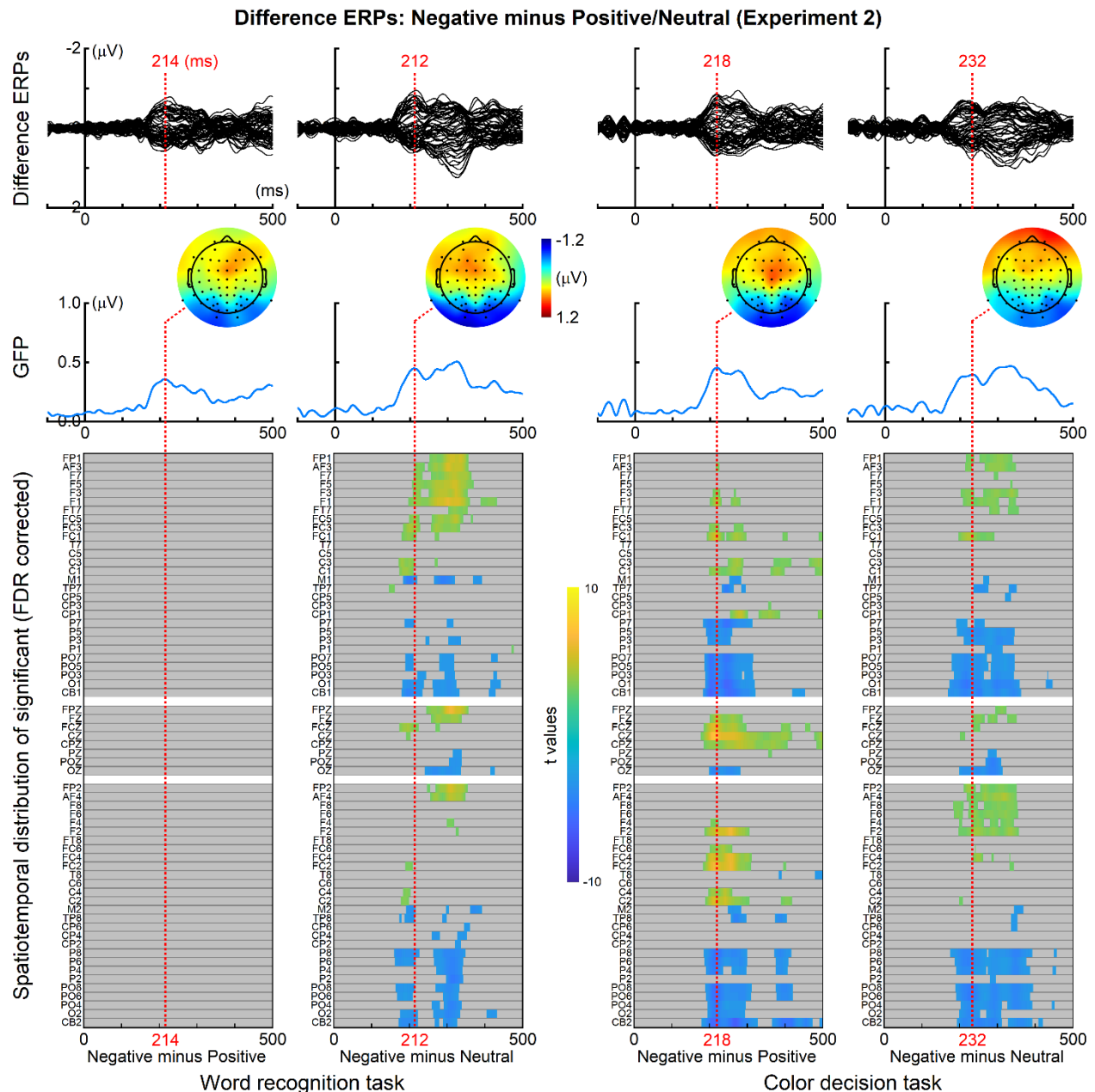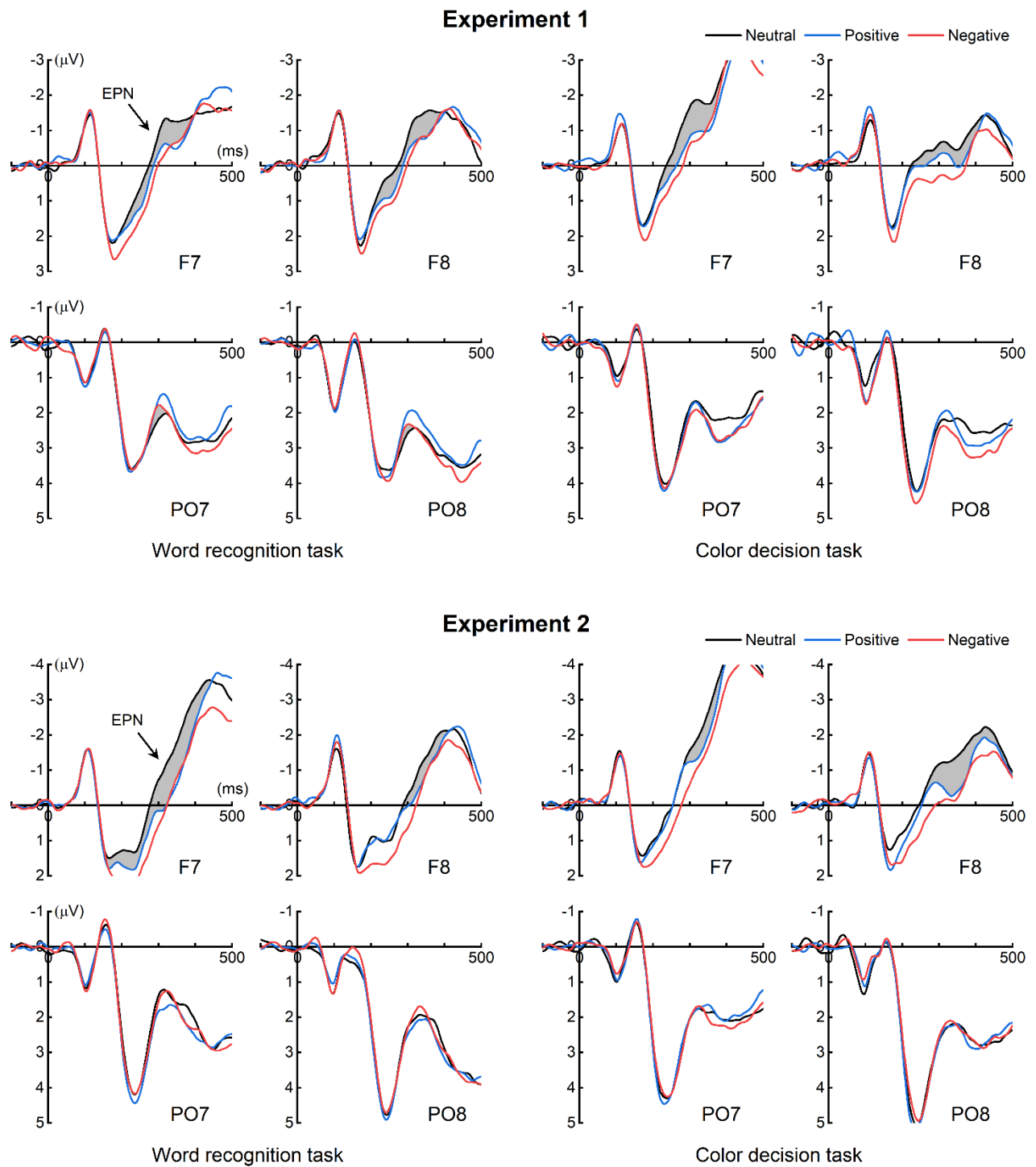# *Supplementary Material*

1   Supplementary Figures

Figure S1. ERP differences between negative and positive/neutral words (Experiment 2). Top panels: Grand-averaged difference ERPs across all 64 recording electrodes, obtained by subtracting ERPs elicited by negative words from those elicited by positive/neutral words. Middle panels: Global field power (GFP) plots representing the computed GFP of the difference ERPs for each task. Bottom panels: Spatiotemporal distribution of significant time points resulting from repeated-measures two-

tailed *t*-tests conducted on ERPs elicited by emotional and neutral words at each electrode across time points from 50 to 500 ms.

Figure S2. Grand-averaged ERPs (re-reference to mean mastoids). For both experiments, the EPN was evident in the frontal region but scarcely observable at the posterior electrode sites.

2 Supplementary Tables

Known words			Unknown words (Rare words)		
Positive	**Negative**	**Neutral**			
真	死	表	芰	肯	郇
笑	离	声	苫	盗	觌
爱	病	院	壱	眚	勏
益	害	城	笏	罥	洧
喜	杀	船	衾	衮	睬
吉	苦	铁	杲	恋	邝
朋	伤	岛	苊	羌	坫
智	痛	闻	罣	蓊	洍
恩	恶	楼	裂	苣	睡
康	危	票	夼	笆	邶
侠	坏	港	甭	凋	秒
幸	罪	普	恝	罝	耴
奖	败	馆	竿	蔽	祂
妙	恨	塔	羑	奎	凯
奋	恐	库	椠	浘	垤
赏	损	售	莛	智	卸
恋	毒	袋	苂	籴	秠
欣	怨	矿	氊	裒	栝
寿	烂	岩	盍	奭	轵
祝	残	陆	茶	邴	徂
吻	悲	室	苗	乩	泖
愉	患	钟	罙	劭	肝
甜	烦	椅	垒	祫	眵
悦	疾	瓶	莽	彤	衬
孝	灾	池	蒐	觇	舲
财	贬	峡	睿	绂	贮
欢	丧	铜	苅	砟	仉
善	污	齿	訾	沔	祐
香	骂	岗	宗	铦	郝
宝	腥	座	昃	剽	跍
玩	骗	盐	忝	杌	剞
丽	惨	壳	苍	眍	砭
诚	伪	胃	箓	泛	秬
勇	盗	柴	奇	赆	联
敬	脏	柜	岂	盹	陕
庆	惩	亭	觉	阽	轵
荣	辱	盆	若	仂	竹
伴	忌	盒	筇	绖	庋
忠	奸	框	咎	訢	阅
净	葬	伞	穿	埭	阒
祥	窃	渠	咢	紬	尥
贺	险	砖	莘	觊	迕
俊	淫	饼	芼	骃	迾
帅	讽	巷	蝥	靬	飑
夸	哀	桶	穵	紒	尵
旺	坟	壶	絽	邲	递
宠	冤	言		舡	逌
娱	诈	洞			
萌	疮	桨			
俏	贱	话			

Table S1. Stimuli used in Experiment 1

Known words			Unknown words (Pseudowords)		
Positive	**Negative**	**Neutral**			
漂亮	敌人	玻璃	身果	贸饮	闯元
快乐	逼迫	进入	次度	曹幼	圳葡
满意	可怕	脑袋	报才	忍页	仑芝
敬仰	悲痛	报纸	接必	躺钢	懒吁
舒服	愤怒	椅子	治展	奈扣	罗陕
勇气	失望	普通	象双	拨滴	浦讶
关怀	批评	晚饭	张卖	筹丛	脾弓
享受	难过	胳膊	转夫	紫仲	舟吼
礼物	委屈	浴室	位该	遥吕	僚沫
灿烂	忧郁	隐秘	标谈	坛沈	柄坑
良心	病毒	基本	众构	敲纹	芒湘
活泼	棺材	接近	律足	侯抖	筋兆
笑脸	残酷	月饼	斗束	炼恒	厘焰
宝贝	尸体	变化	神各	臣纺	宛咸
庄严	欺骗	摆动	倒旅	弥围	弦坠
崇拜	埋怨	对称	承盖	肚染	谱煌
潇洒	凄凉	店员	盟更	抚亚	溶俯
乖巧	不屑	长期	袄恪	仆郭	烛硕
奇迹	流氓	水缸	掉括	宇乳	松勿
香味	汉奸	散发	编凌	添摩	郡昆
体面	囚犯	抽屉	晋毫	垒蒋	斯甸
信念	损害	编辑	侃咪	挣汪	茂栗
贡献	憔悴	打印	端逸	车讲	拢喏
积极	伤口	奔走	咽泽	朵中	泼咨
亲密	恶心	相同	伦岸	寸扔	枢姚
幽默	痛苦	固定	载洛	丘匹	矣蒲
深情	虚伪	圆形	跳套	苗肠	刮郊
完美	地狱	连绵	练搬	韵笼	爪陡
自豪	轻蔑	弯曲	卷坦	挡纲	晒确
掌声	冤枉	笔直	祖丝	卧膜	咳衔
表扬	害怕	档案	蒙管	苟纳	巩绢
欣赏	堕落	胡须	弄则	窝睁	媳姜
梦想	鸦片	澡盆	替塞	铃填	带沾
向往	下贱	悠长	栈戎	扮杆	曾早
尊严	烦闷	侧面	街促	邵胎	疏咕
福气	混蛋	均匀	阮扎	饱茫	杖绣
丰收	谣言	细密	搞山	挨蓝	坎轿
诚恳	反感	信箱	芭茄	丈乾	钻敦
友谊	晦气	成群	杠吭	咐介	服沼
欢呼	刻薄	潮湿	奉旋	泊肺	京涅
雅致	无耻	短暂	菲杯	斑涛	衬俱
勤快	坟头	证明	绪粗	盒温	昌兜
机智	遗物	橡皮	皆租	玑拆	洪邓
杰作	陷阱	泳池	悄扫	辽抹	桓汁
救星	厄运	化肥	手土	倘冻	佣汝
愿望	狡猾	毛巾	贯侦	驰栏	勒齐
喜讯	瞎话	绳索	皂燕	每却	钓析
忠实	破坏	公共	泥扩	顽颈	麻丐
奖状	墓碑	眼罩	拣牡	收广	倚江
园丁	出殡	垂直	吃巡	尉朴	茎缅

Table S2. Stimuli used in Experiment 2

3   Supplementary Discussion

Inhibitory effect of orthographic processing of Chinese negative compound words

The emotional processing of negative words often appears to manifest an inhibitory effect. For instance, Ben-David et al. (2012) identified an emotional Stroop effect, where individuals exhibited slower response times in naming the ink color of negative emotion-laden words compared to neutral words. Similarly, Estes and Verges (2008) documented that negative words (e.g., "spider") were associated with slower lexical decisions. Additionally, Kuperman et al. (2014) found that greater negativity generally resulted in slower reaction times for lexical decision and naming tasks. This inhibitory effect may be reflected in the modulation of P1 or N170 ERP components (Scott et al., 2009; Bayer et al., 2012; Yao et al., 2016), which could signify the prioritized attraction of attention by negative stimuli (Ohman and Mineka, 2001), an adaptive response to negative stimuli (Grandjean and Scherer, 2008), or a lack of control over variables such as familiarity (for a review see Hinojosa et al., 2020).

Although the lexical decision times to positive, negative, and neutral words were not available in the present study, the ERP results revealed a potential inhibitory effect of emotional processing on negative words. Specifically, in Experiment 2, differences in ERP responses to negative words compared to neutral words were observed not only around 300 ms (i.e., the EPN) but also around 220 ms (see Figure S1). The ERP difference around 220 ms was also observed when comparing negative and positive words (see Figure S1). In contrast, the 220 ms difference was not observed when comparing positive and neutral words (see Figure 4 in the main text). The time course and spatial distribution of the ERP difference around 220 ms align with the ERP signature of accessing lexical orthographic representations of Chinese words (Yu et al., 2022; Huang et al., 2023; Zhang et al., 2023). Therefore, the ERP difference around 220 ms may suggest attenuated lexical orthographic processing of negative words compared to neutral and positive words. These findings seem to support the notion of an inhibitory effect of emotional processing on negative words. However, this inhibitory effect was observed only in Experiment 2, which used compound words, and not in Experiment 1, which used monomorphic words. Thus, the inhibitory effect might reflect inhibited whole-word orthographic processing of compound words. Consistently, Wu and Thierry (2012) found that Chinese compound words with a negative valence are not activated by their English translations as positive and neutral compound words are, which might also result from the inhibitory effect on the orthographic lexical accessing of Chinese negative compound words.

The neural mechanisms underlying the inhibitory effect of emotional processing on negative words remain unclear (for a review see Hinojosa et al., 2020). The present study offers a perspective on the emotional processing of Chinese negative compound words, suggesting that the lexical orthographic representations of Chinese negative compound words may be less robust compared to those of neutral and positive compound words. However, this perspective is speculative and requires further investigation.

4   References

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