pattern or word order violation; this detection could take place with di□erent time courses. Readers were supposed to be aware of the prosodic anomaly when they finished reading the verb and its object, i.e., the first two words of the compound (Luo and Zhou, 2010), before viewing the head noun. In comparison, the anomaly of word order was unlikely to be detected before the head noun was encountered because the alteration of word order occurred only under the specific circumstance of constructing a compound. Therefore, reanalysis was expected to take place at the second word of the three-word compound for the violation of rhythmic pattern but at the third word (head noun) for the violation of word order. Moreover, we expected that the subsequent reanalyses triggered by these two types of violations would be reflected in temporally dissociated oculomotor measures, given that the e□ects for prosodic violation

congruent object noun being monosyllabic (e.g., 蒜,

region to previous parts of the sentence prior to leaving that region in a forward direction. First-fixation durations shorter than 60 ms or longer than 800 ms, or Gaze Duration (GD, i.e., the sum of fixation duration from the eyes first entered the region

EU L

Accuracy and at n

On average, participants correctly answered 94.9% (= 6%) of all the probe questions, indicating that they read the sentences carefully. For the experimental sentences, 30 of them were followed by a probe question referring to the interpretation of the noun compound: the accuracy rate was 95.48% (= 6%) for the 18 questions concerning the head noun and was 94.30% (= 9%) for the remaining 12 questions concerning the meaning of the V-O combination. The high accuracy suggests that the critical compounds were well comprehended across all the experimental conditions (see Table 2), although the readers showed the tendency of having higher accuracy for sentences with the abnormal rhythmic pattern than for sentences with the normal rhythmic pattern (by 4.5%, = 1.9). As shown on Table 2, the rating scores of all conditions were less than 2, which may imply that the readers were adopting a relatively loose criterion in judging the well-formedness with respect to the violations of rhythmic pattern or word order. But there were distinctions between the four critical conditions, as confirmed by the statistical analysis with the LMM, which included rhythmic pattern and word order as two within-participant factors. Sentences with abnormal rhythmic pattern were generally rated as more odd than those with normal rhythmic pattern (1.48 for sentences with abnormal rhythmic pattern and 1.69 for sentences with normal rhythmic pattern), = −6.51. Although there was no significant main e□ect of word

correct word order, 17% vs. 14%, $=0.29$, $=0.13$, $=2.2$, $=0.028$. The same pattern was also obtained in GD analysis.

A significant interaction between rhythmic pattern and word

FIG E rototyp ca re ress ve patterns o t e c usters on t e d ens ona ap

ABLE Count o scanpat s by c uster and cond t on d ens ona ap

	HY+	D+	HY–	D+	HY+	D–	HY–	D–	ota	
Cluster I										
Cluster II							8		7	
Cluster III	8									
Cluster IV			8							
Cluster V			8						8	
Cluster VI			7							
Cluster VII									8	
Cluster VIII										8

Note that, effects for the abnormal rhythmic pattern cannot be simply explained away as being due to the absence of co-occurrence between the disyllabic verb and the monosyllabic object noun. Abnormal and normal rhythmic patterns used essentially the same words, differing only on one morpheme (see the RHY+ and RHY– conditions in Table 2). More importantly, if the effects were due to the absence of co-occurrence, one would expect to observe similar effects for different types of violations in either oculomotor or ERP responses, an expectation not confirmed by the findings in either the present study or Luo and Zhou (2010). Orthographical or segmental differences between the disyllabic noun in the RHY+ORD+ condition and the monosyllabic noun in the RHY−ORD+ condition could not provide a tenable account for the rhythmic pattern effects either, since the effects were observed on the verb and regions downstream, which were visually and phonologically undifferentiated between conditions. Moreover, this account would predict prolonged viewing times for the combinations with normal rhythmic pattern (2-character noun) than those with abnormal rhythmic pattern (1-character noun) during the first pass reading (Rayner and Raney, 1996; Wang et al., 1999) or for regions (Regions, 2, 3, and 4) following the lower frequency 2-character noun than following the higher frequency 1-character noun, apparently contradicting what we observed in this study.

Local and immediate reanalysis of the abnormal rhythmic pattern also manifested itself as more regressive eye movements launched from Region 2 before reading on, presumably for further confirmation of the perceived information and for repair of the mismatching prosodic structure. Similar patterns were further observed on the subsequent head noun of the compound regardless of whether the word order was correct or not. The prosodic violation caused difficulty in lexical access for the unambiguous head noun of the compound, suggesting that the expectation toward the target word based on rhythmic pattern, which would normally facilitate the processing of the upcoming word, was disrupted. But after carrying out the reanalysis for the whole compound, readers seemed to no longer suffer from failing to generate the incremental lexical expectation, as indicated by the null effect on gaze duration in post-compound Region

Eckstein, K., and Friederici, A. D. (2006). It's early: event-rela