Processing prosodic information in sentences with "only" in a second language

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Speakers of West Germanic languages use accentuation to mark new or contrastive information. Usually, misplacement of accent slows down but does not hinder comprehension [1,2]. However, the case is different in sentences with the focus particle "only". "Only" flags upcoming contrasts and accentuation determines the locus of contrast and sentence meaning (e.g. I have only CARRIED the bag vs. I have only carried the BAG). In Dutch, "only" *(alleen)* triggers expectation of adjacent accentuation (early positivity between 100-200ms, followed by an "accent positivity" between 200-500ms) [3]. Nonadjacent accentuation results in reanalysis (P600) [3]. The presence of a linguistic context enhances this processing of accentuation. Corpus studies revealed that "*alleen*" typically precedes the focal word in Dutch even if this separates verbs from their objects [4]. In contrast, in English "only" typically precedes the verb, even when the object is focal [5]. **Do Dutch learners of English use L1 processing strategies when processing focus in L2 English sentences with "only"?** Behavioural research on L2 prosodic processing suggest L1 influence [6] and learner-specific approaches [7], regardless of L2 proficiency. We expect accentuation adjacent to "only" to be similar as L1 processing [3], whereas nonadjacent accentuation will be different. To determine whether Dutch learners of English exhibit L1 processing patterns when processing accentuation adjacent to "only" [3] and learner-specific approach to processing non-adjacent processing in English, we conducted a 64-channel event-related potentials (ERP) study.

Advanced Dutch learners of English (n=33, 14m) listened to English stories (4 types x 60 trials), differing in the presence/absence of context and accentuation on verbs/objects (Table 1). ERPs were analysed from the onset of verbs and objects (t=0) in three time windows (Figure 1) using Mixed Effect Modelling (lme4, R). Baseline correction was done between -100-0ms. ACCENT (verb vs. object), CONTEXT (absence vs. presence), LATERALIZATION (right, middle, left) and ANTERIORITY (front, central, back) are fixed factors and PARTICIPANT and STIMULUS-LIST are random factors. Only effects of ACCENT or interactions with ACCENT will be discussed.

Adjacent accentuation – verb: We found the interactions ACCENT x CONTEXT and ACCENT x ANTERIORITY between 100-200ms and ACCENT x ANTERIORITY between 200-390ms (Figure (1A). Accented verbs elicited more positivity, but only with context. This positivity started in frontal and central regions between 100-200ms and spread out to all regions between 200-390ms. In unaccented verbs, context elicited a negativity, suggesting a result of a strong unfulfilled expectancy of accentuation. Thus, context facilitated the expectation and prosodic processing and L2 accentuation elicited cognitive processes that is similar to L1 processing [3].

Nonadjacent accentuation – object: We only found an effect of ACCENT (ACCENT x ANTERIORITY) between 500-900ms (Figure 1B). Accented objects elicited a negativity in the frontal and central regions. The lack of ACCENT effects between 100-390ms imply that there is no evidence for processing of the emphatic accent, which is different from L1 Dutch findings for nonadjacent accentuation [3]. Possibly, the expectation for verb accentuation may have been so strong that object accentuation was considered redundant, which goes in line with the "good enough" processing strategy to ease L2 linguistic processing [5]. A sentence reanalysis (P600) only occurred in unaccented objects, different from [3]. Thus, it seems that nonadjacent accentuation in L2 is processed differently than in L1 Dutch [3].

In conclusion, Dutch listeners used similar processing patterns in English as in Dutch [3] when focus was placed on a locus that is preferred in both languages. Focus on a non-preferred locus resulted in processing approach that does not require the processing of accentuation.

Table 1. Examples of experimental stimuli. Pitch accents are represented by capitals.

Context sentences	Target sentences	
The dinosaur has a pumpkin and a bucket. He was going to throw them and kick them. Then he changed his mind.	(A) The dinosaur is only THROWING the bucket.	(B) The dinosaur is only throwing the BUCKET.
-	(C) The dinosaur is only THROWING the bucket.	(D) The dinosaur is only throwing the BUCKET.

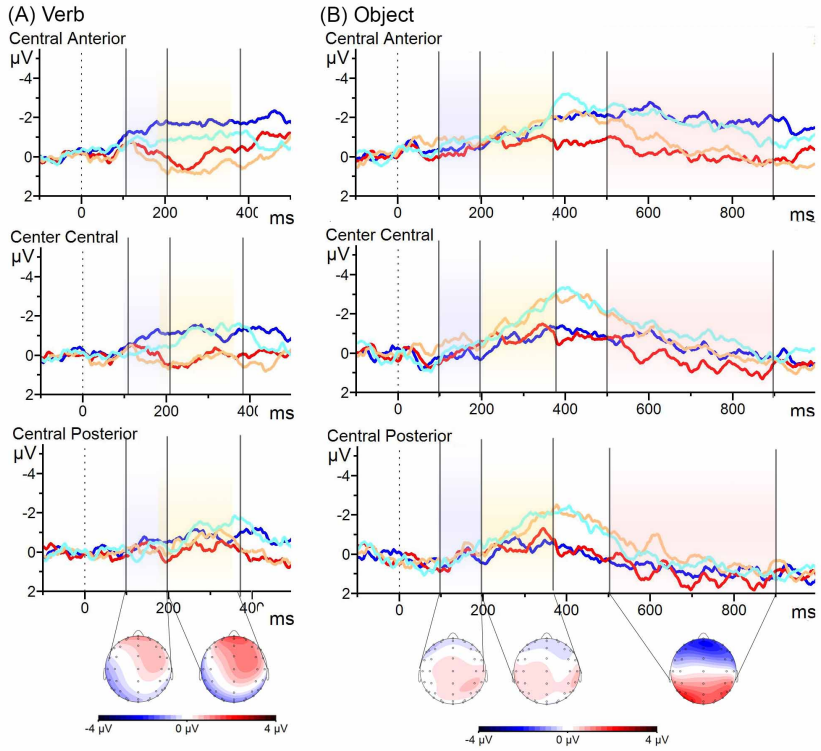

Figure 1. Grand-average ERPs of frontal, central, and posterior of center electrodes for verbs (A) and objects (B) from word onset (t=0). Conditions: accented verbs with context (red), accented verbs without context (orange), accented objects with context (dark blue), and accented objects without context (light blue). Vertical lines indicate boundaries of time windows. We did not analyse the time window 500-900ms at verbs as the ERPs would reflect the processing of words after the offset of verbs. Topographies reflect effect of accent (accented – unaccented condition).

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