

Table of Contents

List of Figures	iii
List of Tables.....	iv
List of Appendices	v
Chapter I. Introduction.....	1
Chapter II. Preliminary Study (619) – ERP Responses to Identical Pictures across Languages	13
Method	13
Results.....	18
Discussion.....	20
Chapter III. Study 1 - ERP Responses to Pictures of Chinese Nouns	22
Method	23
Results.....	26
Discussion	28
Chapter IV. Study2 - ERP Responses to Pictures of English Nouns.....	31
Method	32
Results.....	33
Discussion	35
Chapter V. Study 3 - fMRI Responses to Category Judgements across Languages	37
Method	38
Results.....	42
Discussion.....	47
Chapter VI. Study 4 - Developmental Trajectory of the Influence of Chinese Nouns on Categorization.....	52
Method	61
Results.....	65
Discussion	69
Chapter VII. Conclusion	75
Appendices.....	105
References.....	118

List of Figures

Figure 1 Schematic diagram of the PDP model in previous studies	85
Figure 2 Experimental procedure and materials with labels and grayscale photographs used in the studies.	86
Figure 3 Participants' behavioral data for the preliminary study, Study 1 and 2	87
Figure 4 ERP waves and scalp topographies for the preliminary study	88
Figure 5 ERP waves and scalp topographies for Study 1	89
Figure 6 ERP waves and scalp topographies for Study 2	90
Figure 7 Behavioral and typicality rating results for Study 3.....	91
Figure 8 Brain activation (atypical-typical) for pictures of items in six identical categories judged by English- and Chinese-speaking participants for Study 3	92
Figure 9 Brain activation for pictures of items in all categories that received Yes responses vs. No responses (<i>A</i>). Brain activation (atypical-typical) for contrasts among different labels in English or Chinese (<i>B</i>) for Study 3	93
Figure 10 % Signal change for activation for Study 3	94
Figure 11 Schematic diagram of the PDP model in our studies 1-3	95
Figure 12 ERP waves and scalp topographies for Study 4	96
Figure 13 Voltage maps of difference wave (atypical-typical) for Study 4 (<i>A</i>). Correlations among morphological and orthographical awareness measurement scores and behavioural and ERP typicality effects (<i>B</i>).	97

List of Tables

Table 1 Brain regions showing significant activations between typical and atypical items in English and Chinese.....	98
Table 2 Brain regions showing significant activation between English and Chinese speakers for typical and atypical items	99
Table 3 Brain regions showing significant activation between Yes and No responses in English and Chinese	100
Table 4 Brain regions showing significant activation between the typical and atypical items for different label types in English and Chinese.....	101
Table 5 Accuracy, reaction time and typicality rating data of Study 4	102
Table 6 Descriptive statistics on children's performance on morphological and orthographical awareness tasks in Study 4	103
Table 7 Zero-order (Pearson) correlations among all measures in Study 4	104

List of Appendices

Appendix 1 Category-level typicality ratings (1-6) in Pilot Study 2 show similarities across languages for Typical vs. Atypical items for the ten categories used in Study 1	105
Appendix 2 Category-level typicality ratings (1-6) from Pilot Study 3 show similarities across Label types for Typical vs. Atypical exemplar pictures for the 10 categories used in Study 2.....	106
Appendix 3 Category-level typicality ratings (1-6) from Pilot Study 5 show similarities across Label types for Typical vs. Atypical exemplar pictures for the ten categories used in Study 3.....	107
Appendix 4 Category-level object picture typicality rating (1-6) results for the six categories used in cross-linguistic comparison.....	108
Appendix 5 Category-level object picture typicality rating (1-6) results for the ten categories used in English participants	109
Appendix 6 Category-level object picture typicality rating (1-6) results for the ten categories used in Chinese participants	110
Appendix 7 Chinese morphological compounding production task materials used in Study 4	111
Appendix 8 Chinese Orthographic radical choice task materials used in Study 4.	113
Appendix 9 Chinese orthographical semantic category task materials used in Study 4	114