Supplementary Table. **Individual Cognitive Scores**

	LPA				***PNFA***						***SD***				
Patient Number	1	2	3	4	1	2	3	4	5	6	1	2	3	4	5
MMSE	17	22	22	25	30	26	30	27	23	27	21	29	15	26	16
Language															
WAB Fluency (10)	9	9	5	9	9	9	9	2	5	9	9	10	9	10	8
Motor Speech Evaluation															
Apraxia of Speech (0=none-7=severe)	0	0	0	0	1	0	1	6	0	2	0	0	0	0	0
Dysarthria (0=none-7=severe)	0	0	0	0	0	4	2	2	2	0	0	0	0	0	0
Boston Naming Test (15-item)	14	11	12	14	15	12	15	10	6	15	2	3	2	2	3
Verbal Fluency															
Animals/min	8	13	8	16	14	9	22	11	0	7	1	5	3	4	7
'D' words/min	5	7	7	18	3	5	13	4	3	4	2	8	1	6	9
Word and Object Knowledge															
WAB Auditory Word Recognition (60)	52	55	59	60	60	59	60	60	59	60	48	59	36	58	51
PPT Pictures (52)	47	52	52	50	52	49	52	49	40	N/A	31	48	32	35	41
WAB Repetition (100)	75	74	75	80	97	95	100	98	74	97	84	99	73	97	N/A
Syntactic Comprehension															
WAB Sequential Commands (80)	37	66	60	68	72	80	80	80	68	63	66	80	66	72	N/A
CYCLE (2=simplest, 9=most complex)															
CYCLE 2, 3 (10)	8	10	10	10	10	10	10	10	10	10	10	10	9	10	10
CYCLE 4 (15)	6	15	14	15	15	15	15	15	10	13	15	15	14	15	15
CYCLE 5, 7 (10)	3	6	7	9	10	9	10	10	6	4	10	10	10	10	5
CYCLE 8 (10)	5	4	7	9	10	10	10	10	5	7	10	10	9	10	10
CYCLE 9 (10)	4	2	4	7	8	10	10	7	3	3	7	10	9	9	6
Memory															
CVLT 10 Min Recall (9)	0	5	5	N/A	8	8	8	7	1	N/A	0	3	0	5	1
Modified Rey Figure 10 Min Recall (17)	5	8	3	15	13	4	10	4	0	9	8	7	0	13	1
Executive Function															
Modified Trails Time (120)	120	120	73	120	21	120	26	74	120	120	120	53	120	36	36
Modified Trails # of Correct Lines (14)	0	11	14	10	14	4	14	14	3	8	5	14	3	14	14
Modified Rey Figure Copy (17)	16	15	13	17	17	15	14	17	16	16	16	17	15	16	12

Calculations (5)	1	3	3	5	5	5	5	4	2	5	5	5	0	5	4
GDS (30)	2	6	2	12	2	28	5	5	9	5	6	20	13	7	N/A
NPI (Total)	9	2	23	7	0	24	N/A	0	23	8	4	16	22	14	32

Patients with PIB-positive scans are shaded. Highest possible test scores are shown in parentheses. LPA = logopenic aphasia; PNFA = progressive non-fluent aphasia; SD = semantic dementia; MMSE = Mini Mental State Exam; WAB = Western Aphasia Battery; PPT = pyramids and palm trees test; CYCLE = Curtiss-Yamada Comprehensive Language Evaluation; CVLT-SF = California Verbal Learning Test San Francisco; N/A = Test scores not available.

Figure Legends

Fig 1. Distribution of PIB in PPA. Axial slices (z = 9, z = 27, z = 41) of normalized, atrophy-corrected PIB DVR images from single PIB-positive (left column) and PIB-negative (right column) PPA patients are presented. Identical slices from mean atrophy-corrected PIB DVR images from patients with AD (N = 10, top left) and normal controls (N = 12, top right) are shown for comparison. Images are in neurological orientation.

Fig 2. Mean lateralization indices (LI) for (A) PIB and (B) FDG. Bar graphs represent mean ± standard error for each PPA subtype and for AD in frontal (Front), anterior temporal (AntTemp), temporoparietal (TempPar) and Cumulative PPA (Mean PPA) regions of interest. Asterisks mark values significantly different than 0 indicating lateralization ($p<0.05$, one sample two-tailed t-test).

Fig 3. FDG patterns by clinical syndrome. Axial (z = 9, z = 27) and coronal (y = 64) slices of mean atrophy-corrected FDG images from (top to bottom) normal controls (N = 12), PNFA (N = 5), SD (N = 5), LPA (N = 4) and AD (N = 10). Images are in neurological orientation. PNFA is characterized by left frontal hypometabolism (red arrow), SD by left greater than right anterior temporal hypometabolism (yellow arrows), and LPA by asymmetric left temporoparietal hypometabolism (light blue arrows).

Supplementary Fig. PPA regions of interest (ROIs). ROIs are displayed on normalized coronal slices (from left to right, top to bottom: y=73, 64, 49 and 34) from a single subject with PNFA. Frontal ROI is shown in red (Front), anterior temporal ROI in green

(AntTemp) and temporoparietal ROI in blue (TempPar). Images are in neurological orientation.