

Ba Ac Fa e C de a d Ae D b : De el a O e Pa a R e?

Yin Wu^{1,2}, Jie Hu², Eric van Dijk^{3,4}, Marijke C. Leliveld⁵, Xiaolin Zhou^{2,6*}

1 Key Laboratory of Child Development and Learning Science, Ministry of Education, Southeast University, Nanjing, China, **2** Center for Brain and Cognitive Sciences and Department of Psychology, Peking University, Beijing, China, **3** Department of Social and Organizational Psychology, Leiden University, Leiden, The Netherlands, **4** Leiden Institute for Brain and Cognition, Leiden University, Leiden, The Netherlands, **5** Department of Marketing, University of Groningen, Groningen, The Netherlands, **6** Key Laboratory of Machine Perception, Ministry of Education, Peking University, Beijing, China

Abstract

Previous behavioral studies have shown that initial ownership influences individuals' fairness consideration and other-regarding behavior. However, it is not entirely clear whether initial ownership influences the brain activity when a recipient evaluates the fairness of asset distribution. In this study, we randomly assigned the bargaining property (monetary reward) to either the allocator or the recipient in the ultimatum game and let participants of the study, acting as recipients, receive either disadvantageous unequal, equal, or advantageous unequal offers from allocators while the event-related potentials (ERPs) were recorded. Behavioral results showed that participants were more likely to reject disadvantageous unequal and equal offers when they initially owned the property as compared to when they did not. The two types of unequal offers evoked more negative going ERPs (the MFN) than the equal offers in an early time window and the differences were not modulated by the initial ownership. In a late time window, however, the P300 responses to division schemes were affected not only by the type of unequal offers but also by whom the property was initially assigned to. These findings suggest that while the MFN may function as a general mechanism that evaluates whether the offer is consistent or inconsistent with the equity rule, the P300 is sensitive to top-down controlled processes, into which factors related to the allocation of attentional resources, including initial ownership and personal interests, come to play.

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* E-mail: xz104@pku.edu.cn

Introduction

Individuals' behavior is often influenced by the initial ownership of the asset being distributed, a phenomenon known as the *mere ownership effect* [1,2]. This effect has been observed in various contexts, including the ultimatum game [3]. The mere ownership effect is thought to be related to the initial ownership of the asset being distributed, which influences the recipient's perception of the fairness of the offer [1].

Recipients' behavior is also influenced by the initial ownership of the asset being distributed, a phenomenon known as the *mere ownership effect* [4,5,6]. O'Boyd et al. [6] found that recipients' behavior is influenced by the initial ownership of the asset being distributed, a phenomenon known as the *mere ownership effect* [4,5,6]. O'Boyd et al. [6] found that recipients' behavior is influenced by the initial ownership of the asset being distributed, a phenomenon known as the *mere ownership effect* [4,5,6]. O'Boyd et al. [6] found that recipients' behavior is influenced by the initial ownership of the asset being distributed, a phenomenon known as the *mere ownership effect* [4,5,6].

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baseline-corrected bipolar derivations were analyzed using a two-factor analysis of variance (ANOVA) with the factors of EEG frequency band ($\pm 80 \mu\text{V}$) and electrode location. The EEG data were analyzed using a band-pass filter of 0.016–30 Hz. We used 10 electrode locations, FC3, FC1, FC2, FC4, C3, C1, C2 and C4 for MFN and 10 electrode locations, CP3, CP1, CP2, CP4, P3, P1, P2 and P4 for P300. The MFN and P300 were analyzed using bipolar derivations. Band-pass filtered ERP waveforms were averaged across subjects (280–380 ms for MFN and 400–600 ms for P300) (see also [28]). A two-factor ANOVA was conducted using a two-factor ANOVA (ANOVA) with the factors of frequency band and electrode location. The Greenhouse-Geisser correction was used when appropriate. The Bonferroni correction was used for the comparisons.

Results

An initial EEG analysis, using a canonical analysis of variance (ANOVA) with the factors of EEG frequency band and electrode location, revealed significant differences in the initial EEG waveforms across the frequency bands and electrode locations. The analysis revealed significant differences in the initial EEG waveforms across the frequency bands and electrode locations (8 bands) and electrode locations.

Manipulation Checks of Initial Ownership

The initial ownership manipulation was checked using a two-factor ANOVA with the factors of initial ownership (10% and 90%) and electrode location. The analysis revealed significant differences in the initial EEG waveforms across the frequency bands and electrode locations. A 2 (initial ownership) \times 10 (electrode location) ANOVA revealed significant differences in the initial EEG waveforms across the frequency bands and electrode locations.

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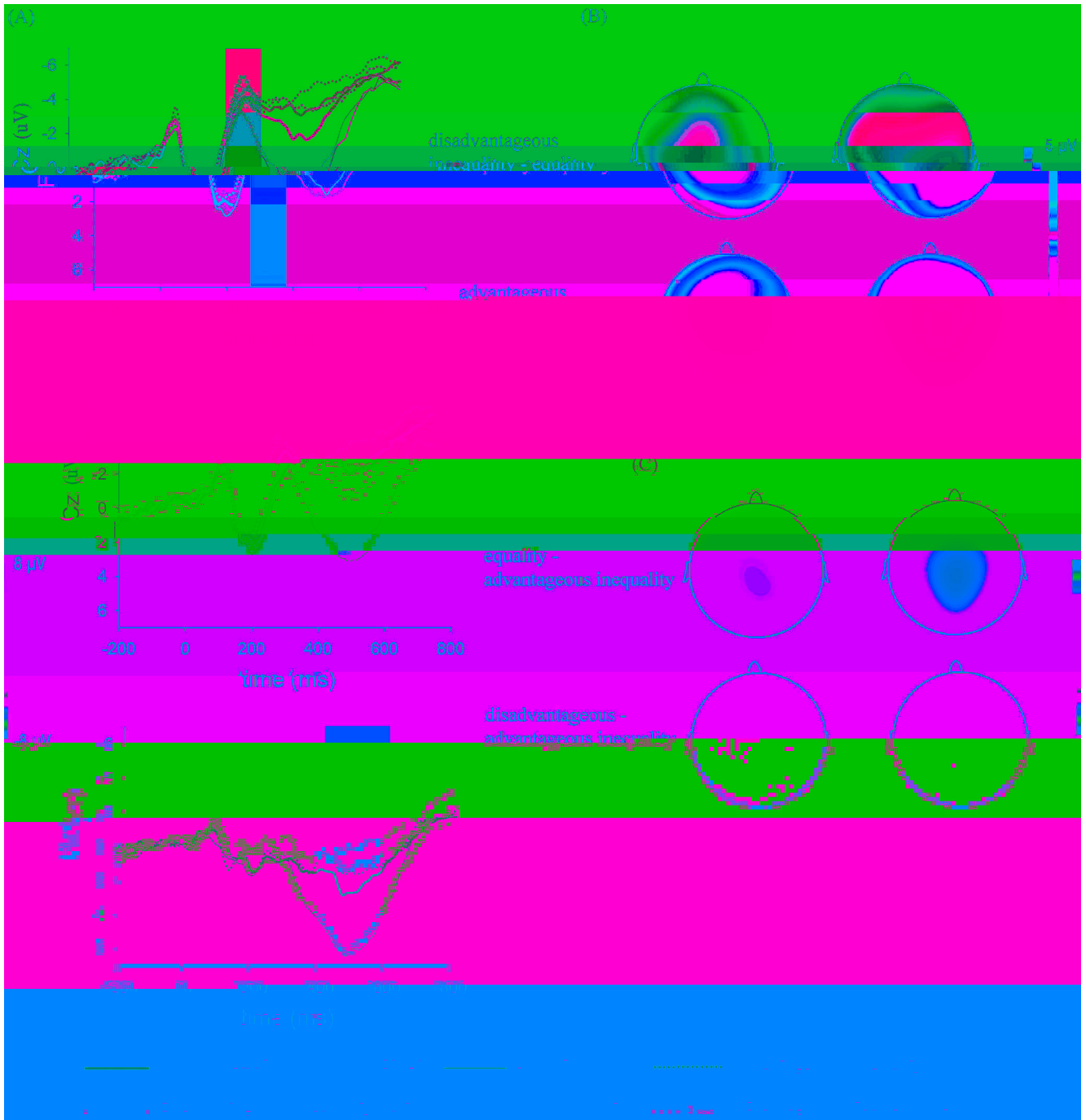


Figure 3. ERP responses and topographic maps. (A) ERP responses time-locked to the onset of different offers at the midline FCz, Cz and Pz. The shaded 280–380 ms time window was for the calculation of the mean amplitudes of the MFN. The shaded 400–600 ms time window was for the calculation of the mean amplitudes of the P300. (B) Topographic maps for the MFN effects in the 280–380 ms time window. (C) Topographic maps for the P300 effects in the 400–600 ms time window.
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of the P300 [18,19,60,61], and the lack of a P300 in the current study (see also [62]).

Notably, the MFN amplitude was significantly larger for the equality-advantageous inequality condition than for the disadvantageous-advantageous inequality condition. The MFN amplitude was also significantly larger for the equality-advantageous inequality condition than for the disadvantageous-advantageous inequality condition. Overall, the MFN amplitude was significantly larger for the equality-advantageous inequality condition than for the disadvantageous-advantageous inequality condition.

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Author Contributions

Conceptualization: YW, JH, ML, XZ. Data curation: YW, JH, A. Analysis: YW, JH, W. Writing: YW, JH, EVD, ML, XZ.



