

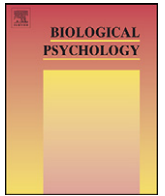


ELSEVIER














Contents lists available at [SciVerse ScienceDirect](http://SciVerse.ScienceDirect.com)

# Biological Psychology

journal homepage: [www.elsevier.com/locate/biopsycho](http://www.elsevier.com/locate/biopsycho)







**A**                     

**C.**             





























- Key Laboratory of Child Development and Learning Science, Ministry of Education, Southeast University, Nanjing 210096, China  
Department of Marketing, University of Groningen, P.O. Box 800, 9700 AV Groningen, The Netherlands  
Center for Brain and Cognitive Sciences and Department of Psychology, Peking University, Beijing 100871, China  
Key Laboratory of Machine Perception, Ministry of Education, Peking University, Beijing 100871, China

## ARTICLE INFO

**Article history:**  
 20  2011  
A  22 A  2011  
Available online 2 September 2011

## ABSTRACT

**Keywords:**

(... 1986).  
 ... B (1999),  
 ...  
 ... (C  
 , 2008):  
 ...  
 ... D  
 ( )  
 : (1)  
 D ;  
 (2)  
 ...  
 ) 300 . B fi

1.2. MFN responses to (un)fair behavior

... ( ; B D  
 C , 2010; , 2011; , 2008).  
 (1982), D ,  
 ;  
 ;  
 ... ( , )  
 fi ( 200 350 )  
 ( , 2002; , 2004;  
 , 2005, 2007; C , 2002; , 2004;  
 , 1997; , 2004;  
 2010; , 2004; , 2005;  
 2006, , 2009).  
 ( )  
 fi  
 (ACC) ( C , 2002; , 2004).  
 ( , )  
 ACC fi  
 ( , )  
 ACC fi  
 fi  
 ( J , 2007; , 2007; , 2010;  
 , 2009). (2009)  
 (C D ,

... B  
 D C (2010) fi  
 ... (D ,  
 1975; , 1983; , 1993),  
 ( , 2002; , 2004).  
 B D C  
 fi  
 B D ,  
 fi  
 (2011) ,  
 D .  
 B D C (2010) fi fi  
 fi

... ( , 2006, 2009;  
 , 2008; , 2010; , 2010;  
 2011; , 2010; , 2006).  
 fi  
 D .  
 / B  
 (B  
 , 1999; , 1994, 1997; , 2006; , 1975),  
 . A  
 ( )

1.3. P300 responses to (un)fair behavior

A 300,  
 200 600  
 300  
 (D C , 1988).  
 ( )  
 300 ( C ,  
 1977; D J D , 1977; J D ,

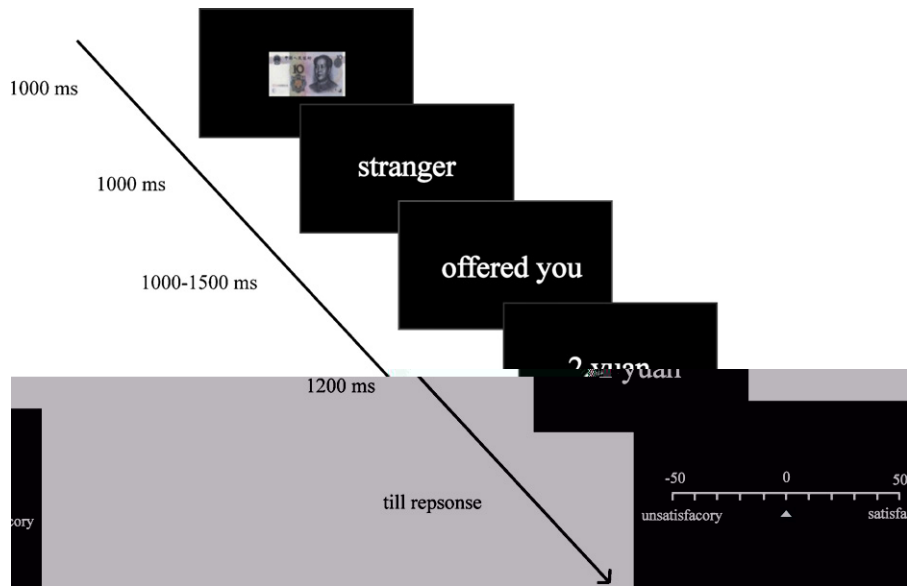


Fig. 1.

1980). 300  
300  
(, 2005;  
, 2004). 300  
(, 2005, 2007;  
, 2009; , 2005).  
300  
300  
(, 2010; , 2011). A 300  
(D  
C , 1988; , 2004; , 2005) /  
, 2004),  
300 fl

$\bar{E}$  ..... 10 ..... (2.6° × 1.3°), ..... 1000 .....  
 ..... (.1).A ..... 500 .....  
 ..... C ..... ( ..... 32), .....  
 ..... 1000 ..... A ..... 500 .....  
 ..... C ..... ( ..... 32) ..... 1000, 1100, 1200,  
 1300, 1400, ..... 1500 ..... A ..... 500 .....



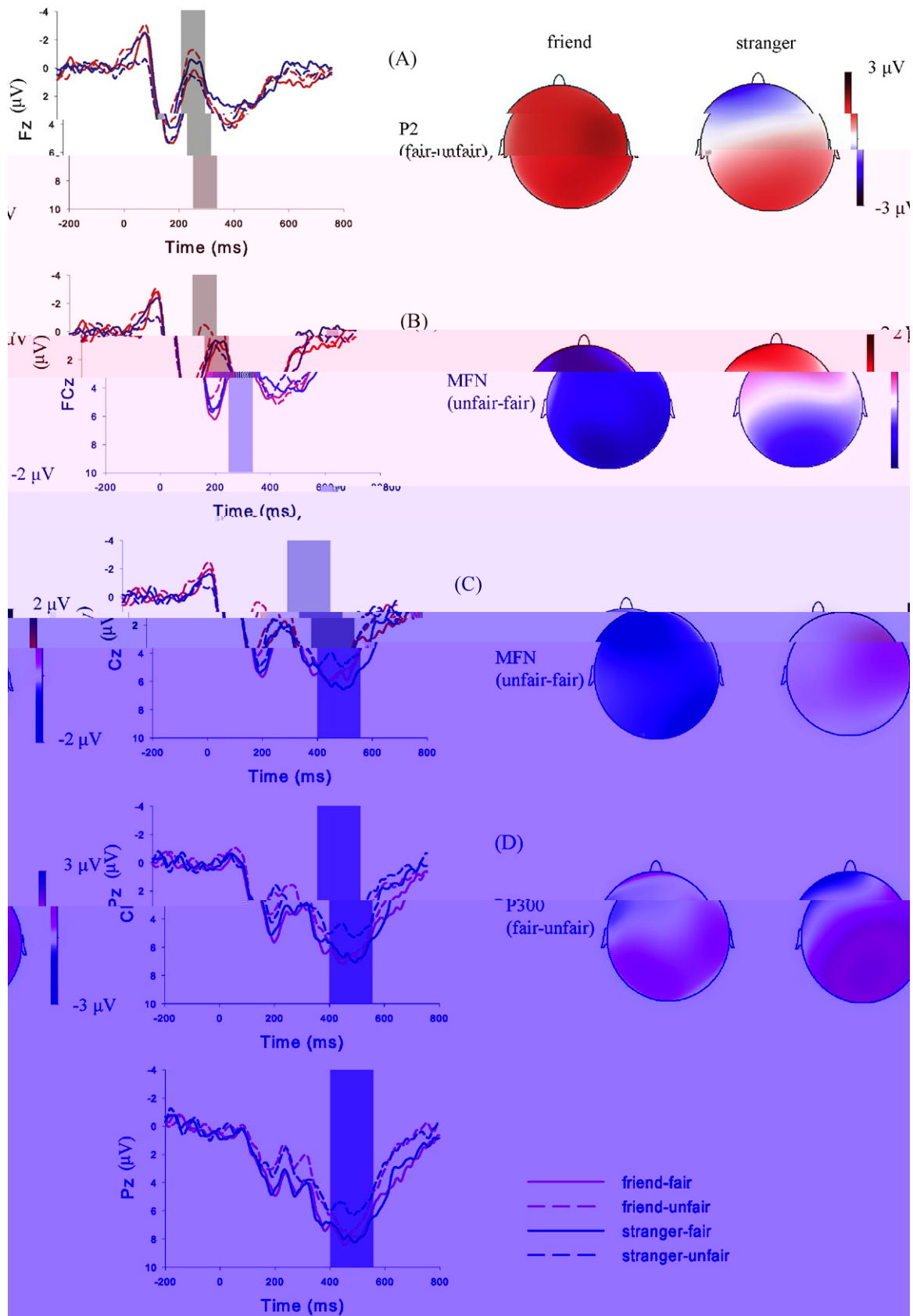


Fig. 3. (A) P2 (fair-unfair) component at Fz. (B) MFN (unfair-fair) component at FCz. (C) MFN (unfair-fair) component at Cz. (D) P300 (fair-unfair) component at Pz. Topographic maps show the distribution of the component at the time of the peak. The color scale indicates the voltage in µV. The x-axis represents time in ms. The y-axis represents voltage in µV. The legend indicates the four conditions: friend-fair (solid blue), friend-unfair (dashed blue), stranger-fair (solid red), and stranger-unfair (dashed red).

240 340 )  
 A A ) $\times 2$ (  
 A A )  
 ( .2D 3C),  
 $F(1,16)=4.22, p=0.057,$   
 (-1.53 . -0.98  $\mu$  ),  $F(1,16)=6.58, p<0.05,$   
 (-1.10 . -1.27  $\mu$  ),  $F(1,16)<1,$   
 $F(1,16)<1,$  ,  $F(1,16)=1.77, p>0.1,$   
 fi ,  $F(1,16)=3.28, p=0.09.$   
 (-1.21  $\mu$  )  
 (-0.73  $\mu$  )  
 $F(1,16)=3.14, p=0.10.$

3.5. The P300

A A A  
 400 550 )  
 )  
 fi  
 $F(1,16)=5.14, p<0.05.$  300  
 (6.06  $\mu$  ). (6.96  $\mu$  )  
 fi ,  $F(1,16)<1.$   
 fi  
 300,  
 ( . 2 $\bar{\epsilon}$ ) 250 600 A A.  
 A fi  
 $F(1,16)=5.27, p<0.05,$   
 (9.92 . 8.97  $\mu$  ),  
 $F(1,16)=1.21, p>0.1, F(1,16)<1,$   
 .3 ( )  
 300.A A A  
 550 800 fi  
 $F(1,16)=3.86, p=0.067,$   
 (2.90 . 1.94  $\mu$  ).  
 fi ,  $F(1,16)<1.$  ( ),  
 fi  
 (C ., 1994; ., 1998)  
 ( ., 2010),  
 300.  
 300 , fi  
 ( ., 2010).

4. Discussion

A  
 A  
 C

2  
 300  
 fi  
 ( ., 2002;  
 , 2004; , 1983)  
 ( ., 2006; ., 1975). D  
 fi  
 ( ., 2007)  
 ( ., 2010).  
 ACC,  
 fi  
 A fi  
 (B D C  
 2010; ., 2011; ., 2008).

300 . A  
 300  
 ( , 2005, 2007; , 2010;  
 , 2009; , 2005).  
 300  
 ( , 2005;  
 , 2004).  
 / ( , 2010;  
 , 2005; , 2009; , 2004).  
 300  
 (C , 1977; D J D ,  
 1977; J D , 1980). 300  
 ( , 2005, 2007). 300  
 ( B , 2007)  
 (B C , 2010;  
 D C , 1988).  
 300  
 (2009),  
 300.  
 (2010) . (2011)  
 300  
 ( , 2006; , 2008).  
 300  
 300  
 300  
 / 2.D 2  
 ( , 2002;  
 2010; , 2011; , 2010),  
 2  
 2  
 3 2  
 300

fi  
 ( . . . )  
 ( . . . )  
 ( , 2007; , 2010).  
 fi  
 ( , 2010)  
 (B , 2009)

5. Conclusion

B  
 ( )  
 fi fi  
 300



B ... B., 1999. ... 89, 335–339.

B ... A., D. C., D., 2010. ... 5, 118–128.

B ... A., D. C., D., 2009. ...

B ... C., 2003. ...

50, 133–144. ...

C ... 2008. ... ? A

68, 29–35. ...

C ... J., 1990. ... C

C ... A., C., 1977. 3

14, 590–597. ...

C ... J., C., J., ... B ... 1994. B

67, 115–125. ...

B ... A., 2007. A

B ... 7, 278–285. ... C, A

D ... 1975. ... ? J ... 31, 131–149.

D ... J., 2005. ... (E.), ... A

D ... E., C., 1988. ... 300

D ... ? B ... B ... J., 2005. ... 11, 351–374.

D ... C., B., 2005. ... 25, 777–787.

D ... J., C., D., E., 1977. ... 14,

456–467. ...

A., 2003. ...

41, 20–26. ...

E., 2002. A ... 415, 137–140.

2004. ...

B ... 25, 63–87. ...

E., 1991. ... C

2006. ...

1, 149–157. ...

2009. ... ?

4, 261–275. ...

J., A., 2002. ...

295, 2279–2282. ...

A ... D ... 2004. 300

216–224. ... 40,

B., B., A., B., C., E., A., 2010. ... ?

5, 414–423. ...

B., 1982. A

367–388. ... B ... 3,

C.B., J., 2005. B ... 42,

161–170. ...

J., C.B., 2007. ...

44, 905–912. ...

J.J., 1994. ... J

C fl ... 38, 647–664. ...

J.J., 1997. ... J

C fl ... 41, 835–868. ...

J.J., D., E., C., A., D., D., C., 2008. ... ? E

95, 1136–1149. ...

2010. ... 5, 76–91.

J., 2008. ...

B, C ... 9, 33. ...

J., C.B., 2011. ...

C.B., C ... 2002. ... 48, 507–514.

109, 679–708. ...

C.B., J., C., J.D., 2004. C ... 41,

245–253. ...

J., 2008. ... 19, 383–387.

A., J., C., J., 1998. ... 75, 887–900.

J., C., A., B., 2007. D ... 18,

1385–1388. ...

J., J., D., E., 1980. 300 ... 17, 167–178.

D., J., 1986. ...

J., B., C., A., 2010. ... 59, 285–300.

46, 229–232. ...

C., B., D., E., A., 2009. ...

505–514. ...

2010. ... 48, 448–455.

E., A., 1988. ...

D., J., 2005. 300: ... 11, 563–576.

D., D., D., 2003. ...

14, 47–53. ...

D., B., 2011. ... 54,

2472–2480. ...

D., 2006. ...

50, 584–606. ...

J., A., 2010. ...

11, 86–93. ...

D., 1993. ... B.A., B., J. (E.),

D., C., (E.), ... 1983.

B., C., C., 1997. ...

J., C., 9, 787–796.

2007. ...

56, 14–18. ...

A., J., C., J.D., 2005. D ... 3,

B ... 131, 510–532.

C.B., A., C., J.D., 2004. ...

C ... C ... 14, 741–747.

D., J.J., D., 2007. ...

1994–2004. ...

J., B., D., E., C., E., ... J.J., 1996.

D ... B ... D

67, 181–200. ...

D., D., 2008. ...

J., C., J., J., B., 2010. ... 190, 218–223.

49, 956–962. ...

J., 1986. ... 20, 28–34.

A., A., 2005. ... 300.

16, 407–411. ...

A ... 1986. A ... 23,

695–703. ... 300

E., 1975. ... ? J

31, 873–880. ...

1998. ...

J., B, J ... 89, 663–679.

1999. ... B ... D

79, 199–215. ...

J.C., 1986. ...

A ... (E.), ...

C ... J., B ... A., B, J ... 2010. ...

20, 1596–1603. ...

2009. ... 300

B ... 1286, 114–122.

Wu, Y., & Li, C.B., & Li, J.D., 2005. *Journal of Experimental Psychology: Applied*, 11, 535–544.

Wu, Y., & Li, A., 2004. *Journal of Experimental Psychology: Applied*, 10, 6258–6264.

Wu, Y., & Li, B., 2006. *Journal of Experimental Psychology: Applied*, 12, 1747–1751.

Wu, Y., & Li, B., 2006. *Journal of Experimental Psychology: Applied*, 12, 1649–1653.

Wu, Y., & Li, B., 2009. *Journal of Experimental Psychology: Applied*, 15, 684–696.

Wu, Y., & Li, B., 2011. *Journal of Experimental Psychology: Applied*, 17, 582–588.