

C

: E

,

J

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, *

1.3. Agreement processing in pronoun–antecedent coindexation

G (1963), (36: 92–96). (D & D D, 1999; F (1999). F (> >G), L, &, 2008; (G, 1998; H, J, K, & A, 2005). (C, 2005; H &, 2002; , 1992). C &, 1990, 1994; G &, 2000), I (A (A-F, 2009; A, L, F, & G, 2012). (A -A, &, & G, 2002; C, 2005; I, G -A, & -C -600, H (2010) F H (2008) (. . . prototipo famoso . *prototipo famosa) (. . . prototipo famoso . *prototipo famosos). A H I (person), (thing). (200 400) 600 (2011) C (2012) I 600 E (2011; , 2007), (I) A E I 400 600 (C, C, B, & H, 2010). H 600 B, & L, J, H (H, J, L, &, 2008; &, 1995), 400 (L, J (F, 1999), H, &, 2006; , 2002). I , B C (2005) 600 C 600 (. . .) (

我们(/ /), 你们(/ /), 他们(/ /), 她们(/ /), 他(/ /), 她(/ /). (Nref)

(1999; & B, 2006, 2008; & B, B & H, 2003). 们(/ /) (I, 1994; L, 1999), & , 2000). (L

(K, H, G, & H, 2000; & B, (B, 2004; K, G, & , 2012). A

2006; B, K, , & , 2007). A

600 (L & , 2010; & , 1995)

(. . ., *Four ships appeared on the horizon, six had sunk*; K, D, & B, 2007). Nref

600 (,)

(1995)

600 ()

. H, (. . ., , , 2010), / , E 2

(()). I)

1.4. The present study

I , . B (E 1), Nref

C C

C , . I

C , . F 他

她 /

. I (. . ., , , 2010), / , E 2

(, 1997).

E . H , C , C

们(/ /) 我(/ /), 你(/ /), 他(/ /), 她(/ /),

我们(/ /), 你们(/ /), 他们(/ /), 她们(/ /), 他(/ /), 她(/ /). (Nref)

(1999; & B, 2006, 2008; & B, B & H, 2003). 们(/ /) (I, 1994; L, 1999), & , 2000). (L

(K, H, G, & H, 2000; & B, (B, 2004; K, G, & , 2012). A

2006; B, K, , & , 2007). A

600 (L & , 2010; & , 1995)

(. . ., *Four ships appeared on the horizon, six had sunk*; K, D, & B, 2007). Nref

600 (,)

(1995)

600 ()

. H, (. . ., , , 2010), / , E 2

(()). I)

I , . B (E 1), Nref

Table 1

E	1.
C	E
C	这位女患者情绪低落,医生/鼓励/她/振作/起来。 ta_{female} This woman patient was in low spirits, doctors encouraged her to cheer up 这些女患者情绪低落,医生/鼓励/她/振作/起来。
G	这位女患者情绪低落,医生/鼓励/他/振作/起来。 ta_{male} These women patients were in low spirits, doctors encouraged her to cheer up
D	这些女患者情绪低落,医生/鼓励/他/振作/起来。 ta_{male} This woman patient was in low spirits, doctors encouraged him to cheer up 这些女患者情绪低落,医生/鼓励/他/振作/起来。 ta_{male} These women patients were in low spirits, doctors encouraged him to cheer up

/

I , 172

132 40

(. . .) . A

, 40

(他们,)

. I

. F

E

L

46

2.1.3. Procedures

. A

. E

()

500 500

500 . A

. E

400

400 .

C (J & , 2009; S , L , F , & , 2006).

. A

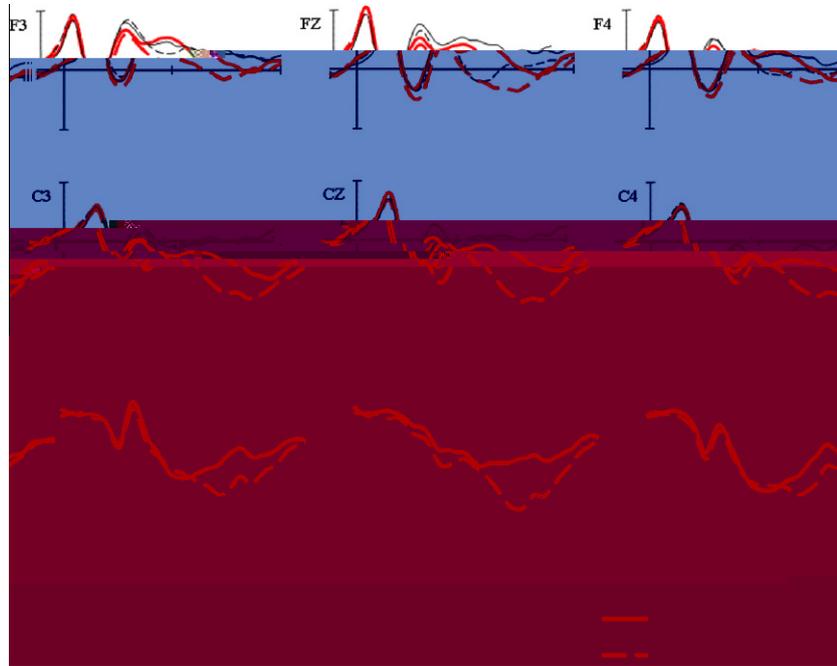


Fig. 1. G
1.

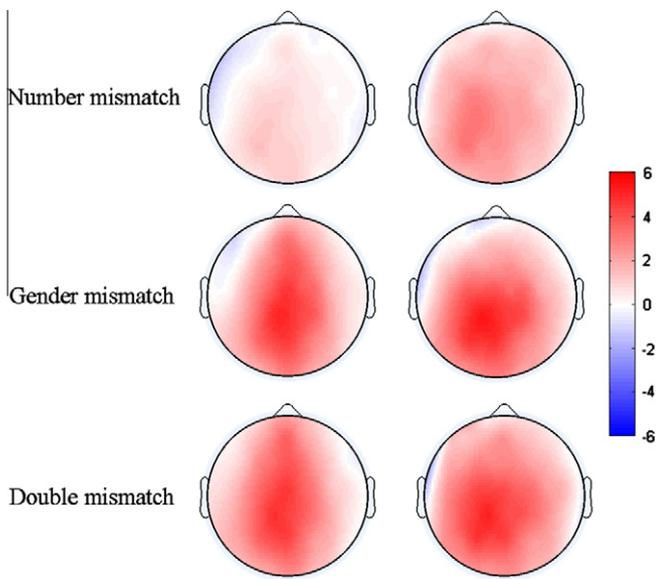


Fig. 2.
() 550 800 () 400 550) E 1.

2.2.2.1. ERP responses in the 250–400 ms time window.

A (0.73 μV), $F(1,23) = 4.63, p < 0.05,$
 (0.83 μV), $F(1,23) = 5.90, p < 0.05,$
 (0.68 μV), $F(1,23) = 6.76, p < 0.05,$
 $F < 1. F$

$F < 1$
 $F(1,23) = 4.04, 0.05 < p < 0.1$
 $= 6.99, p < 0.05$
 $F(1,23) = 3.15, 0.05 < p < 0.1$
 $F(1,23) = 3.34, 0.05 < p < 0.1$
 $F(1,23) = 3.37, 0.05 < p < 0.1$

2.2.2.2. ERP responses in the 400–550 ms time window.

$= 70.02, p < 0.001,$
 $p < 0.001,$
 $2.23 \mu\text{V}$
 $p < 0.05,$
 $F(2,46) = 3.89, 0.05 < p < 0.1. I$
 $F < 1,$
 $p > 0.1$
 $p < 0.001$
 $= 50.99, p < 0.001$
 $F < 1$
 $F(1,23) = 42.52,$
 $F(1,23) = 32.33, p < 0.001$
 $F(1,23) = 46.08, p < 0.001$
 $F(1,23) = 2.49, p > 0.1$
 $F < 1$
 $F(1,23) = 49.64, p < 0.001,$
 $F(1,23) = 43.05, p < 0.001,$
 $2.04 \mu\text{V}$
 $(3.61 \mu\text{V})$
 $F(5,115) = 4.49,$
 $F(1,23) = 1.90, p > 0.1,$
 $F(1,23) = 1.45,$
 $F(1,23) = 46.08, p < 0.001$
 $(3.24 \mu\text{V})$

2.2.2.3. ERP responses in the 550–800 ms time window.

$F(1,23) = 44.44, p < 0.001$
 $F(1,23) = 41.07, p < 0.001$
 $F(1,23) = 9.92, p < 0.005$
 $F(1,23) = 18.84, p < 0.001$

$F(1,23) = 9.18, p < 0.01$
 $F(1,23) = 8.88, p < 0.01$
 $F(5,115) = 5.55, p < 0.01$
 $F(2,46) = 4.39, p < 0.05$

$F(1,23) = 40.78, p < 0.001$
 $F(1,23) = 17.37, p < 0.005$
 $F(1,23) = 42.69, p < 0.001$
 $F(1,23) = 12.58, p < 0.005$

$F(1,23) = 38.02, p < 0.001$
 $F(1,23) = 47.36, p < 0.001$
 $F(1,23) = 47.36, p < 0.001$

$F < 1$

$F(1,23) = 10.18, p < 0.005,$
 $F(1,23) = 7.13, p < 0.05.$

2.3. Discussion

I 250 400 less
I 600

H 600
400 550

L (2010)
zij ()
(300 400) 600

I

250 400
3.3.

600 /
(. . H . . 2005; L -
(. . 2008)
400 (D & B . . 2001; H . .
2008; L . . 2006; . . 2002).

C
(. . 2012).
I 400 550 550 800
600 550 800

4.
600

600
2009; . H . K . & K (J . . & . . 2008;
. . 2010). J . (2009)
C . A 都 (/dou/, all)

L .

A 600

2005; B . . 2007; (H (2009)
)

2003; B . . 2007). (K . C . H . & .
)

Nref . A
B (2006)
(. . The chemist hit the histo-
rian while he...)

3. Experiment 2

E 1
600

3.2. Results

3.2.1. Behavioral results

87.6% (D = 1.7%), 91.3% (D = 1.4%), 95.6% (D = 1.1%), 98.3% (D = 0.5%). A $F(1,23) = 42.04, p < 0.001$, $F(1,23) = 7.78, p < 0.01$, $F(1,23) < 1$. C (96.9%) (89.5% (94.8% . 91.6%).)

3.2.2. Electrophysiological results

3.2.2.1. ERP responses in the 250–400 ms time window. $F(1,23) = 7.82, p < 0.05$, $F(1,23) = 9.08, p < 0.01$, $F < 1$. $F(1,23) = 5.04, p < 0.05$, $(-0.72 \mu V)$

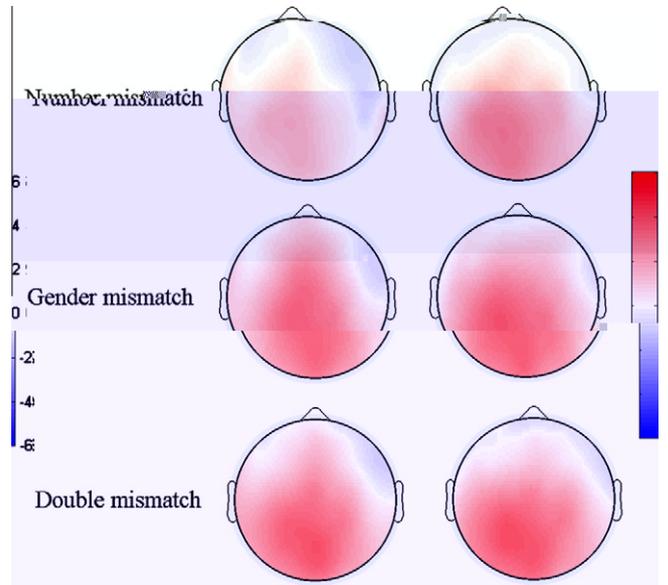


Fig. 4. ERP responses in the 400–550 ms time window. $F(1,23) = 41.93, p < 0.001$, $F(1,23) = 1.72, p > 0.1$, $F(1,23) = 2.61, p > 0.1$. $F(1,23) = 32.11, p < 0.001$, $F(1,23) < 1$, $F(1,23) < 1$.

3.2.2.2. ERP responses in the 400–550 ms time window. A $F(1,23) = 41.93, p < 0.001$, $F(1,23) = 1.72, p > 0.1$, $F(1,23) = 2.61, p > 0.1$. $F(1,23) = 32.11, p < 0.001$, $F(1,23) < 1$, $F(1,23) < 1$.

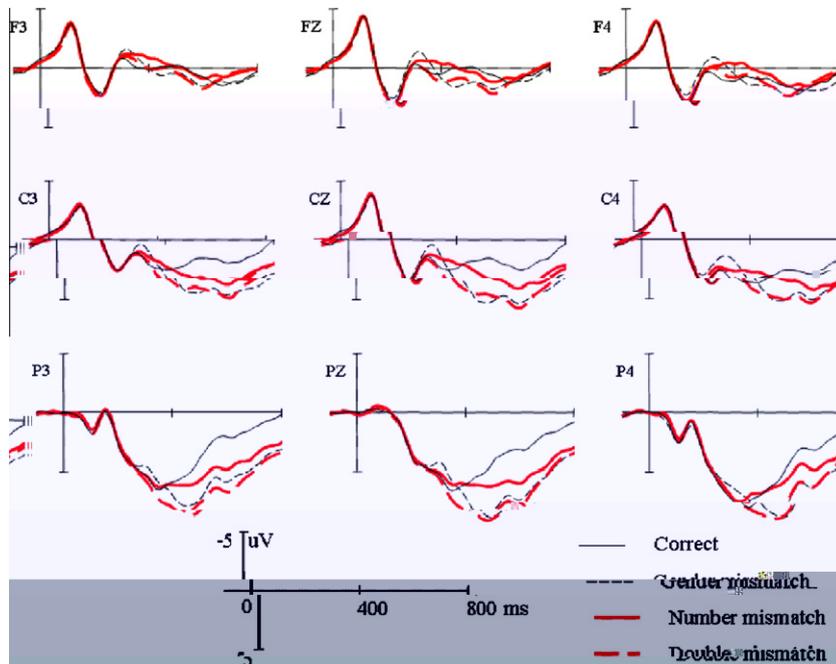


Fig. 3. G

A
 $F(5,115) = 3.90, p < 0.05,$
 $F(1,23) = 6.00, p < 0.05$
 $(2,46) = 9.35, p < 0.005,$
 $F(1,23) = 8.56, p < 0.01.$

3.2.2.3. ERP responses in the 550–800 ms time window. I

$(1,23) = 26.22, p < 0.001,$
 $(1,23) = 9.81, p < 0.001,$
 $F(1,23) = 7.09, p < 0.05.$
 $F(1,23) = 25.46, p < 0.001;$
 $(1,23) = 6.90, p < 0.05;$
 $F(1,23) = 5.43, p < 0.05.$
 $(F < 1).$

F
 $F(1,23) < 1.$

E
 $(4.07 \text{ } 3.27 \mu\text{s}), F(1,23) = 6.96, p < 0.05,$
 $(3.52 \text{ } 2.73 \mu\text{s}), F(1,23) = 9.64, p < 0.01.$

3.2.2.4. Combined analysis of ERP results in Experiments 1 and 2.

G E 1 2
 A A 250 400
 $F(1,46) = 3.68,$
 $p < 0.05,$
 $F(1,46) = 6.91, p < 0.05,$
 $F(1,46) = 5.57,$
 $p < 0.05,$
 $F < 1.$

$F(1,46) = 3.09, 0.05 < p < 0.1.$
 $(1,46) = 4.55, p < 0.05,$
 $F(1,46) = 5.03, p < 0.05.$

F
 $F(2,92) = 6.85, p < 0.05.$
 $F(5,230) = 1.13,$
 $p > 0.1,$
 $F(2,92) = 1.69, p > 0.1,$

250 400 F
 $(F < 1),$
 F

$(F < 1),$
 $F(5,230) = 3.83, 0.05 < p < 0.1,$
 $F(2,92) = 5.02, p < 0.05.$
 C E 1, 3).
 A A 400 550
 $F(1,46) = 111.84,$
 $p < 0.001,$
 $F(1,46) = 80.01, p < 0.001.$

$F(5,230) = 8.44, p < 0.005,$
 $F(2,92) = 11.45, p < 0.005.$

$(1,46) = 5.44, p < 0.05,$
 E 1 E 2.
 $F(1,46) = 3.55, 0.05 < p < 0.1,$
 $F(2,92) = 7.04, p < 0.01.$

A A 550 800
 $F(1,46) = 70.37, p < 0.001,$
 $F(1,46) = 65.99, p < 0.001,$
 $= 19.01, p < 0.001,$
 $(2,92) = 24.89, p < 0.01.$

$F(1,46) = 16.26, p < 0.001,$
 $F(1,46) = 14.01, p < 0.005,$
 G
 $F(1,46) < 1,$
 $= 1.43, p > 0.1,$
 600

$F(1,46) = 19.33, p < 0.001,$
 $= 24.88, p < 0.001.$
 $F(2,92) = 9.22, p < 0.01,$
 600

$F(5,230) = 5.86, p < 0.005,$
 $F(2,92) = 9.39,$
 $p < 0.005,$
 E 2 E
 1.

400 (2006). (2002) (2002) L 600 . C .

400- (2002) B , & little), (. . . B , &),

400- G (2006) 400- D , L

420) (280 I , E ,

E 2 . I (. . . 1) /

A E 1 E 2 A E 600

250 400 (, & L , 1992; , A , & L ((/ta/), E 2 1 - - (/tamen/). C -

E 2 -

E , F(1,46) = 6.02, p < 0.05

E 2 F(1,46) = 7.67, p < 0.01

E 1.

& K , 1998) (tamen) C . A (ta) (K

200, -

E 1 2 , - (4000 (E 1) . (E 600 1 2)

600 E 1, . I , F . (1999)

1, / / . (. . .)

1985; G , , 2000; E (A , E , B - , 1980; G & ,

1985; G , , E , & C , 1995), , H (2010) . I

(, , E , 1997; K , 2005). A , . H , - F . (1999),

E 2, E 1, C .

E 1. E , - . F , - (. . .)

I , E 2 / 600 (E . (2011));

600 , 600 , (. . .) , 400 600

600 / (H . , 2008;

& , 2008; K , 2007), - -

()

4).

4. General discussion

I , E ,

(E 2) (E 1)

600

E 600

(E 1 2) 1)

600

. I ,

4.1. The cognitive salience of semantic gender and number agreement processing

600

(E 1) (E 600 1 2)

. I , F . (1999)

. I

H (2010)

F . (1999),

. H , -

C .

. F , - (. . .)

/ 600 (E . (2011));

, - (. . .) , 400 600

E

/ (H . , 2008;

., 2005; ., 2012). I
 2012).
 C
 & B , 2008)
 E
 ()
 (E 1)
 (E 2).
 (600)
 .D
 (600).I
 .F
 (L , 2004),
 (L , 1993),
 .D
 (A , 2008; F & L , 1993;
 B (A -F , 2009; B , 1998).

C
 , 2008; , & B , 2010).
 (K
 (. . .)
 (. . .)
 4.2. Implications to the two-stage theory of pronoun resolution
 A (G & , 2000)
 (C , 2008):
 LA
 400 600. A
 F
 LA
 .H , E
 .I
 250 400
 .F
 600
 600
 (, 2002),
 600
 , & , 2010; K , 2000; (G , , K
 , 2005). C
 600
 ()
 .H
 ()
 600
 600
 (B & C , 2005).

5. Conclusion

2007; , 1983; (A , B , &
 , 1981).
 (A -F , 2009; B , 1998).
 C
 .I

B
 E
 600
 .I

- C. L. (1993). *Developmental Review*, 13, 184–204.
- L., C., H., A., & (2006). *Brain Research*, 1093, 178–189.
- B., H. A., & C. (2011). *Cortex*, 47, 908–930.
- K., A., F., & J. (2008). *Cognition*, 106, 963–974.
- F., & J. (2011). *Journal of Memory and Language*, 64, 211–232.
- H. J., D. L., & L. D. (1992). *Cerebral Cortex*, 2, 244–258.
- A., D., B., & C. (2007). *Brain Research*, 1164, 81–94.
- & B., J. J. A. (2006). *Brain Research*, 1118, 155–167.
- & B., J. J. A. (2008). *Brain and Language*, 106, 119–131.
- (1992). *Features, positions, and affixes in autonomous morphological structure*. C. A: I. L., A., & L. J. (2002). *Journal of Neurolinguistics*, 15, 171–187.
- L., B., & L. J. (1997). *Memory and Cognition*, 25, 273–285.
- L., & L. A. (1995). *Journal of Memory and Language*, 34, 739–773.
- C., K., & A. H. (2005). *Cognitive Brain Research*, 22, 407–428.
- L., C., H. C., & (2012). *Plos ONE*, 7(5), 36156.
- & H. J. (2010). *Lingua*, 120, 2022–2039.
- B., L., & F. (2002). *Brain Research*, 14, 333–346.
- J. F., & C. (2007). *Brain Research*, 1185, 201–211.
- H., K., & K. G. (2008). *Journal of Cognitive Neuroscience*, 20, 2037–2057.
- K., A. J., G., & (2001). *Neuroreport*, 12, 999–1005.
- L. K. (1983). *Cognition*, 13, 309–341.
- B., J. J. A., B., C., & H. (1999). *Journal of Memory and Language*, 41, 147–182.
- B., J. J. A., B., C., H., & (2003). *Psychophysiology*, 40, 235–248.
- B., J. J. A., K., A., & (2007). *Brain Research*, 1146, 158–171.
- G., B., B., & G. F. (1996). *Cognition*, 51, 261–298.
- (1981). *Journal of Experimental Child Psychology*, 32, 264–278.
- L., F., A. D., & (2006). *Brain Research*, 1071, 186–196.
- & (2009). *Neuroscience and Biobehavioral Reviews*, 33, 1168–1177.
- J., & (2008). *NeuroReport*, 19, 745–749.
- J., & B. J. E. (2010). *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 36, 765–781.
- J., L., K., & (2010). *Neuropsychologia*, 48, 1551–1562.