Disrupted core-periphery structure of multimodal brain networks in Alzheimer’s Disease (Supplementary Material)

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December 7, 2018
Supplementary material

Supplementary figure

Figure S1: **Correlation between corenes and cognitive/memory deficit.** Panel a) shows the values of the free recall (FR) as a function of the coreness disruption index $\kappa$. In panel b) the Spearman correlation values ($R_{FR}$) between the regional coreness $C_i$ and the FR values are shown over the Desikan cortical atlas.

Supplementary tables
Table S1: ADs population coreness disruption indices $\kappa$ and the associated $R^2$ of the linear regression.

<table>
<thead>
<tr>
<th>Subject ID</th>
<th>$\kappa$</th>
<th>$R^2$</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>-0.095</td>
<td>0.018</td>
</tr>
<tr>
<td>2</td>
<td>-0.111</td>
<td>0.033</td>
</tr>
<tr>
<td>3</td>
<td>-0.096</td>
<td>0.019</td>
</tr>
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<td>4</td>
<td>0.139</td>
<td>0.040</td>
</tr>
<tr>
<td>5</td>
<td>-0.502</td>
<td>0.412</td>
</tr>
<tr>
<td>6</td>
<td>0.018</td>
<td>0.001</td>
</tr>
<tr>
<td>7</td>
<td>-0.327</td>
<td>0.218</td>
</tr>
<tr>
<td>8</td>
<td>-0.617</td>
<td>0.267</td>
</tr>
<tr>
<td>9</td>
<td>-0.241</td>
<td>0.106</td>
</tr>
<tr>
<td>10</td>
<td>-0.062</td>
<td>0.015</td>
</tr>
<tr>
<td>11</td>
<td>-0.204</td>
<td>0.099</td>
</tr>
<tr>
<td>12</td>
<td>-0.245</td>
<td>0.085</td>
</tr>
<tr>
<td>13</td>
<td>-0.225</td>
<td>0.056</td>
</tr>
<tr>
<td>14</td>
<td>-0.020</td>
<td>0.001</td>
</tr>
<tr>
<td>15</td>
<td>-0.128</td>
<td>0.019</td>
</tr>
<tr>
<td>16</td>
<td>-0.248</td>
<td>0.141</td>
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<tr>
<td>17</td>
<td>-0.268</td>
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<td>18</td>
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<td>19</td>
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<td>20</td>
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<td>21</td>
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<tr>
<td>22</td>
<td>-0.320</td>
<td>0.258</td>
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<td>23</td>
<td>-0.066</td>
<td>0.014</td>
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</table>
Table S2: Average coreness differences and their associated \( p \)-value. Ordered in descending \( \hat{C}_{HC,j} \). Significant values (\( \alpha_{FDR} = 0.025 \)) are in bold.

<table>
<thead>
<tr>
<th>Label</th>
<th>( \hat{C}_{AD,j} )</th>
<th>( \hat{C}_{HC,j} )</th>
<th>( \hat{C}<em>{AD,j} - \hat{C}</em>{HC,j} )</th>
<th>( p )-value</th>
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<tbody>
<tr>
<td>superiorfrontal R</td>
<td>0.923</td>
<td>0.952</td>
<td>-0.029</td>
<td>0.743</td>
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<tr>
<td>precentral R</td>
<td>0.883</td>
<td>0.921</td>
<td>-0.038</td>
<td>0.719</td>
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<td>superiorfrontal L</td>
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<td>0.921</td>
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<td>0.579</td>
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<td>0.916</td>
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<tr>
<td>superiortemporal R</td>
<td>0.609</td>
<td>0.862</td>
<td>-0.253</td>
<td>0.005</td>
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<tr>
<td>middletemporal R</td>
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<td>0.855</td>
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<tr>
<td>superioparietal R</td>
<td>0.781</td>
<td>0.806</td>
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<tr>
<td>laterallocipital L</td>
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<td>0.794</td>
<td>-0.233</td>
<td>0.020</td>
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<tr>
<td>postcentral R</td>
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<td>0.778</td>
<td>-0.082</td>
<td>0.613</td>
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<tr>
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<td>0.720</td>
<td>-0.145</td>
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<td>lingual L</td>
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<td>0.715</td>
<td>-0.157</td>
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<tr>
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<td>0.703</td>
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<tr>
<td>middletemporal L</td>
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<tr>
<td>lingual R</td>
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<tr>
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<td>0.641</td>
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<td>0.637</td>
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<td>postcentral L</td>
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<td>insula R</td>
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<td>0.398</td>
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<td>0.074</td>
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<tr>
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<td>0.041</td>
<td>0.006</td>
<td>0.946</td>
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<td>0.033</td>
<td>-0.015</td>
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<td>0.031</td>
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<td>0.009</td>
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<td>0.008</td>
<td>0.059</td>
<td>0.929</td>
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<tr>
<td>temporalpole L</td>
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<td>0.007</td>
<td>0.001</td>
<td>0.005</td>
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<tr>
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<td>0.005</td>
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<td>-0.004</td>
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<td>-0.003</td>
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<td>0.003</td>
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<tr>
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<td>0.000</td>
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