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**Algorithm 1** Connectivity-based Brain Parcellation Scheme

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1. Generate the probabilistic tractography results from diffusion MRI data.
  2. Initialize a parcellation as a random spatial brain segmentation, to be used to define the connectivity.
  - Repeat**
  3. Define the connectivity profiles using the current brain parcellation.
  4. update the spatial similarity graph using the connectivity profiles.
  5. Apply spectral clustering algorithm on the current spatial similarity graph to generate the brain parcellation.
  6. Measure the similarity between the new parcellation and the previous parcellation used to define connectivity.
  - Until** the similarity measurement exceeds some threshold.
  7. Return the parcellation result.
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