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´ ¨

¨ &

"*Grandma has moved from Harbin to Hainan, because she liked the warm winter there*"

p

q

p, q

"*Grandma has moved from Hainan to Harbin, although she liked the warm winter there*"

p *q*

although

not

´ ¨ &

' *warm*

because

&

&

& &

,

&

computing negation *processing implicated meaning*

–

,

&

2.1. Participants

>

=

×

= = =

negation

negation computation

2.2. Design and materials

because
although

喜欢 相中 相
信 习惯

warm *cold*
expensive *cheap*
Great wall

2.5.2. The correlations between brain activations and individual differences

t

&

although *because* ' *t*

although
+ *although* > *because* + *because*

conjunction type

although- *or* *because-*

“ ”

t

3.1. Behavioral results

+ + + + + *conjunction type* *congruency* *β* = − *SE* = *t* = − *p* < *because* *because* *β* = − *SE* = *z* = − *p* < *although* *although* *β* = − *SE* = *z* = − *p* < *because* *although* *β* = *SE* = *z* = *p* < *because*

→			
←			
→			
←			
→			
←			
→			
←			
→			
←			

because		
because		
although		
although		

although *β* = − *SE* = *z* = − *p* =

3.2. Whole-brain analysis

conjunction type *although* + *although* ' > *because* + *because* '

congruency

conjunction type

although *because* *because* *although* *although* *because* *because* *because* *although* *although*

3.3. Region of interest (ROI) analysis

− − − − − − &

although *because* *although* *because* *because* *because* *because* *although* *although* *t* = *p* =

3.4. The correlations between brain activations and individual differences

conjunction type *although* + *although* *because* + *because* ' *M* = *SD* = = − *r* = *p* <

M = *SD* = = − *r* = *p* <

although> because			<	–			
	–		–	–			
			<	–			
				–	–		–
	–		–				
			<	–	–		
	–		–	–	–		
							–
					–		
	–		–	–	–		
ncongruent > congruent					–		
	–		–		–		
lthough > because			<	–			
	–		–	–			
				–	–		–
				–			
	–		–	–			
			<	–	–		
				–			–
				–	–		
					–		
because > although					–		
			<	–	–		
				–	–		
			<		–		
					–	–	
				–		–	
because > because			<		–		
	–		–		–		
	–		–		–		
because > because					–		
although > because			<	–			
	–		–	–			
	–		–	–			
					–		
	–		–	–	–		
	–		–	–			
				–			
	–		–				
				–	–		
	–		–	–	–		
because > although			<				
	–		–				
					–		
	–		–		–		

23 Tm [(G F 80 2)] TJ 1 0 0 1 -18.3701 -38.3497 Tm [(* -10.6966 -78.6644 Tm [(84 1 42 2 .8776 Tm [( )] TJ /F0 1 .000000002 7 Tm [(G 0F)] TJ 1

3.5. Dynamic casual modelling (DCM)

$t =$ $p <$

4.1. The neurological bases of understanding concessive relations

because *although*

negation

–

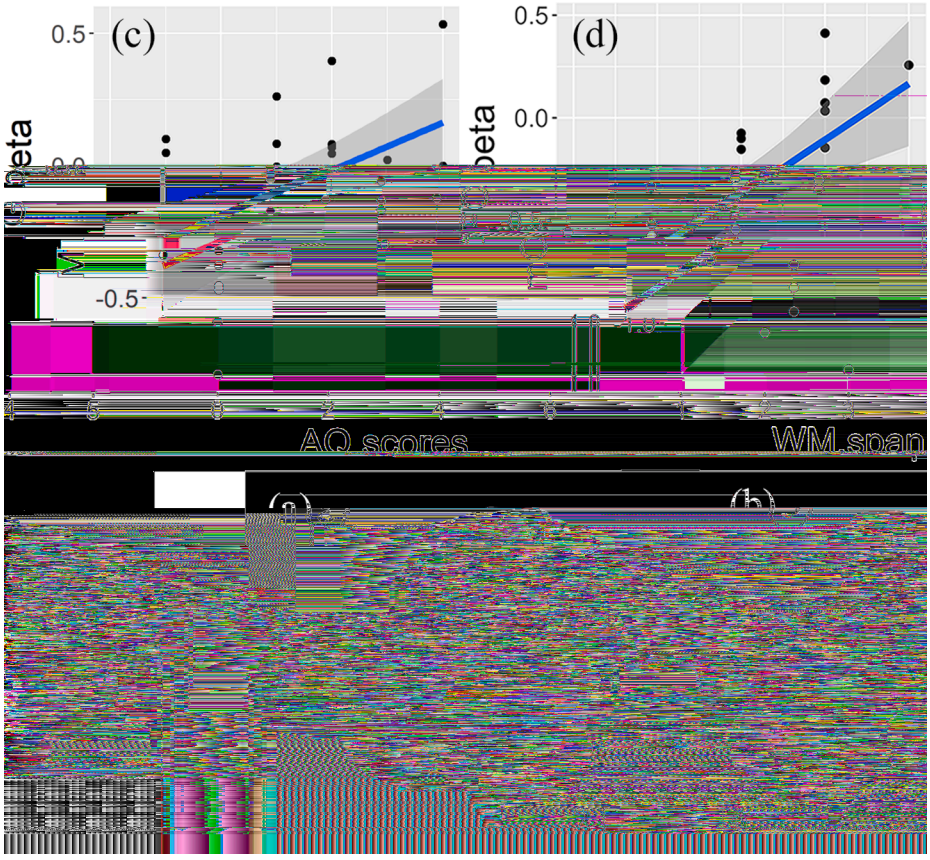
because *although* ' & &

&

because *because* *negation*

although *although*

'



although

> *because'*

although > because'

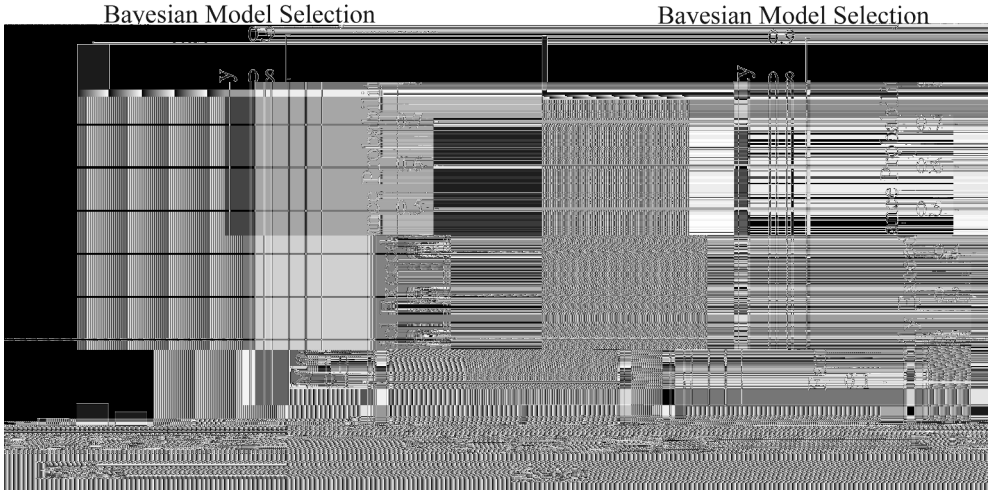
β

$r =$ $p <$

β

$r =$

$p <$



exerted oneself and consequently pass exam
although

'

'

implicated *People in China normally like to stay at a warm place like Hainan in winter, because of its comfortable weather* ¨ &

,

like prefer *dislike hate*

Grandma has moved from Harbin to Hainan, although she disliked the wet winter there Grandma has moved from Harbin to Hainan, because she liked the warm winter there)

&

“ ” “ ” &

.. &

4.2. Different functional connectivities for processing concessive relations vs causal relations

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