Supplementary Materials

S1. PWI scans at the acute time point for P1with a lesion in the left occipital, fusiform, lingual gyrus, and splenium with associated hypopefusion in the PCA territory surrounding the lesion; P2 and P4 with lesions in the left thalamus with normal perfusion. P3 did not have perfusion scanning.

S2. Mean reaction time in seconds for the normal control and participants with aphasia

|  |  |  |  |
| --- | --- | --- | --- |
| Participant | 0 Week | 3-5 Weeks | 4-7 Months |
| Phonemic | Noise | Word | Phonemic | Noise | Word | Phonemic | Noise | Word |
| Control | 1.47 | 1.52 | 1.49 | 1.70 | 1.62 | 1.66 | 1.92 | 1.83 | 1.91 |
| P1 | 3.42 |   | 2.91 | 2.96 | 2.86 | 2.68 | 1.47 | 1.90 | 1.47 |
| P2 | 2.47 | 2.52 | 2.42 | 2.56 | 2.65 | 2.46 | 2.20 | 2.27 | 2.22 |
| P3 | 2.00 | 1.91 | 2.10 | 1.68 | 1.70 | 1.73 | 2.30 | 2.59 | 2.19 |
| P4 | 1.88 | 1.93 | 1.92 | 2.09 | 2.00 | 2.04 | 2.04 | 1.89 | 1.93 |

S3. Mean Accuracy rates for the normal control and participants with aphasia

|  |  |  |  |
| --- | --- | --- | --- |
| Participant | 0 Week | 3-5 Weeks | 4-7 Months |
| Phonemic | Noise | Word | Phonemic | Noise | Word | Phonemic | Noise | Word |
| Control  | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| P1 | 33.3 | 0 | 77.7 | 72.2 | 61.1 | 87.5 | 100 | 100 | 100 |
| P2 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| P3 | 91.3 | 94.4 | 83.3 | 100 | 100 | 100 | 100 | 97.6 | 100 |
| P4 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

S4. Brain regions significantly activated for the contrast phonemic+word cued naming versus scrambled pictures viewing for the control participant and participants with aphasia. Peak activation coordinates within a cluster are listed. For large clusters, prominent local maxima are also listed. All coordinates are in MNI space (x,y,z) and peak voxel Z-scores reported.

|  |  |
| --- | --- |
|   | Control  |
| Regions  | 0 Week |   | 3-5 Weeks |   | 5-7 Months |
|   | x | y | z | Z  |   | x | y | z | Z  |   | x | y | z | Z  |
| Left inferior frontal gyrus | -56 | 14 | 5 | 4.79 |   | -55 | 15 | 9 | 5.80 |   |   |   |   |   |
| Left middle frontal gyrus | -42 | 24 | 26 | 3.90 |   | -29 | 30 | 34 | 6.20 |   | -49 | 13 | 41 | 4.40 |
| Left precentral gyrus | -59 | -2 | 26 | 8.00 |   | -61 | 4 | 16 | 7.50 |   |   |   |   |   |
| Left frontal pole | -32 | 50 | 19 | 4.30 |   | -25 | 49 | 34 | 5.40 |   |   |   |   |   |
| Left superior temporal gyrus | -65 | -23 | 7 | 6.79 |   | -61 | -6 | 0 | 6.77 |   | -66 | -20 | 1 | 6.43 |
| Left middle temporal gyrus | -63 | -31 | -14 | 4.20 |   | -46 | -49 | 1 | 7.10 |   | -61 | -28 | -17 | 6.90 |
| Left inferior temporal gyrus | -54 | -35 | -19 | 3.40 |   | -53 | -35 | -26 | 7.80 |   | -47 | -59 | -10 | 5.48 |
| Left supramarginal gyrus | -60 | -47 | 21 | 6.53 |   | -66 | -34 | 24 | 6.13 |   | -61 | -47 | 16 | 5.23 |
| Left angular gyrus | -54 | -55 | 22 | 4.50 |   | -54 | -55 | 22 | 5.20 |   |   |   |   |   |
| Left fusiform gyrus | -45 | -38 | -25 | 4.99 |   |   |   |   |   |   |   |   |   |   |
| left lateral occipital cortex | -33 | -86 | 2 | 3.93 |   | -31 | -81 | 13 | 7.40 |   | -52 | -67 | 0 | 5.29 |
| Left thalamus | -13 | -15 | 3 | 4.24 |   |   |   |   |   |   |   |   |   |   |
| Left cerebellum | -30 | -55 | -25 | 4.65 |   |   |   |   |   |   |   |   |   |   |
| Right Frontal pole | 27 | 59 | 4 | 3.70 |   | 23 | 46 | 34 | 5.90 |   |   |   |   |   |
| Right inferior frontal gyrus | 42 | 36 | 7 | 3.80 |   |   |   |   |   |   |   |   |   |   |
| Right middle frontal gyrus  |   |   |   |   |   | 44 | 30 | 34 | 6.90 |   | 42 | 8 | 39 | 4.50 |
| Right precentral gyrus  | 62 | 1 | 26 | 6.70 |   | 50 | 2 | 37 | 5.50 |   | 60 | -1 | 24 | 4.01 |
| Right superior temporal gyrus | 68 | -31 | 8 | 6.14 |   | 63 | -5 | 2 | 4.35 |   | 68 | -30 | 11 | 8.35 |
| Right middle temporal gyrus | -63 | -32 | -9 | 4.20 |   | 67 | -5 | -15 | 6.20 |   |   |   |   |   |
| Right inferior temporal gyrus |   |   |   |   |   | 51 | -34 | -24 | 4.78 |   | 57 | -45 | -21 | 5.30 |
| Right supramarginal gyrus | 66 | -26 | 25 | 3.23 |   |   |   |   |   |   | 51 | -42 | 16 | 5.32 |
| Right Cerebellum | 32 | -59 | -25 | 5.27 |   | 50 | -48 | 44 | 4.30 |   | 22 | -68 | -41 | 5.50 |
| Right thalamus | 10 | -15 | 9 | 8.20 |   |   |   |   |   |   |   |   |   |   |
| Right lateral occipital cortex |   |   |   |   |   | 32 | -81 | 14 | 7.10 |   | 50 | -75 | 0 | 4.25 |
|   | P1 |
|   | x | y | z | Z  |   | x | y | z | Z  |   | x | y | z | Z  |
| Left inferior frontal gyrus |   |   |   |   |   | -43 | 27 | 19 | 3.23 |   | -54 | 16 | 6 | 4.93 |
| Left middle frontal gyrus | -47 | 9 | 36 | 4.86 |   | -48 | 12 | 46 | 6.58 |   | -47 | 25 | 32 | 6.69 |
| Left precentral gyrus |   |   |   |   |   | -51 | -4 | 43 | 6.59 |   | -610 | 16 | 39 | 8.20 |
| Left frontal pole | -30 | 65 | 4 | 5.49 |   | -11 | 68 | 8 | 5.94 |   |   |   |   |   |
| Left postcentral gyrus |   |   |   |   |   | -54 | -12 | 34 | 7.40 |   |   |   |   |   |
| Left superior temporal gyrus | -64 | -22 | 5 | 6.57 |   | -68 | -23 | 4 | 6.1 |   | -66 | -26 | 5 | 8.08 |
| Left middle temporal gyrus | -56 | -12 | -20 | 5.04 |   |   |   |   |   |   | -68 | -34 | 0 | 4.76 |
| Left inferior temporal gyrus | -64 | -37 | -21 | 5.90 |   | -57 | -49 | -16 | 4.60 |   | -55 | -49 | -17 | 5.18 |
| Left supramarginal gyrus | -57 | -47 | 38 | 5.90 |   | -62 | -35 | 34 | 6.40 |   | -62 | -28 | 41 | 5.90 |
| Left angular gyrus | -38 | -30 | -20 | 5.01 |   |   |   |   |   |   | -42 | -55 | 41 | 3.90 |
| Left lateral occipital cortex | -48 | -83 | -1 | 12.10 |   | -47 | -71 | -8 | 9.10 |   | -40 | -84 | -10 | 9.90 |
| Left thalamus |   |   |   |   |   |   |   |   |   |   | -10 | -9 | 5 | 5.11 |
| Right Frontal pole | 24 | 62 | -1 | 5.27 |   | 18 | 66 | 8 | 5.92 |   |   |   |   |   |
| Right inferior frontal gyrus |   |   |   |   |   |   |   |   |   |   | 51 | 14 | 26 | 5.80 |
| Right middle frontal gyrus  | 46 | 42 | 42 | 4.72 |   | 36 | 6 | 58 | 7.70 |   | 52 | 21 | 32 | 6.63 |
| Right precentral gyrus  |   |   |   |   |   | 44 | -4 | 43 | 5.08 |   | 54 | 0 | 45 | 6.68 |
| Right superior temporal gyrus | 62 | -33 | 5 | 6.72 |   | 69 | -24 | 5 | 8.46 |   | 69 | -22 | 5 | 5.52 |
| Right middle temporal gyrus | 57 | -36 | 1 | 3.90 |   | 67 | -36 | -6 | 4.90 |   | 61 | -34 | 0 | 5.37 |
| Right inferior temporal gyrus |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Right supramarginal gyrus | 63 | -44 | 38 | 6.72 |   | 42 | -37 | 44 | 4.80 |   | 45 | -33 | 45 | 4.90 |
| Right Cerebellum | 6 | -81 | -34 | 5.12 |   | 35 | -81 | -36 | 7.80 |   | 32 | -73 | -36 | 5.58 |
| Right lateral occipital cortex | 41 | -89 | -2 | 13.20 |   | 35 | -92 | -3 | 17.60 |   | 46 | -84 | 1 | 11.19 |
|   | P2  |
|   | x | y | z | Z  |   | x | y | z | Z  |   |   |   |   |   |
| Left inferior frontal gyrus | -57 | 11 | 6 | 5.13 |   | -54 | 11 | 3 | 6.85 |   | -44 | 28 | 17 | 3.80 |
| Left middle frontal gyrus | -43 | 36 | 23 | 3.90 |   | -43 | 30 | 21 | 5.10 |   | -39 | 34 | 20 | 3.90 |
| Left precentral gyrus | -57 | -3 | 22 | 7.50 |   | -57 | -4 | 21 | 9.60 |   | -57 | -6 | 33 | 4.90 |
| Left frontal pole | -24 | 57 | 22 | 3.82 |   | -28 | 57 | 17 | 4.73 |   |   |   |   |   |
| Left superior temporal gyrus | -67 | -33 | 8 | 7.30 |   | -61 | -31 | 3 | 8.19 |   | -62 | -40 | 13 | 5.26 |
| Left middle temporal gyrus | -68 | -34 | -7 | 6.16 |   | -67 | -27 | -2 | 7.42 |   | -67 | -30 | 0 | 5.10 |
| Left inferior temporal gyrus | -55 | -55 | -11 | 3.66 |   | -47 | -57 | -11 | 5.33 |   | -57 | -40 | -19 | 3.80 |
| Left supramarginal gyrus | -59 | -45 | 24 | 6.30 |   | -58 | -39 | 23 | 6.90 |   | -58  | -45 | 24 | 3.1 |
| Left fusiform gyrus |   |   |   |   |   |   |   |   |   |   | -63 | -52 | 11 | 5.12 |
| Left lateral occipital cortex | -41 | -83 | -5 | 5.66 |   | -43 | -88 | 7 | 5.60 |   | -33 | -88 | 0 | 4.85 |
| Left cerebellum | -24 | -60 | -52 | 4.50 |   | -32 | -62 | -30 | 5.49 |   |   |   |   |   |
| Right Frontal pole | 28 | 58 | 22 | 3.93 |   | 29 | 57 | 17 | 3.85 |   | 37 | 42 | 27 | 3.70 |
| Right inferior frontal gyrus | 54 | 11 | 20 | 4.63 |   | 53 | 29 | -4 | 3.66 |   | 49 | 14 | 27 | 3.30 |
| Right middle frontal gyrus  |   |   |   |   |   |   |   |   |   |   | 43 | 22 | 33 | 3.50 |
| Right precentral gyrus  | 59 | 2 | 22 | 7.70 |   | 59 | 2 | 21 | 8.70 |   | 55 | 1 | 33 | 3.16 |
| Right superior temporal gyrus | 61 | -30 | 2 | 5.20 |   | 68 | -28 | 11 | 6.16 |   | 54 | -41 | 8 | 4.50 |
| Right middle temporal gyrus | 68 | -38 | 0 | 5.27 |   | 65 | -46 | 6 | 5.43 |   | 65 | -39 | 0 | 3.40 |
| Right inferior temporal gyrus | 48 | -55 | -10 | 5.64 |   | 49 | -59 | -11 | 8.45 |   |   |   |   |   |
| Right supramarginal gyrus | 56 | -40 | 23 | 3.90 |   | 67 | -40 | 11 | 6.59 |   | 48 | -40 | 42 | 3.40 |
| Right Cerebellum | 29 | -62 | -52 | 5.20 |   | 36 | -63 | -30 | 7.19 |   | 34 | -76 | -39 | 3.10 |
| Right lateral occipital cortex | 44 | -69 | -5 | 5.99 |   | 35 | -86 | 1 | 7.80 |   | 49 | -74 | 0 | 4.19 |
|   | P3 |
|   | x | y | z | Z  |   | x | y | z | Z  |   | x | y | z | Z  |
| Left inferior frontal gyrus |   |   |   |   |   |   |   |   |   |   | -52 | 14 | 12 | 3.06 |
| Left middle frontal gyrus | -38 | 26 | 40 | 4.03 |   | -38 | 34 | 20 | 5.10 |   |   |   |   |   |
| Left frontal pole | -36 | 58 | 8 | 3.15 |   | -26 | 42 | 28 | 3.71 |   |   |   |   |   |
| Left precentral gyrus |   |   |   |   |   | -56 | -8 | 34 | 5.40 |   | -64 | 0 | 12 | 5.40 |
| Left superior temporal gyrus |   |   |   |   |   | -62 | -18 | -6 | 3.20 |   | -52 | -28 | 0 | 5.62 |
| Left middle temporal gyrus | -64 | -28 | -10 | 3.33 |   | -50 | -54 | 6 | 3.40 |   | -56 | -60 | 2 | 4.60 |
| Left inferior temporal gyrus |   |   |   |   |   | -48 | -44 | -18 | 3.90 |   | -52 | -46 | -22 | 5.30 |
| Left supramarginal gyrus | -54 | -38 | 32 | 3.00 |   | -58 | -36 | 32 | 3.30 |   |   |   |   |   |
| Left lateral occipital cortex |   |   |   |   |   | -48 | -70 | 2 | 4.64 |   | -40 | -82 | -18 | 4.25 |
| Left cerebellum |   |   |   |   |   | -34 | -62 | -28 | 4.43 |   |   |   |   |   |
| Right frontal pole | 26 | 56 | 8 | 4.03 |   | 40 | 44 | 28 | 4.93 |   |   |   |   |   |
| Right inferior frontal gyrus | 56 | 34 | 12 | 3.91 |   | 50 | 30 | 6 | 5.20 |   |   |   |   |   |
| Right middle frontal gyrus  | 50 | 20 | 40 | 4.10 |   | 48 | 32 | 28 | 5.20 |   |   |   |   |   |
| Right precentral gyrus  | 58 | 2 | 18 | 3.50 |   | 56 | 4 | 12 | 6.40 |   | 62 | 4 | 16 | 5.40 |
| Right superior temporal gyrus | 58 | -8 | -8 | 5.30 |   | 62 | -30 | 2 | 6.04 |   | 66 | -26 | 0 | 4.78 |
| Right middle temporal gyrus |   |   |   |   |   |   |   |   |   |   | 62 | -46 | 4 | 3.63 |
| Right angular gyrus | 56 | -52 | 24 | 3.60 |   | 60 | -48 | 28 | 5.20 |   |   |   |   |   |
| Right temporal pole | 56 | 12 | -12 | 3.98 |   |   |   |   |   |   |   |   |   |   |
| Right supramarginal gyrus |   |   |   |   |   | 58 | -40 | 28 | 4.50 |   | 58 | -38 | 24 | 3.00 |
| Right Cerebellum | 20 | -68 | -50 | 5.20 |   | 38 | -58 | -28 | 5.78 |   |   |   |   |   |
| Right lateral occipital cortex |   |   |   |   |   | 46 | -70 | 4 | 5.48 |   | 54 | -66 | 6 | 4.25 |
|   | P4 |
|   | x | y | z | Z  |   | x | y | z | Z  |   | x | y | z | Z  |
| Left inferior frontal gyrus | -49 | 15 | 17 | 4.50 |   | -54 | 24 | 9 | 3.60 |   | -51 | 9 | 15 | 5.81 |
| Left middle frontal gyrus | -25 | 21 | 42 | 3.70 |   | -41 | 13 | 32 | 4.85 |   | -40 | 16 | 32 | 4.59 |
| Left precentral gyrus | -46 | -12 | 42 | 4.50 |   | 63 | -1 | 19 | 6.10 |   | -54 | 5 | 5 | 4.20 |
| Left frontal pole | -13 | 43 | 42 | 5.91 |   |   |   |   |   |   | -49 | 40 | 4 | 4.53 |
| Left superior temporal gyrus | -66 | -35 | 9 | 5.74 |   | -67 | -27 | 6 | 6.55 |   | -67 | -27 | 8 | 7.44 |
| Left middle temporal gyrus |   |   |   |   |   | -58 | -31 | -3 | 6.01 |   | -59 | -36 | -13 | 5.10 |
| Left inferior temporal gyrus |   |   |   |   |   | -52 | -58 | -16 | 3.62 |   | -53 | -50 | -13 | 5.30 |
| Left supramarginal gyrus | -67 | -26 | 22 | 5.36 |   | -53 | -43 | 33 | 4.00 |   | -53 | -47 | 14 | 3.55 |
| Left angular gyrus | -51 | -55 | 41 | 4.20 |   | -39 | -58 | 41 | 3.40 |   | -54 | -56 | 41 | 3.20 |
| Left lateral occipital cortex | -43 | -73 | -3 | 6.50 |   | -47 | -78 | -7 | 6.68 |   | -47 | -74 | -5 | 5.13 |
| Left cerebellum | -32 | -58 | -30 | 5.44 |   | -17 | -64 | -50 | 3.06 |   | -26 | -64 | -32 | 4.20 |
| Right frontal pole | 16 | 47 | 39 | 3.99 |   |   |   |   |   |   |   |   |   |   |
| Right inferior frontal gyrus |   |   |   |   |   |   |   |   |   |   | 49 | 32 | -1 | 3.30 |
| Right middle frontal gyrus  |   |   |   |   |   | 46 | 17 | 32 | 4.66 |   | 46 | 16 | 32 | 4.67 |
| Right precentral gyrus  |   |   |   |   |   | 60 | 5 | 17 | 4.20 |   |   |   |   |   |
| Right superior temporal gyrus | 69 | -34 | 9 | 4.88 |   | 68 | -30 | 10 | 5.83 |   | 68 | -22 | 4 | 5.10 |
| Right middle temporal gyrus |   |   |   |   |   | 60 | -44 | -2 | 4.20 |   | 61 | -25 | -6 | 5.02 |
| Right inferior temporal gyrus |   |   |   |   |   | 48 | -51 | -19 | 3.61 |   | 49 | -57 | -9 | 5.70 |
| Right supramarginal gyrus | 64 | -39 | 25 | 5.30 |   | 56 | -38 | 24 | 5.00 |   | 63 | -39 | 14 | 4.20 |
| Right angular gyrus | -51 | -59 | 41 | 4.50 |   | 54 | -50 | 24 | 3.10 |   | 56 | -50 | 19 | 3.5 |
| Right Cerebellum | 26 | 62 | -30 | 5.03 |   | 20 | -64 | -52 | 4.20 |   | 33 | -61 | -30 | 4.64 |
| Right lateral occipital cortex | 37 | -78 | -9 | 6.33 |   | 47 | -82 | -3 | 5.64 |   | 48 | -63 | -5 | 4.29 |

S5. Brain regions significantly activated for the contrast noised cued naming versus scrambled pictures viewing for the control participant and participants with aphasia. Peak activation coordinates within a cluster are listed. For large clusters, prominent local maxima are also listed. All coordinates are in MNI space (x,y,z) and peak voxel Z-scores reported. Noised cued naming trials were not analyzed for P1 due to low number of accurate trials.

|  |
| --- |
| Control  |
| Regions | 0 Week |   | 3-5 Weeks |   | 5-7 Months |
|   | x | y | z | Z  |   | x | y | z | Z  |   | x | y | z | Z  |
| Left inferior frontal gyrus | -56 | 14 | 5 | 4.22 |   | -55 | 15 | 9 | 6.121 |   |   |   |   |   |
| Left middle frontal gyrus | -42 | 24 | 26 | 5.1 |   | -29 | 30 | 34 | 5.459 |   | -46 | 8 | 41 | 5.1 |
| Left precentral gyrus | -59 | -2 | 26 | 6.7 |   | -62 | 4 | 16 | 8.9 |   |   |   |   |   |
| Left frontal pole | -32 | 50 | 19 | 5.9 |   | -23 | 47 | 34 | 5.205 |   |   |   |   |   |
| Left superior temporal gyrus | -65 | -23 | 7 | 3.8 |   | -61 | -6 | 0 | 3.539 |   | -66 | -20 | 1 | 6.9 |
| Left middle temporal gyrus | -63 | -32 | -14 | 3.8 |   | -47 | -59 | 1 | 7.5 |   | -62 | -28 | -17 | 7.2 |
| Left inferior temporal gyrus |   |   |   |   |   | -53 | -35 | -26 | 8.118 |   | -47 | -59 | -10 | 6.3 |
| Left supramarginal gyrus | -60 | -46 | 21 | 4.24 |   | -64 | -31 | 24 | 6.3 |   | -61 | -47 | 16 | 5.2 |
| Left angular gyrus | -54 | -54 | 22 | 4.3 |   | -53 | -55 | 22 | 4.4 |   |   |   |   |   |
| Left fusiform gyrus | -45 | -38 | -25 | 5.2 |   |   |   |   |   |   |   |   |   |   |
| Left lateral occipital cortex | -33 | -86 | 2 | 5.06 |   | -31 | -80 | 13 | 7.3 |   | -52 | -67 | 0 | 6.1 |
| Left thalamus | -13 | -15 | 3 | 4.97 |   |   |   |   |   |   |   |   |   |   |
| Left cerebellum | -30 | -55 | -25 | 3.2 |   |   |   |   |   |   |   |   |   |   |
| Right Frontal pole | 27 | 59 | 4 | 5.2 |   | 23 | 46 | 34 | 6.156 |   |   |   |   |   |
| Right inferior frontal gyrus | 49 | 35 | 7 | 3.5 |   |   |   |   |   |   |   |   |   |   |
| Right middle frontal gyrus  |   |   |   |   |   | 44 | 30 | 34 | 6.018 |   | 40 | 18 | 39 | 3.8 |
| Right precentral gyrus  | 62 | 1 | 26 | 7.2 |   | 48 | 6 | 37 | 4.8 |   | 64 | -1 | 24 | 5.1 |
| Right superior temporal gyrus | 68 | -31 | 8 | 6.5 |   | 63 | -5 | 2 | 4.297 |   | 68 | -30 | 11 | 7.6 |
| Right middle temporal gyrus | 69 | -26 | -9 | 3.8 |   | 67 | -5 | -15 | 7.089 |   |   |   |   |   |
| Right inferior temporal gyrus |   |   |   |   |   | 51 | -34 | -24 | 5.104 |   | 65 | -45 | -21 | 4.9 |
| Right supramarginalgGyrus | 66 | -26 | 25 | 3.1 |   |   |   |   |   |   | 51 | -42 | 16 | 4.1 |
| Right Cerebellum | 32 | -59 | -25 | 7.2 |   | 50 | -48 | 44 | 4.9 |   | 19 | -70 | -41 | 4.9 |
| Right thalamus | 10 | -15 | 9 | 7.2 |   |   |   |   |   |   |   |   |   |   |
| Right lateral occipital cortex |   |   |   |   |   | 33 | -82 | 14 | 6.8 |   | 50 | -75 | 0 | 5.8 |
| P1 |
|   | x | y | z | Z  |   | x | y | z | Z  |   | x | y | z | Z  |
| Left inferior frontal gyrus |   |   |   |   |   |   |   |   |   |   | -52 | 17 | 7 | 6.6 |
| Left middle frontal gyrus |   |   |   |   |   |   |   |   |   |   | -47 | 25 | 32 | 6.69 |
| Left precentral gyrus |   |   |   |   |   |   |   |   |   |   | -50 | -5 | 39 | 6.3 |
| Left frontal pole |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Left superior temporal gyrus |   |   |   |   |   |   |   |   |   |   | -66 | -26 | 5 | 6.1 |
| Left middle temporal gyrus |   |   |   |   |   |   |   |   |   |   | -68 | -34 | 0 | 4.76 |
| Left inferior temporal gyrus |   |   |   |   |   |   |   |   |   |   | -55 | -49 | -17 | 5.18 |
| Left supramarginal gyrus |   |   |   |   |   |   |   |   |   |   | -63 | -31 | 41 | 5.3 |
| Left angular gyrus |   |   |   |   |   |   |   |   |   |   | -41 | -55 | 41 | 3.2 |
| Left lateral occipital cortex |   |   |   |   |   |   |   |   |   |   | -40 | -84 | -10 | 9.9 |
| Left thalamus |   |   |   |   |   |   |   |   |   |   | -10 | -9 | 5 | 5.11 |
| Right inferior frontal gyrus |   |   |   |   |   |   |   |   |   |   | 51 | 13 | 27 | 6.2 |
| Right middle frontal gyrus  |   |   |   |   |   |   |   |   |   |   | 52 | 21 | 32 | 6.63 |
| Right precentral gyrus  |   |   |   |   |   |   |   |   |   |   | 54 | 0 | 45 | 6.68 |
| Right superior temporal gyrus |   |   |   |   |   |   |   |   |   |   | 69 | -22 | 5 | 5.52 |
| Right middle temporal gyrus |   |   |   |   |   |   |   |   |   |   | 61 | -34 | 0 | 5.37 |
| Right inferior temporal gyrus |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Right supramarginal Gyrus |   |   |   |   |   |   |   |   |   |   | 42 | -38 | 45 | 3.8 |
| Right Cerebellum |   |   |   |   |   |   |   |   |   |   | 32 | -73 | -36 | 5.58 |
| Right lateral occipital cortex |   |   |   |   |   |   |   |   |   |   | 46 | -84 | 1 | 11.19 |
| Right anterior cingulate |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| P2 |
|   | x | y | z | Z  |   | x | y | z | Z  |   | -38 | 26 | 40 | 4.029 |
| Left inferior frontal gyrus | -50 | 16 | 17 | 4.899 |   | -54 | 14 | 3 | 6.547 |   | -36 | 58 | 8 | 3.153 |
| Left middle frontal gyrus | -47 | 32 | 22 | 4.3 |   | -45 | 37 | 21 | 5.4 |   |   |   |   |   |
| Left precentral gyrus | -58 | -1 | 22 | 6.9 |   | -59 | -1 | 21 | 9.2 |   |   |   |   |   |
| Left frontal pole | -13 | 61 | 23 | 3.391 |   | -29 | 57 | 21 | 4.9 |   | -64 | -28 | -10 | 3.334 |
| Left superior temporal gyrus | -66 | -28 | 3 | 8.194 |   | -63 | -32 | 3 | 6.827 |   |   |   |   |   |
| Left middle temporal gyrus | -67 | -28 | -10 | 6.163 |   | -62 | -43 | -11 | 4.689 |   |   |   |   |   |
| Left inferior temporal gyrus | -51 | -58 | -11 | 4.6 |   | -49 | -57 | -13 | 7.198 |   |   |   |   |   |
| Left supramarginal gyrus | -60 | -45 | 24 | 5.8 |   | -52 | -44 | 31 | 7.2 |   |   |   |   |   |
| Left fusiform gyrus |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Left lateral occipital cortex | -40 | -83 | 0 | 4.505 |   | -40 | -76 | 19 | 4.252 |   |   |   |   |   |
| Left cerebellum | -31 | -60 | -52 | 5.2 |   | -32 | -63 | -29 | 5.285 |   | 56 | 34 | 12 | 3.912 |
| Right Frontal pole | 18 | 63 | 23 | 3.276 |   |   |   |   |   |   | 50 | 20 | 40 | 4.104 |
| Right inferior frontal gyrus | 47 | 16 | 24 | 5.209 |   | 50 | 31 | -1 | 4.592 |   | 58 | 2 | 18 | 3.5 |
| Right middle frontal gyrus  |   |   |   |   |   |   |   |   |   |   | 58 | -8 | -8 | 5.3 |
| Right precentral gyrus  | 57 | 3 | 22 | 7.6 |   | 58 | -2 | 21 | 8.8 |   |   |   |   |   |
| Right superior temporal gyrus | 50 | -30 | 2 | 7.4302 |   | 50 | -26 | -1 | 4.795 |   |   |   |   |   |
| Right middle temporal gyrus | 68 | -39 | 2 | 4.879 |   | 66 | -42 | 0 | 4.818 |   | 56 | -52 | 24 | 3.6 |
| Right inferior temporal gyrus |   |   |   |   |   | 48 | -48 | -17 | 6.791 |   | 56 | 12 | -12 | 3.979 |
| Right supramarginal Gyrus | 58 | -42 | 23 | 4.2 |   |   |   |   |   |   |   |   |   |   |
| Right Cerebellum | 28 | -64 | -52 | 5.6 |   | 14 | -82 | -38 | 5.032 |   | 20 | -68 | -50 | 5.2 |
| Right lateral occipital cortex | 43 | -78 | 0 | 4.585 |   | 44 | -78 | 19 | 7.908 |   | 42 | -78 | 0 | 3.5 |
| P3 |
|   | x | y | z | Z  |   | x | y | z | Z  |   | x | y | z | Z |
| Left inferior frontal gyrus |   |   |   |   |   |   |   |   |   |   | -48 | 12 | 18 | 4.2 |
| Left middle frontal gyrus | -38 | 26 | 40 | 3.90 |   | -44 | 36 | 20 | 4.7 |   |   |   |   |   |
| Left frontal pole | -36 | 58 | 8 | 3.30 |   | -20 | 62 | 20 | 4.3 |   |   |   |   |   |
| Left precentral gyrus |   |   |   |   |   | -48 | 0 | 34 | 4.3 |   | -58 | -2 | 12 | 4.6 |
| Left superior temporal gyrus |   |   |   |   |   | -68 | -26 | 6 | 3.1 |   | -64 | -16 | -2 | 6.208 |
| Left middle temporal gyrus | -64 | -28 | -10 | 3.40 |   | -50 | -50 | 6 | 3.2 |   | -66 | -32 | -2 | 5.446 |
| Left inferior temporal gyrus |   |   |   |   |   | -58 | -40 | -18 | 3.4 |   | -56 | 50 | -14 | 5.8 |
| Left supramarginal gyrus | -52 | -36 | 32 | 3.20 |   | -58 | -34 | 32 | 3.70 |   |   |   |   |   |
| Left lateral occipital cortex |   |   |   |   |   | -48 | -70 | 2 | 4.8 |   | -48 | -70 | -14 | 7.636 |
| Left cerebellum |   |   |   |   |   | 26 | -62 | -26 | 4.6 |   |   |   |   |   |
| Right Frontal pole | 26 | 56 | 8 | 4.00 |   | 40 | 44 | 28 | 5.2 |   |   |   |   |   |
| Right inferior frontal gyrus | 56 | 34 | 12 | 4.20 |   | 54 | 30 | 6 | 4.9 |   |   |   |   |   |
| Right middle frontal gyrus  | 50 | 20 | 40 | 3.80 |   | 40 | 8 | 50 | 4.3 |   |   |   |   |   |
| Right precentral gyrus  | 58 | 2 | 18 | 6.20 |   | 56 | 4 | 12 | 4.2 |   | 66 | -28 | 16 | 6.523 |
| Right superior temporal gyrus | 58 | -8 | -8 | 5.70 |   | 62 | -30 | 2 | 5.9 |   | 64 | -26 | 0 | 5.4 |
| Right middle temporal gyrus |   |   |   |   |   |   |   |   |   |   | 62 | -30 | -2 | 3.77 |
| Right angular gyrus | 56 | -52 | 24 | 3.80 |   | 60 | -48 | 28 | 5.4 |   |   |   |   |   |
| Right temporal pole | 56 | 12 | -12 | 4.10 |   |   |   |   |   |   |   |   |   |   |
| Right supramarginal Gyrus |   |   |   |   |   | 58 | -40 | 28 | 4.8 |   | 56 | -38 | 24 | 3.1 |
| Right Cerebellum | 20 | -68 | -50 | 4.10 |   | -28 | -68 | -26 | 4.2 |   | 32 | -60 | -26 | 6.735 |
| Right lateral occipital cortex |   |   |   |   |   | 46 | -70 | 4 | 4.5 |   | 48 | -70 | -14 | 4.817 |
| P4 |
|   | x | y | z | Z  |   | x | y | z | Z  |   | x | y | z | Z  |
| Left inferior frontal gyrus | -52 | 24 | 13 | 4.1 |   | -48 | 25 | 9 | 3.8 |   | -51 | 14 | 3 | 5.2 |
| Left middle frontal gyrus | -25 | 23 | 42 | 3.9 |   |   |   |   |   |   |   |   |   |   |
| Left precentral gyrus | -50 | -11 | 42 | 5.6 |   | 61 | 3 | 19 | 5.4 |   | -50 | 6 | 5 | 3.7 |
| Left frontal pole | -16 | 42 | 41 | 5.509 |   |   |   |   |   |   | -42 | 47 | -3 | 4.8 |
| Left superior temporal gyrus | -66 | -35 | 9 | 4.36 |   | -68 | -25 | 5 | 5.7 |   | -63 | -10 | -3 | 6.2 |
| Left middle temporal gyrus |   |   |   |   |   | -63 | -30 | -3 | 4.3 |   | -58 | -33 | -4 | 4.6 |
| Left inferior temporal gyrus |   |   |   |   |   | -52 | 53 | -15 | 3.4 |   | -51 | -52 | -13 | 4.7 |
| Left supramarginal gyrus | -58 | -47 | 14 | 4.047 |   | -51 | -44 | 33 | 4.2 |   | -57 | -57 | 41 | 3.23 |
| Left angular gyrus | -51 | -55 | 41 | 3.5 |   | -39 | -58 | 41 | 4.1 |   |   |   |   |   |
| Left lateral occipital cortex | -43 | -83 | -3 | 6.358 |   | -41 | -80 | 12 | 6.5 |   | -23 | -88 | 25 | 4.6 |
| Left cerebellum | 27 | -64 | -27 | 4.8 |   | -21 | -69 | -47 | 3.2 |   | -27 | -63 | -32 | 4.6 |
| Right Frontal pole | 10 | 48 | 41 | 5.396 |   |   |   |   |   |   |   |   |   |   |
| Right inferior frontal gyrus |   |   |   |   |   |   |   |   |   |   | 51 | 31 | 4 | 3.1 |
| Right middle frontal gyrus  |   |   |   |   |   | 44 | 16 | 32 | 4 |   | 44 | 35 | 19 | 4.25 |
| Right precentral gyrus  |   |   |   |   |   | 60 | 5 | 17 | 5.2 |   |   |   |   |   |
| Right superior temporal gyrus | 69 | -24 | 9 | 6.664 |   | 68 | -30 | 10 | 6.2 |   | 70 | -29 | 12 | 6.3 |
| Right middle temporal gyrus |   |   |   |   |   | 60 | -44 | -2 | 4.3 |   | 62 | -27 | -6 | 4.8 |
| Right inferior temporal gyrus |   |   |   |   |   | 48 | -51 | -19 | 4.2 |   | 48 | -55 | -9 | 5.2 |
| Right supramarginal Gyrus | 63 | -37 | 14 | 4.76 |   | 56 | -38 | 24 | 5.6 |   | 55 | -38 | 25 | 3.6 |
| Right angular gyrus | -51 | -59 | 41 | 4.9 |   | 54 | -50 | 24 | 3.9 |   | 56 | -51 | 19 | 3.9 |
| Right Cerebellum | 14 | -68 | -36 | 4.609 |   | 21 | -64 | -52 | 4.3 |   | 28 | -61 | -32 | 4.4 |
| Right lateral occipital cortex | 45 | -66 | -8 | 6.444 |   | 47 | -82 | -3 | 6.2 |   | -40 | -79 | -13 | 5.8 |

S6. Fisher-transformed correlation matrix for the resting state data for the normal control, P2, and P4 at each time point. Difference map shows the difference in correlation between the 5-7 month scan and the 0 week scan for the resting-state data Correlations were assessed across 12 ROIs in the language network corresponding to the left and right inferior frontal gyrus (IFG), superior temporal gyrus (STG), middle temporal gyrus (MTG), inferior temporal gyrus (ITG), supramarginal gyrus (SMG), and angular gyrus (AG).

