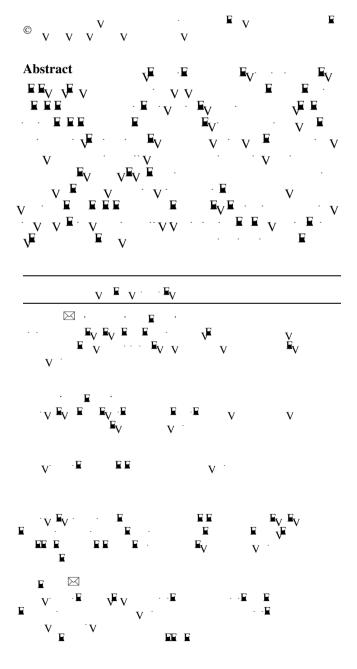


White matter pathway supporting phonological encoding in speech production: a multi-modal imaging study of brain damage patients

Zaizhu Han · Yujun Ma · Gaolang Gong · Ruiwang Huang · Luping Song · Yanchao Bi



E E_V E E, F E V V ٦, V F V V v E Æ v V E E E E F E V E E E

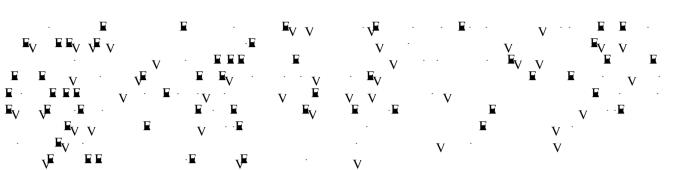
Keywords EEE E V^EV E E E V

Introduction

⊾ v

E E E. V EV V EVE E E e E V

V V V v v v

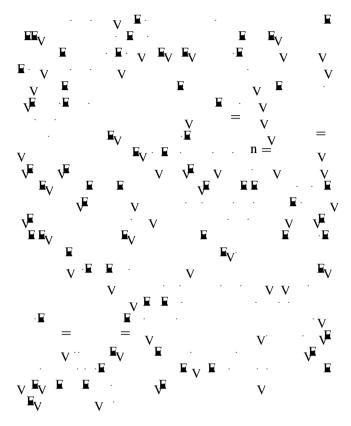


E w F E Æ V E E ٦, WEV V V Æ E F V V E E E v V E E F V V Æ E E **F**., E V V V V Ŵ E V E E V v E, F E E V V E E v v E V V F F

Materials and methods

V. .

V V V F F V Æ F E E F F E E = E F V F V E V · F v V E E E V F F ⊾ _V F V E E F vEv V

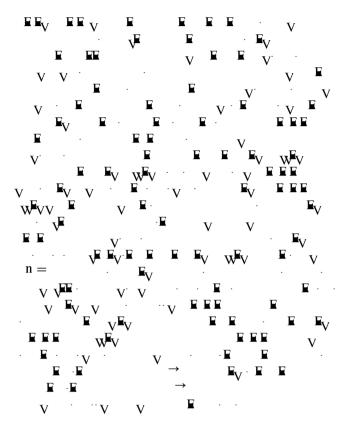


Behavioral data

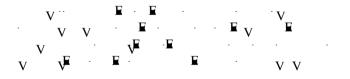
Æ E E E F F V E E E E V V E C F V E E V V V Ev E E E E v

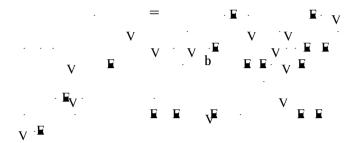
V E V V Æ E V V E V V V , FE V F F Ē E V Ev E E_V E \mathbf{E}_{V} Ew V E Г w⊭v V V ₩V V E E E. V

Oral picture naming



Word reading aloud





Preprocessing

 ${\bf E}_{\rm V}$ $\mathbf{E}_{\mathbf{V}}$ V F E F E ۲ V **F** . V V E V E V W E ٦ V Х X E V E V V F F FF E E E V F F E E v F VE E V V E V V EE V E F E F FE E EW V V E E F Εv v E V V VE . F E V WarpImageMultiTransform E V Ev V v Ev Ě F

Table 1 E _W E	V ·		E E _V E _W E		E _V E _W E		
		Ē	V V	v Ev v	V V	v Ev V	
E V ·	v v		_	_			
	v v V ₽ V ₽ V		_	_	_	_	
	E _V E V				_	_	
	· v				_	_	
	· E				_	_	
	E				-	_	
	E _V E _V E _V E _V V ^E V V ^E E E		_	_	_	_	
	e v ^e v v ^e e				_	_	
	V ^E V ^E			_			
	E V ^E V				_	_	
	VEV E		_	_	_	_	
V V V VEEEV	F		_	_			
V E E EV WEV V EV V V E EV V					_	_	
V VVV B V V	V ^E V ^E V		_	_			
$ \begin{array}{c} \mathbf{E} & \mathbf{W}^{\mathbf{E}} & \mathbf{E} \\ \mathbf{p} < & \mathbf{E} & \mathbf{E} & \mathbf{W} \\ \mathbf{E} & & \mathbf{E} & \mathbf{W} \end{array} $					_	_	

$\mathbf{E}_{\mathbf{W}}$	٠E		EEE	E	Ev				E v	·V		Ē
V _	E	V					_ V	V	- E E	- 🖬	V.	E
	V		· V	Ϋ́ν_	V Š	Ľ	E	-	V [·]		E .	•
		E.	E -		¥_∖	/ ·		-		E _V ·	Ev	·V

D Springer

₽√**₽** v E vE E v ·V v E ⊾ v Ē Ev V F E E E E v E E vE E · F E.V Ev

Table 2	$\mathbf{V} = \mathbf{E}_{\mathbf{W}}$			·V·E·	· E v ·
E LE	Ĕ _v E	EE	E _V	·	·

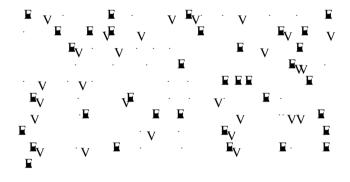
E V

E_{V V} E V p < v V p <

V E E. V E F V V Æ V

E F V E V V E EEÈ E V V V VEV E E E Ev V ₩ V F E F E EE V E E E ٠F V V. E. F V E V V E E V

E v E · 📘 V V E V F V FF Ē



Results

E F V V V \pm \pm F EE F w \pm \pm E E ± E, \pm F E EĖ F E E V E, **E** . . V V V V Ev \pm E E F E, r = p < E V ∎ ± E v 'V ± v v

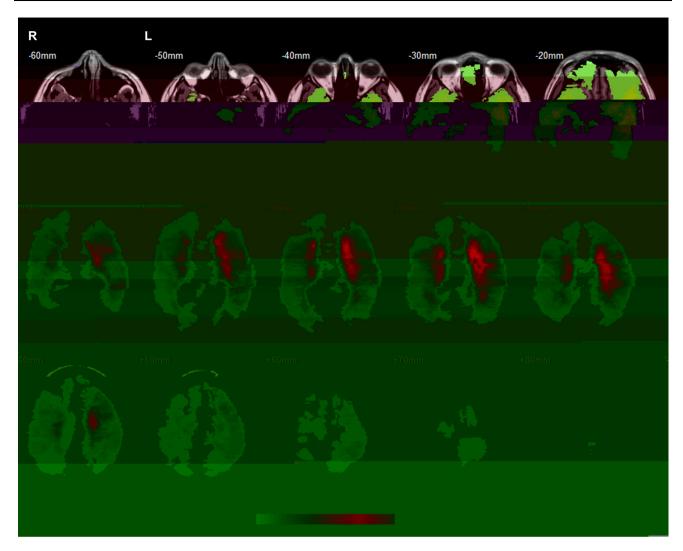
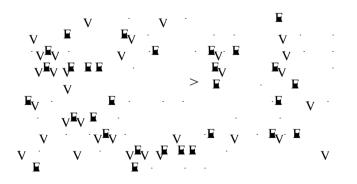
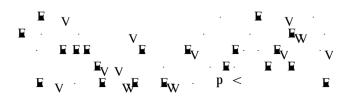


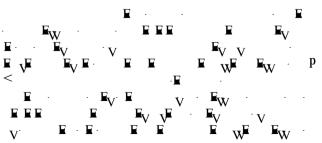
Fig.1 EE V E. EE E. . VE . . . EE .

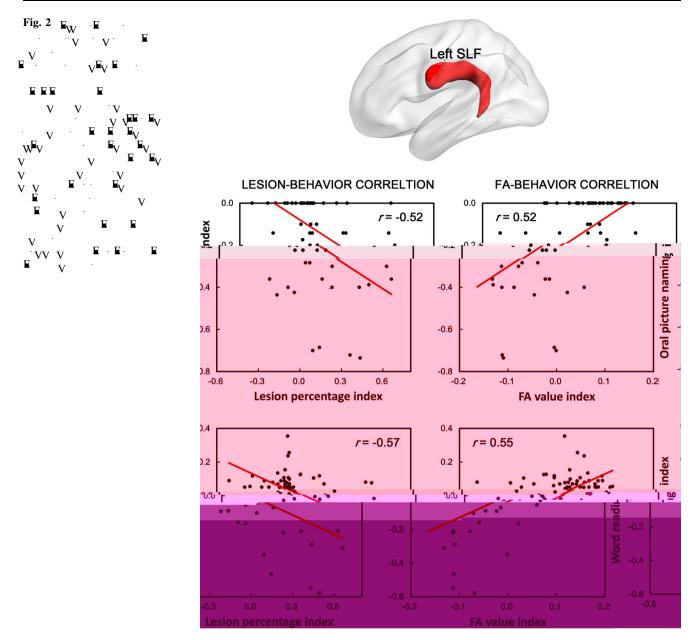


Lesion-behavior correlation



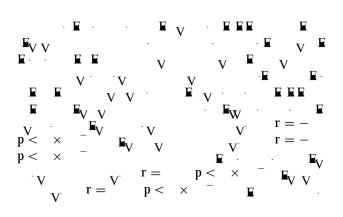
FA-behavior correlation





E _V EE E

Controlling for effects of potential confounding variables



F V E V E F Ē E EE v E V E V V E Æ E, F E ... VV E E E EEĖ W E E F E. V r = $\mathbf{r} =$ p < $p^{V} <$ V \mathbf{F}_{V} E $r = V^{\tilde{}}$ V r r = р Х < V **p** < Х · E F V F V r = – × E F V_ V p < E E V. V

Testing the specificity of the phonological tracts

p < Х r = p < p < X EEE E E E V E E EE E E ٦ V Ė $\mathbf{p} =$ r = $r \stackrel{V}{=}$ р F v F EE È E E E E ΕV V V × r = р < V p < r Х V V. r =р × < $r \stackrel{V}{=}$ V **p** < Х V V F V E

E ٦, V E F E v E F E F E V r p^V< p < r =× p < r =r =′p < E EE Æ V Ē F

Discussion

E V E V F E V E F E F E Ę, E E E E E Æ E. E Æ V E E F F É V V Ē Æ v √∎ VĽv V V E

E

E V E EE E F V E E. E FF E, F EE F F E v \mathbf{F}_{V} ٦, V V E Ew F E F E F E V

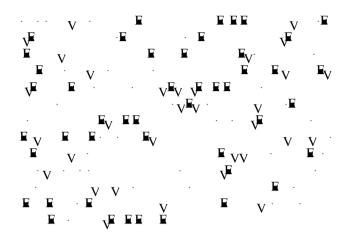
E E V V E V E F ΕI V V E V V E Æ F F V F EE V V E E

E E E V F E F V

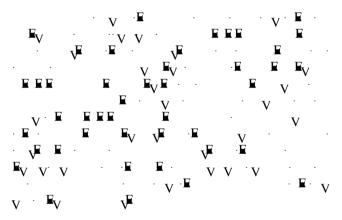
E V E

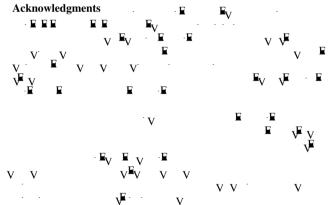
V · E E E VE E V **.** E V V F • V w V E V $\mathbf{W} \mathbf{E}_{\mathbf{V}} \mathbf{E}$ V EE E

V V E **F** . EEVE E E E EEVEV E· F E wEv V • • • v V V. V E E V.



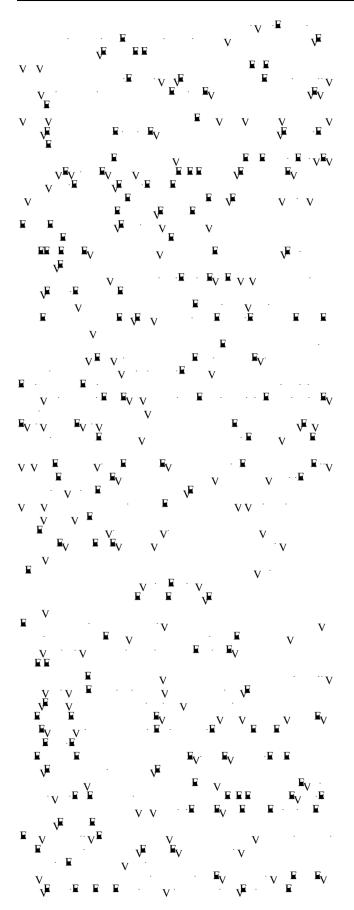
Conclusion

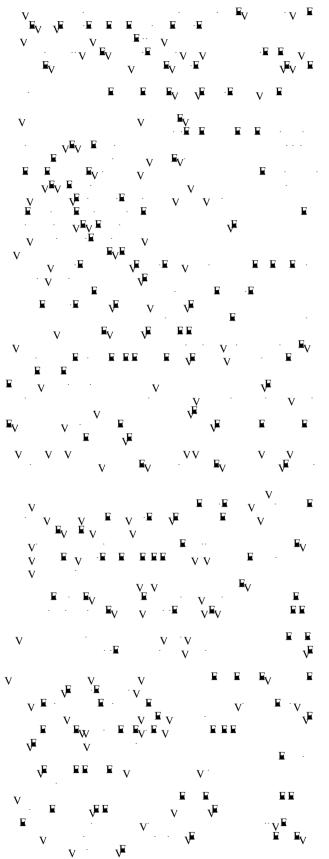




References







🖄 Springer