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Form-Meaning Systematicity in Old English Alliterative Verse

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Abstract
This article explores the phenomenon of form-meaning mapping in Old English alliterative verse and presents a new account of its conceptual systematicity. It aims to find instances of regular correlation between the alliterative onsets and the lexical semantics of the words. The data include the alliterative /w/- and /s/-datasets, extracted from *Beowulf*. Despite a long tradition of analyzing alliteration as a poetic device foregrounding marked elements for aesthetic effect, the question relating to correlation between word-initial onset and "alliterative" semantics is far from resolved. I show that the relationship between the onset-related alliterative units and their meanings is not only *iconicity*—the resemblance between perceptual properties of sound and referent within localized groups—but also *systematicity*—regular similarity in form and conceptual relatedness of words within the entire lexicon. Form-meaning correlation between the onset of alliterative units and their semantics is determined by the processes of relational analogy, conceptual associativity, and metaphorical extension.

Keywords Old English · Alliteration · Form-meaning mapping · Iconicity · Systematicity

Introduction

Alliteration or "initial" rhyme—the recurrence of vocalic and consonantal phones in stressed morphs—is the structural principle of Old English versification. "Initial rhyme" systematically evokes condensed imagery in the text, forcefully influences the listeners/readers, and makes them participate in the process of sense-construal. The foregrounding of certain phonemic sequences in the text, amongst other things, serves an aesthetic function and enables the author to emphasize the most relevant

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images in narration. As such, Old English alliteration has predominantly been studied within the traditional framework of diachronic linguistic and literary studies, i.e., in the theories of poetics, style, and meter (Kendall, 1991; Minkova, 2003); it is considered "a fundamental feature of Anglo-Saxon verse-technique, developed over centuries of largely oral composition" (Godden, 1992). In cognitive and neurocognitive poetics (Aryani et al., 2013; Tsur, 2002) alliteration is viewed as the foregrounding of the elements of poetic diction which marks aesthetically bound texts. Alliteration requires intense cognitive processing and an increase of memory for its decoding.

Despite the long tradition of analyzing alliteration as a poetic device, the question of regular correspondence between the onset of the words and their lexical semantics remains far from resolved. Many researchers in the field of absolute and relative iconicity (Jakobson & Waugh, 1979; Givón, 1985; Haiman, 1985; Hinton et al., 1994; Fischer & Nänny, 2001; Fischer, 2014; Perniss & Vigliocco, 2014; Schmidtke et al., 2014; Catricala & Guidi, 2015; Dingemanse et al., 2015; Sidhu & Pexman, 2018) study onomatopoeia, sound symbolism, and phonaesthemes and focus on the sensoriperceptual (acoustic—articulatory) and diagrammatic properties of forms. For example, such alliterating collocations as *bed and breakfast* function as the vestiges of sound symbolic (emphatic) and diagrammatic relationships that involve affective and associative processing (cf. Aryani et al., 2013). In this and similar studies, the authors focus on affective properties of sounds rather than on conceptual and cognitive properties of words, ascribing emphatic meaning to certain sounds (Whissell, 2003). Thus, alliteration is usually considered as "the emphatic or ornamental recurrence of stem- or word-initial consonants" (Markus, 2005, p. 72) and not as a way of representing associated lexical meanings. The same line of reasoning is continued in quantitative poetic studies exploring sensoriperceptual relations rather than conceptual ones (Barquist & Shie, 1991; Leavitt, 1976; Popescu et al., 2015; Whissell, 2003).

Previous studies on alliteration are limited to three factors: low-level perceptual constraints, diagrammatic regularities, and microlevel sense relations.[1] No systematic studies at the macrolevel of sense relations have been undertaken due to the difficulties in observing vast semantic fields and the small possibility of finding form-meaning regularities in the entire body of the "alliterative lexicon". Since scholars have not fully considered the lexical semantics of alliterative units, the question of whether there are any regularities in mapping the onset and lexical meanings of alliterating lexemes remains unanswered. To resolve this issue, I put forward a conceptual macrolevel approach to alliterative form-meaning mapping. It supports my hypothesis that onset-related words tend to render domain-dependent lexical meanings. Employing the methodology of synergetic linguistics and computational semantics (Altmann & Köhler, 1995; Neuman et al., 2017; Véronis, 2004), I propose a network-based model of an alliterative lexicon. Within the model alliteration

[1] Within a thesaurus "microlevel" sense relations are the "relationships between individual lexical items"; "macrolevel" sense relations are the "relationships between groups of lexical items within the conceptual structure of the lexis as a whole" (Kay & Chase, 1990, p. 304).

is seen as a complex phenomenon dealing with high-level conceptual constraints and macrolevel sense relations. The systematic character of form-meaning mapping at the macrolevel of lexicon is the result of conceptual bias in sense-construal that is not revealed at the microlevel of individual lexemes. Within the framework of language dynamics, complex systems tend to demonstrate semantic properties that emerge mostly at the macrolevel of the system. As Neuman et al. (2017, p. 1) put it: "One interesting characteristic of some complex systems is the formation of macro level constructions perceived as having features that cannot be reduced to their micro level constituents". In the case of alliteration, onset-related words cooccurring in close proximity nominate "a small world" of constituents and properties that systematically foreground certain dominating concepts. There is a tendency of alliterating words to center around specific semantic categories in a greater degree than can be predicted by chance. Since alliterative form-meaning regularities are observed within the conceptual structure of the lexicon they should be redefined in terms of conceptual systematicity. The alliterative lexicon as a complex semantic system evolves through a process of self-organization governed by relational analogy, conceptual associativity, and metaphorical extension.

The paper is organized into eight sections. Section 1 deals with the general outlook of the problem and establish the objectives and hypothesis of the study. Section 2 concerns the description and interpretation of related work. I define the strengths and limitations of the traditional interpretation of alliterative form-meaning correlation. Although sound is strongly motivated by its meaning in poetry, the theory exploring alliteration through a narrow phonosemantic lens appears to be insufficient to explain the mechanisms of such a motivation. Section 3 presents the data and analytical framework of the study. Sections 4–6 describe and compare the data involving the semantics of /w/-alliteration, followed by an outline and summary of the main results of the investigation. Here, I define the source and spectrum of word meaning relations, provide evidence for the alliterative form-meaning systematic correlation, and explain the unified source of high-level conceptual properties of alliterative imagery. Section 7 discusses the advantages of the new conceptual approach to alliteration, compares the outcome to previous research, and features new perspectives on the topic.

Alliterative Onset and Lexical Semantics

Alliterative form-meaning patterning is a well-attested phenomenon in diachronic linguistics (Bremmer, 2011; Minkova, 2003). Within the discipline, alliteration is studied on the phonological level with the focus on acoustic—articulatory properties of sounds. Alliteration is called "initial rhyme" since it organizes the content of the verse according to the first phone or phonemic cluster in stressed syllables. The focus on the low-level properties of repeated sounds within the verse predetermines the phonological-emphatic nature of alliterative form-meaning relations. Phonological-emphatic argumentation holds that alliteration is psychologically salient and cognitively motivated, resulting in cohesive euphonic effect and artistic impact. However, alliteration in Old English could be both mnemonic and conventional: "As

a key component of the poetic meter of the period the recurrence of the same sound was probably perceived by poets and audience as being as powerfully evocative as the semantics of the words" (Minkova, 2003, p. 81).

The relatedness of the repeated sounds and the semantics of the lexemes is mentioned in several studies. In oral-formulaic theory (Foley, 1985; Magoun, 1953), alliterating words are considered poetic formulas carrying emphatic meanings. Markus (2005) describes the interconnection between formulaic expressions, e.g., *with kith and kin* and alliteration: since both are emphatic, formulas "can be expected to frequently alliterate" (Markus, 2005, p. 72). Schaefer (1996) and Beechy (2010) accentuate denotational similarity of alliterating collocations. For example, such binomials as *to heien and to herien* have similar meanings, referring to similar phenomena (Schaefer, 1996, p. 180). Alliterating words "resemble one another and therefore the things they signify resemble one another, too" (Beechy, 2010, p. 77). Further evidence comes from Godden (1992), who interprets the juxtaposition of *dom* "judgment, fame" / *deað* "death" or *flod* "sea"/ *fyr* "fire" as an association of words due to their mutual collocability and possible referential similarity. Semantic similarity parallels sound similarity, inciting "an expectation in the listener which a poet might then exploit" (Godden, 1992, p. 504). Szöke (2014) reports evidence on the alliterating lexemes in *The Phoenix*—e.g., *nædran, niþ,* and *nearu*—which are used together to reveal the imagery of the serpent and the first sin. A related line of reasoning is presented in Cornell's (1981) analysis of alliteration in *The Wanderer* and *The Seafarer.* Cornell's study suggests that "initial alliteration was used not only for metrical purposes but also to foreground certain words that had an important function in the poem" (1981, p. 294). Thus, lexical meanings of "emotions" and "God" relate to /m/ alliteration; spiritual domain, the coldness of the outer world, and the "sea journey of the spirit" are connected with /h/ alliteration; /w/-words (*waden wræclastas, wraðra wælsleahta, winemæga, werig mod, wyrde wiðstondan, wod wintercearig, worulde, weallas, winsalo, waldend, wlons, wealle, and wulf*) denote "death"; "battlefield"; "the comitatus world"; and by metaphorical extension, "the implied end of that world and of all worldly things" (Cornell, 1981, pp. 294–295). According to Cornell (1981), the collocability of alliterative units often predicts their connotative meanings: "Every alternate line is characterized by one initial sound and the words in which it appears are further joined by a similarity in connotative meaning" (Cornell, 1981, p. 294). Minkova (2003, p. 83) concludes as follows: "The almost perfect overlap between stress and morphological root in Old English enhances further the probability that the poetic conventions of the period are based on maximal isomorphy between prosodic prominence, semantic salience, and metrical convention". In other words, the metrical organization of Old English verse enabled emphatic repetition of similar sounds and established conditions for the conceptual foregrounding of alliterating lexemes.

Nevertheless, despite the progress that has been made in understanding the semantic relatedness of alliterating words, the topic of alliterative form-meaning mapping remains "a tricky one, as alliteration can be seen as arbitrary and as over-emphatic" (Roper, 2011, p. 15). The form-meaning issue still poses some powerful challenges: it is still unclear whether "alliterative" meanings are connected with the perceptual properties of sounds or pertain to referential aspects of word semantics

or both. We do not know whether the phonetic similarity of alliterative onsets can predict any conceptual domains in alliterative sense-construal. I shall therefore try to show that alliterating words form "a small world" of recurring lexical patterns or contextual communities that are determined by the mechanisms of conceptual systematicity.

Data and Methodology

The data in the present study are limited to the content and function of mostly /w/-words and partially /s/-words from *Beowulf* (The York–Toronto–Helsinki Parsed Corpus of Old English Poetry, Pintzuk and Plug [2000]). In the /w/-dataset the words with the stem-initial /w/ and the prefixes *a-, æt-, be-, for-, ge-, ofer-, on-*, and *to-,* e.g., *awyrded, ætwitan, bewægned, geweorc, oferwealdan, onwendan*, are included. The examples and translations from *Beowulf* were taken from Chickering (1989). The text of the poem was analyzed in Python as a programming language. The word senses were extracted from *A Thesaurus of Old English* online (Roberts et al., 2017).

In order to examine form-meaning systematicity in alliterating /w/-words and to predict the correlation, I have conducted two studies. Study 1 investigates semantic correspondences between /w/-alliterative units in *Beowulf* and employs "a vector space model" of semantics (Schütze & Pedersen, 1993) to formally represent the semantics of the words. First, the text of *Beowulf* was converted into a collection of sentences ("documents") that were then transformed into numerical feature vectors (Jurafsky & Martin, 2019). The sentences in the poem at times comprised several verse lines (there are 1769 sentences and 3182 poetic lines). Second, the vocabulary dictionary of words (tokens) was learned and a sparse representation of the word counts was produced. Rare words that occur only once were deleted. Third, the documents were converted into a document-term matrix in which documents are sentences, terms are tokens, and their "features" are frequencies of word co-occurrences. The /w/-dataset comprises 1516 tokens (word occurrences) and 538 distinct vocabulary items (word types) of 17,160 tokens and 5900 types in the poem. To reduce the dimensionality of the matrix and to visualize the high-dimensional data, I employed the t-distributed stochastic neighbor embedding (t-SNE). The matrix shows /w/-words representations in a vector space. Based on the matrix I have created "a co-occurrence network" of the most frequent /w/-tokens constituted by words as nodes and their co-occurrence with neighbors as edges. As the form-meaning correlation was computed between the consonantal onsets and the senses of onset-related lexical clusters, regular, statistically relevant semantic bias in alliteration was interpreted as conceptual (paradigmatic) systematicity. The keywords that systematically take part in alliteration are semantically related and form conceptual oppositions at the level of the /s/- and /w/-datasets, e.g., "good" (*sæl*)/ "bad" (*weorr*); "stable" (*stille*)/ "pliable" (*wac*); and "right" (*swiþra*)/ "left" (*winstra*), etc.

Study 2 highlights the mechanisms of the structural regularities of /w/- and /s/-collocations as parts of linear syntagms. It defines the relatedness of different mental images as the relations of contiguity or association. Collocational analysis of

alliterative units reveals a close contextual relationship between the collocates and different spatial patterns. The cases of regular phonological-collocational mapping are referred to as syntagmatic systematicity.

Paradigmatic Relatedness of /w/-words

Study 1 identified the overall network of the /w/-alliterative lexicon and its most influential nodes. The first one hundred most frequent /w/-tokens in the text form a network in which the nodes with higher weight – *wæpen, weallan, witan, wealdan, wyrd, wyrm, wigend, wide, wean, gewyrcan* represent the most significant concepts of the poem. The nodes indicate syntagmatic and paradigmatic clusters belonging to specific conceptual domains or communities. The most relevant nodes include the verb *wesan* in different tense forms (*wes*, *wæs*, *wæron*, and *wære*), the verb *willan* (*wille*, *wile*, *wolde*, and *woldon*), other verbs (*weorþan, geweorþan, wealdan, wrecan, gewrecan, witan, wenan, gewyrcan, weallan, weardian, wunian, gewitan, wendan, wisan,* and *wisian*), common nouns (*will, word, weard, waldend, wyrd, weorc, geweorc, wen, wean, weall, geweald, wilcuma, wine, wyrm, wolcen, winter, weg, wudu, wynn, weorod, wæter, wig, wigend, worn, wer, wæpen, wiht, weorold, wuldor, wæl, wita, gewin, wæg,* and *wea*), proper nouns (*Wederas, Wiglaf,* and *Wihstan*), adjectives (*wis* and *witig*), adverbs (*wel, wide,* and *wiht*), pronouns (*we* and *wit*), and the preposition *wið*.

A fully connected network of the /w/-alliterative lexicon includes nouns and adjectives designating the concepts of "battle" (*wig*), "struggle", "fighting", "hard work" (*gewin*), "warrior" (*wig, wigend*), "enemy", "stranger" (*gewinna* and *wræcca*), "weapon" (*wæpen*), "the slain" (*wæl*), "wound" (*wund*), "reptile" (*wyrm*), "quarrel", "exile" (*wroht, wræc*), "woe", "misery", "affliction", "trouble" (*wa* and *wea*), "work", "enmity" (*weorc, winn* and *wracu*), "destiny" (*wyrd*) as well as the emotional states of "anger" (*wraþ*), "moral evil" (*wearg*), "wrong", and "injustice" (*wrang*); positive images of "joy" (*wynn*), "wisdom" (*wisdom*), "noble" (*wlanc*), "glory", "worship" (*wuldor*), and "God" (*wealdend*). /W/-verbs designate "fight" (*wigan*), physical and mental "ability" (*wealdan*), "knowledge" (*witan*), "wishes", "intentions", "hopes" (*willan* and *wenan*), "destruction", "expulsion" (*wigan, wanian, wyrdan* and *wrecan*), and "work" (*wyrcan*). Prepositions denote "opposition" (*wiðre* and *wið*). Pronouns indicate the first person plural and dual number (*we* and *wit*). /W/-words depict "a small world" of participants, natural realia, artifacts, inner states, processes and actions, making them a fragment of a whole picture. The warriors (*wig*) are brave (*wlanc*) men (*wer*) bearing weapon (*wæpen*); they are watchful (*wacian*) guardians (*weard*), and wise (*wis*) chieftains, who fight (*wigan*), show guidance (*wisian*) and protect (*warian*). They are loyal (*wær*) to the lords-protectors (*wine*). The warriors take part in battles (*wig*) against worms, dragons (*wyrm*), and wild (*wild*) beasts (*wulf*), where their war-skills (*wig*) are probed. They strive (*winnan*), win (*winnan*), depart (*gewitan*) and wander (*wāþ*). Their armor (*gewædu*) and horses (*wicga*) are part of the warfare. The warriors master (*wealdan*) their weapons, suffer (*winnan*) misery (*wracu* and *wean*) and anger (*wraþ*) in exile (*wræc*), get wounded (*wund*), avenged (*wreccan*), and slain (*wæl*). They hope

(*wenan*), wish (*willan*), and know (*witan*). They have won renown for their wisdom (*wisdom*) in dividing words (*word*) and deeds (*weorc*). Natural realia include storm (*wylm*), clouds (*wolcen*), water (*wæter*), wind (*wind*), cold weather (*weder* and *winter*). The locations in the world of /w/ are barren (*weste*) places, woods (*wudu* and *weald*), plains (*wang*) and paths (*weg* and *waroþ*). Black and dim colors (*wan*) prevail. War and wrongdoings (*wrang* and *wearg*) bring punishment (*wite*), woe (*wa*), and pain (*wracu* and *wroht*). People might experience grief (*wea*) and weariness (*werig*).

Semantic categories, into which /w/-words naturally fall, tend to form a conceptual network for things, actions, events that are "left" (*winstra*), "wishful" (*willan*), "bad" (*weorr*), "worse" (*wiers*), "deceitful" (*wǣgnere*), "wild" (*wild*), "weak" (*wac* and *werig*), "distant", "peripheral" (*wide*), "plural" (*we* and *wit*), "multiple" (*worn* and *weorod*), "waste", "empty" (*weste* and *westan*), "opposite" (*wið*), "bent" (*wendan*), "not rigid" (*wac*), "unstable" (*wagian*), "void" (*wan*), or "in the west" (*westen*). Contrary to the /w/-lexis, the /s/-lexis tends to nominate things, actions, events that are "right" (*swiþra*), "ordered" (*gesettan*), "obligatory" (*sceolan*), "center- and line-oriented" (*scearp*), "good" (*sæl* and *sel*), "better" (*sel*), "strong" (*swiþ*), "separate" (*sundor*), "singular", "similar", "equal" (*samod, sum* and *swilc*), "definite" (*se*), "fixed in space and time" (*sæl*), "stable" (*stille*), and "in the south" (*suþ*).

The conceptual network of the /s/-lexis includes such notions as "self" (*self*), "seldom" (*seldan*), "soul", "spirit" (*sawol*), "mind", "heart" (*sefa*), "truth" (*soð*), "the sun" (*sunne* and *sigel*), "creation", "decree" (*gesceap*), "stone" (*stan*), "building", "house" (*sæl* and *sele*), "treasure" (*sinc*), "seed" (*sæd*), "sorrow", "anxiety" (*sorh*), "sick" (*seoc*), "distinction", "reason" (*gescad*), "shadow" (*sceadu*), "crime", "sin" (*syn*), "smith" (*smiþ*), "sword" (*sweord*), "arms" (*searu*), "relationship", "kindred", "friendliness", "peace" (*sib*), "own", "one's own dear" (*swæs*), "feast" (*symbel*), "safety", "success" (*gesynto*), "victory", "triumph" (*sigor*), "seat" (*setl*), "sore" (*sar*), "sear", "dry", "withered" (*sear*), "sharp", "severe" (*scearp*), "quick", "ready" (*sceot*), "fit for" (*gescreope*), "prudent", "sagacious" (*snotor*), "healthy", "safe" (*gesund*), "swart" (*sweart*), "sated", "filled" (*sæd*), "to create", "to shape" (*sciep-pan*), "to sow" (*sawan*), "to happen" (*sælan*), "to seek" (*secan*), "to sit", "to remain" (*sittan*), "to stand", "to be fixed", "to remain undisturbed", "to stop" (*standan* and *gestandan*), "to see" (*seon*), "to stare, look fixedly" (*starian*), "shall" (*sceolan*), "to shoot" (*sceotan*), "to scathe", "to hurt" (*sceþþan*), "to cut", "to shear" (*sceran*), "to give" (*sellan*), and "to sleep" (*slæpan* and *swefen*). Other uses include the demonstrative pronouns "the" and "that" (*se* and *seo*) as well as "the like" and "the same" (*swilc*); the conjunction "as" and the adverb "so" (*swa*), the prefix "ever", "everlasting" (*sin-*); and the adverbs "at once", "directly" (*snude* and *sona*), and "frequently" (*symle*).

Many notions presented in the /s/- and /w/-lexises form conceptual oppositions within the lexicon: "creation"—"void"; "The Creator" (*Scyppend*)—"The Almighty" (*Wealdend*); "equal"—"opposite"; "the same", "similar"—"different"; "fate" ("creation")—"fate" ("chance"); "fixed"—"unfixed"; "friendliness"—"hostility"; "good"—"bad"; "better"—"worse"; "judge"—"avenge"; "obligation"—"will"; "shall"—"will"; "reason"—"supposition", "hope"; "relatives",

"kindred"—"foreigners", "aliens"; "right"—"left"; "singular"—"plural"; "self"—"we"; "sin"—"joy"; "straight"—"bent"; "strong"—"weak"; "to see with the eyes"—"to see with the inner eyes", "be wise"; "stable"—"moving"; "to sit", "stand", "to stop"—"to be lively", "to move"; "truth"—"deceit"; "truth"—"wisdom"; "victory"—"struggle".

The form of the words, and their onset in particular, constrains lexical choices and sets the direction of semantic implications, resulting in a definite list of concepts. Anchoring lexical meanings in certain conceptual categories and aligning them with a particular onset reflect the processes of relational analogy in which the presence of one meaning implies the presence of another (cf. "chains of implication" in Gentner and Toupin [1985, p. 2]).

The problem of near-synonymy is solved by referring to etymology and cognitive prototypes. The pairs of /s/- and /w/-synonyms referring to one and the same thing, quality or action are differentiated at the etymological level; for instance, *snotor—wis, witig*; *sæcca—wig*; *sar—wracu*; *side—wide*; *secg—wer; searu—wæpen*. The adjectives for "wise" in Indo-European languages, to give an example, have different sources: "sight" and, by metaphorical extension, "intellect" (*wis* < IE **u̯(e)id-* "to see"), and "good sense" and by metaphorical extension, "skill" (*snotor*, probably originally "scenting well" of animals, cf. Norw. *snotra* "scent", "snort", OE *snȳtan*, OHG *snūzen*, ON *snȳta* "to blow the nose") (Buck, 1949, p. 1214).

Syntagmatic Relatedness of /w/-words

Study 2 measures the degree of conceptual associativity in onset-related collocates in which the presence of one word presupposes the presence of another. It answers the following questions: what is happening with the participants, realia, and phenomena indicated by /w/-words? in what events do they take part? and under what circumstances (locations, goals, outcomes, space-and-time relations) do they interact? In the /w/-lexicon, water is surging (*wado weallende, wedera cealdost*, 546), cold winters bring storms and death (*wintrys wylmum*, 516; *wæl-fagne winter*, 1128), and the wind blows behind the crest-glider (*weg-flotan wind*, 1907). The warriors take part in war without weapon (*wig ofer wæpen*, 685); they war under water (*wigge under wætere*, 1656), walk the wide sea-shores (*wide waroðas*, 1965), and acquire honor (*wiges weorþ-mynd*, 64–65). They possess the ability "to weave the words together" and to wield them (*wordum wrixlan*, 366, 874; *wordum weold*, 30; *wordes geweald*, 79; *wordum bewægned*, 1193; *word-gyd wrecan*, 3172). The heroes are wise in speeches (*wis word-cwida*, 1845). They are known for their skills and wisdom (*wig ond wisdom*, 350; *wid-cuþes wig*, 1042; *wig-geweorþad*, 1783), and they do not fear the might of the dragons (*wyrmes wig*, 2316, 2348). Their armor and weapons, renowned and wielded by their bearers (*wæpnum geweorðad*, 250; *wæpnum gewurþad*, 331; *wæpna gewealdan*, 1509), do not fail them (*gewac æt wige*, 2629), because they are wrought by crafty smiths (*worhte wæpna smið, wundrum teode*, 1452). Weapons, such as an old giantish sword made by Wayland (*Welandes geweorc*, 455), can be an honor to warriors (*wigena weorð-mynd*, 1559). Their enemies' weapon is cursed, and in battle, it can wane (*wig-bil wanian*, 1607). War-skills

and the strength of the enemies are well-known (*Wæs þæs wyrmes wig wide gesyne*, 2316, *ne him þæs wyrmes wig for wiht dyde*, 2348), but eventually they die (*wig-hryre wraðra*, 1619). Vengeance and hostility are known to many men (*wid-cuþ werum, þætte wrecend þa gyt*, 1256) and are associated with warriors, weapons, waking up dragons, quarrels, woe, dignity, exile, God, happening events (*wigum ond wæpnum; he gewræc syððan*, 2395*; Þa se wyrm onwoc, wroht wæs geniwad*, 2287; *wen ic þæt ge for wlenco, nalles for wræc-siðum*, 338; *wræc Wedera nið – wean ahsodon*, 423*; wean ond wræc-sið, se ðe Waldendes hyldo geheald*, 2292*; wræc adreogan, swa us geworden is*, 3078). The exiles are friendless (*wræccan wine-leasum*, 2613). The warriors avenge their relatives or offspring (*wolde hyre mæg wrecan*, 1339*; wolde hire bearn wrecan*, 1546). Avenge, wrath, wonder, and age are often found together (*gewrecen wraðlice. Wundur hwar þonne*, 3062*; awræc wintrum frod. Wundor is to secganne*, 1724*; wræc Wedera nið*, 423). Many heroes are slain (*wæl*) in war. The word *wæl* collocates with "warfare", "wolf", "will", "work", "destruction": *wid-cuþes wig*, *ðonne walu feollon,* 1042; *wyrsan wig-frecan wæl reafeden*, 1212; *wið wulf wæl reafode*, 3027*; willan geworhte oþðe on wæl crunge*, 635. Suffering from mortal wounds (*wundum werge*, 2937; *wunde wæl-bleate*, 2725; *wundum awyrded*, 1113; *wunde gewyrcean*, 2906), heroes go to the embrace of their Father (*Waldend*), a character who is the Ruler and King of glory (*geweald gehwearf worold-cyninga*, 1684; *wuldres Waldend*, 17, 183, 1752).

The results of the collocational analysis demonstrate the scope of the syntagmatic patterning in /w/-collocates. /W/-words that "keep each other's company" demonstrate the relationships of contextual collocability and conceptual similarity. /W/-alliteration nurtures the associated images of war—weapon, war—water, war—honor, war—fail; war-skill—wisdom, war-skill—worm—wide, war-skill—wide; weapon—renown, weapon—make, weapon—wield, weapon—honor; war-bill—wane; work—Wayland; enemy—death; avenger—men—wide, avenge—will, avenge—fiercely—wonder, avenge—winter—wonder; vengeance—the Weder-Geats, vengeance—misery, vengeance—order; exile—dignity—expect, exile—misery, exile—friendless; the slain—worse—warrior, the slain—with—wolf, the slain—will—work; wound—weary, wound—death, wound—destroy, wound—make; word—weave, word—wise, word—wield, word—proffer; elegy—make; God—wield, God—glory; water—well; winter—storm, winter—the slain; wind—crest-glider; path—wide; world—joy; ship—joyful. Semantic variation across the /w/-dataset is determined by the degree of the syntagmatic relatedness of words.

Conceptual Contact and Proximity of /w/-words

Study 2 also measures spatial-conceptual contact and proximity. It draws on the principle of spatial-cognitive proximity, according to which linear proximity, contact, and recurrence of elements in phonological strings reflect the degree of conceptual closeness between the elements (see Givón, 1985; Haiman, 1985; Kopaczyk & Sauer, 2017). The concepts expressed by words that are proxemically closer to each other reflect the events or entities that are closer in "reality". The analysis of the three stressed alliterating lexemes in the long line shows the following distribution:

when the word is closer to the /w/-keyword, the two lexemes are closer in meaning, and the events bringing the two things together are closer. The first and second stressed alliterating words express associatively closer concepts. The distant position of the third stressed word in the second half-line after the cesura presupposes its discursive function: it usually continues the sentence by expanding or specifying the narration, or it starts a new sentence by rendering a new idea.

Not only do words that are proxemically close to each other enter into relationships of conceptual associativity, they also reinforce their meanings, resulting in an overemphatic phonological effect. Such words are binomials: poetic formulas with nonflexible word order and noncompositional semantics. /W/-binomials are pairs of nouns, adjectives, and verbs connected by the conjunctions *ond* and *oþþe*, the pairs of nouns connected by the prepositions *ofer*, *to*, *on*, *with*, *æfter*, *æt.* The collocates of N-Conj-N-type reveal the conceptual closeness of the two notions: "woe and hardship" (*wean ond wræc-sið*, 2292), "words and deeds" (*wordum ond worcum*, 1833, *worda ond worca*, 289), "men and women" (*wera ond wifa*, 993), "horses and weapons" (*wicga ond wæpna*, 1045), "courage and wisdom" (*wig ond wisdom*, 350), "war-skill and walls" (*wiges ond wealles*, 2323), "warriors and weapons" (*wigum ond wæpnum*, 2395), "jewels and metal-work" (*wrætta ond wira*, 2413), "restless and slaughter-eager" (*wæfre ond wæl-fus*, 2420), "twisted-hilt and serpent-patterned" (*wreoþen-hilt ond wyrm-fah*, 1698), "sea-serpents and wild beasts" (*wyrmas ond wil-deor*, 1430), "diminish and destroy" (*wanode ond wyrde*, 1337), "grow and flourish" (*weaxeð ond wridað*, 1741), "know and not to expect" (*wiston ond ne wendon*, 1604). In the collocations of N-Prep-N-type the list continues with the associatively close concepts of "men and voyage" (*weras on wil-sið*, 216), "wonders and walls" (*wundur on wealle*, 2759), "worm and place" (*wyrm on wonge*, 3039), "worm and joy" (*wyrme on willan*, 2307, "to turn to pleasure" (*wendeð on willan*, 1739), "to occur in certain place" (*wearð on ðam wange*, 2003; *wunode on wonge*, 2242), "black and clouds" (*won to wolcnum*, 1374), "weapon against worm" (*wæpen to wyrme*, 2519), and "to spiral into clouds" (*wand to wolcnum*, 1119).

The prepositions *under* and *ofer* indicate the associativity of actions, events, objects, phenomena and properties being or happening "in definite locations"—"under, at, in the clouds, water, walls" (*weold under wolcnum*, 1770; *weox under wolcnum*, 8; *Wod under wolcnum*, 714; *wan under wolcnum*, 651; *wæter under wolcnum*, 1631; *wigge under wætere*, 1656; *wræte under wealle*, 3060; *wundur under wealle*, 3103; *weorðan æt wealle*, 2526); "beyond something" (*wig ofer wæpen*, 685; *wyrm ofer weall-clif*, 3132)—"in definite order" (*web æfter wagum*, 995; *wunder æfter wundre*, 931) and "at definite time" (*gewac æt wige*, 2629). The preposition *wið* marks the opposition of the agonists and antagonists (*waca wið wraþum* "watch for your woe", 660). In the examples with the negation *ne*, close concepts of "words and deeds" and "words and prophecies" (*wordum ne worcum,* 1100; *wyrda ne weorda*, 3030) are connected.

Proxemically distant words occur as the third stressed item in the long alliterative line and perform a discursive function in the text. On the one hand, they designate particular concepts, while, on the other, they start a new idea or expand the previous idea in the text. For example, the word *wyrd* in *Beowulf* occurs only as the third stressed word and collocates with the verbs *fornam, geteoð, forsweop, gæð, nereð,*

ne gescraf, *ne cuþon, forstode*. Fate takes away (*wæl-reaf werede; hyne wyrd fornam*, 1205), allots us (*swa unc wyrd geteoð*, 2526), ill-profits (*ealle wyrd forsweop*, 2814), goes as it must (*Gæð a wyrd swa hio scel*, 455), is near (*wyrd ungemete neah*, 2420), is or is not somebody's destiny (*Ne wæs þæt wyrd þa gen*, 734), often spares (*Wyrd oft nereð*, 572), and does not decree glory (*swa him wyrd ne gescraf hreð æt hilde*, 2574–2575). People do not know their fate (*druncon win weras; wyrd ne cuþon*, 1233), and wise God changes fate (*nefne him witig god wyrd forstode*, 1056).

The words that collocate with different onset-related words in a line act as text-forming elements. They are highly frequent lexemes: linking verbs, auxiliary verbs (*was*, *wære*, *wæron*, *wolde*, and *woldon*) and deictics (personal pronouns *we* and *wit).* In alliterative texts, these words are employed as structural elements relevant for the realization of grammatical and discursive functions.

The results of a spatial proximity analysis define the degree of conceptual closeness between the collocates. The closest distance appears to be between the constituents of poetic formulas that infer the sequences of repeated associated images. The most memorable formulas include *wean ond wræcsið*, *waca wið wraþum*, *wyrm on wonge*, *wig ond wisdom*, *wæccendne wer*, *wiggryre wifes*, *wæter under wolcnum*, *wan under wolcnum*, *westen warode*, *worolde wynne*, *wuldres wealdend.*

Discussion and Conclusion

The present study has put forward a new conceptual account of form-meaning correlation in alliterative units and has demonstrated instances of systematic form-meaning dependencies within the alliterative lexicon. It has shown that alliteration is not restricted entirely to the perceptual properties of alliterating sounds (low-level perceptual constraints), an emphatic function, and microlevel sense relations, as has hitherto been thought. I have demonstrated that alliteration could also deal with high-level conceptual constraints and macrolevel sense relations.

Previous scholars rightly held that parallelism of sound leads to parallelism of ideas, and "similarity superimposed on contiguity imparts to poetry its thoroughgoing symbolic, multiplex, polysemantic essence" (Jakobson, 1960, pp. 368, 370). I have grounded this idea in a conceptual perspective. I agree with Wilcox (2004, p. 141) that, "The congruence of phonological and semantic structures in iconicity emanates from a common conceptual system that underlies and gives structure to both linguistic form and meaning". My observations are in line with some of the results obtained by scholars who measured the degree of word associations across languages (Blasi et al., 2016), the semantic relatedness of words sharing the same sound clusters (Abramova & Fernandez, 2016), and the regularities in human lexical semantics (Youn et al., 2016). I can confirm the conclusion of other authors that form-meaning relations can be more nonconventional than has been thought. However, my results differ from related research in the focus of analytical attention. In the present study, I have managed to compute the degree and scope of possible semantic patterns connected with the same onset. Language has a tendency to categorize things in definite directions, which is reflected at the macrolevel of the lexicon. This tendency is connected with "a

motivated account of the relationships between senses of a single morpheme or word, and of the relationships between historically earlier and later senses of a morpheme or word" (Sweetser, 1990, p. 3). The conceptual structure of the lexicon supports this regularity and is maintained in a network of senses. This network is based on the prototypical properties of the etymon and its later reflexes. For example, Indo-European languages regularly demonstrate the metaphorical extensions from "bent/cycle spaces" to "weakness", "anger", "wrong", "injustice", "error", "vengeance", "battle", and "death". This process is reflected in Old English /w/-lexis and its cognates: Skt. *vejate* 'to move with a quick darting motion; to start back, recoil, flee from'/OE *wāc* 'yielding, not rigid, pliant, fluid, weak' (bent, turn—weakness); OHG *rīdan* 'to turn'/OE *wrāþ* 'angry' (turn—anger); Lith. *viržỹs* 'rope'/OE *wringan* 'to wring, twist'/OE *wrang* 'wrong, injustice' (bent, wring—wrong); ON *vā* 'corner, angle'/OE *wōh* 'wrong, perversity, injustice, error' (turn, angle—injustice, error); Lith. *véržti* 'to bind, squeeze'/OE *wrecan* 'to drive, press, expel, to take vengeance' (bent, bind—vengeance); Lat. *volvere* 'to turn'/OE *wæl* 'the slain, dead' (turn—battle, death). These findings are in line with the previous research on the metaphorical realization of BENT and CYCLE image schemas in English and Russian (Chenki, 1998).

My exploration has shown that since the initial position in a word is psychologically and linguistically salient (Berent & Lennertz, 2010; Fogerty et al., 2014), it strongly predicts semantic differentiation at the macrolevel of the lexicon and serves as a marker of broader conceptual relations. During the process of form-meaning pairing, the form of the word is mapped onto semantically constrained word meanings, which sets the limits of a lexico-semantic extension. This process brings us back to an old typological hypothesis according to which "closed" grammatical meanings must be expressed in language (Talmy, 1985), as must some lexical meanings in "open" classes. Similar evidence is produced by cognitive historical semantics, which states that some lexical categories are highly determined (Sylvester, 2004, p. 239).

The semantics of autonomous lexemes cannot serve as an exclusive criterion for phonological-conceptual patterning in alliteration. The whole spectrum of senses produced by various types of alliterative units must be considered, as must the underlying conceptual structure of the entire lexicon. The shift of attention from the purely sensoriperceptual properties of alliteration to the high-level conceptual properties leads to a discovery of form-meaning dependencies in the entire lexicon, not only in the localized lexical patterns. Employed so consistently in Old English verse, alliteration manifests the conceptual principles of its formation. The conceptual approach to alliteration brings to light the existence of synergetic processes in lexical semantics that determine form-meaning regularities in the lexicon. Further exploration of the topic can be continued in the sphere of synergetic linguistics. Such research would allow the interpretation of the idea of linguistic iconicity/arbitrariness in a new way. The tendency of alliterative sequences to group around semantic categories indicates the process of form-meaning development in a language in which the speakers' choices are sensitive to general regularities common to many complex systems.

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