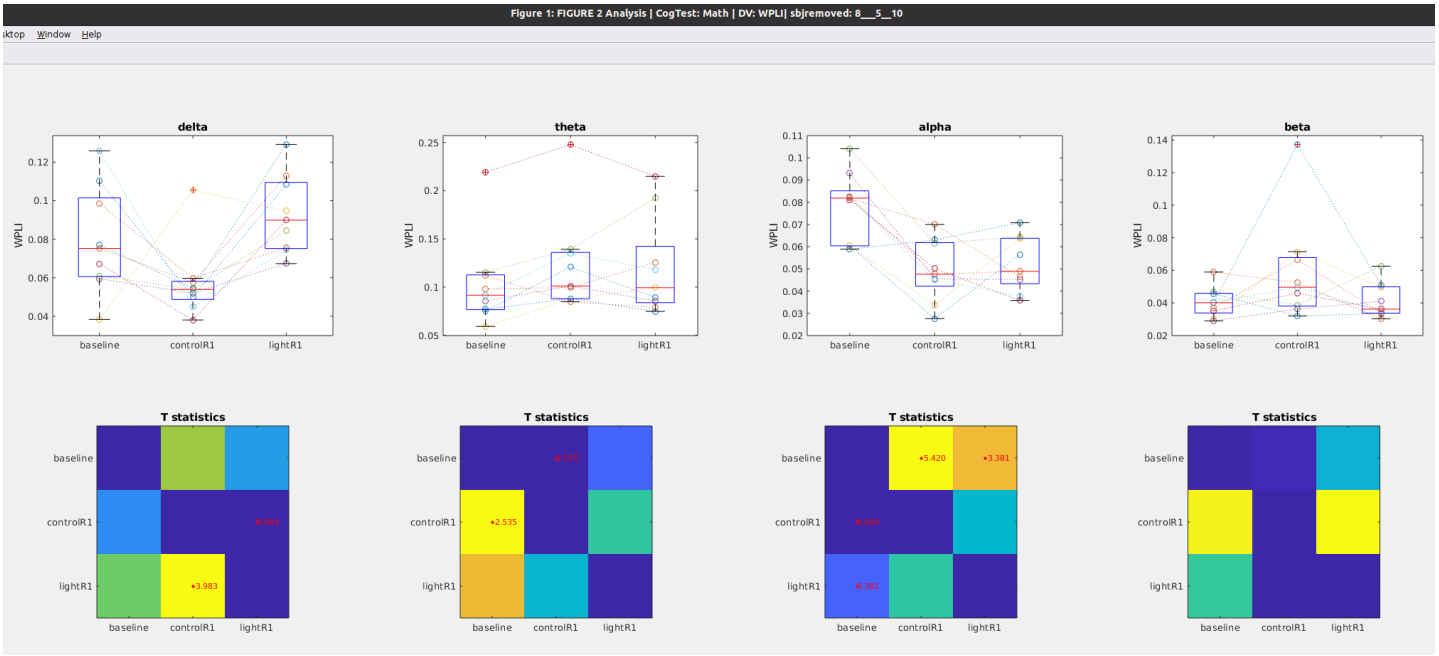


Figure 12C: **WPLI** during preseleep (**baseline**) Vs awakening WITHOUT light exposure (**control_R1**) vs Awakening WITH light exposure (**light_R1**)



GoNogo Task

Notes on Data Set

- Removed subjects 5, 7 and 8 and 10 for missing data, so n = 9

Global Power during GoNogo Task

Figure 13a: Time course of **global Power** after awakening **WITHOUT** blue light exposure

Notes

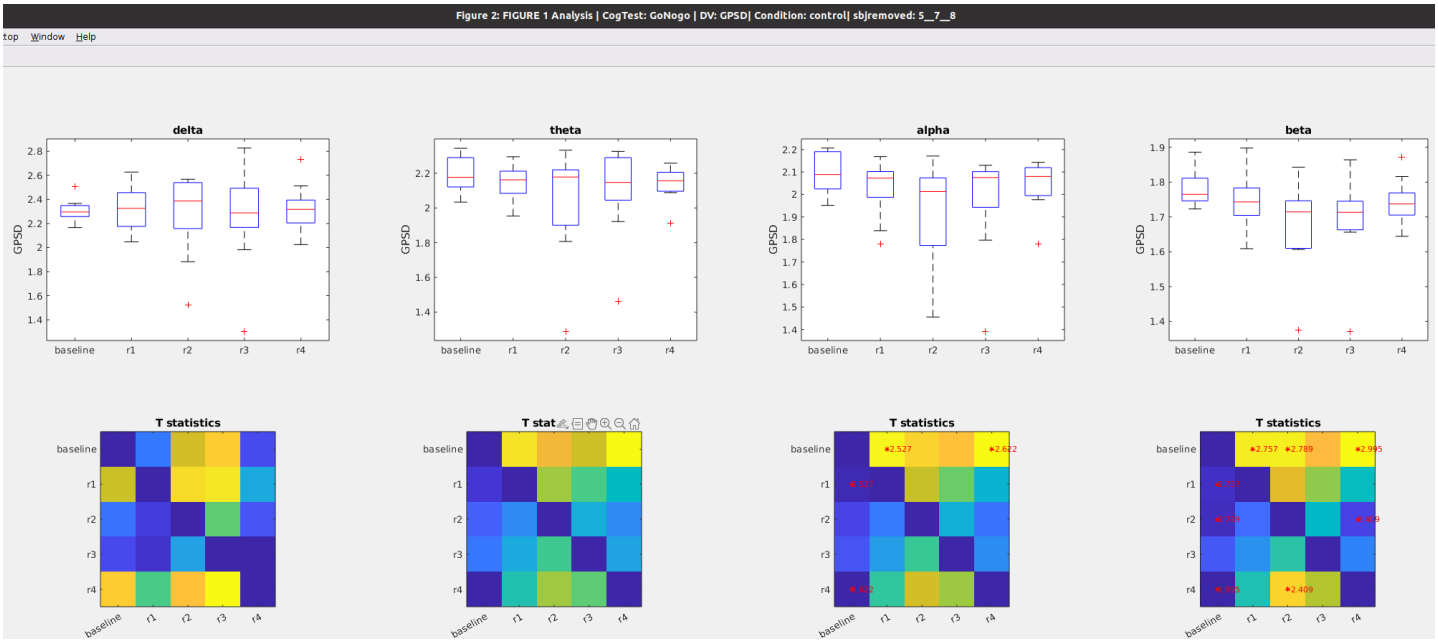


Figure 13b: Time course of **global power** after awakening **WITH** blue light exposure

Notes

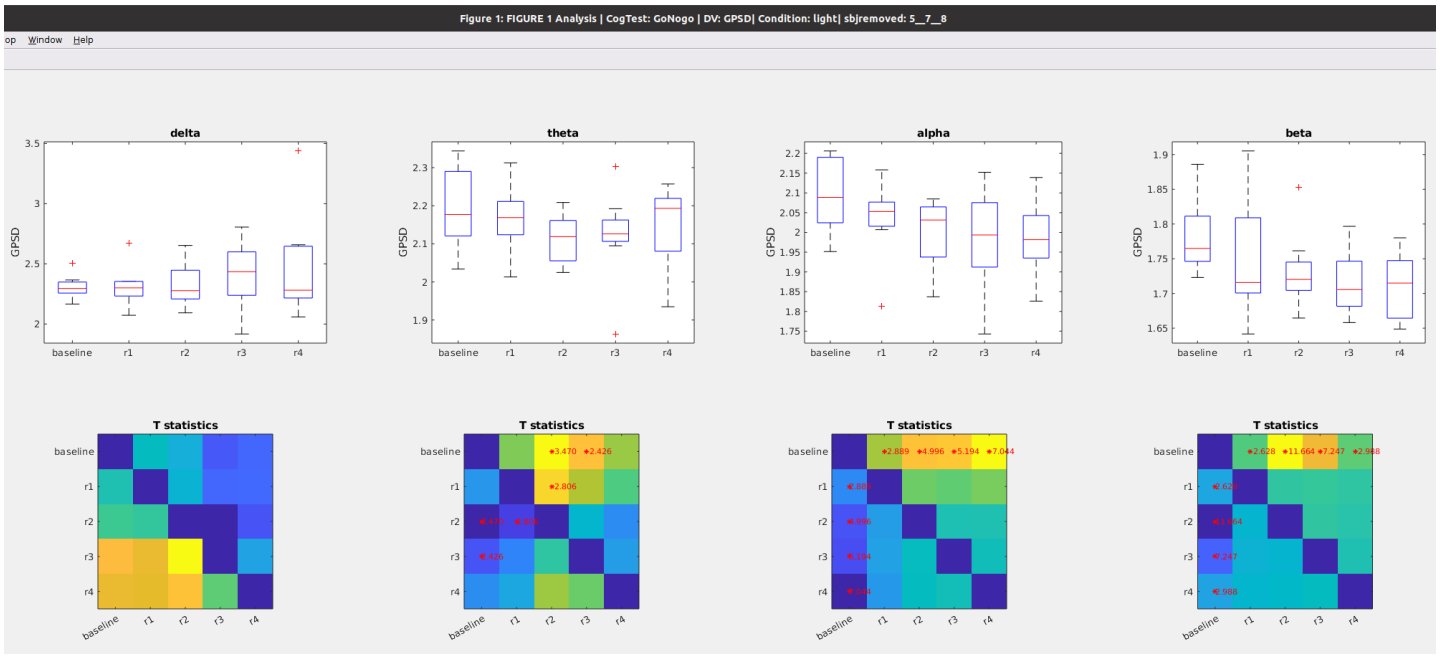
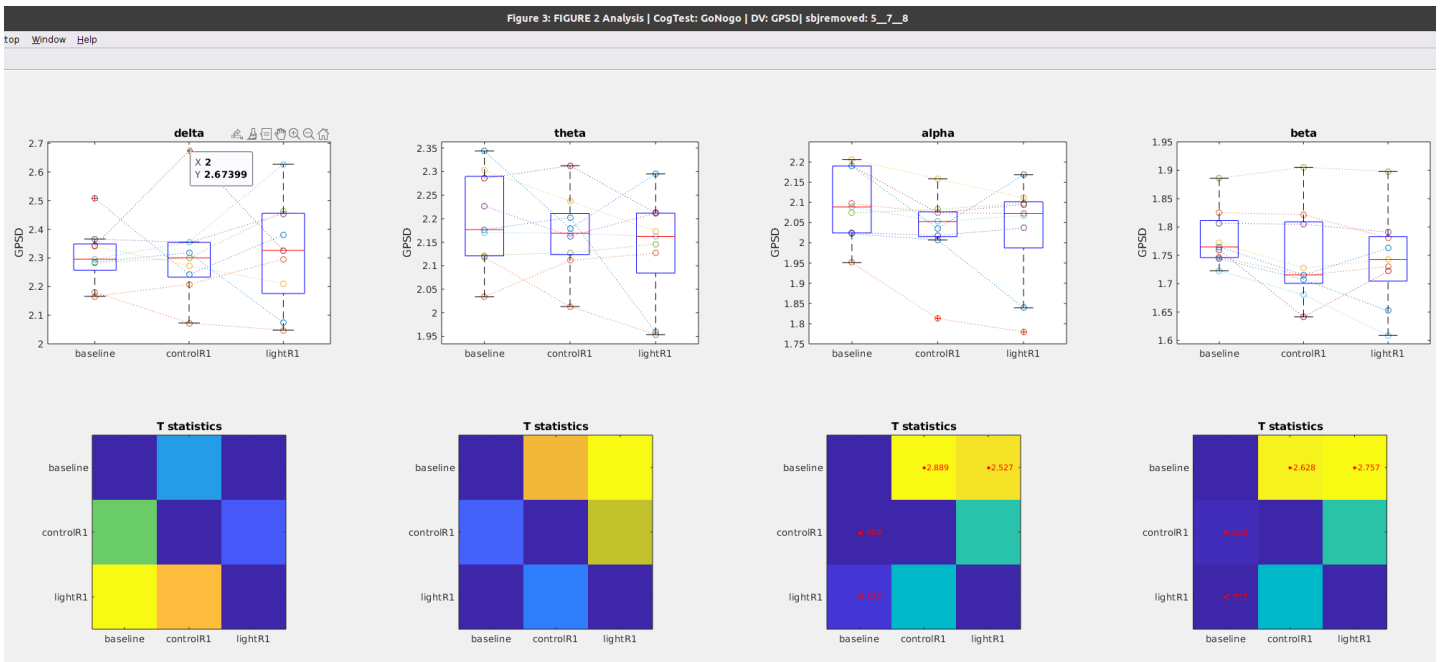


Figure 13C: **Global power** during preseleep (**baseline**) Vs awakening WITHOUT light exposure (**control_R1**) vs Awakening WITH light exposure (**light_R1**)



Path Length during GoNogo Task Task

Figure 14a: Time course of **Path Length** after awakening **WITHOUT blue light exposure**

Notes

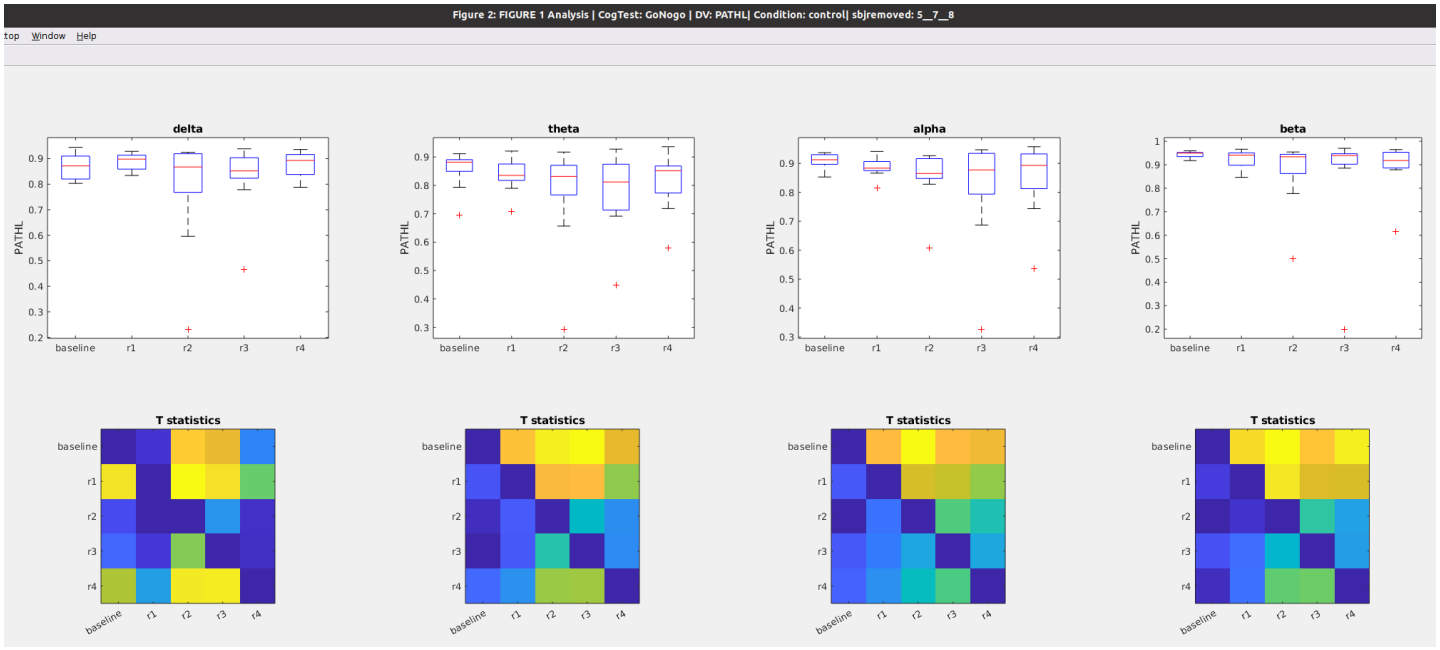


Figure 14b: Time course of **Path Length** after awakening **WITH blue light exposure**

Notes

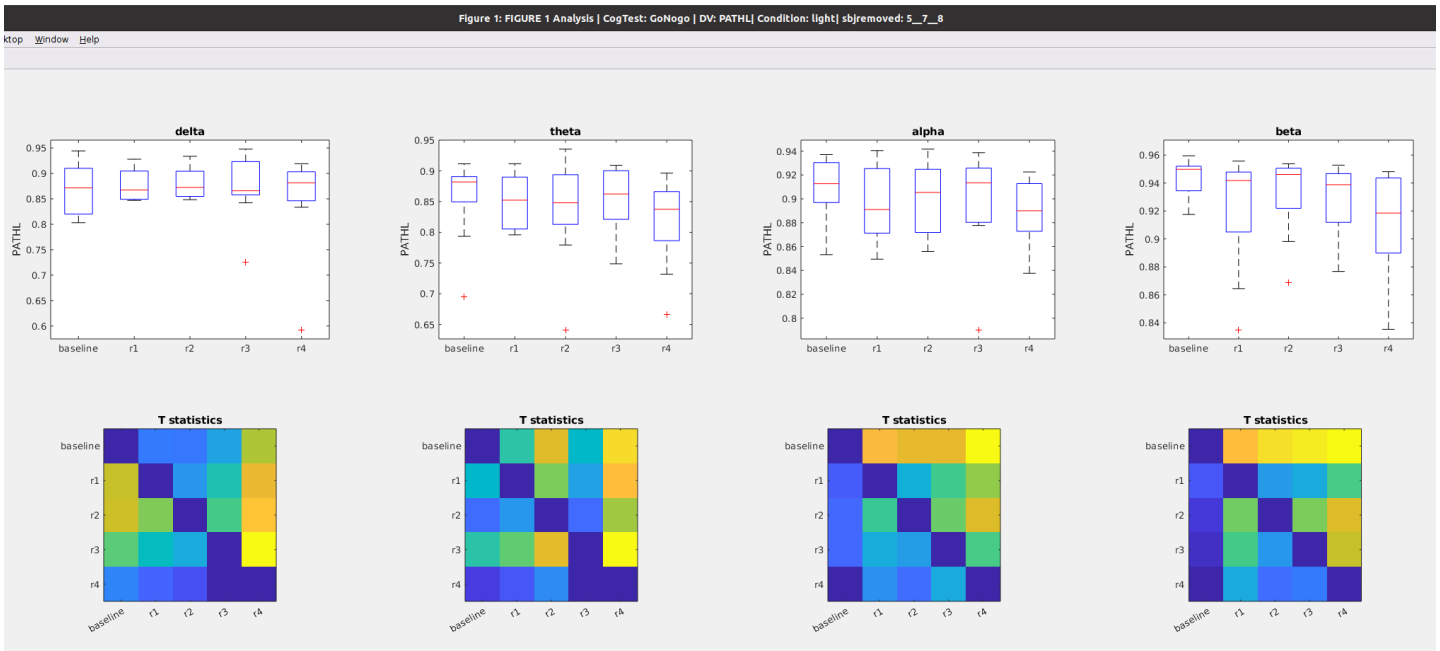
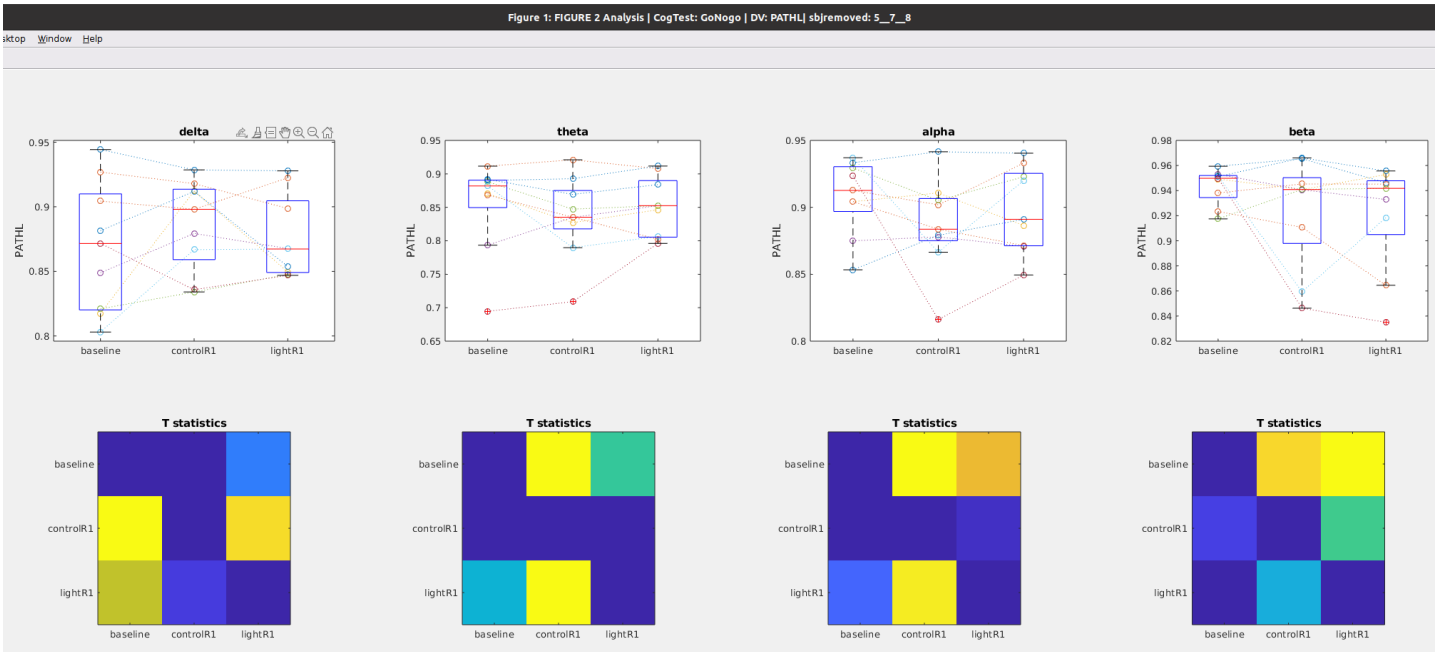


Figure 14c: **Path Length** during preseleep (**baseline**), Vs awakening WITHOUT light exposure (**control_R1**) vs Awakening WITH light exposure (**light_R1**)



Clustering during GoNogo Task

Figure 15a: Time course of **Clustering coefficient** after awakening **WITHOUT blue light exposure**

Notes

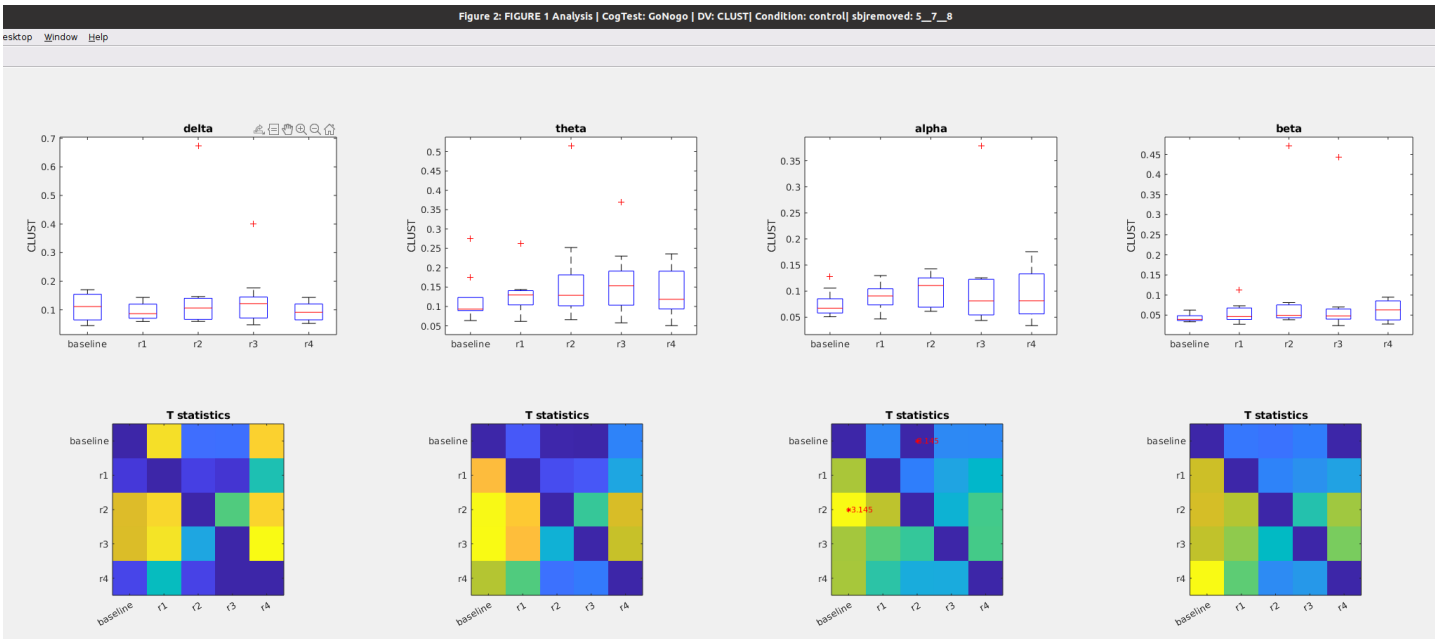


Figure 15b: Time course of **Clustering coefficient** after awakening **WITH blue light exposure**

Notes

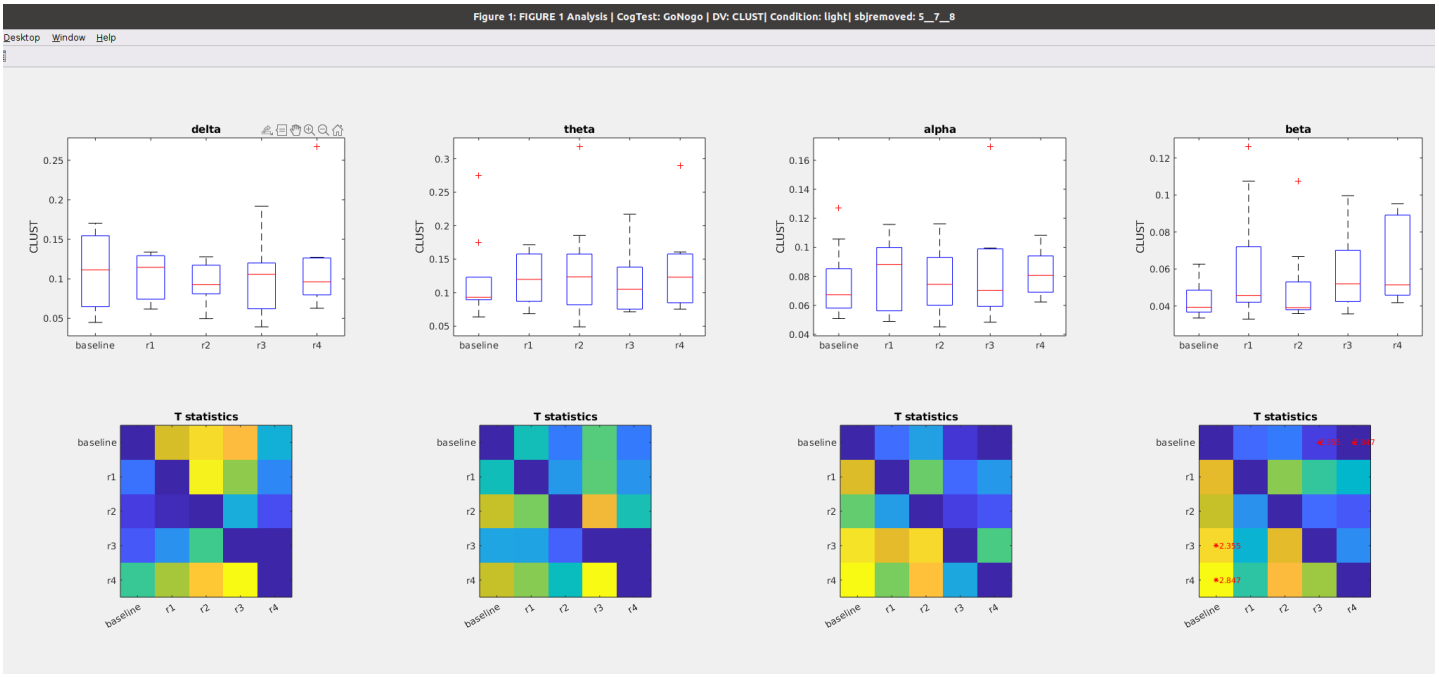
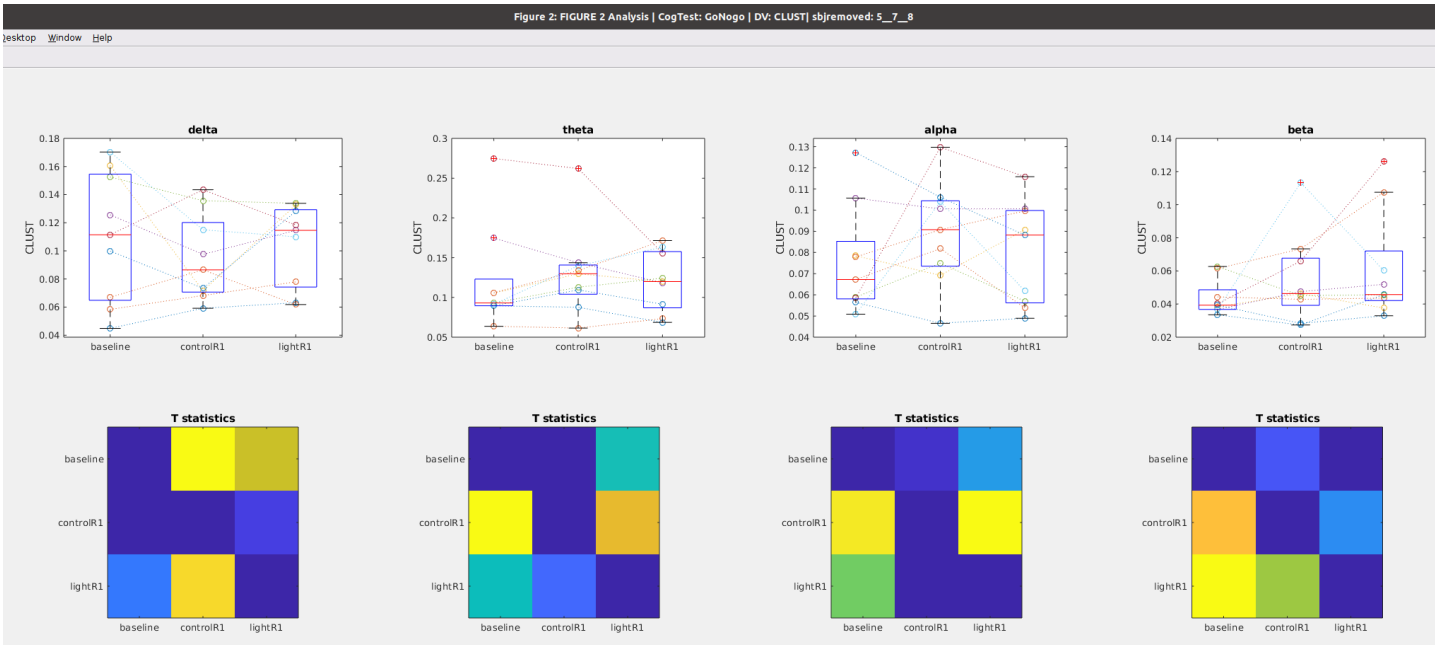


Figure 15C: **Clustering** during preseleep (**baseline**), Vs awakening WITHOUT light exposure (**control_R1**) vs Awakening WITH light exposure (**light_R1**)



Betweenness Centrality during GoNogo Task

Figure 16a: Time course of **Betweenness** after awakening **WITHOUT** blue light exposure

Notes

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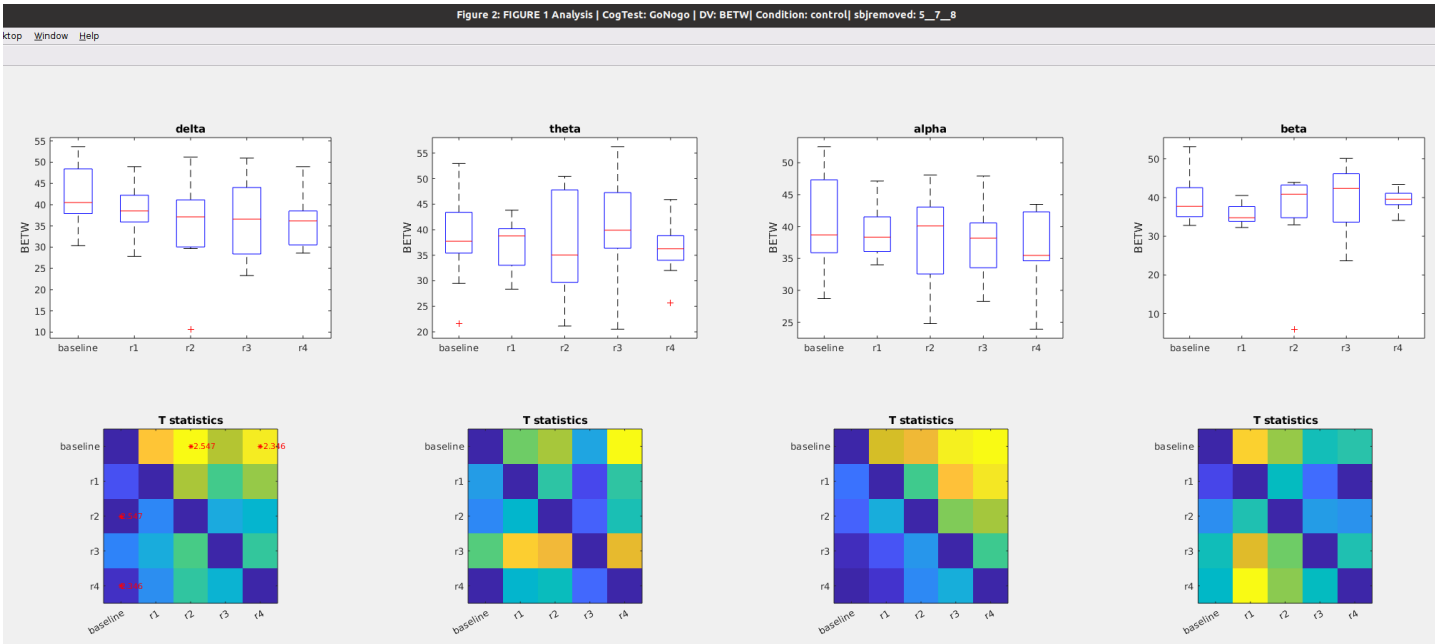

Figure 16b: Time course of **Betweenness** after awakening **WITH blue light exposure**

Notes

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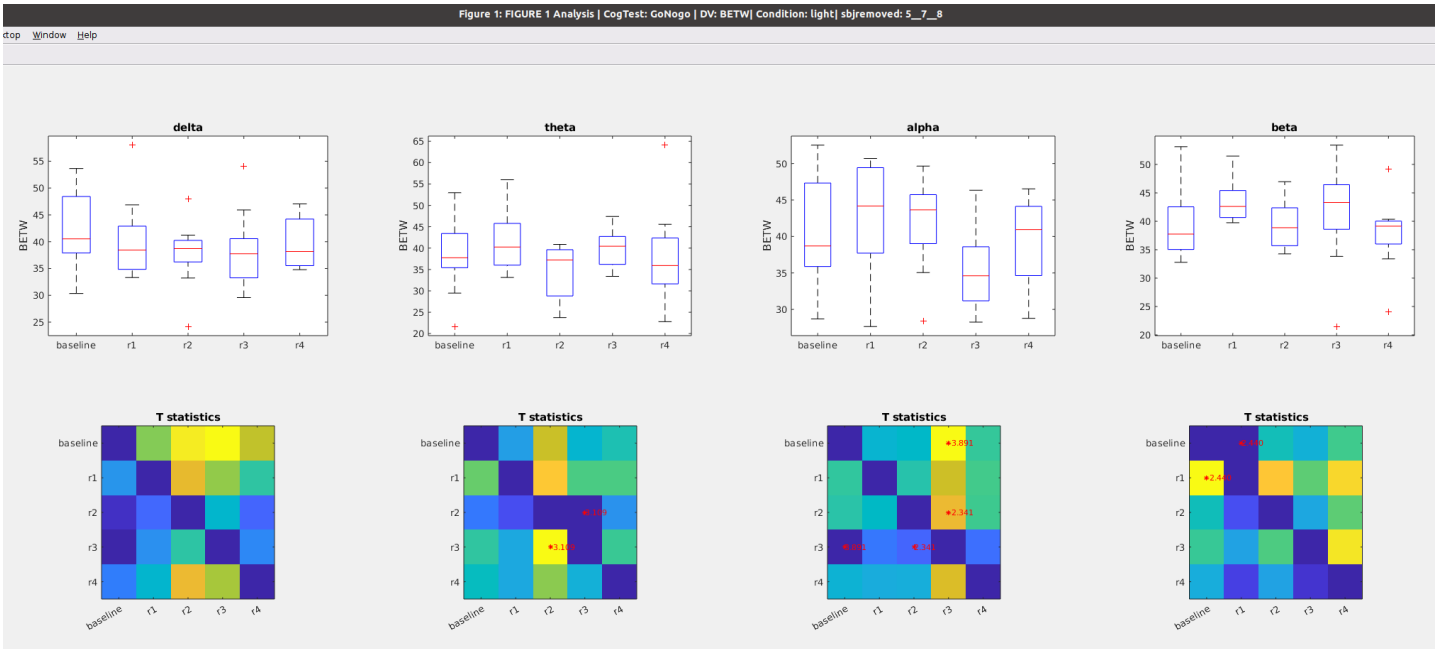

OBJ OBJ OBJ

WPLI during GoNogo Task

Figure 17a: Time course of **WPLI** after awakening **WITHOUT** blue light exposure

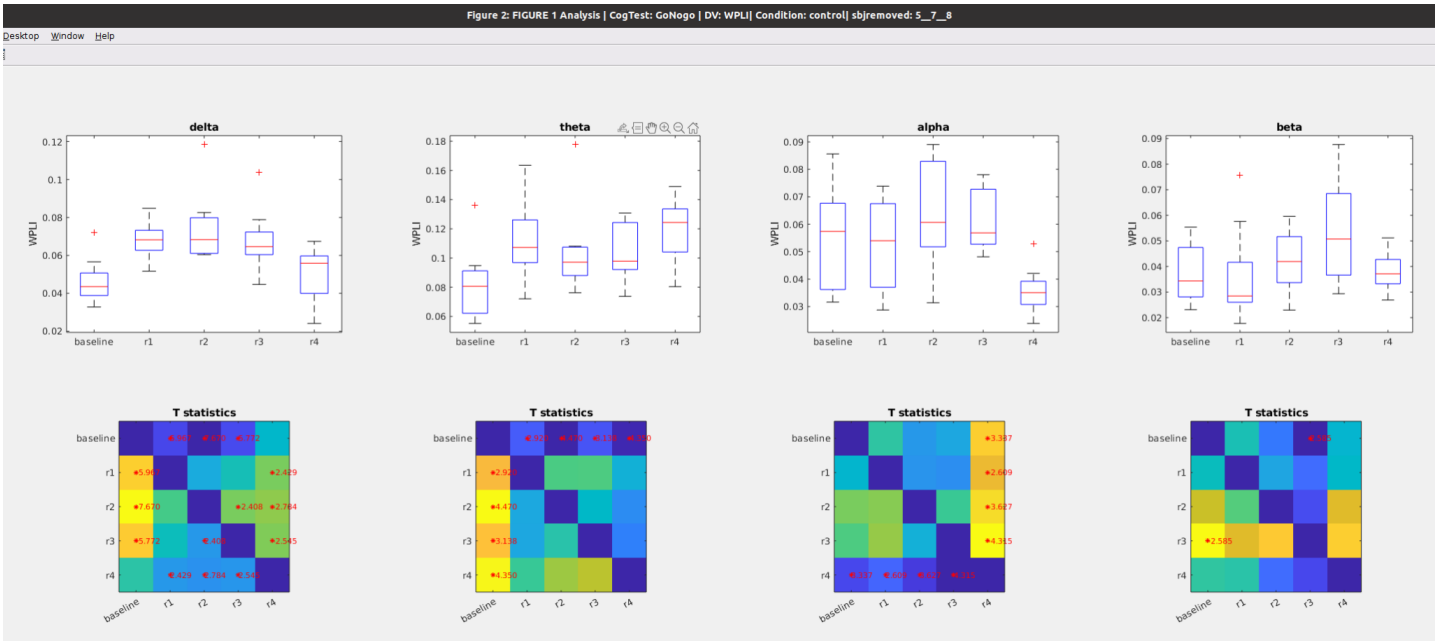

Figure 17b: Time course of **WPLI** after awakening **WITH** blue light exposure