

Syntactic Prediction Across Distance in English and Chinese Reading

Weilin Liu¹ Sarah J. White¹ Kevin B. Paterson¹

School of Psychology and Vision Sciences, University of Leicester

Syntactic prediction allows readers to anticipate not only upcoming words but also syntactic structures to enable efficient processing [1,2]. When readers encounter the word *either* in a sentence, they might anticipate a following *or*-construction, and a facilitation effect can be observed on the following *or*-construction when it appears [3]. However, it remains unclear whether syntactic prediction could be maintained with the distance between the predictive cue and the predicted element increases.

To address this question, two eye-tracking studies were conducted across different language systems – English and Chinese. In Experiment 1, we manipulated the presence of the word *either* (present vs absent) and the distance between *either-or* constructions (long vs short) during English sentence reading (see the example stimulus in *Figure 1*). Experiment 2 examined the parallel Chinese constructions 不仅-而且 (“not only...but also...”) using the same design (see the example stimulus in *Figure 3*).

40 native English speakers took part in the eye-tracking study in Experiment 1. The analysis was undertaken using general linear mixed-effects models in R, focusing on *gaze duration* (GD) and *regression path duration* (RPD) at the critical regions of *or*-construction and the distance. For Experiment 1, we observed the presence of the predictive cue “*either*” facilitated the processing of the *or*-construction, reflecting on ***gaze duration*** (*Est* = 46.84, *SE* = 6.53, *t* = 7.17, *p* < .001; **Panel A** in *Figure 2*) and ***regression path duration*** (*Est* = 64.04, *SE* = 10.91, *t* = 5.87, *p* < .001; **Panel B** in *Figure 2*), with a similar facilitation effect observed across both short- and long-distance conditions. The findings suggest that readers could maintain syntactic prediction across some distance when reading the sentences containing *either-or* constructions.

We will assess whether a similar effect is obtained in Chinese, and therefore whether the mechanisms for predictive syntactic processing are similar across the two language systems.

Key Words: Syntactic Prediction; Syntactic Processing; Reading; Eye-tracking

References:

- [1] Ferreira, F., & Qiu, Z. (2021). Predicting syntactic structure. *Brain Research*, 1770, 147632-147632.
- [2] Pickering, M. & Gambi, C. (2018). Predicting while comprehending language: A theory and review. *Psychological Bulletin*, 144, 1002-1044.

Figure 3. The example stimulus illustrates the manipulation of predictive cue (present / absent) and the distance between predictive cue and predicted elements (long / short) in Chinese reading.

这家餐厅的食物不仅味道鲜美口感细腻，而且摆盘精致得到了众多食客的追捧 (present, long)

The food in this restaurant is **not only delicious and delicate**, but also exquisitely presented, making it highly popular among people.

这家餐厅的食物味道鲜美口感细腻，而且摆盘精致得到了众多食客的追捧 (absent, long)

The food in this restaurant is **delicious and delicate**, but also exquisitely presented, making it highly popular among people.

这家餐厅的食物不仅味道鲜美，而且摆盘精致得到了众多食客的追捧 (present, short)

The food in this restaurant is **not only delicious**, but also exquisitely presented, making it highly popular among people.

这家餐厅的食物味道鲜美，而且摆盘精致得到了众多食客的追捧 (absent, short)

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