Rhythmic phrasing of prosodic words: a diachronic perspective from Old English, supported by experimental evidence from German

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It is generally assumed that syntactic constituent structure reflects prosodic constituent structure and several approaches have been proposed in the last decades (a.o., Selkirk 1986, Nespor and Vogel 1986, Truckenbrodt 1999, Selkirk 2011). With each proposal, the direct impact of syntactic structure on prosodic phrasing (and phonological phenomena in general) was diminished, thus increasingly allowing for p(rosodic)-structure to regroup prosodic constituents according to language-internal rules and constraints – even in opposition to generally assumed principles like the *Strict Layer Hypothesis* (Selkirk 1995). In the generative modular framework of Lexical Functional Grammar (Bresnan 2001), the interface between syntax and prosody is controlled by two transfer processes: the transfer of structure, which matches higher syntactic and prosodic constituents (IntP/PhP), and the transfer of vocabulary, which associates the morphosyntactic word with its phonological representation (e.g., syllables, see Bögel (2015) for details), but generative power is also assigned to p-structure itself, thus allowing for, for example, the prosodic incorporation of clitics with their hosts. Even though mismatches are frequent, the general matching between prosodic and syntactic constituents remains, as e.g., in Selkirk (2011)'s *match theory*, where a clause is matched with an intonational phrase, an XP is matched with a phonological phrase, and a (morphosyntactic) word is matched with a prosodic word.

Opposing views to the nature of prosodic phrasing in Germanic languages are proposed, for example, in Lahiri and Plank (2010), who claim prosodic phrasing to be determined by rhythmic principles (see also, a.o., Shattuck-Hufnagel and Turk 1996, Ferreira 1991). This school of thought proposes the trochaic foot as the fundamental driving force behind prosodic phrasing, and a leftwards oriented enclitisisation of function words regardless of syntactic constituency.

This paper focusses on the phrasing of the prosodic word, which is defined as "minimally a stressed foot [...] and maximally a single lexical word combined with any associated unstressed function words" (Wheeldon 2000, 254). While it is generally acknowledged that a word (in particular compounds and particle verbs) can consist of more than one prosodic word and that clitics/weak function words are often prosodically phrased with a preceeding or following host, it is unclear whether a word can be separated by a prosodic word boundary where one part of the word is prosodically incorporated with a preceding word. While incompatible with the idea of a 1:1 match between the morphosyntactic and the prosodic word, this type of phrasing is implicitly predicted by the prosodic phrasing based on rhythmic principles, specifically in the context of a stressed syllable/word followed by an unstressed syllable in the next word

(1) morphosyntactic phrasing: x́] [x x́ x]

     prosodic phrasing: x́ x) (x́ x)

While orthographic accounts of modern English obey the separation of strings into morphosyntactic words, prosodic reflexes have been suspected to occur in Old English writing, where morphosyntactic word boundaries are often not obeyed (e.g., Nübling 1992, Fleischer 2009), an artefact of the *scriptio continua* in Ancient Greek where the written text was seen as a representation of oral communication (see e.g., Frey (1988) for details). The unstressed Old English prefix *ge-*, for example, is frequently separated from the following verb and attached to the preceeding word (even across line breaks). Below is a sample excerpt from the entry in the year 1001 of the Parker Chronicle (Flower and Smith 1941).

(2) orthographic representation:
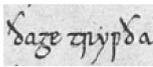
     morphosyntactic phrasing: ða getrywða

For a representative overview, a corpus search was conducted on the Parker chronicle, which distinguishes between four patterns in 392 unambiguous instances (where * indicates a white space, # no white space and *word* can refer to any category): 1) word*ge#verb (the unmarked form), 2) word*ge*verb,

3) word#ge#verb, and 4) word#ge*verb. Besides stress patterns, phonetic environment, and word category, the syllable structure of the previous word was also taken into account. As Figure 1 shows, the variants where *ge-* is phrased with the preceding words occur overwhelmingly in a monosyllabic context.
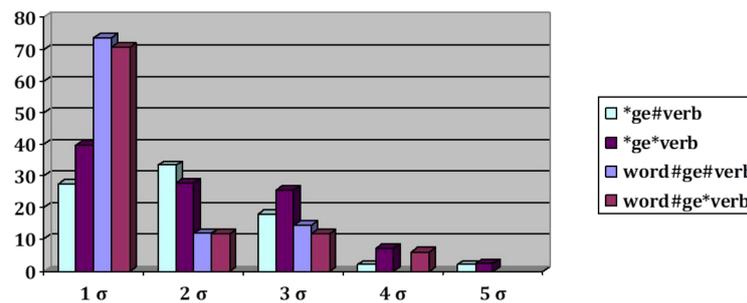

Figure 1: Different variants of orthographic association of the OE prefix *ge-* with respect to the number of syllables in the preceding word.

The findings of the corpus search formed the foundation of a production experiment in German, which uses the prefix *ge-* in Modern German participle constructions. The experiment combined monosyllabic or bisyllabic trochaic nouns, which ended either in a vowel or a consonant ([s]), and trisyllabic participle verbs, which began with an unstressed *ge-*prefix followed by a stressed syllable. Seven female speakers in their early 20s produced a total of 77 sentences in a sound-proof recording studio. Among other aspects, the data analysis included an analysis of the closure and the release of the plosive [g] with respect to the nature of the preceding noun. Results show that in more than half of the occurrences, the *ge-*prefix following a monosyllabic noun ending in a vowel shows no closure and no release, adapting the phonetic quality of an approximant. This is in contrast to the other three conditions, which include the expected closure and release of the plosive, albeit the disyllabic nouns ending in a vowel also had some few occurrences of the pattern found with the monosyllabic nouns.

The results of a) the corpus study of OE, where the *ge-*prefix often attaches to monosyllabic words, and b) the experiment in German, where the syllable boundary between the monosyllabic noun ending in a vowel and the following prefix is blurred, suggest the formation of a trochaic foot (and with it a prosodic word), even if the resulting phrase structure no longer preserves the integrity of the morphosyntactic word. This supports the claim that, at least at the level of the foot and the prosodic word, prosodic phrasing is driven by rhythmic (as opposed to syntactic matching) constraints, which reduces the influence of syntactic constituency on prosodic constituency to larger phrases/clauses and suggests that prosodic phrasing at the level of the prosodic word and below is shifted to p-structure alone.

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