

# **Structural constraints on pronoun resolution in L1 Mandarin and L2 English**

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## **Abstract**

This research project aims to investigate how structural constraints influence antecedent retrieval during pronoun resolution in L1 Mandarin and in L2 English. Binding Principle B states that a pronoun must be free within the local domain, and it provides a clear structural account for interpreting pronouns. Previous findings show that the structural constraint of Binding Principle B is applied immediately during online antecedent retrieval for pronouns in English, and that native English speakers are sensitive to different structural cues in interpreting pronouns between coargument structures and non-coargument structures. However, very little is known about how the structural constraint of Binding Principle B works during pronoun resolution in Mandarin, and it is also unclear whether Mandarin-speaking learners of English utilize structural cues when interpreting pronouns under different syntactic environments. This research project is divided into two major sections. The first section focused on L1 Mandarin, and examined how Binding Principle B constrains pronoun resolution in Mandarin under different complex structures. Two experiments with both online and offline tasks were reported. The offline results suggest that the structural constraint of Principle B guides the interpretation of pronouns in Mandarin. The online results suggest that both structural cues like Binding Principle B and non-structural cues like gender are considered during the processing of pronouns in Mandarin. The second section focused on L2 English, examining how L1-Mandarin/L2-English learners process and interpret pronouns under different syntactic constructions (i.e. coargument structures vs. non-coargument structures like picture NPs (PNPs) and short distance pronouns (SDPs)). Both online and offline experiments were conducted with twenty-eight native English speakers and forty L2 learners of high-intermediate to advanced proficiency. The native speaker group showed a graded application of binding constraints: Principle B was strongly observed in the coargument structure, somewhat weaker in the PNP structure, and weakest in the SDP structure. L2 learners exhibited a qualitatively distinct pattern from native speakers, and appeared to apply binding constraints more categorically by distinguishing the coargument structure from non-coargument structures clearly. Overall, the findings highlight the importance of Binding Principle B in pronoun resolution at sentence-level in L1 Mandarin,

and suggest that pronoun resolution is modulated by syntactic structure and language background. The findings of this study not only contribute to our understanding of pronoun resolution in L1 Mandarin and L2 English, but also offer valuable insights into language usage and language teaching.

**Keywords:** Binding Principle B, pronoun resolution, non-coargument structures, L2 English

## 中文摘要

本研究旨在探討結構限制如何影響中文母語者（L1 Mandarin）與英語作為第二語言學習者（L2 English）在代名詞指涉解析（pronoun resolution）過程中的先行詞提取（antecedent retrieval）。依據《約束理論》（Binding Theory）的 B 原則（Principle B），代詞必須在其局部範疇內保持自由，該原則為代名詞的理解提供了明確的結構性說明。先前的研究顯示，在英語中，B 原則的結構限制會在代詞線上處理的早期即被啟動，且母語英語使用者能夠根據結構類型（如共同論元結構 coargument structures 與非共同論元結構 non-coargument structures）中不同的句法線索去解析代名詞時。然而，目前對於 B 原則在中文代名詞解析過程中的運作方式仍所知有限，同時也不清楚中文母語者在學習英語時，是否能在不同句法環境下運用結構性線索來理解代名詞。本研究分為兩個主要部分。第一部分聚焦於中文母語（L1 Mandarin），探討 B 原則如何在不同的複雜結構中限制代詞解析。該部分報告了兩個線上與離線任務的實驗。離線結果顯示，原則 B 的結構性限制會引導中文代名詞的詮釋；線上結果則顯示，在中文代名詞處理過程中，受試者同時考量了結構性線索（如原則 B）與非結構性線索（如性別）。第二部分聚焦於英語作為第二語言（L2 English），探討以中文母語的英語學習者在不同句法結構下（例如共同論元結構 vs. 非共同論元結構，如圖片名詞片語（picture noun phrase, PNP）與短距離代名詞（short-distance pronoun, SDP）對代詞的處理與理解方式。研究以 28 位英語母語者及 40 位中高程度至高程度的英語學習者為對象，進行線上與離線實驗。結果顯示，母語英語者在不同結構中對約束限制的應用呈現漸變式差異：在共同論元結構中對原則 B 的遵守最強，在 PNP 結構中稍弱，在 SDP 結構中最弱。相比之下，L2 學習者的表現模式與母語者明顯不同，他們對約束限制的應用更為類別化，能明確區分共同論元與非共同論元結構。整體而言，本研究結果突顯了原則 B 在中文句法層面的代詞解析中的重要性，並指出代詞解析會受到句法結構及語言背景的調節影響。本研究的發現不僅有助於深化對中文母語與英語第二語言中代名詞解析機制的理解，也為語言使用與語言教學提供了寶貴的啟示。

**關鍵詞：** 約束理論原則 B、代名詞解析、非共同論元結構、英語第二外語