

fROI	Experiment 1			Experiment 2a			Experiment 3	
	SProd vs. fixation	SProd vs. N	SProd vs. VisEvSem	SProd vs. fixation	SProd vs. N	SProd vs. VisEvSem	SProd vs. fixation	SProd vs. N
IFGorb	$d = 4.042$ $p < 0.001$	$d = 3.069$ $p < 0.001$	$d = 5.665$ $p < 0.001$	$d = 1.835$ $p = 0.004$	$d = 1.639$ $p = 0.033$	$d = 1.122$ $p = 0.016$	$d = 1.656$ $p = 0.012$	$d = 2.300$ $p = 0.003$
IFG	$d = 4.183$ $p < 0.001$	$d = 3.939$ $p < 0.001$	$d = 4.292$ $p < 0.001$	$d = 2.213$ $p = 0.001$	$d = 2.082$ $p = 0.014$	$d = 1.754$ $p = 0.016$	$d = 2.449$ $p = 0.001$	$d = 2.452$ $p = 0.003$
MFG	$d = 3.409$ $p < 0.001$	$d = 2.777$ $p < 0.001$	$d = 3.892$ $p < 0.001$	$d = 2.545$ $p < 0.001$	$d = 1.530$ $p = 0.033$	$d = 1.184$ $p = 0.016$	$d = 3.115$ $p < 0.001$	$d = 3.300$ $p = 0.001$
AntTemp	$d = 3.928$ $p < 0.001$	$d = 3.559$ $p < 0.001$	$d = 4.967$ $p < 0.001$	$d = 1.374$ $p = 0.019$	$d = 1.161$ $p = 0.068$	$d = 0.904$ $p = 0.035$	$d = 2.105$ $p = 0.003$	$d = 2.519$ $p = 0.003$
PostTemp	$d = 4.391$ $p < 0.001$	$d = 3.561$ $p < 0.001$	$d = 4.785$ $p < 0.001$	$d = 2.251$ $p = 0.001$	$d = 1.225$ $p = 0.068$	$d = 1.072$ $p = 0.017$	$d = 2.434$ $p = 0.001$	$d = 2.410$ $p = 0.003$
AngG	$d = 2.058$ $p < 0.001$	$d = 3.319$ $p < 0.001$	$d = 1.688$ $p = 0.007$	$d = 0.630$ $p = 0.128$	$d = 0.928$ $p = 0.118$	$d = 0.702$ $p = 0.228$	$d = 1.393$ $p = 0.025$	$d = 1.575$ $p = 0.003$
Language network	$d = 2.241$ $p < 0.001$	$d = 1.832$ $p < 0.001$	$d = 2.081$ $p < 0.001$	$d = 1.527$ $p < 0.001$	$d = 1.054$ $p < 0.001$	$d = 1.037$ $p < 0.001$	$d = 1.731$ $p < 0.001$	$d = 1.587$ $p < 0.001$

Table 1: Q1: Does sentence production elicit a response in the language network?

fROI	Experiment 2b			
	SProd (typed) vs. fixation	SProd (typed) vs. N	SProd (typed) vs. VisEvSem	SProd (typed) vs. SProd
IFGorb	$d = 1.507$ $p = 0.018$	$d = 1.263$ $p = 0.121$	$d = 1.603$ $p = 0.025$	$d = 0.501$ $p = 0.383$
IFG	$d = 1.771$ $p = 0.018$	$d = 1.283$ $p = 0.121$	$d = 1.650$ $p = 0.025$	$d = 0.614$ $p = 0.346$
MFG	$d = 1.494$ $p = 0.018$	$d = 0.361$ $p = 0.631$	$d = 1.492$ $p = 0.028$	$d = 0.580$ $p = 0.333$
AntTemp	$d = 0.561$ $p = 0.198$	$d = 0.274$ $p = 0.631$	$d = 0.326$ $p = 0.680$	$d = 0.813$ $p = 0.333$
PostTemp	$d = 1.443$ $p = 0.018$	$d = 0.488$ $p = 0.631$	$d = 1.764$ $p = 0.025$	$d = 0.707$ $p = 0.337$
AngG	$d = 0.015$ $p = 0.969$	$d = 0.006$ $p = 0.992$	$d = -0.077$ $p = 0.892$	$d = 1.216$ $p = 0.283$
Language network	$d = 1.027$ $p < 0.001$	$d = 0.498$ $p = 0.003$	$d = 0.576$ $p < 0.001$	$d = 0.459$ $p = 0.006$

Table 2: Q2: Does the language network’s response to sentence production generalize across output modality?

fROI	Experiment 1		Experiment 2a		Experiment 2b		Experiment 3
	WProd vs. NProd	SProd vs. WProd	WProd vs. NProd	SProd vs. WProd	WProd (typed) vs. NProd (typed)	SProd (typed) vs. WProd (typed)	
IFGorb	$d = 0.184$ $p = 0.736$	$d = 2.503$ $p < 0.001$	$d = 0.659$ $p = 0.308$	$d = 1.321$ $p = 0.081$	$d = -0.150$ $p = 0.825$	$d = 2.966$ $p < 0.001$	$d = 2.727$ $p = 0.002$
IFG	$d = 1.506$ $p = 0.082$	$d = 1.867$ $p = 0.004$	$d = 1.572$ $p = 0.085$	$d = 0.290$ $p = 0.610$	$d = -0.125$ $p = 0.825$	$d = 1.570$ $p = 0.014$	$d = 1.003$ $p = 0.124$
MFG	$d = 1.064$ $p = 0.133$	$d = 1.628$ $p = 0.009$	$d = 0.717$ $p = 0.308$	$d = 0.497$ $p = 0.464$	$d = 0.148$ $p = 0.825$	$d = 1.942$ $p = 0.005$	$d = 1.158$ $p = 0.097$
AntTemp	$d = 0.620$ $p = 0.318$	$d = 2.419$ $p < 0.001$	$d = -0.122$ $p = 0.829$	$d = 1.264$ $p = 0.081$	$d = -1.881$ $p = 0.029$	$d = 2.988$ $p < 0.001$	$d = 2.251$ $p = 0.005$
PostTemp	$d = 0.771$ $p = 0.257$	$d = 3.795$ $p < 0.001$	$d = 0.672$ $p = 0.308$	$d = 1.044$ $p = 0.124$	$d = -0.831$ $p = 0.378$	$d = 3.693$ $p < 0.001$	$d = 2.816$ $p = 0.002$
AngG	$d = 1.273$ $p = 0.096$	$d = 3.529$ $p < 0.001$	$d = 1.136$ $p = 0.184$	$d = 1.943$ $p = 0.023$	$d = -0.769$ $p = 0.378$	$d = 2.718$ $p < 0.001$	$d = 4.396$ $p < 0.001$
Language network	$d = 0.333$ $p = 0.037$	$d = 0.668$ $p < 0.001$	$d = 0.376$ $p = 0.023$	$d = 0.356$ $p = 0.032$	$d = -0.105$ $p = 0.524$	$d = 0.830$ $p < 0.001$	$d = 0.609$ $p < 0.001$

Table 3: Q3: Does the language network respond to both lexical access and syntactic encoding?

fROI	Experiment 1	Experiment 2a	Experiment 2b	Experiment 3
	SProd vs. WProd	SProd vs. WProd	SProd vs. WProd	SProd vs. WProd
LH PostParietal	$d = -3.491$ $p < 0.001$	$d = -1.873$ $p = 0.059$	$d = -0.962$ $p = 0.354$	$d = -1.034$ $p = 0.190$
LH midParietal	$d = -1.731$ $p = 0.014$	$d = -1.137$ $p = 0.076$	$d = -0.530$ $p = 0.594$	$d = 0.912$ $p = 0.240$
LH antParietal	$d = -1.266$ $p = 0.053$	$d = -1.194$ $p = 0.073$	$d = -0.690$ $p = 0.483$	$d = 1.413$ $p = 0.114$
LH supFrontal	$d = -1.156$ $p = 0.064$	$d = -0.767$ $p = 0.200$	$d = -0.267$ $p = 0.769$	$d = -1.132$ $p = 0.160$
LH Precentral A PrecG	$d = -1.392$ $p = 0.037$	$d = -1.400$ $p = 0.064$	$d = -0.317$ $p = 0.769$	$d = -1.398$ $p = 0.114$
LH Precentral B IFGop	$d = -1.232$ $p = 0.055$	$d = -0.927$ $p = 0.132$	$d = -0.099$ $p = 0.906$	$d = -1.132$ $p = 0.160$
LH midFrontal	$d = -1.221$ $p = 0.055$	$d = -1.473$ $p = 0.064$	$d = -0.444$ $p = 0.673$	$d = -0.521$ $p = 0.477$
LH midFrontalOrb	$d = -1.036$ $p = 0.089$	$d = -1.174$ $p = 0.073$	$d = 0.040$ $p = 0.943$	$d = -0.828$ $p = 0.275$
LH insula	$d = -1.601$ $p = 0.020$	$d = -1.092$ $p = 0.083$	$d = 0.681$ $p = 0.483$	$d = -3.099$ $p = 0.006$
LH medialFrontal	$d = -0.990$ $p = 0.098$	$d = -0.652$ $p = 0.261$	$d = 0.351$ $p = 0.769$	$d = -1.290$ $p = 0.134$
RH PostParietal	$d = -3.255$ $p < 0.001$	$d = -1.622$ $p = 0.059$	$d = -1.432$ $p = 0.223$	$d = -3.804$ $p = 0.003$
RH midParietal	$d = -2.518$ $p = 0.001$	$d = -1.363$ $p = 0.064$	$d = -1.233$ $p = 0.223$	$d = -0.098$ $p = 0.879$
RH antParietal	$d = -2.543$ $p = 0.001$	$d = -1.364$ $p = 0.064$	$d = -0.946$ $p = 0.354$	$d = -0.695$ $p = 0.350$
RH supFrontal	$d = -2.369$ $p = 0.002$	$d = -1.662$ $p = 0.059$	$d = -1.250$ $p = 0.223$	$d = -2.722$ $p = 0.008$
RH Precentral A PrecG	$d = -2.397$ $p = 0.002$	$d = -1.283$ $p = 0.073$	$d = -1.470$ $p = 0.223$	$d = -1.262$ $p = 0.134$
RH Precentral B IFGop	$d = -1.720$ $p = 0.014$	$d = -1.181$ $p = 0.073$	$d = -0.614$ $p = 0.524$	$d = -0.452$ $p = 0.517$
RH midFrontal	$d = -3.083$ $p < 0.001$	$d = -1.633$ $p = 0.059$	$d = -0.913$ $p = 0.354$	$d = -2.101$ $p = 0.022$
RH midFrontalOrb	$d = -2.596$ $p = 0.001$	$d = -1.386$ $p = 0.064$	$d = -0.720$ $p = 0.483$	$d = -2.201$ $p = 0.020$
RH insula	$d = -3.602$ $p < 0.001$	$d = -1.193$ $p = 0.073$	$d = -0.242$ $p = 0.769$	$d = -2.960$ $p = 0.006$
RH medialFrontal	$d = -2.505$ $p = 0.001$	$d = -1.171$ $p = 0.073$	$d = 0.224$ $p = 0.769$	$d = -2.384$ $p = 0.015$
MD network	$d = -0.692$ $p < 0.001$	$d = -0.612$ $p < 0.001$	$d = -0.225$ $p = 0.010$	$d = -0.353$ $p < 0.001$

Table 4: Q3 [CONTROL]: Is language production more demanding than word production?