Supplementary Information A

PD patient medication.

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| **Number of Patients** | **Medication** | **Type** |
| 5 | Pramipexole | Dopamine agonist |
| 4 | Stalevo | Levo-dopa/Dopadecarboxylase inhibitor/entacapone |
| 8 | Sinemet/Sinemet+ | Levo-dopa/Dopa decarboxylase inhibitor |
| 4 | Madopar | Levo-dopa/Dopa decarboxylase inhibitor |
| *2* | Ropinirole | Dopamine agonist |

Supplementary Information B

Fluency tests consisted of: (a) a Generation Condition in which as many words as possible were generated within a specified time period; (b) a Motor Control Condition, in which the participant was timed as they copied or read aloud the items produced in the Generation Condition. The Motor Control Condition was conducted following a delay, to reduce fatigue. The fluency index (*fi*) was then determined by calculating the difference in time between Generation Condition and Motor Control Condition, and dividing by the total number of words generated for that condition as follows:

*fi* = Time for Generation Condition - Time for Motor Control Condition

Total number of items generated

Thus, the fluency indices (*fi’s*) represented the average time taken to think of each item independent of motor speed.

In all fluency tasks, participants were instructed not to produce any names of people or places and not to use plurals of a previously generated word, in addition to avoiding use of different endings of the same root word (e.g. “pot, potted, potter, potting”). As such, any examples of these were marked as errors. The fluency tasks were scored in terms of the number of correct words generated for each task. All participants were filmed for subsequent calculation of ‘thinking times’.

Supplementary Information C

Clustering fluency indices (*Clfi’s*) were calculated in two stages; first, the time taken to think of a word within an individual cluster was calculated by subtracting the time taken to read/write the cluster from the time taken to generate the cluster, and dividing by the number of words in the cluster minus one:

*Cluster Thinking Time = Cluster Generation Time – Cluster Read Time*

 *Number of Words in Cluster - 1*

The *Clfi* was then calculated as the mean Cluster Time across the test. Overlapping clusters in which a word from one cluster forms a linked to another cluster, and single clusters which consisted of a single word to which no immediately surrounding words could be linked, were not included in the cluster analysis. Errors and perseverations were included in the analysis as they could be integral to the cluster formation. Switching fluency indices (*Swfi’s*) were calculated by subtracting the total time required to generate all clusters (including single and overlapping clusters) from the total task time (e.g. 60 seconds), and dividing by the total number of clusters (including single words):

*Switch fluency index (Swfi) = Task Time – Total Cluster Generation Time*

 *Total Number of Clusters*

Mean switching and clustering indices were calculated for each fluency task.