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Social distance modulates recipient's fairness consideration in the dictator game: An ERP study

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a r t i c l e i n f o

A … :
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K … :
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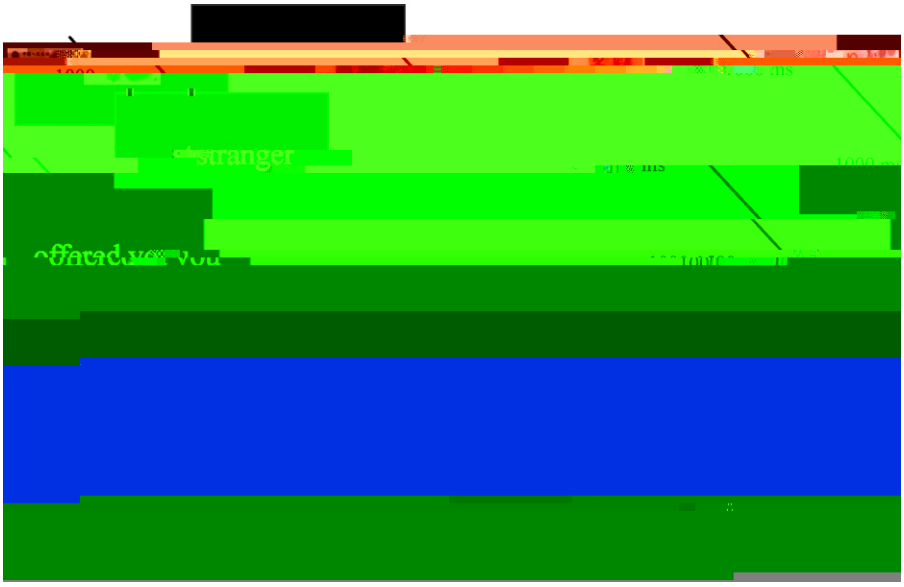
a b s t r a c t

Previous research showed that social distance (e.g., being friends or strangers) influences people's fairness consideration and other-regarding behavior. However, it is not entirely clear how social distance influences the recipient's evaluation of (un)fair behavior. In this study, we let people play a dictator game in which they received (un)fair offers from either friends or strangers while their brain potentials were recorded. Results showed that the medial frontal negativity (MFN), a component associated with the processing of expectancy violation, was more negative-going in response to unfair than to fair offers from friends whereas it did not show differential responses to offers from strangers. The P300 was more positive for fair than for unfair offers irrespective of friends or strangers making the offers. These result731 05gs 7

money and the recipient just passively receives the amount given to him (Kahneman et al.,

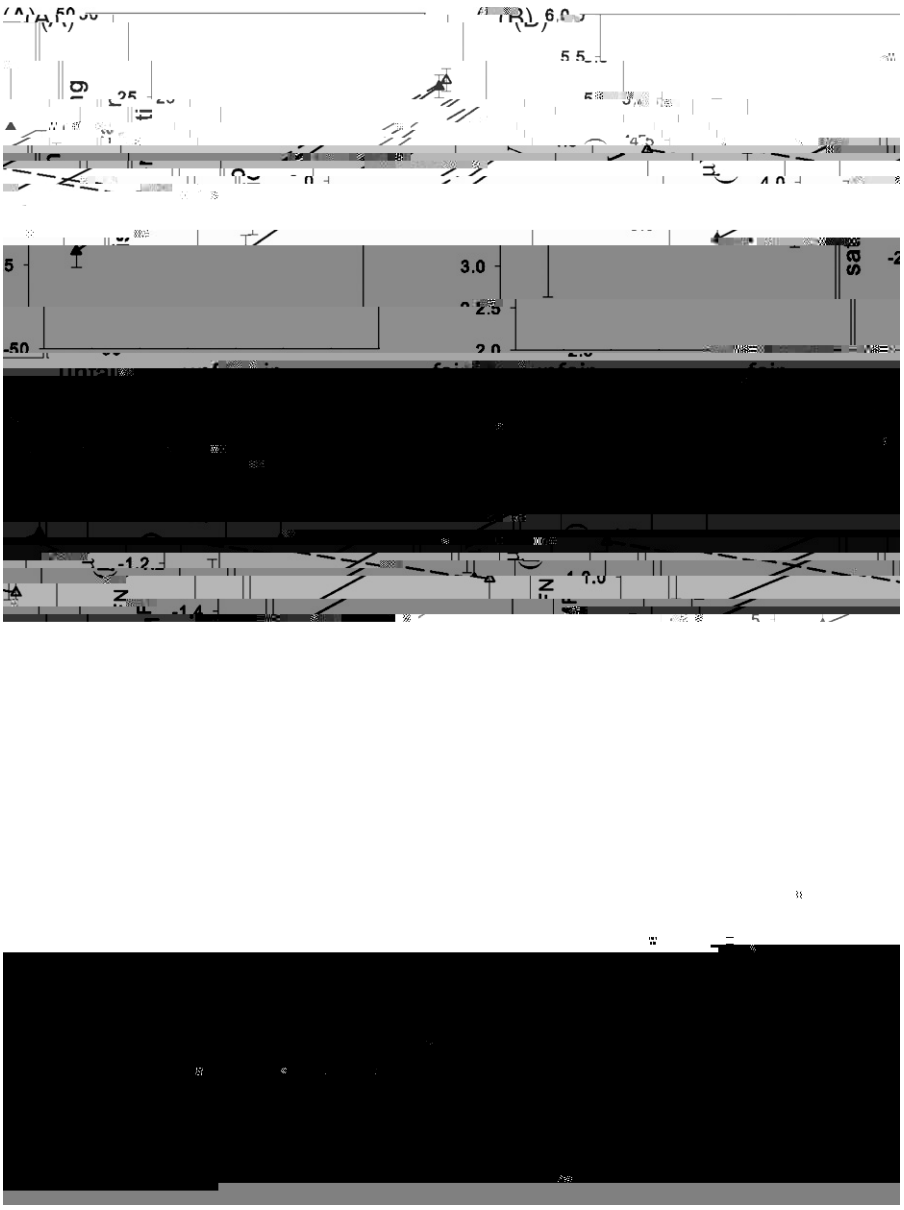


. 1. Sequence of events in a single trial.

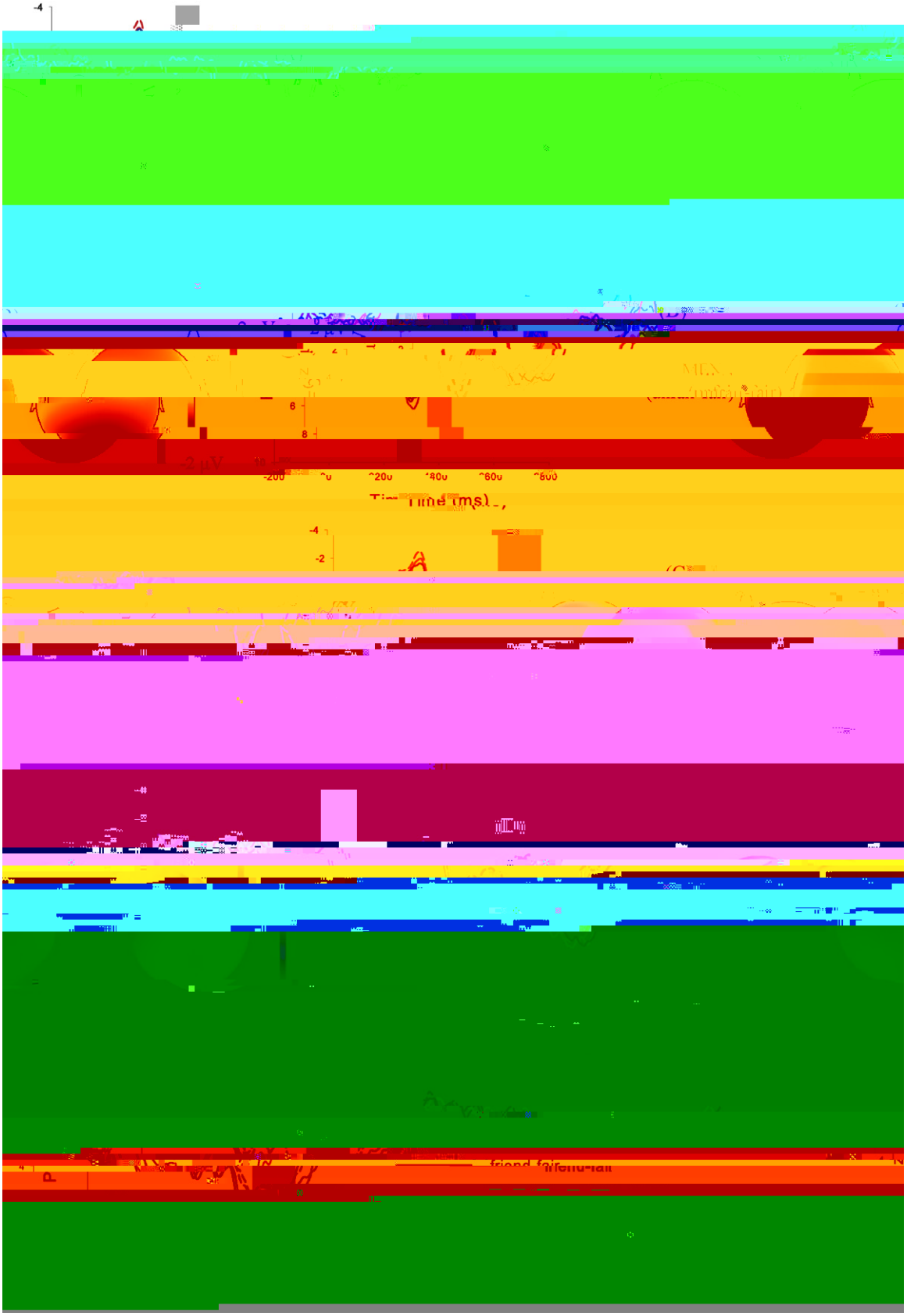
1980). The P300 has also been found to be related to various aspects of outcome evaluation. Some studies found that the P300 is sensitive to the magnitude of reward, with a more positive response to a larger than to a smaller reward (Sato et al., 2005; Yeung and Sanfey, 2004). Other studies suggested that the P300 is also sensitive to reward valence, with a more positive amplitude for positive feedback than for negative outcome (Hajcak et al., 2005, 2007; Wu and Zhou, 2009; Yeung et al., 2005).

In the present design and from the recipient's perspective, the magnitude of reward co-varied with the valence of reward: a fair offer was also larger in magnitude than an unfair offer.

Each trial began



. 2. Behavioral and ERP results. (A) Subjective rating for fair and unfair offers; (B) mean amplitudes (P2) in the 160–240 ms time window for fair and unfair offers at the anterior-frontal region; (C) mean amplitudes (MFN) in the 240–340 ms time window for fair and unfair offers at the anterior-frontal region; (D) mean amplitudes (MFN) in the 240–340 ms



. . (Left panel) Grand average event-related potentials at the midline Fz, FCz, Cz, CPz and Pz for different offers. The shaded 240–340 ms time window at Fz and FCz was for the

similar treatments). In the anterior-frontal region, the mean amplitudes in the 240–340 ms time window were submitted to a 2 (social distance: friend vs. stranger) × 2 (fairness level: fair vs. unfair offer) repeated-measures ANOVA. We found a significant interaction between fairness level and social distance (Figs. 2D and 3C), as in the original analysis, $F(1,16) = 4.22$, $= 0.057$, with unfair offers eliciting more negative MFN than fair offers in the friend-allocation condition (−1.53 vs. −0.98 μV), $F(1,16) = 6.58$, < 0.05, but not in the stranger-allocation condition (−1.10 vs. −1.27 μV), $F(1,16) < 1$. In the central-posterior region, there was no significant main effect of fairness level, $F(1,16) < 1$, or social distance, $F(1,16) = 1.77$, > 0.1, although the interaction between the two factors was marginally significant,

is consistent with previous studies on the functional significance of P300 in outcome evaluation.

Yeung, N., Holroyd, C.B.,