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The Anglo-Saxon sea and the semantics of space

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Abstract

This paper addresses an aspect of lexical organization that identifies the sea as a key concept in the Anglo-Saxon construct of space, force, and motion and that describes a cultural semantic perspective about the sea, or large bodies of water. The spatial analysis indicates the cultural perceptions of the sea and provides information about the movement of water, the activity of people and objects through the sea, and cognitive connections of the sea to emotional states. The study proposes that Old English *sǣ* 'sea' exemplifies a key word supporting a semantically related lexical array across several word classes.

Key words: cultural semantics, lexical organization, space, Old English, landscape, sea, emotion

1 Introduction

The Old English lexicon possesses an extensive number of spatial nouns[1] (*sǣ* 'sea', *mere* 'ocean', *flōd* 'mass of water'), motion verbs (*faran* 'go', *flēotan* 'float', *drencan* 'drown'), adjectives (*ceald* 'cold', *meresmylte* 'sea-calm', *dēop* 'deep'), and locative and directional prepositions and verbal prefixes (*ofer* 'over', *on* 'upon', *ūp* 'up') that participate in lexical sets to denote container-like properties of large bodies of water, the sea especially, in various ways. I will refer to this set of semantically related lexemes as

[1] Words to denote the sea occur in all three genders and across dialects the same word, *sǣ* 'sea' for example, may occur as both masculine and feminine. A semantic approach to grammatical gender indicates that gender may reflect specific space-related concepts about water, but given that a noun's gender assignment varies across dialects, conclusions about the role of gender are difficult to draw (Kitson 1990).

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the *sǣ*-complex. Cognitively, the sea represents an image schema (Méndez-Naya 2014) around which Anglo-Saxons organized, for example, personal experiences about the dangers of travel by sea or significant religious concepts associated with bodies of water that feature in biblical stories. Anglo-Saxon writings mention the sea in historical explanations of the arrival of Germanic peoples in Britannia, in poetry about the wandering that is the result of the agonizing loss of one's lord, and in prose accounts that show the ultimate power of water. Since many genres preserve ideas about the sea, Anglo-Saxon literature suggests the sea is a salient cultural concept (Wierzbicka 1997; Sobecki 2011). Buck (1949: 36) comments on the concept of the sea:

> 'Sea' is understood here as covering the most general terms applied to large bodies of water and used in such a phrase as 'by land and sea'. But between 'sea' and 'lake' there is no rigid demarcation (either by size, or as salt vs. fresh water), and the same word or related group may serve for either or both, or shift its prevailing application with changed physical conditions.

Landscape, generally used here to include all geographic features, constitutes distinct cultural ideas and practices (Hirsch 1995; Clarke 2011). The Anglo-Saxon landscape shows the physical world of the sea as a cultural construct that motivates the particular organization of the lexicon about the sea. In other words, descriptions of the sea-space mark out points of interest such as the force of water or the movement of people, ships, and creatures as they engage in journeys and battles; the *sǣ*-complex provides a lexical framework for linguistic information about the sea. The relationship between space and semantics accounts for patterns among the lexemes that indicate events, behaviors, emotions, and beliefs preserved in various Anglo-Saxon texts. The sea comprises a cultural and a physical space that at the linguistic level organizes words in the Old English lexicon into related sets of configurations; the language forms many compounds with *sǣ* and its various synonyms to denote people and objects associated with the sea. Sea lexemes in the aforementioned word classes illustrate dynamic relations to one another in the sea-land-sky parameter, for instance, to exemplify the grammar of motion events.

Specifically, lexemes in the *sǣ*-complex present vertical and horizontal distinctions. Words that indicate the sea form the vertical foundation of a 3-way opposition that includes nouns denoting the land and sky above the sea. An example of this spatial opposition includes *holm* 'ocean', *holmclif* 'sea-cliff', and *merecandel* 'sea-candle/sun'.

Horizontally, a 2-way opposition describes movement (of people, creatures, or the water itself) from point A to point B as demonstrated by the nouns *ȳþfaru* 'wave-going', *brimrād* 'sea-road', and *sǣhete* 'sea-surging', respectively. The vertical and horizontal planes also inform contexts and figurative expressions that connect the sea with the mind. Anglo-Saxon poets often present the *mod* 'mind' as (vertically) experiencing emotional highs and lows in the context of a real or imagined journey (horizontally) over wide sea expanses. Godden (2002: 305) argues that *mod* semantically functions to indicate emotion and that in Anglo-Saxon literature, we often see the "compulsion to send it over the sea; uncontrolled, the mind hallucinates and fantasizes." Harbus (2012: 36) notes Anglo-Saxon writers frequently employed the mind as container metaphor in secular and religious literature to indicate mental activity as "travel to, from and within this repository" and particularly references the analogy given in *The Wanderer* (Wan 50–54 in *The wanderer* n.d.) where, in the context of reminiscences, the memories of companions often float away.

The language data for this study come primarily from poetic texts, although some examples from non-poetic sources are mentioned. Several Old English poems reveal the sea to readers almost as a voyage of discovery. Specific cultural motifs—battle, death, loyalty, adventure, glory, heroism—come into relationship through an examination of space relations in the *sǣ*-complex. Therefore, apparently disparate Anglo-Saxon ideas concerning religion, geography, politics, flora, fauna, ethics, and kinship correlate lexically through the sea as a defined cultural space. For example, Kilker (2017) points out that *āc* 'oak' (MRune 77 in *Rune poem* n.d.) metonymically indicates a boat and two kennings for 'sea' occur consecutively in the same section, *ganotes bæþ* 'gannet's bath' (79) and *garsecg* 'tempest-ocean'[2] (79); the poet relates the physical entities of oak and sea to the abstract value of *æþele treow* 'noble faith' (80). Old English *æschere* 'ash-army' indicates a naval force (Mald 69 in *The battle of Maldon* n.d.); Pons-Sanz (2008) suggests the use of *æsc* to refer to a Viking ship may indicate an Anglo-Saxon association of the tree's wood quality with the vessel's size and efficiency in attacks.

Poetic language provides the visual, symbolic, and emotive elements in descriptions of the seascape, especially through kennings and other

[2] The *Dictionary of Old English A to H online* (DOE) (2016) notes a disputed etymology for *garsecg*, but offers the general meaning of 'ocean'. The first element *gar* means 'spear' in the sense of 'tempest' and *secg* may derive from *secg*[1] 'warrior', *secg*[2] 'ocean', *secg*[3] 'sedge' (a grass-like plant that grows in wet places), or *secg*[4] 'sword'.

compounds, alliteration, and derivation. In *Andreas* (n.d.), Jesus is disguised as a sea captain and Andreas, cast with attributes of a Germanic warrior, questions the Lord about how he can accomplish his journey *ofer dēop gelād* 'over deep course', a reference to a sea journey (190). In the brief space of lines 195–221 the poet provides several lexemes to denote 'sea': *holma*, *sæstreamas*, *swanrade*, *wæterbrogan*, *meres ende*. In a discussion of the importance of linguistic forms in poetry, Thier (2011: 71) examines terms for 'boat' in *Andreas* and notes that the forms *scip*, *ceol*, *bat*, *flota*, *lid*, *naca*, and *crœfta* occur within the space of 300 lines. Robert (2008) proposes that a specific context, in this case the sea, makes local synonymy possible and, furthermore, that the lexical development of equivalences is a core feature of language. In comments on "the great symbolic significance of the sea in Anglo-Saxon England" and "its centrality to ideas of travel and communication," North & Bintley (2016: 89–90) offer a detailed thematic and stylistic analysis of *Andreas* and note the numerous words for the sea. An explanation for how the sea became so prominent in the lexicon must begin with evidence for the status of *sǣ* as a key word. The Anglo-Saxon scop created visual imagery rooted in the natural world through patterns of lexis; Kilker (2017: 311) notes that texts are "human, cultural creations shaped by the physical materiality of the ecological world within a sphere of meaning exchange." The study of poetic forms in particular provides the basis for the establishment of a cognitive framework for the *sǣ*-complex.

While the communicative, phatic, and aesthetic functions of the spoken and written language of a culture that thrived between the 5th and 11th centuries and the meaning of the 'sea' to people who lived on its edge and crossed its interior can be difficult to determine today, evidence for *sǣ* as a key word is based on textual sources, etymological analysis, and archeological data. Very simply, a key word is a culturally salient word; a key word is meaningful to the language culture. Wierzbicka (1997) proposes the presence of key words indicates perspectives in cultural semantics, that the vocabulary of a language offers a cultural elaboration of specific ideas that are of importance. Old English *sǣ* is one such key word and furthermore it is at the center of a lexical field, or complex, of vocabulary.

2 Identification of *sǣ* as a key word

According to Wierzbicka (1997), we can identify a key word in several ways. First, key words are common and frequently occur in the language; they appear in collocations, clichés, and grammatical constructions. The lexemes in the *sǣ*-complex constitute a core vocabulary of cultural ideas, emotions, and attitudes. Old English *sǣ* and its synonyms occur in a wide array of texts across several genres. The *sǣ*-complex has a noticeable presence in Anglo-Saxon historical, heroic, and meditative writings, e.g. the *Anglo-Saxon Chronicle*, *Beowulf*, and *The Wanderer*, respectively. As noted, the sea frames religious contexts as well (Novacich 2011). In the Old English *Exodus*, for example, the poet describes the escaping Israelites in terms of a *sǣmanna sīð* 'seamen's journey' (Ex 33 in Marsden 2004: 141); one can only imagine how fascinating a story this may have been to an Anglo-Saxon audience whose lexicon contained so many references to the sea. The *wæter* 'water' is *wǣpna ful* 'full of weapons' (Ex 5 in Marsden 2004: 140), a description which refers to the Egyptian warriors and at the same time alludes to the pre-Christian Germanic custom of depositing weapons and other valuables into sacrificial lakes (Simek 2004).[3] The raised waters are *meretorras* 'sea-towers' and the sea as a force possesses *mōd* 'mind' or 'will' or 'spirit'. The personified sea can act of its own volition (Ex 490–491; 494–497 in Marsden 2004: 142):

(1) *Gārsecg* *wēdde*
sea became mad

ūp *ātēah,* *on slēap.*
up (it) rose upon-slid (them)

Flōdweard *geslōh*
flood-guardian struck

unhlēowan *wǣg* *alde* *mēce*
unprotective wave (with) ancient sword

þæt *ðȳ* *dēaðdrepe* *drihte* *swǣfon,*
that (by) the death-blow troops died

[3] See Lucas (1994) for an analysis of Christian themes present in the poem; for example, he argues the poet describes the Israelites as 'sea-men' to imply the presence of a ship, allegorically the Ship of the Church.

synfullra *swēot.*
guilty ones' army

'The sea became mad. It drew itself up and slid down on them…the flood-guardian struck the unprotective wave with an ancient sword so that by that death blow the troops died, the army of the guilty.'

Marsden (2004: 138) points out "the poet draws freely on his OE wordhoard to produce a bewildering number of more or less synonymous words for the sea, ocean, water, and currents". Perhaps this is so if "the real 'source' of *Exodus* is the Christian tradition in which the poem must have been written" (Lucas 1994: 53), the tradition as it existed in Anglo-Saxon England, since there is no single Latin literary source. In *Genesis B*, the poet describes Satan's struggle against his fetters by way of a sea metaphor (*rīdeð racentan sāl* 'rides the chain's loop') that suggests a ship riding at anchor (GenB 35 in Marsden 2004: 133); Marsden (2004: 130) notes the poet presents Satan's story as "a human drama driven by psychological realism." The poets provided and created Anglo-Saxon interpretations of Christian stories. Old English *scip* 'ship' and a number of its synonyms frequently occur in religious contexts since some Christian stories involve an aspect of the sea; Thier (2014) discusses *arc* and *lid* in *Genesis A*, *sǣflota* and *wǣgflota* in *Andreas*, and *bāt* and *hærnflota* in *Guthlac*. However, of note is the number of Old English ship terms associated with poetic language such as *lid* and the compounds with *flota* (Clark Hall 1960; *Dictionary of Old English: A to H online* (DOE) 2016).

Old English poetry identifies aspects of the Anglo-Saxon gaze through its lexicon (Harbus 2012). In many spheres of activity regarding travels and journeys, invasions and battles, and miracles and monsters, writing about the sea was so commonplace that the sea became an integral part not only of culture, but of identity, that is, of Englishness (Sobecki 2011; Gorski 2012; Schustereder 2014). In later centuries, Britannia, a helmeted woman holding a trident, would come to personify the relationship of the sea with a national identity rooted in the political power to travel the oceans in the development of empire. The numerous metaphors and phrases of the *sǣ*-complex comprise an unstructured aesthetic (Mukařovský 1964), which represents a trend toward uniqueness in the cultural elaboration of vocabulary.

In the unstructured aesthetic, attention is directed from the message to the linguistic sign used to encode the message; the unstructured aesthetic may be phonological (e.g. alliteration) or morphological (e.g. compound

words). The sea in certain texts is arguably a foregrounded concept via particular compound words typically associated with poetic forms. Examples of poetic references to the sea of this sort include *ȳð*, *mere*, *holm*, *brim*, and various compounds derived from them: *ȳðgewinn* 'wave-strife', *meredēað* 'sea-death', *holmðracu* 'sea-fury', and *brimceald* 'ocean-cold' (Clark Hall 1960). The presence of lexemes associated primarily with poetic or literary language indicates a question of functional relativity as well; the discourse practices reveal thought through cultural context and interpretation (Lucy 1997). Unstructured, innovative forms are evident in the development of literary metaphors, especially in exocentric compounds for 'ship' such as *brimhengest* 'sea-horse' (DOE 2016). The *Beowulf* poet denotes a sail as *mere-hrægla* 'sea-clothes' (Beo 1905 in Heaney 2000: 130). Hence, one mechanism of metaphorical extension in the development of exocentric compounds in the *sǣ*-complex relies on syntactic sequencing with a sea lexeme as the first component.

Although the sea is not a concept unique to Germanic peoples, the presence of a specifically Germanic lexeme is most interesting. Lass (1994: 181–182) notes that there are certain Germanic words that apparently have no correlation in other Indo-European languages; specifically, he cites Old English *sǣ* 'sea'. In an earlier work, Buck (1949: 37) had proposed that the connection of *sǣ* from Germanic **saiwi* to other Indo-European forms is "wholly doubtful." Lass (1994) additionally cites Old English *bāt* 'boat', *hand* 'hand', and *eorþe* 'dry land'; Buck (1949: 37) had proposed that *bāt* is related to other Germanic forms,[4] *hand* is of a disputed general Germanic etymology, and *eorþe* has uncertain root connections to other branches of Indo-European.[5] The textual evidence shows these four words participate in the lexical organization of the *sǣ*-complex; that is, we can find these words together in Anglo-Saxon texts. From *The Wanderer*, we have a description of the cold, harsh climate associated with the sea (Wan 1–5 in Marsden 2004: 329):

[4] More recently, Thier (2014: 28) suggests that *bāt* is either of non-Indo-European origin or perhaps derives from IE *bheid- 'to split, bite'.

[5] In this case, it may only be the phonological form of the lexeme, the extended *o*-stem, which is characteristically Germanic since Greek and Welsh may have cognate forms *éraze* and *erw*, respectively.

(2) *Oft him ānhaga āre gebīdeð,*
often (by) himself solitary-one grace experiences

metudes miltse, þēah þe hē mōdcearig
ordainer's mercy though he mind-anxious

geond lagulāde longe sceolde
throughout sea-paths far must

hrēran mid hondum hrīmcealde sǣ,
stir with hands ice-cold sea

wadan wræclāstas.
(to) travel exile-paths

'Often by himself the solitary person experiences grace, the ordainer's mercy, although, anxious of mind, he far throughout seaways must row with his hands the ice-cold sea to travel paths of exile.'

In *Beowulf*, we see two of these Germanic roots in a compound word, *sǣ-bāt* 'sea-boat', a term according to Clark Hall (1960) associated mainly with poetic language (Beo 632–633 in Heaney 2000: 42):

(3) *Ic þæt hogode, þā ic on holm gestāh,*
I that intended when I to sea went

sǣ-bāt gesæt mid mīnra secga gedriht […]
sea-boat sat with my warriors' company

'I intended that (direct object), when I went to sea, sat in the ship in the company of my warriors[…]'

And in *The Phoenix*, the sea moves to engulf the *eorðan ymbhwyrft* 'extent of the land' (Phoen 41–45 in Whitelock 1967: 151):

(4) *Swā iū wætres þrym*
thus formerly water's force

ealne middangeard, mereflōd þeahte
all middle-enclosure sea-flood covered

eorðan ymbhwyrft, þā se æþela wong
earth's extent when the noble plain

ǣghwæs onsund, wið ȳðfare
altogether solid against wave-course

gehealden stōd hrēora wǣga […]
protected stood fierce waves

'Thus the force of water, the sea flood, covered the entire world of old, the extent of the land, when the completely solid noble plain stood protected against the wave-course of fierce waves […]'

The archaeological record, moreover, supports the identification of *sǣ* as a key word. What is most interesting about the sea as a motivating cultural concept is the ship burials, for example at Sutton Hoo and Snape. Howe (2002) contextualizes the Anglo-Saxon funerary ship as the re-imagining of a landscape inherited from the conquering and invading Germanic tribes; furthermore, buried boats may indicate a belief in death as a sea journey to the other world (Simek 2004). Remarkably, extant Anglo-Saxon historical texts do not comment on those landscape features that predate the Romano-British period. There are no mentions of henges or other earlier earthworks. Indeed, Anglo-Saxon place-names provide ample evidence that the sea influenced the landscape nomenclature.

In his discussion of inland hydronymic terms, Jacobsson (1997) finds roughly 1000 place-names and landmarks in the form of compound words that feature a component indicating water; etymological examples include Seamer (*sǣ* + *mere*), Merton (*mere* + *tūn* 'farm'), Coldwell (*cald* + *wella*), and Groundwell (*grund* + *wella*). Gorski (2012) argues that England's geopolitical standing as an island kingdom made the sea important because skillful kingship depended often on successful trade and maritime power. The presence of an Anglo-Saxon heptarchy and the chronological phases of wealthy graves in southern England may indicate demand for control of the coastline with northerly kingdoms invading and annexing southern areas (Arnold 1997; Carver 2005). In addition, the political management of land and people created the financial surplus to support a vibrant over-seas

economy in Kent through trade in gold, amber, shell, garnet, pottery, glass, mercury, and ivory. If the Sutton Hoo ship burial represents the grave and grave goods of a powerful lord or king, possibly Rædwald of East Anglia (early 7th century), then the sea symbolizes political power and the ship the wielder of that power.

3 Space patterns and force dynamics

In a particularly interesting Old English excerpt from Ælfric's *Sermones catholici*, the author's account of events in the life of Christ emphasizes vertical space, sea–land–sky (*sǣ–eorðe–sunne*), rather than the chronological order of Christ walking on water, Christ suffering on the cross before death, and the earth shaking at the resurrection after death (ÆChom I, 15 157–164 in Marsden 2004: 191):

(5) *Heofonas oncnēowon Crīstes ācennednysse, for ðan ðā hē ācenned*
Heavens recognized Christ's birth because when he born

wæs þā wearð gesewen nīwe steorra.
was then was seen new star

Sǣ oncnēow Crīst,
Sea recognized Christ
þā ðā hē ēode mid drīgum fōtum uppon hire ȳðum.
then when he walked with dry feet upon its waves

Eorðe oncnēow, þā ðā hēo eal bifode on Crīstes ǣriste.
Earth recognized then when it utterly shook at Christ's resurrection

Sēo sunne oncnēow,
the sun recognized
þā ðā hēo wearð aþȳstrod on Crīstes þrōwunge fram
then when it became dark on Christ's suffering from

middæge oð nōn.
midday until nones

Stānas oncnēowon,
Stones recognized
þā ðā hī tōburston on heora scyppendes forðsīðe.
then when they shattered on their creator's departure

Hel	*oncnēow*	*Crīst,*	*þā*	*ðā*	*hēo*	*forlēt*	*hyre*	*hæftlingas*
Hell	recognized	Christ	then	when	it	released	its	captives

ūt	*þurh*	*ðæs*	*hǣlendes*	*hergunge.*
forth	through	the	savior's	harrowing.

'The heavens recognized Christ's birth because a new star was seen when he was born. The sea recognized Christ then when he walked with dry feet on its waves. The earth recognized him then when it utterly shook during Christ's resurrection. The sun recognized him then when it became dark during Christ's suffering from noon until three. The stones recognized him then when they shattered on their creator's death. Hell recognized Christ then when it released its captives at the savior's harrowing.'

The above passage indicates an Anglo-Saxon cultural interpretation of a story that seems rooted in the semantics of space rather than the chronology of the events. The vertical relation of land enclosed between sea and sky is also found in *Maxims II*, a text that describes the nature of the world and people in gnomic verses. Old English *ymb* 'around' obviously encodes horizontal meaning of water surrounding land, yet there is a vertical sense to *ymb* when the top and bottom limits to land are *lyfthelm* 'sky' and *laguflōd* 'sea', respectively, as mentioned in the text; verticality is also emphasized by context, namely water flowing down from the mountains (Max II 45–47 in Marsden 2004: 300):

(6)

Brim	*sceal*	*sealte*	*weallan,*
ocean	shall (with)	salt	seethe

lyfthelm	*and*	*laguflōd*	*ymb*	*ealra*	*landa*	*gehwylc*
sky-cover	and	sea-tide	around	all	lands	each

flōwan,	*firgenstrēamas.*
flow	mountain-streams

'The ocean shall seethe with salt, clouds and sea tide around each and every land flowing, mountain streams.'

There is an extensive lexical field of literal and figurative expressions conveyed by adjectives, nouns, verbs, verbal prefixes, prepositions, and adverbs that denote a large mass of water or the powerful movement of water. Noun examples include *brimwylm* 'ocean-surge', *flōdweard* 'wave-wall', *holmweall* 'sea-wall', *meregrund* 'sea-bottom', and *meretorr* 'sea-tower', all of which exemplify a vertical aspect, and *brimstrēam* 'water-

current', *flōdȳð* 'flood-wave', *merefaroð* 'sea-surging', *sǣrima* 'sea-rim', and *ȳðlād* 'wave-way', all of which show a horizontal movement. There are compound nouns to connote the power of water, e.g. *flōdegsa* 'flood-horror', *holmmægen* 'wave-might', *holmðracu* 'sea-fury', *lagufæðm* 'water-embrace', *sǣbrōga* 'sea-terror', *wæterbrōga* 'water-dread', *wæterordāl* 'water-ordeal', and *ȳðgewinn* 'wave-strife'. In addition, there exist the corollary lexical sets that denote humans and animals that move through, across, in, and above the water, along with sundry other categories of creatures that dwell in the water; examples include *brimwīsa* 'sea-king', *brimfugol* 'sea-bird', *flotmann* 'sea-man', *merebāt* 'ocean-boat', *meremennen* 'sea-maiden', *sǣdraca* 'sea-dragon', and *sǣlida* 'sea-sailor'. Finally, compounds form metaphors for *scip* 'ship' (*lagumearg* 'sea-horse', *merehūs* 'sea-house', *sǣhengest* 'sea-horse', and *ȳðmearh* 'wave-horse') in addition to examples of metonomy (*brimwudu* 'sea-wood') and synecdoche (*ȳðbord* 'wave-side'). Adjectives typically indicate force and movement, but also describe temperature, fatigue, distance and color, for example *ȳðig* 'wavy/billowy' and *ceald* 'cold'.

Space patterns in the *sǣ*-complex show evidence of an absolute frame of reference, one that is based on the physical location as the reference point rather than on a person's perspective. The absolute frame of reference is exemplified by specific compound words. Old English formed compound words according to established patterns: noun-noun, numeral-noun, adjective-noun, pronoun-noun, adjective-adjective and, especially in poetry, noun-adjective (Chapman & Christensen 2007). The most common type of compound in Germanic is the determinative, in which the first element is the determinant and the second is the head, or determinatum (Lass 1994), for example *meretorht* 'sea-bright' (bright or radiant from the sea) and *sǣbeorg* 'sea-cliff' (cliff by the sea) The determinant modifies or specifies the head, or second element of the compound. Mukařovský (1964) suggests that foregrounding causes deviation from the usual usage. The determinant, or first element in a compound word, creates foregrounding by causing the determinatum, or second element, to signify an aspect of the sea: *wæterbrōga* 'sea-danger', *brimmann* 'sea-man', *merestrǣt* 'sea-street' indicating flood, sailor, and seaway, or *sǣsteorra* 'sea-star' and *sǣwudu* 'sea-wood' indicating guiding star and ship, respectively. The absolute framework is an environment-centered framework, or a domain-centered framework (Lucy 1997), and the determinant lexeme of Old English compounds functions as the indicator of

the spatial environment. The emphasis on the sea as a space is achieved morphologically through the determinant.

The compound noun represented by Old English *middangeard* 'middle-earth' occurs in all three major branches of Proto-Germanic (Lass 1994): North (e.g. Old Icelandic *mið-garþr*), West (the group to which English belongs), and East (e.g. Gothic *midjun-gards*). The concept of middle-earth relates to the *sǣ*-complex in terms of a horizontal continuum of the surface of the sea onto land or surrounding land, as in *ēalond* 'water-land', and in terms of a vertical continuum with land being the area between the sea and the sky. In *The Voyages of Ohthere and Wulfstan*,[6] the sea turns into or becomes the land, s*ēo sǣ in on ðæt lond* 'the sea in toward that land' (AO 14 in Whitelock 1967: 17), and the writer specifies that all that might be ploughed or serve as pasture land *līð wið ðā sǣ* 'lies beside the sea' (61). Noetzel's (2014: 113–114) analysis of the poem *The Order of the World* sees land and sea in a dichotomous relationship as the poet describes the *lond wið wæge* 'land with waves' and the *flōd wið folde* 'flood over land' in an overlapping mutual, commutative horizontality (OrW 84–85 in *The order of the world* n.d.). When Beowulf and his companions return to their homeland, their ship (*sǣ-genga* 'sea-goer') travels *forð* 'forth' over waves and sea currents until finally the *cēol* 'ship' *up geþrang* 'hastened up' and stood *on lande* 'on land'(Beo 1908–1913 in Heaney 2000: 130).[7] Arguably, *up* in this passage indicates a continued forward (horizontal) movement of the ship to the shore. Particles and prepositions like *ūp* and *on* emphasize verticality, yet can also function to describe horizontal movement. While these passages serve to exemplify the horizontal spatial relationship between land and sea or the vertical relationship among sea, land, and sky, note that land and sky (as previously mentioned) are described with words from the sea lexicon: *sǣ*, *wæge*, and *flod*, for example. In *Maxims I*, a storm often brings waves, *storm oft holm gebringeþ* (Max I 50 in *Maxims I* n.d.), and the land in between sea and sky stands firm to calm the commotion between them (Deskis 2005: 337).[8]

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[6] The story was added to the Old English translation of Orosius' *Historia adversum Paganos* (5th century) during the time of King Alfred (9th century) (Whitelock 1967).

[7] Old English sources cited herein vary in spelling, for example *up/ūp* and *onhwerfan/ondhwerfan*.

[8] The immediately preceding sentence in the same line (*Styran sceal mon strongum mode* 'A man must guide a strong mind') presents another example of the juxtaposition between the mind *mod* and the sea *holm*. Godden (2002: 300) describes this semantic aspect of *mod* as "an inner passion or willfulness, an intensification of the self that can

Furthermore, in the *sǣ*-complex the edge (and this word connotes downwardness) of the land that borders the sea is described in terms of the sea (e.g. *brimclif* 'sea-cliff', *merehwearf* 'sea shore' and *brimstæð* 'sea-shore'), but the edge of the sea is not described in terms of the land. In this place-naming system, the sea is the determinant of the toponym. From the absolute perspective of the border between the sea and the land, moving away from the sea, or onto land, represents 'up-ness'. Old English *ūp* indicates 'up', 'upstream', 'upwards', 'ashore'. It would not matter on which side of the stream a person were standing because up-ness means vertically up from the water or horizontally away from the water (it is not a matter of left or right from a person's point of view).

The topomnestic principle of naming-pointing involves several word classes and so the absolute frame of reference demonstrates related lexico-grammatical sets. "Down-ness" is a move vertically into the sea or horizontally toward the sea. Additional evidence for the vertical layers derives from the concept of *grund* 'bottom' in the sense of 'depths'.[9] DOE (2016) defines *grund* primarily in association with the "bottom, lowest part of anything" and as signifying "of the sea". *Grundwong* 'bottom-plain' is a poetic term for the bottom of the sea. A place can be *grundlēas* 'bottomless' and the ghastliest creatures inhabit these unexplored realms; Grendel's mother is the *grundwyrgen* 'deep-accursed one' or 'accursed one of the deep', another poetic compound. *Grund* represents the "downward limit of anything" (*Oxford English Dictionary* 2010) as in *grunddēope* 'sea-depths'. Here is the scene from *Beowulf* in which the hero finds the lair of Grendel's mother (Beo 1494–1500 in Marsden 2004: 281):

(7) *Brimwylm* *onfēng*
water-surging received

hilderince. *Þā* *wæs* *hwīl* *dæges*
battle-warrior then was period (of a) day

ǣr *hē* *þone* *grundwong* *ongytan* *mehte.*
before he the bottom-place perceive could

---

be dangerous." The poet emphasizes perhaps that one's control of temper and behavior is socially beneficial.

[9] Buck (1949) comments that *grund* (from Germanic **grunduz*, an unattested form) and its Germanic cognates denote a solid surface, not an area for cultivation. The etymological entry for 'ground' given in *The Oxford English Dictionary* (2010) concurs.

Sōna	*þæt*	*onfunde,*	*sē*[10]	*ðe*	*flōda*	*begong*
immediately	that	discovered	he	who	waters'	region

heorogīfre	*behēold*	*hund*	*missēra,*
slaughter-greedy	guarded	one-hundred	half-years

grim ond	*grǣdig,*	*þæt*	*þǣr*	*gumena*	*sum*
fierce and	greedy	that	there	of the men	a certain one

ælwihta	*eard*	*ufan*	*cunnode.*
alien-creatures'	abode	from above	explored

'The turbulent water received the battle warrior. It took a good part of the day before he was able to discover the bottom of the waters. Immediately, she who had fiercely, ravenously guarded the region of waters for 50 years found out that a certain man from above explored the abode of alien creatures.'

Grendel's mother as the *grundwyrgenne, merewīf*[11] 'the deep-cursed-one, sea-woman' is a personification of bottomness (Beo 1518–1519 in Heaney 2000: 104). As the ocean *grund* is a place of monsters, the Beowulf poet refers to Grendel as a *fēond on helle* 'fiend from hell' (Beo 101 in Heaney 2000: 8). Similarly, *grund* describes aspects of hell in *The Fall of the Angels* (GenB 302–303 in Whitelock 1967: 130):

(8)

For	*þon*	*hē*	*sceolde*	*grund*	*gesēcean*
for	that	he	must	bottom	seek

heardes	*hellewītes,*	*þæs þe*	*hē wann*	*wið*	*heofnes*	*Waldend.*
(of the) hard	hell-torment	since	he fought	against	heaven's	King

'For that he must go to the bottom of the harsh torment of hell since he fought against heaven's King.'

Satan must rule over the *sweartan helle grundes* 'black abyss of hell' (GenB 345–346 in Whitelock 1967: 131). In addition to denoting the bottom of the sea or other body of water, *grund* can refer to the bottom of hell, the depths of hell, and the abyss of hell (DOE 2016).

If *grund* represents the foundation, the absolute bottom, of the sea, then its application to land is analogical; the land as ground must also be the bottom of something, the space below the clouds, and the space of the

[10] The masculine pronoun *sē* refers to Grendel's mother.
[11] These are accusative forms.

clouds is *lyft* 'sky'. The primary spatial orientation of the *sǣ*-complex is vertical up-ness. In *Exodus*, God raises the *wrætlicu wǣgfaru, oð wolcna hrōf* 'wonderous wave-path, up (to the) clouds' roof' (Ex 298 in *Exodus* n.d.) and later the sea as a terrifying, sentient force seeks to return to its *ēce staðulas* 'eternal foundations', the seabed, after it drowns Pharaoh's army (Ex 474 in *Exodus* n.d). The sea presents a bottom-up vertical perspective. In addition, out-ness indicates a movement up and away from a central point (Méndez-Naya 2014) such as the sea; therefore, *ūt* 'out' exemplifies vertical and horizontal movement as well.

Lakoff & Johnson (1980: 15) propose that having control or force is 'up', while being subject to control or force is 'down'. 'Up' also indicates goodness, high status, virtue, and rationality, while 'down' connotes badness, low status, depravity, and emotionality. In the Old English *Exodus*, power is 'up' as the sea lifts itself and then forces down the Egyptians in Example (1). Furthermore, good is 'up' as it represents the realm of Beowulf and the human world and bad is 'down', where the underwater lair of Grendel's mother is located. High status is 'up' and low status is 'down'. In *Genesis B*, God *wearp* 'threw down' Satan, the *ofermōda cyning* 'proud king', to control *þæs grundes* 'the abyss' (GenB 338–349 in Whitelock 1967: 131). Virtue, represented by *heofonrīce* 'heaven-kingdom, is 'up' and depravity is *grundlēase* 'fathomless' or 'down' and characteristic of hell (DOE 2016). In *The Seafarer*, the narrator describes his 'down' emotional state in terms of *hēan strēamas, sealtȳþa gelāc* 'deep currents, salt waves' tumult' (Sea 34 in Marsden 2004: 225).

4 Verbs and motion encoding

In a discussion of motion event encoding in Indo-European, Verkerk (2014) notes five path domains: enter, exit, ascend, descend, and pass/cross. Old English verbs encompass these paths as well. In *The Whale*, the poet describes how the whale *niþer gewiteþ* 'downward goes' dragging a ship of men as his plunder; the whale *bifæsteð scipu mid scealcum* 'fastens the ship with its men' *in deaðsele* 'to the death-hall', or the bottom of the sea (Whale 28–31 in *The whale* n.d.). This description presents descending motion through the adverb *niþer* and the verb *gewiteþ*. In *Riddle 26*, the personified speaker claims that an enemy came along claiming his life; the enemy then wet him and *dȳfde on wætre* 'plunged (him) in water'(Rid 26 3 in Marsden 2004: 314); *dȳfan* 'to plunge' combines two paths, enter + descend. Terrible strangers (the Vikings) in

The Battle of Maldon plead that they must have *ūpgangan* ‘passage’ across a ford (Mald 87 in Marsden 2004: 258); the accusative noun *ūpgangan*, which combines two paths cross + exit in the horizontal plane, is derived from the verb *ūpgān* ‘to go up’. These examples show that path domains in Old English are complex because the verb morphology can illustrate combinations of the five basic path domains. Some of the Old English path verbs indicate enter+cross (*wadan* ‘go/advance’ or ‘wade’); others indicate pass+descend (*āweorpan* ‘forth-cast down’).

Derivational aspects of Old English verb morphology are significant to the lexical organization of the *sǣ*-complex in terms of encoding motion events. PATH refers to the trajectory of movement (e.g. *tō* ‘toward’ or *cuman* ‘come/go’), while MANNER describes the type of movement (*ȳðig* ‘billowy’or *swimman* ‘swim’). If path is encoded in the verb, the language is a verb-framed language; if path is encoded in other word classes, the language is a satellite-framed language (Talmy 1985). Old English, like Proto-Indo-European, exhibits both verb-framed and satellite-framed features (Verkerk 2014). In Old English, the path of the motion can be encoded in verbs or in verbal prefixes and Old English manner verbs, for example, may take a path prefix. In addition, many of those verbal prefixes function lexically as path prepositions and, to an extent, path adverbs. Path (whether verb-framed or satellite-framed) and manner also participate in force dynamics.

Manner as encoded by *drēfe* ‘disturb’ in *Riddle 7* indicates force exerted on the water (Rid 7 1–2 in Marsden 2004: 313):

(9)

Hrægl	*mīn*	*swīgað*	*þonne*	*ic*	*hrūsan*	*trede*
garment	mine	is silent	when	I	ground	tread

oþþe	*þā*	*wīc*	*būge*	*oþþe*	*wado*	*drēfe.*
or	the	dwelling	occupy	or	waters	disturb

‘My clothes are silent when I tread the ground or occupy my dwelling place or stir up waters.’

Beowulf’s fame rests on his willingness to brave the force, or motion, of the sea; the verbs *wunne* ‘fought’ and *flite* ‘quarreled’ indicate manner, or how Beowulf moved in the water, while the adjective *dēop* ‘deep’ a few lines later denotes the vertical path downward (Beo 506–510 in Heaney 2000: 34):

(10) *Eart* *þū* *sē* *Bēowulf,* *se þe* *wið* *Brecan* *wunne,*
are you the Beowulf, he who against Breca fought

on *sīdne* *sǣ* *ymb* *sund* *flite,*
in wide sea around ocean quarreled

ðǣr *git* *for* *wlence* *wada* *cunnedon*
where you-two for glory sea knew

ond *for* *dol-gilpe* *on* *dēop* *wæter*
and for foolish-boasting in deep water

aldrum *nēþdon?*
lives risked

'Are you that Beowulf who fought against Breca, quarreled in the open sea around the ocean, where you both knew the sea for glory and risked your lives for foolish boasting in deep water?'

Other examples of forces in the *sǣ*-complex can be taken from *Beowulf*. The (preterite) verbs *tōdrāf* 'apart-drove' and *ondhwearf* 'beyond-passed' present the path prefix affixed to a path verb as *drīfan* indicates 'to drive or expel away from' and *hwerfan* 'to pass', although *hwerfan* may also signify manner in some contexts as 'to turn or swirl' (Beo 544–549 in Heaney 2000: 36):

(11) *Ðā* *wit* *ætsomne* *on* *sǣ* *wǣron*
when we-two together in sea were

fīf *nihta* *fyrst,* *oþþæt* *unc* *flōd* *tōdrāf,*
five nights period, until us-two sea apart-drove

wado *weallende,* *wedera* *cealdost,*
waves raging storm coldest

nīpende *niht,* *ond* *norþan-wind*
darkening night and north-wind

heaðo-grim *ondhwearf.* *Hrēo* *wǣron* *ȳþa,*
war-grim against-passed Savage were waves

wæs *mere-fixa* *mōd* *onhrēred.*
was sea-creatures' spirit up-stirred

> 'For a period of five nights we were both on the sea until the sea drove us apart – raging waves, the coldest storm, the darkening night—and the war-grim north wind passed over. The waves were savage; the temper of the sea creatures was stirred up.'

Path and manner present interesting complexities; Old English and other Germanic languages often exemplify satellite-framed constructions for path. Nevertheless, Old English also exhibits verb-framed examples of path motion such as *gān* 'go away' and *lācan* 'move up and down' (Clark Hall 1960; DOE 2016).

The verbal prefixes usually convey semantic content closely related to that of their lexical form as preposition or adverb. Spatial prepositions typically retain their locative and directional meaning as a prefix. Both root verbs and the derived verbs (verbs with a prefix) indicate forces of various sorts. One type of force is the self-sustaining force of moving water. Examples include intransitive and causative verbs such as *drēfan* 'stir up', *gēotan* 'gush', *weallan* 'rise', and *slēan* 'strike'. Another type of force is the force that the water exerts on objects to hinder, move, engulf, or direct the objects. Some transitive verbs include *ðeccan* 'cover' in Example (4) and *sceððan*[12] 'crush'. Verbs indicate the movement of water horizontally and vertically, but the semantic properties of the verbs also indicate the destructive force of moving water, including movement that spills out of the container, the sea, onto the land (that is, flood water), water that submerges or drowns, and water that pushes out to sea. Some verb examples without and with prefixes include *tēon* 'to pull or row' and *ūpātēon* 'to well up' as well as *flōwan* 'to flow' and *tōflōwan* 'to flow down or away' (Clark Hall 1960; DOE 2016). In addition, other verbs indicate the force of water in terms of the sound of its turbulence. Examples of this type of force include *circian* 'to roar' and *hlimman* 'to rage, resound' (DOE 2016).

Finally, verbs may present anticausative, unaccusative, and inchoative functions as in Example (6) where the ocean *sceal sealte weallan* 'shall seethe with salt' or in (1) where the sea *wēdde* 'became mad' and *ūp atēah* 'rose up' In both examples, the verb is anticausative because there is no external force causing the sea to move, the verb is unaccusative because the sea is the theme (not the agent), and the verb is inchoative because it relates a change in state. Furthermore, verbs may be labile, that is prone to change

[12] In the underwater roofed hall of Grendel's mother, Beowulf sees that *him nǣnig wæter wihte ne sceþede* 'him no water at all crushed' (Beo 1514 in Heaney 2000: 104).

functions without any change in form, for instance *wadan* 'to wade, travel, or advance'.[13] A transitive form followed by the accusative plural direct object *wræclāstas* 'misery-paths' occurs in *The Wanderer* as given in Example (2). A preterite plural intransitive form, *wōdon*, with the nominative plural subject *þā wælwulfas* 'the slaughter-wolves' occurs in *The Battle of Maldon* (Mald 96 in Whitelock 1967: 119):

(12) *Wōdon* *þā* *wælwulfas* (*for* *wætere* *ne* *murnon*) […]
advanced the slaughter-wolves (for water not mourned) […]
'The slaughter wolves approached (they did not care for the water) […]'

Additionally, the intransitive use of *wadan* in the sense of 'to advance' shows a path verb function above, while the transitive use indicates manner (travel throughout), but not clearly path, in *The Wanderer* in Example (2).

5 Emotion and experience in the *sǣ*-complex

If the sea represents a meaningful concept in Anglo-Saxon culture, then Old English *sǣ* and its synonyms (*brim, flōd, holm, lagu, mere, ȳþ*) represent key words supporting the concept. Other key words play a role as well. Schustereder (2014) has identified Old English *cēol* 'ship' as a key word in the study of the role of the sea in terms of religion, identity, and culture in the Middle Ages; he too notes that most genres of Old English narrative texts describe aspects of the sea or seafaring. Méndez-Naya (2014) presents a syntactic and semantic analysis of 'out'-intensifiers in Old English adverbs and adjectives that originate in the spatial domain, specifically as such forms indicate container, path, scale, and balance. These concepts are integral because *ofer* 'over', *ūp* 'up', *ūt* 'out', and *wiþ* 'against' describe the movement of water out of its contained space.

The *sǣ*-complex encompasses lexemes that refer generally to large bodies of water, whether historical, legendary, or mythical. Interpretation may differ as to the type of water indicated (a sea, an ocean, a lake, or a pool). Nevertheless, the sea is arguably a significant concept given the variety of Anglo-Saxon documents that feature lexemes in the *sǣ*-complex

[13] Van Gelderen (2011) concludes that a basic verb valency for Old English and Germanic, while difficult to establish because so many verbs are labile, tends toward the intransitive. Royster (1922) observes that Old English verbs may vary as to causativity and intransitivity without a formal morphological contrast. Hence, we can understand the difficulties of transliteration from Old English to Modern English.

and the regularity of compounds and derivations with nouns and verbs. In Anglo-Saxon texts, the sea must be traversed, survived, endured, explored, and battled. The sea represents a formidable force of nature and it is deadly. The Anglo-Saxons do not seem to have taken it for granted. Furthermore, a semantic component indicating emotions emerges in the *sǣ*-complex. The narrator of *The Seafarer* offers an account of the sea that relates personal fatigue, courage, and endurance (Sea 1–6 in Marsden 2004: 223):

(13) *Mæg ic be mē sylfum sōðgied wrecan,*
can I about myself true-story relate

sīþas secgan, hū ic geswincdagum
journeys to tell how I (in) affliction-days

earfoðhwīle oft þrōwade,
hardship-times often suffered

bitre brēostceare gebiden hæbbe,
bitter heart-care endured have

gecunnad in cēole cearselda fela,
experienced in ship sorrow-halls' many

atol ȳþa gewealc.
terrible waves' surging

'I can relate a true story about myself, tell of journeys, how I often suffered hard times in difficult days, have endured bitter woe, experienced in a ship many places of sorrow, the terrible surging of the waves.'

The narrator goes on to address *hungor* hunger', *earmcearig īscealdne sǣ* 'wretched ice-cold sea', *hægl* 'hail', *īscaldne wæg* 'ice-cold wave', *hēan strēamas* 'deep currents', and *sealtȳþa gelāc* 'salt waves' tumult' (Sea 11, 14, 17, 19, 34, and 35, respectively, in Marsden 2004: 223–225). When he thinks of the sea and his journey, there is no thought for *hearpan* 'harp', *ne tō wīfe wyn ne tō worulde hyht* 'nor joy in a woman nor hope in the world', nor for anything else except the terrible *ȳða gewealc* 'wave surging,' a description given twice in the poem; his *mōdsefa mid mereflōde* 'mind-spirit' [roams] with the 'ocean-tide' far and wide (Sea 44, 45, 46, and 59, respectively, in Marsden 2004: 225–226). This text shows a connection between thinking and experiencing.

In her discussion of "experience" as a cultural theme, Wierzbicka (2010: 31) argues, "the word 'experience' plays a vital role in English speakers' ways of thinking and provides a prism through which they interpret the world". She references Wittgenstein's distinctions between *Erlebnis* and *Erfahrung*, both of which translate into English as 'experience', the one word thus collapsing an important distinction in Wittgenstein's work. The German roots of these two words are *leben* and *fahren*, respectively, which have cognate forms in Old English *libban* and *faran*. The verb *libban* translates as 'to live, experience, be, exist' (Clark Hall 1960: 217); *faran* indicates 'to set forth, go, travel, wander' (Clark Hall 1960: 112). Wierzbicka challenges us to think about experience from the German point of view in order to mark two specific senses.[14] The Anglo-Saxon author of *The Seafarer*[15] might very well concur with the distinction. In order to experience the sea, one must go forth into it, travel across it, suffer its climate; doing so brings experience through familiarity or understanding. In the poem, the physical properties of the sea as experienced by the seafarer constitute *Erfahrung* (the cold, the water's movement, the surging waves); the seafarer's assessment of the emotional and psychological reaction to the sea constitutes *Erlebnis* (affliction, hardship, bitterness). The poet suggests the cognitive link to the sea by describing the mind in relation to the sea and so the word *mōd* 'mind' is a significant indicator of the sea as a spatial construct that informs a cognitive perspective (Sea 11–12 in Marsden 2004: 223):

(14) *Hungor* *innan* *slāt*
hunger within tore

merewērges *mōd.*
sea-weary-(one's) mind

'Hunger within tore the mind of the sea weary one.'

A similar mind-sea connection occurs in *The Wanderer* when the solitary one experiences grace through his wanderings at sea. The personified sea displays human experience or emotion in *Exodus* when the *mere mōdgode* 'sea raged' against the Egyptians (Ex 13 in Marsden 2004: 140).[16]

[14] Indeed the intent of her book, "which focuses on English as a cultural universe," is "to make the familiar look foreign" (Wierzbicka 2010: 3).
[15] This compound derives from *faran* 'to go'.
[16] *Mōdgian* 'to rage' is a derivation from *mōd* 'mind/courage'.

An analysis of the lexical array that denotes the sea and its corollary vocabulary in Old English must rely on a theory of cultural semantics to explain the symbolism evoking solitude, fear, and other emotions connected with survival, bravery, adventure, freedom, and ultimately a sense of nationality. Such an analysis must also address "actuation", or the development of new meanings, as a complex process that relates human experience to the use of language (Evans 2005: 45). The sea continued to be important in the Middle English period. Margery Kempe's sea journeys reveal spiritual trials and tribulations (Staley 2001). Allegories of the ship represent Holy Church (Thompson 2008). The adventures of Prince Horn and his companions begin with a perilous sea journey; Old English words appear in their Middle English forms: *shipes* 'ships' (*Horn* 41 in Fein 2014), *seeside* 'sea-shore' (35), *to streme* 'to sea' (105), *sinke to the grounde* 'sink to the bottom' (108), *flode* 'wave' (143), *to londe* 'ashore' (198), and *bote* 'boat' (210). Modern English provides many expressions denoting emotional states that point back towards the Old English *sǣ*-complex. If we cannot find a solution, we feel up the creek without a paddle. The way we handle job tasks may make us sink or swim at work. We feel alone, adrift at sea. We drown in a sea of sorrows. At other times, we feel buoyant. We ride on a wave of success. Life affords us an endless sea of opportunities. We feel joys as deep as the ocean. Goddard (2003a: 12) suggests that "culture-specific ethnotheories have implications for the phraseology of a language" and that body-related references typically extend to descriptions of emotions. The *sǣ*-complex embodies a culture-specific set of constructions that reveals the Anglo-Saxon spatial gaze, a perspective that continued into the Anglo-Norman period and that has certainly left its trace in Modern English phrases, clichés, and metaphors about emotional states of being.

6 Summary

An examination of the relation of spatial to semantic components supports the idea that a cognitive framework for semantic analysis should present a realistic model of meaning (Sweetser 1990; Robert 2008; Vanhove 2008). The Old English vernacular tradition shows us the mind as emotion or the mind as a container of emotions in *The Wanderer* and *The Seafarer* for instance, poems about sea travel (Godden 2002; Harbus 2012). The properties of the mind parallel properties of the sea. Like the sea, the mind has depth or hidden recesses. In Anglo-Saxon and Norse skaldic literature,

writers invoked the important metaphor of the "ship of the mind" (Harbus 2012: 38). Like a ship at sea, the mind can roam. In such equivalences of the sea with the mind or with emotional experience, the space dynamics relate semantics to both culture and cognition (Wierzbicka 1997; Goddard 2003b, 2004). Harbus (2012: 26) suggests that Old English metaphors are inherently literary and that "literary language defamiliarises experience and draws attention to itself"; she further proposes cognitive approaches can account for two important factors, "the structure of knowledge at a cultural level, and the impact of cultural transmission and diachronic development of metaphor use". Historical evidence can assist in understanding how metaphors and other forms of figurative language develop and how a keyword becomes significant.

Ships and warriors form the basis of an Anglo-Saxon worldview concerning the origins of their nation. Those entities crossed the sea and came *hider* 'here' (Bede 1 7 in Whitelock 1967: 42). Old English texts reveal a cultural geography that frequently invokes waves, storms, conquerors, and creatures having to do with calamities, battles, and invasions that originate in or arrive from the sea. Anglo-Saxons saw themselves as occupying the *middangeard*, the middle layer between sea and sky in the vertical axis of the *sǣ*-complex. In the horizontal axis, Anglo-Saxons were surrounded by the water. Nothing came to them that did not come over the water. The application of cognitive linguistics to diachronic studies can be challenging. However, as context is crucial to cognitive semantics, the attempt is worth the effort even given the limited data. Though we must rely on surviving texts, those texts do provide specific, environment-focused contexts.

This particular cultural geography represents an experience of fleeting, ever-changing conditions associated with the container-like properties of large bodies of water. The study of Old English texts is especially relevant and important to cognitive linguistic analysis because of the link between experience and the environment. The identification of the sea with emotions, for example, is the result of a human-environment interaction that informs what Siewers (2014) terms an 'ecosemiosphere,' an analysis of the relationship between humans and nature that takes into account the physical properties of nature as they are viewed through a given cultural lens. Harbus (2010) describes valuable research in Old English poetry that has established the Anglo-Saxon container metaphor for the mind through the connection of the inner reality of a poem's narrator to the outer reality of the physical environment. Furthermore, connections between physical

perception and mental perception correlate with patterns of polysemy (Vanhove 2008). In the *sǣ*-complex, that outer environment, both real and imagined, has arguably influenced the linguistic construction of meaning and the development of a lexicon that reflects an experience of living near the water.

References

Andreas. n.d. (http://faculty.virginia.edu/OldEnglish/aspr/a2.1.html) (Accessed 2018-02-22.)

Arnold, C. J. 1997. *An archaeology of the early Anglo-Saxon kingdoms*. New York: Routledge.

Buck, Carl Darling. 1949. *A dictionary of selected synonyms in the principal Indo-European languages*. Chicago: The University of Chicago Press.

Carver, Martin. 2005. *Sutton Hoo: A seventh century princely burial ground and its context*. London: The British Museum Press.

Chapman, Don & Ryan Christensen. 2007. Noun-adjective compounds as a poetic type in Old English. *English Studies* 88(4). 447–464.

Clark Hall, John R. 1960. *A concise Anglo-Saxon dictionary*. Toronto: University of Toronto Press.

Clarke, Catherine A. M. 2011. Edges and otherworlds: Imagining tidal spaces in early medieval Britain. In Sobecki, Sebastian I. (ed.), *The sea and Englishness in the Middle Ages: Maritime narratives, identity and culture*, 81–101 Rochester: D. S. Brewer.

Deskis, Susan E. 2005. Exploring text and discourse in the Old English gnomic poems: The problem of narrative. *The Journal of English and Germanic Philology* 104(3). 326–344.

DOE = *Dictionary of Old English: A to H online*. 2016. (https://tapor.library.utoronto.ca/doe/)

Evans, Vyvyan. 2005. The meaning of time: Polysemy, the lexicon and conceptual structure. *Journal of Linguistics* 41(1). 33–75.

Exodus. n.d. (http://faculty.virginia.edu/OldEnglish/courses/oetexts/exodus.html) (Accessed 2017-03-29.)

Fein, Susanna Greer. (ed.). 2014. *Art. 70, The geste of Kyng Horn*. (http://d.lib.rochester.edu/camelot/text/fein-harley2253-volume-2-article-70) (Accessed 2018-08-14.)

Goddard, Cliff. 2003a. Thinking across languages and cultures: Six dimensions of variation. *Cognitive Linguistics* 14(2–3). 109–140.

—— 2003b. Whorf meets Wierzbicka: Variation and universals in language and thinking. *Language Sciences* 25(4). 393–432.

—— 2004. The ethnopragmatics and semantics of ‘active metaphors’. *Journal of Pragmatics* 36. 1211–30.

Godden, M. R. 2002. Anglo-Saxons on the mind. In Liuzza, R. M. (ed.), *Old English literature*, 284–314. New Haven: Yale University Press.

Gorski, Richard. 2012. Roles of the sea: Views from the shore. In Gorski, Richard (ed.), *Roles of the sea in medieval England*, 1–23. Rochester: The Boydell Press.

Harbus, Antonina. 2010. Cognitive studies of Anglo-Saxon mentalities. *Parergon* 27(1). 13–26. DOI: https://doi.org/10.1353/pgn.0.0228

—— 2012. *Cognitive approaches to Old English poetry*. Rochester: D. S. Brewer.

Heaney, Seamus. 2000. *Beowulf*. New York: W.W. Norton & Company.

Hirsch, Eric. 1995. Landscape: Between place and space. In Hirsch, Eric & O'Hanlon, Michael (eds.), *The anthropology of landscape: Perspectives on place and space*, 1–30. New York: Oxford University Press.

Howe, Nicholas. 2002. The landscape of Anglo-Saxon England: Inherited, invented, imagined. In Hirsch, Eric & O'Hanlon, Michael (eds.) *Inventing medieval landscapes: Senses of place in Western Europe*, 91–112. Gainesville: University Press of Florida.

Jacobsson, Mattias. 1997. *Wells, meres, and pools: Hydronymic terms in the Anglo-Saxon landscape*. Uppsala: Uppsala University Library.

Kilker, Mae. 2017. The *Rune Poem* and the Anglo-Saxon ecosemiosphere: Identifying the *eolh-secg* in man and plant. *Journal of English and Germanic Philology* 116(3). 310–329.

Kitson, Peter. 1990. On Old English nouns of more than one gender. *English Studies* 71(3), 185–221.

Lakoff, George & Johnson, Mark. 1980. *Metaphors we live by*. Chicago: The University of Chicago Press.

Lass, Roger. 1994. *Old English: A historical linguistic companion*. Cambridge: Cambridge University Press.

Lucas, Peter J. 1994. *Exodus*. Exeter: University of Exeter Press.

Lucy, John A. 1997. Linguistic relativity. *Annual Review of Anthropology* 26(1). 291–312.

Marsden, Richard. 2004. *The Cambridge Old English reader*. New York: Cambridge University Press.

Maxims I. n.d. (http://faculty.virginia.edu/OldEnglish/aspr/a3.13.html) (Accessed 2018-08-07.)

Méndez-Naya, Bélen. 2014. Out of the spatial domain: 'Out'-intensifiers in the history of English. *Folia Linguistica Historica* 35. 241–274.

Mukařovský, Jan. 1964. The esthetics of language. In Garvin, Paul L. (ed.), *A Prague School reader on esthetics, literary structure, and style*, 31–69. Washington, DC: Georgetown University Press.

Noetzel, Justin T. 2014. Monster, demon, warrior: St. Guthlac and the cultural landscape of the Anglo-Saxon fens. *Comitatus* 45. 105–132.

North, Richard & Bintley, Michael D. J. 2016. *Andreas: An edition*. Liverpool: Liverpool University Press.

Novacich, Sarah Elliott. 2011. The Old English *Exodus* and the read sea. *Exemplaria* 23(1). 50–66.

Oxford English Dictionary. 2010. (http: //www.oed.com)

Pons-Sanz, Sara M. 2008. Norse-derived terms and structures in The Battle of Maldon. *The Journal of English and Germanic Philology* 107(4). 421–444.

Robert, Stéphane. 2008. Words and their meanings: Principles of variation and stabilization. In Vanhove, Martine (ed.), *From polysemy to semantic change: Towards a typology of lexical semantic associations*, 55–92. Amsterdam: John Benjamins Publishing Company.

Royster, James Finch. 1922. Old English causative verbs. *Studies in Philology* 19(3). 328–356.

Rune poem. n.d. (http://faculty.virginia.edu/OldEnglish/aspr/a12.html) (Accessed 2018-08-08.)

Schustereder, Stefan J. 2014. Ships and conquests in medieval England: Texts and contexts. *Comitatus* 45. 45–64.

Shopen, Timothy (ed.), *Language typology and syntactic description: Grammatical categories and the lexicon*, vol. 3, 57–149. Cambridge: Cambridge University Press.

Siewers, Alfred Kentigern (ed.). 2014. *Re-imagining nature: Environmental humanities and ecosemiotics.* Lewisburg: Bucknell University Press.

Simek, Rudolf. 2004. Germanic religion and the conversion to Christianity. In Murdoch, Brian & Read, Malcolm (eds.), *Early Germanic literature and culture*, 73–101. Rochester: Boydell & Brewer.

Sobecki, Sebastian I. (ed.). 2011. *The sea and Englishness in the Middle Ages: Maritime narratives, identity and culture*. Rochester: D. S. Brewer.

Staley, Lynn. (ed.). 2001. *The book of Margery Kempe*. New York: W. W. Norton & Company.

Sweetser, Eve. 1990. *From etymology to pragmatics: Metaphorical and cultural aspects* of *semantic structure*. New York: Cambridge University Press.

Talmy, Leonard. 1985. Lexicalization patterns: Semantic structure in lexical forms. In

The battle of Maldon. n.d. (http://faculty.virginia.edu/OldEnglish/aspr/a9.html) (Accessed 2018-08-08.)

The order of the world n.d. (http://faculty.virginia.edu/OldEnglish/aspr/a3.14.html) (Accessed 2018-08-08.)

The wanderer. n.d. (http://faculty.virginia.edu/OldEnglish/aspr/a3.6.html) (Accessed 2018-08-08.)

The whale. n.d. (http://faculty.virginia.edu/OldEnglish/aspr/a3.17.html) (Accessed 2018-02-22.)

Thier, Katrin. 2011. Steep vessel, high horn-ship: Water transport. In Hyer, Maren Clegg & Owen-Crocker, Gale R. (eds.), *The material culture of daily living in the Anglo-Saxon world*, 49–72. Liverpool: Liverpool University Press.

—— 2014. *Old English sea terms.* Little Downham: Anglo-Saxon Books.

Thompson, Anne B. (ed.). 2008. *Homily 11, fourth Sunday after Epiphany*.

(http://d.lib.rochester.edu/teams/text/thompson-northern-homily-cycle-homily-11-fourth-sunday-after-epiphany) (Accessed 2018-08-14.)

van Gelderen, Elly. 2011. Valency changes in the history of English. *Journal of Historical Linguistics* 1(1). 106–143. DOI: 10.1075/jhl.1.1.05van

Vanhove, Martine. 2008. Semantic associations between sensory modalities, prehension and mental perceptions. In Vanhove, Martine (ed.), *From polysemy to semantic*

change: Towards a typology of lexical semantic associations, 341–370. Amsterdam: John Benjamins Publishing Company.

Verkerk, Annemarie. 2014. Diachronic change in Indo-European motion event coding. *Journal of Historical Linguistics* 4(1). 40–83. DOI: 10.1075/jhl.4.1.02ver

Whitelock, Dorothy (ed.). 1967. Sweet's Anglo-Saxon reader in prose and verse. New York: Oxford University Press.

Wierzbicka, Anna. 1997. *Understanding cultures through their key words: English, Russian, Polish, German, and Japanese.* New York: Oxford University Press.

—— 2010. *Experience, evidence, and sense: The hidden cultural legacy of English*. New York: Oxford University Press.

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The schematization of Hungarian participle-noun compounds

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Abstract

In this paper, we present a new approach to compounds, arguing that compositional descriptions do not efficiently account for their formation, and emergence. We interpret the emergence of participle-noun (PTCP-N) compounds from phrases as guided by a complex schematization process which makes varied instantiations possible and results in the emergence of schematic constructions. The phenomenon's variability is demonstrated by a corpus study of Hungarian compounds with *érintő*- ('touch.PTCP, touching'), whereas the role of schematization is confirmed by the findings of a questionnaire study. By subjecting our corpus data to both quantitative and qualitative analysis (relying on Cognitive Grammar), we describe the rich variability of *érintő*-N compounds. In addition, a questionnaire study was used to confirm the emergence of schematic constructions, their entrenchment and the hypothesis of passive construal being a key motivating factor behind compounding. Employing the control cycle model of Cognitive Grammar, we propose a comprehensive account for the emergence of compounds with a PTCP initial component. Whichever participant is profiled, the cycle is always implemented in the case of compounds with an initial PTCP. Thus, this model describes the emergence of compounds as a process in which semantic integration between the components occurs as part of a more abstract process of schematization.

Keywords: participle-noun compounds, schematization, emergence, empirical methods, control cycle

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1 Introduction

In this paper we present a novel, meaning-centred account of compounding which employs the methods of cognitive linguistics and corpus linguistics. We propose a new model for the semantic description of compounds, which also implies a different view of how compounds emerge than previous accounts. The key thesis of the paper is that compounding is motivated by an increase in semantic integration between the components. Concomitantly, reconfigurations in the components' meanings produce higher conceptual proximity. At the same time, varied, repeated instantiations of tight semantic integration, motivated by the control cycle (cf. Langacker 2009: 130–135; 2016), also result not only in particular compounding patterns of individual expressions but also in the abstraction of new constructional schemas of compounding, which incorporate the emergent meaning of compounds in a more schematic fashion. As a consequence, the schematic constructional meaning serves as a new baseline for creating novel compounds. The increase of semantic integration (and conceptual coherence) between the components is accompanied by the schematization of component meanings, thus the specific constructional schemas emerging from the control cycle make compound formation productive to a certain degree. The detailed analysis of corpus data can provide a comprehensive approach to the productivity of compounding, as well as to the patterns observed in language use.[1]

The validity of these theses is demonstrated in this paper by a methodologically complex, extensive corpus study, which also anticipates a more comprehensive description of Hungarian compounds whose first component is an *-Ó* participle (PTCP).[2] With the aim of producing an in-depth analysis, we focus on one specific participle component, namely *érintő* 'touch.PTCP, touching', occurring in compounds such as *érintőceruza*

[1] We use the term schema as a motivating structure (with unipolar or bipolar organization) which is part of the knowledge of the language user. Construction is a more elaborated symbolic structure (with a phonological and a semantic pole), a specific type of a schema. Finally, by pattern we mean complex linguistic expressions occurring in a corpus or in the data of the questionnaire.

[2] In Hungarian there are three morphemes indicating participle: *-Ó* (*-ó*/*-ő*), *-T* [*-t*/-(VOC)*tt*] and *-AndÓ* (*-andó*/*-endő*). The difference between the three participle affixes is that in the temporal relationship between the foregrounded process (indicated by the verb), and the backgrounded process (indicated by the participle), and in force dynamics (the *-AndÓ* participle construes the process as which should be done, therefore opens the semantic domain of modality).

'touch.PTCP-pencil', *érintőképernyő* 'touch.PTCP-screen' and *érintő-alkalmazás* 'touch.PTCP-app'. However, the construction grammatical description of the schematized structure (and its constructionalization) is beyond the scope of the present paper.

Our research relies heavily on previous results on compounds obtained in traditional or cognitive linguistic frameworks; however, it is still novel in many respects. In line with the cognitive perspective, we focus on meaning rather than syntactic structure. Since PTCP-N compounds follow the modifier-head structure, i.e. they can be analysed as nominal compounds (Dirven & Verspoor 2004), the literature mostly approaches linguistic data from the perspective of the head component. However, from a cognitive grammatical point of view, the head noun specifies a schematic substructure of the modifier in the course of semantic integration, thus semantically the noun depends on the modifier. Therefore, our priority will be the semantic analysis of the composite structure rather than syntactic constituency. Although we make no attempt in this paper to provide a comprehensive treatment of all PTCP-N compounds in Hungarian, at the present stage of the research it seems that the varied types of head noun correlate strongly with the processual meanings symbolized by the PTCP component. Consequently, conventional syntactic analyses of compounding in Hungarian (see Kiefer 2000) may at best serve as a point of departure, with semantic accounts offering a fundamentally different picture.

The present research is based on the complex theoretical framework of cognitive linguistics (including cognitive grammar, and cognitive corpus linguistics). However, compared to previous cognitive linguistic treatments of compounding, our approach to the phenomenon is different in some ways. While we regard conceptual proximity of the component meanings as an important motivating factor, we are primarily looking at linguistic structures rather than conceptual representations. Cognitive semantic analyses generally present the emergent meaning of compounds by reference to conceptual integration (see Dirven & Verspoor 2004: 55; Benczes 2006; Ungerer 2007: 655–656); however, both Bundgaard et al. (2006) and Heyvaert (2012) express reservations. Here, we intend to offset the shortcomings of conceptual descriptions by a detailed cognitive grammatical analysis of semantic integration. Moreover, we explore constructional schemas which motivate the formation of individual compound expressions. Our explanation of schematization is based on the notion of control cycle (Langacker 2009: 130–135; 2016). The control cycle is a general model of semantic change in which an entity (the target) becomes an integrated

subpart of the conceptual domain of an actor as it is brought under the actor's control (see §6.2 for more detailed description of the process). As it is demonstrated below, the target entity is symbolized by the nominal component of the PTCP-N construction, whereas the verb stem of the participle expresses the actor's control. The control cycle serves as a basic cognitive model in explaining the conceptual organization of compounds. In addition, the model helps us to refine and specify that "micro-narrative scenario" (or "teleological frame of purpose-related action"), which – according to the proposal of Bundgaard and his colleagues – serves as "a 'schematic algorithm' underlying the meaning-construal of compounds" (Bundgaard et al. 2006: 375).

Another recurring point in the literature on compounding is the existence of an endocentric/exocentric continuum (Benczes 2006: 8–9). The traditional definition of endo- and exocentric compounds rests on the notion of head: endocentric compounds have a head, while exocentric compounds have no head (Scalise et al. 2009: 49). From a cognitive grammatical perspective, in the case of endocentricity one of the components serves as profile determinant for the whole; exocentricity means here that none of the components behave as profile determinant. From this point of view, our analysis will be novel by mapping the scale frequently mentioned in the literature via the corpus study of a single component's patterns of use rather than a lexically more heterogeneous sample of data. We argue that data which can be assigned to the exocentric domain are the products not only of creative innovation (cf. Benczes 2006), but also of a regular process (i.e. motivated by constructional schemas) of language change (see also Scalise et al. 2009 for typological data).

The most common approach to compounding is based on the principle of compositionality. Even the cognitive linguistic analysis of the N+N construction by Benczes (2006) aims to establish which component functions as head or modifier, and how they contribute to the meaning of the compound as a whole (this serves as a basis for arranging data on the scale of exocentricity). In other words, previous studies are characterized by (more or less) latent compositionality (see also Bundgaard et al. 2006: 366–368). One of the most important consequences of this theoretical orientation is that previous models can deal only with individual data and not with a complex pattern of the same substructure having different meanings. By contrast, the model we are proposing replaces compositionality by the baseline/elaboration relation hinging on the control cycle, and explains the formation of compounds by the development of a more abstract, emergent

meaning rather than by the concatenation of component elements. In our view, compounding involves a reorganisation of the semantic structure of the components' meanings on a higher level of abstraction, which foregrounds novel aspects of the components' meanings.

Methodologically, our research is novel by demonstrating scalarity not through psycholinguistic experiments (cf. Ryder 1994; Benczes 2006; Ungerer 2007) but rather by quantitative, corpus linguistic analysis of a large body of data. Moreover, the data collection method of questionnaires (meaning attribution to nonsensical expressions) was targeted not at the identification of meanings or at the elicitation of acceptability judgments but rather at the demonstration of schematization. In addition to the cognitive grammatical explanation, we implemented the corpus-based measurement of the components' semantic accommodation, a characteristic property of compounds.

The paper first presents the central questions and hypotheses behind our research (§2). This is followed by the presentation of methods and the material under study (§3). We first offer a detailed overview of categories identified by corpus data (§4), then discuss the data gained by questionnaire (§5), and compare the results obtained from the two sources (§6), before supplementing them with an account drawing on the control cycle as interpreted in Langacker's Cognitive Grammar (§6.2). Finally, the last section offers a short summary and concluding remarks (§7).

2 Research questions and hypotheses

At the centre of our research are compounds as symbolic units. In terms of Cognitive Grammar (Langacker 2008), the semantic pole of a compound is an integrated meaning in which the components constitute a coherent and tight conceptual unit, and this Gestalt character is iconically expressed on the phonological pole by single-word spelling and a reconfiguration in stress patterns (as compared to phrases). Therefore it is important to emphasize that the structure results from the emergence of a schematic meaning allowing for conceptual unity. It is significant, moreover, that the emergence of a new structure is motivated by changes on the semantic pole, with formal devices (including two-word, hyphenated and one-word spellings, and the instantiation of various stress patterns) merely symbolizing different degrees of semantic schematization. Thus, the main aim of the research is to explore the process of semantic change or reorganisation (schematization) by closely

examining a specific compound type (PTCP-N) as well as a specific usage (the *érintő* 'touch.PTCP, touching' – N) in Hungarian.

From these background assumptions it follows that our research focuses on the following questions. Firstly, how is the conceptual relation inherent in PTCP-N compounds to be characterized, which allows for the integration of components? Secondly, what kind of increasingly schematized meaning makes the constructions under study conventional, and how is this schema to be explored? Do empirical data support a specific model of schematization?

Bundgaard et al. (2006: 383–386) point out that the construal of a compound's meaning relies on schematic event frames. One of them is the agent → act → instrument → object/patient → result/goal frame, and the meaning of a compound depends on what is the focus (or window of attention) in the frame, i.e. which aspect of the frame becomes foregrounded by the nominal component. Relying on this, when an *érintő*-N compound highlights the agent (or metonymically the instrument, see §3.2 for more details) of the process of TOUCHING, we consider it to have active meaning. By contrast, in the case of foregrounding the object/patient or the result of the process, the meaning of the compound is considered passive. Evaluation in the active/passive dimension is of course a matter of degree rather than a clear-cut distinction.

Next let us turn to the hypotheses. Whereas phrasal structures have a basically active meaning,[3] i.e. the head noun profiles the agent of the process denoted by the participial attribute (e.g. *a csövet*$_{\text{PAT}}$ *ásóval*$_{\text{INSTR}}$ *érintő munkás* → the pipe.ACC$_{\text{PAT}}$ spade.with$_{\text{INS}}$ touch.PTCP worker.NOM 'the worker touching the pipe with a spade'), the nominal component of compounds profiles some other (non-agent or less agentive) participant, a means or patient of the action[4] (e.g. *érintőceruza*$_{\text{INSTR}}$ 'touch. PTCP-pencil', *érintőképernyő*$_{\text{PAT}}$ 'touch.PTCP-screen'). We hypothesize that the conceptual

[3] Note, that Hungarian PTCP's of the form V-*ó/-ő* typically have an active meaning, with passive interpretation counting as exceptional in this morphological construction (an example being *eladó lakás* 'away$_{\text{PREF}}$-sell.PTCP flat; flat to be sold', lit. 'selling flat'). However, morphological constructions of the V-*hAt-Ó* structure usually have a passive meaning (e.g. *eladható lakás* 'away$_{\text{PREF}}$-sell.POT.PTCP flat; flat that can be sold'), and it is the active interpretation that is exceptional (*a döntőbe bejutható* [in$_{\text{PREF}}$-get.POT.PTCP] *versenyzők* 'competitors who can get into the final'). Hence, the derivational suffix of PTCP forms can only be given construction-specific characterizations with respect to the active/passive dimension.

[4] Active or passive construal interacts with the grammatical voice of the verb stem, but it is not identical with it.

motivation behind compounding lies in the expression of passivized meaning. However, this change is a gradual process, following successive phases of the control cycle, therefore we expect that the phenomenon cannot be reduced to binary oppositions (as two-word vs. one-word spelling might suggest on the formal side) but rather there is a range of intermediate meanings. Particular schemas may thus be arranged with respect to each other.

3 Material and methods

3.1 Outline of the research

We investigated the emergence of compounds and the corresponding schematization of meaning with various tools and methods. First we tested the validity of our hypotheses on corpus examples of a more specific Hungarian PTCP-N structure, namely *érintő*-N (touch.PTCP 'touching'-N). In our analysis, we chose compounds with *érintő* 'touching' as their first component because we had experienced the high frequency of *érintőképernyő* 'touch.PTCP-screen' in colloquial speech, and here the participle occurs as a component of a passive composite structure. Investigating the corpus data made it possible to analyse certain patterns but did not support directly any conclusions about the emergence of schematic meaning of Hungarian PTCP-N construction. Therefore, we also elicited data by a questionnaire which explored how PTCP-N structures are processed in general.

3.2 The complex meaning of *érintő*-N

It is worth starting the analysis with a Cognitive Grammar account of phrases in which the head noun is modified by a participial attribute, since this structure is the point of departure (or baseline stratum, cf. Langacker 2016) of the hypothesized schematization process. In addition, some general aspects of the meaning of the *-Ó* participle must be clarified before describing how it functions in compounds. In the Hungarian phrase *a csövet*$_{\text{PAT}}$ *ásóval*$_{\text{INSTR}}$ *érintő munkás* (the pipe.ACC$_{\text{PAT}}$ spade.INS$_{\text{INSTR}}$ touch.PTCP worker.NOM$_{\text{AG}}$; 'the worker touching the pipe with a spade'), the processual meaning of the participle is fully instantiated, with the head noun profiling the primary, agent participant of the process (while the secondary participant functions as patient, and the instrument is also expressed). In *a*

kapcsolót$_{PAT}$ *érintő ujj*$_{INSTR[\rightarrow AG]}$ (the switch.ACC$_{PAT}$ touch.PTCP finger.NOM$_{INSTR[\rightarrow AG]}$; 'the finger touching the switch'), which is also a noun phrase rather than a compound in Hungarian, the processual meaning is again manifested; however, the component profiling the instrument is construed as primary participant. At the same time, the conceptualizer extends to it the agentive role on a metonymical basis. The extension is metonymical, since in Hungarian, *ujj* 'finger' can be the subject of the verb *érint* 'touch', and can be understood as the most active participant in the immediate scope, although the maximal scope of the verb's meaning involves the causer of the process. The secondary participant is again the patient here (Figure 1).

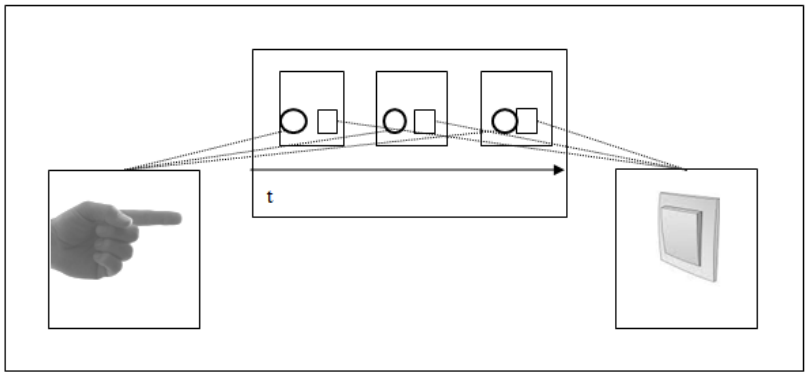

Figure 1: Semantic integration in the semantic structure of *a kapcsolót érintő ujj* 'the finger touching the switch'

These examples suggest that the meaning of phrases with a participial attribute (*érintő* 'touch.PTCP; touching' N) is primarily active (the head noun is the agent of the process symbolized by the participle) and secondarily active via metonymic extension (the head noun is construed metonymically as agent of the process). Thereby, the meaning of the structure undergoes a slight shift from active toward less active meaning (as the primary participant can be an agentive instrument), already in the case of phrasal constructions.

The compound (*érintő*-N) also evokes the process and its participants but in a different way. In the course of semantic integration, only a certain phase of the process (the moment of touching, e.g. in *érintőceruza* 'touch.PTCP-pencil') can be conceptualized, or else the process as a whole in a highly schematic fashion (e.g. *érintőszoftver* 'touch.PTCP-software'). In addition, several compounds direct attention at the secondary participant (e.g. *érintőképernyő* 'touch.PTCP-screen'). Thus, the metonymization process observed with attribute + noun constructs is in full swing here, and

the patterns resulting from it profile the passive (patient) participant or result of the process rather than its active participant. This is called passivized meaning in the present paper.

3.3 Corpus-based analysis

We studied a total of 6218 compounds beginning with *érintő-* 'touching', retrieved from the Hungarian National Corpus[5] (HNC, cf. Oravecz et al. 2014), which as a database meets the requirements of coverage and complexity.[6] With regard to the searching and filtering of results, the following remarks are in order. We performed a lemmatized search for compounds, which allowed us to retrieve all the relevant suffixed forms from the database. We ignored words and expressions involving the mathematical meaning of *érintő-*, namely 'tangent' (e.g. *érintőirány* 'tangent-direction', *érintőnégyszög* 'tangent-quadrilateral', *érintőút* 'tangent-road', *érintőlövés* 'tangent-shot') and other technical terms (e.g. *érintőhang* 'ballistic consonant, tap' in phonetics), since as lexicalized items they are not relevant for a study of the continuum between phrases and compounds. Such data (a total of 98 tokens) were removed from our sample.

Our full sample included hyphenated forms (*érintő-képernyő* 'touch.PTCP-screen') and multiple compounds as well (*érintőszenzor-rendszer* 'touch.PTCP sensor system', *érintőkijelző-barát* 'touch.PTCP-screen friendly'). Our procedure for hyphenated forms was as follows: (i) two-component *érintő*-N compounds (7 tokens) were not subjected to quantitative study, but their qualitative analysis was performed; (ii) multiple compounds involving *érintő*-N (938 tokens) were also included in the sample for quantitative analysis, since in these cases the hyphen connects an additional component to the construction, which suggests that the *érintő*-N pattern functions as a compound by itself (in contrast with *érintő-multimédiás* [N] 'touch.PTCP-multimedial [N]', in which *érintő-* 'touch.PTCP; touching' can be interpreted either as component of a compound or as part of a phrase).

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[5] http://corpus.nytud.hu/mnsz/index_eng.html (Accessed 2018-03-16.)

[6] The new version of Hungarian National Corpus is the most comprehensive source for investigating Hungarian with corpus linguistic methods: beside the samples from written texts (having been available already in the old version of the corpus) it also includes data from spoken Hungarian and from social media as well (Oravecz et al. 2014: 1719). Thus it represents the rich variability of the use of Hungarian with regard to both topics and genres.

3.4 Questionnaire

Our online questionnaire had informants attribute meaning to eight nonsensical expressions (*csatit rimpít, tirimpon zargál, rimpuló tami, csatipivogoló, csatipivogolás, zargált miró, pivigolótami, parilva rilmütyöl*).[7] The instruction was given in the following form: "Please provide the meaning of the expression by using the words involved. Example: *pricsiges paró* 'a paró characterized as having pricsig (e.g. it has a pricsig in it, on it, or it possesses a pricsig)'."

The data directly relevant for our research are informants' analyses of *pivogolótami*, since this expression follows the schematic phonological structure of PTCP-N compounds and hence it can be interpreted as a PTCP-N compound as well. In order to find out about the relationship between phrases and compounds, we further compared *rimpuló tami* and *pivogolótami* (note that this analytic goal had motivated the inclusion of the same nonsensical component in both).

The questionnaire was filled in by 50 participants, 41 women and 9 men, aged 28.6 on average (with the youngest informant at 18 and the oldest at 61 years of age). 83% of our informants had a university degree. We did not study correlations between responses and sociolinguistic variables, thus no further data about informants is provided here.

4 The data of the corpus

4.1 Aspects of categorization

The key criterion of our analysis of corpus tokens is which participant of the processual meaning of the participle is profiled by the head noun, and how the participant thus profiled is construed against the conceptual base of the entire process.[8] We use the analytic categories of Cognitive Grammar to

[7] The expressions in the questionnaire includes some parts that can be identified as morphemes or morpheme structures (e.g. a word ending with *-t* (in *csatit*) can be interpreted as accusative form of a noun; or ending with *-oló, -ólás* (in *pivogoló, pivogolás*) can be understood as deverbal derivative forms). However, the nonsensical expressions themselves did not initiate symbolic interpretation (i.e. they are unipolar structures since the basis of their interpretation is purely phonological in this case, see Langacker 2008: 174).

[8] Bundgaard et al. (2006: 383) formulate this aspect of analysing compounds in almost the same way, as follows: "the *XY profiles* aspects of the event, whereas the event frame (contributed by *Y*) as such is the *base* for this profile."

refer to the schematic meanings of particular compounds. Our background assumptions suggest that passivization is not a homogeneous process but rather it results in various constructional schemas, making alternate construals available. But the relationship between these schemas is not derivational in character, therefore there is a range of alternative schemas available for the language users at a given time. Accordingly, the corpus data are highly uneven, with categories varying in their frequencies of instantiation. In addition to specifying token frequency, we also noted proportions within a given category in order to assess analogical productivity. In the sections below, categories of corpus data are discussed in turn.

4.2 The profile is the primary figure as INSTR

Here we included structures in which the noun component expresses the agent of the process (via metonymic shift of attention, with the immediate scope restricted to the participant performing the action and excluding the causer). Thus, the compound refers to a thing which is ‘used for touching (other objects)’ or ‘designed for touching’, e.g. *érintőtoll* ‘touch.PTCP-pen’ as a compound profiles the device with which touching is accomplished, in other words, it foregrounds the instrument of touching (see Table 1, $p = 44$, $n = 6218$).

Table 1: Frequency data on the 'instrument' category (C1) in the corpus

	Number of tokens	Proportion within category (%)
érintőceruza 'touch.PTCP-pencil'	38	86.4
érintőpálcika 'touch.PTCP-stick'[9]	2	4.5
érintőtoll 'touch.PTCP-pen'	2	4.5
érintőhőmérő 'touch.PTCP-thermometer'[10]	1	2.3
érintőpálca 'touch.PTCP-stick'	1	2.3

Within the full sample, tokens belonging to the first category only account for 0.7% (see Table 6 below for the details). At the same time, note that this composite structure comes closest in its meaning to the phrase chosen as our point of departure (*érintő ujj* 'touch.PTCP finger$_{\text{INSTR}[\rightarrow\text{AG}]}$, touching finger'), which already profiles as primary figure the instrument also functioning as the performer of caused motion (by way of a metonymic shift of attention). The compound functions in almost the same way as the phrase (which may explain its low token frequency); however, performing the process expressed by the participle is not construed as a one-off occurrence but rather is something that the entity is meant to be doing, which provides sufficient motivation for compounding and one-word spelling.

4.3 The profile is the secondary figure as touched surface

Here we included compounds in which the noun elaborates the secondary figure of the process designated by the participle, i.e. the schematic entity 'that can be touched'. For example *érintőfelület* 'touch.PTCP -surface' refers to a surface that requires touching during its application (cf. *érintőtábla* 'touch.PTCP-board'). Further, these expressions have it in common that they construe the processual meaning of the participle as a prototypical physical process, whose landmark (the touched entity) is consequently elaborated as a physical entity or more particularly its surface (see Table 2, $p = 6117$, $n = 6218$).

[9] The noun *pálcika* is a diminutive derivational form of *pálca* 'stick'.

[10] For the sake of clearness, it is worth adding that in contrast with non-contact types, touch-thermometer measures the temperature of the body through physical contact with its surface. The device needs a contact with the human body in order to register its temperature, but the functioning of the thermometer is not the result of the touching process on its own.

Table 2: Frequency data on the 'surface secondary figure' category (C2) in the corpus

	Number of tokens	**Proportion within category (%)**
érintőképernyő 'touch.PTCP-screen'	3163	51.71
érintőkijelző 'touch.PTCP-display'	2374	38.81
érintőgomb(*sor*) 'touch.PTCP-button(row)'	264	4.32
érintőpad 'touch.PTCP-pad'	84	1.37
érintőfelület 'touch.PTCP-surface'	75	1.23
érintőpanel 'touch.PTCP-panel'	58	1.00
érintőbillentyű(*zet*) 'touch.PTCP-key(board)'	27	0.44
érintőszenzor 'touch.PTCP-sensor'	24	0.39
érintőlap 'touch.PTCP-flat' ('touchpad')	23	0.38
érintőakna 'touch.PTCP-pit'	7	0.11
érintőtábla 'touch.PTCP-board'	4	0.07
érintőfólia 'touch.PTCP-foil'	3	0.05
érintőmonitor 'touch-PTCP-monitor'	3	0.05
érintőkapcsoló 'touch.PTCP-switch'	2	0.03
érintőegér 'touch.PTCP-mouse'	1	0.02
érintőjelző 'touch-PTCP-indicator'	1	0.02
érintőmegjelenítő 'touch.PTCP-display'	1	0.02
érintőgép 'touch.PTCP-machine' ('touch-pad')	1	0.02
érintőcsap 'touch.PTCP-tap'	1	0.02
érintőgitár 'touch.PTCP-guitar'	1	0.02

This category proved to predominate in terms of both type and token frequency (see Table 6). In the discussion of results of the corpus study, it will receive a more detailed treatment (see §4.7).

4.4 The profile is a virtual secondary figure

The compounds in this category profile a virtual space as the secondary figure of the process symbolized by the participle, 'which is activated by touching', e. g. *érintőcsúszka* 'touch.PTCP-bar', is the virtual toll of a device that can be manipulated by touching. These structures therefore add further specification to the secondary participant of the process. As a consequence, the expressions' meaning shifts away from the prototypical construal of the process as a physical event (see Table 3, p = 10, n = 6218).

Table 3: Frequency data on the 'virtual secondary figure' category (C3) in HNC

	Number of tokens	Proportion within category (%)
érintőmező 'touch.PTCP-field'	4	40
érintőcsík 'touch.PTCP-stripe'	2	20
érintőcsúszka 'touch.PTCP-scroll bar'	2	20
érintőmenü 'touch.PTCP-menu'	1	10
érintőmutató 'touch.PTCP-pointer'	1	10

4.5 The profile is the result of the process

Falling even farther from the prototypical elaboration of the participle's process are semantic structures profiling abstract entities. These latter emerge as a result of the process of touching, e.g. an application that can be run and used by touching, as in the case of *érintőalkalmazás* 'touch.PTCP-application; touch.PTCP-app'. Hence semantic integration reaches a highly advanced level in the category. The processual meaning is elaborated by summary scanning (cf. Langacker 2008; 2009; 2016),[11] and

[11] In these cases, the process of touching is not elaborated as a specific physical activity; the process is a stable characteristic of the entity (which also has a processual character), hence it is construed schematically, it becomes "active and available as a simultaneously accessible whole for a certain span of processing time" (Langacker 2008: 83). This is the

the construction profiles the result of this process (see Table 4, p = 25, n = 6218).

Table 4: Frequency data on the 'result' category (C4) in HNC

	Number of tokens	Proportion within category (%)
érintőfókusz 'touch.PTCP-focus'	20	80
érintőfunkció 'touch.PTCP-function'	3	12
érintőalkalmazás 'touch.PTCP-app'	1	4
érintőszoftver 'touch.PTCP-software'	1	4

4.6 The profile is a complex process

Finally, those compounds are the farthest from the meaning of syntactic phrases which elaborate the participle's processual meaning by summary scanning, and profile a process or thing including the participle's process (TOUCHING) as a major conceptual component. For example *érintőszobrász* 'touch.PTCP-sculptor' profiles a sculptor who applies a holistic sculpting process including a salient sub-process of TOUCHING. Here, conceptual proximity is manifested as a part/whole relation, cf. *érintőstílus* ('touch.PTCP-style', 'a playing style on touch guitars which uses tapping'), or by way of metaphor, cf. *érintőgyémánt* ('touch.PTCP-diamond', metaphorical name for a touch-screen smartphone) (see Table 5, p = 22, n = 6218).

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reason why we consider the semantic construal of PTCP's in this category to involve summary scanning. The temporal configuration of the processual meaning of Hungarian PTCP in syntactic structures as well as in compounds has not been investigated yet. According to our results, however, the following proposal seems to be reasonable: the more concrete is the process of the PTCP (by being a specific instantiation of an event type) in the whole meaning of the structure (e.g. in C1 or in C2 in the case of 'touching'), the more elaborated is the foregrounded process (indicated by the verb) through sequential scanning. This results in a more temporal meaning of the PTCP; the N component of the compound directs the conceptualizer's attention to one phase of the process. And, conversely, the schematization of the process indicated by the verb entails summary scanning and a less temporal meaning (without a clear figure–ground alignment of the processes in PTCP), which serves as vantage point for elaborating the meaning of the N component. Thus, a detailed examination of the processual character of PTCP in compounds can shed new light on the temporality of its meaning.

Table 5: Frequency data on the 'complex process' category (C5) in HNC

	Number of tokens	Proportion within category (%)
érintővezérlés 'touch.PTCP-control'	6	27.3
érintőtechnológia 'touch.PTCP-technology'	5	22.7
érintődesign 'touch.PTCP-design'	2	9.1
érintőstílus 'touch.PTCP-style'	2	9.1
érintőgyémánt 'touch.PTCP-diamond'	2	9.1
érintőszobrász 'touch.PTCP-sculptor'	2	9.1
érintőgörgetés 'touch.PTCP-scrolling'	1	4.5
érintőképesség 'touch.PTCP-capacity'	1	4.5
érintőgesztus 'touch.PTCP-gesture'	1	4.5

4.7 Comparing the frequency of the categories

The data show that the most frequent pattern in our sample is the composite structure profiling the secondary figure of the process (C2), whereas the lowest frequency is associated with expressions profiling a virtual secondary figure (C3, see Table 6).[12]

Table 6: The token and type frequency of the categories in HNC

Category	Proportion – token frequency (%)	Proportion – type frequency (%)
C1. profiling primary figure (instrument)	0.7	12
C2. profiling touched surface as secondary figure	98.3	46
C3. profiling virtual secondary figure	0.2	12
C4. profiling the result of the process	0.4	9
C5. profiling a complex process	0.4	21

[12] The importance of token frequency as a measure follows from our intuition, namely that the *érintő*-N compounds are relatively frequent expressions in contemporary Hungarian. The primary aim of the corpus study was to confirm this hypothesis, which is the reason why we supply token frequency data first.

The second category has the highest token frequency, which means that the members of this category underwent progressive entrenchment, and achieved unit status. Established units are those linguistic structures which become representative members of a category for a speech community. But from unitization it does not follow that the structure loses its analysability: the components may remain understandable in themselves for the conceptualizer. Consequently, a repeated and hence entrenched unit can become the baseline for new structures, as well as for further schematization (see Langacker 2008: 16–17). From the perspective of the latter cognitive process, type frequency is an important measure, specifying the number of different types of compounds representing each category in the sample. Type frequency can inform us about the variability of the category, and hence it tells us something about the productivity of the category: the higher the type frequency is, the higher the possibility to generate new tokens by this type (Barðdal 2008: 28; Bybee 2010: 67). On the other hand, a higher type frequency (the emergence of more and more types of a structure) facilitates the extraction of the commonalities inherent in multiple usage events, and therefore it can lead to schematization of the structure. As we can see from the data, not all *érintő*-N compounds are routinized individual expressions. The entrenchment of the constructions reaches the level of schematization: there are several constructional schemas in the background of compound formation, and while the stability of these schemas is not the same, they motivate new instantiations, consequently the process can be considered productive.

In this respect, the second category is again dominant. This means that the compound type profiling a touched surface as secondary participant is the most productive semantic schema for integration. While compounds profiling a virtual secondary figure have a low token frequency (the individual expressions are less entrenched as units), they produce almost as many compound types as the schema profiling the primary figure of the process. Exceptionally high is the type frequency of the schema profiling a complex process (compared to its token frequency). One reason for high frequency of types and low frequency of tokens in a category can be the emergence of a productive schema without a strong pattern of analogous compound formation; in this case, the process of forming new compounds is not item-based (analogy) but schema-based (elaboration), and we can assume an abstracted conceptual organization in the background. Additionally, the results show that such compounds easily undergo lexicalization. In other words, it seems that in the process of compound

formation we need to recognize a stage in which semantic change has no effect on the components' degree of integration (i.e. their unitizaton) but results in a decrease in their degrees of analysability and conceptual autonomy (as a function of the composite structure's lexicalization).

High token frequency indicates a high level of routinization in using specific patterns of compound formation. On the other hand, lexicalized compounds (the members of C5 in our case) have high type frequency (the second highest of the investigated pattern), but the types of the category are individual semantic structures. There is a relatively frequent pattern of types at work here with the abstract 'PROCESS – THING' meaning, instantiated by specific tokens. Lexicalization seems to be a very special case of compound formation regarding both productivity and frequency. High type frequency shows that there is a relatively productive schema in the background of the corpus data; however, it is a very abstract schema with the process of touching in its centre. We can assume that the schematization of more specific constructions may support the emergence of the highly abstract schema as well. On the other hand, lexicalized expressions do not have a prominent token frequency in our pattern; the reason for this can be that the unitization of these structures in the speech community is in its initial phase yet.

Which processes will be lexicalized with summary scanning by foregrounding the semantic component of TOUCH does not follow from the schema of TOUCHING. However, language users still find it convenient to employ complex, holistic names for the entities in question. In such cases, it may be presumed that TOUCHING has become an especially salient component of the thing denoted by the second part of the compound, which motivates the use of the compound construction. Compounding seems to be productive in these cases because the thing symbolized by the second component is accessed via the holistic conceptualization of TOUCHING (and not through the profiling of a component of the process). Therefore, such data may invite an analysis in terms of the control cycle as well (cf. Langacker 2009; 2016, see §6.2 for details). In conclusion, lexicalization cannot be derived schematically from semantic extensions of the verb *érint* 'touch'. However, compounding also has a conceptual motivation here, as it symbolizes a high degree of reconfiguration in component meanings. In other words, lexicalization suggests itself as a natural construal operation for naming certain entities, which explains the varied types within this category.

5 The data of the questionnaire

5.1 Analysability in the data gained by questionnaire

The analysis of corpus data explores the rich variability of *érintő*-N compounds. Our results clearly demonstrate the gradient, scalar nature of compounding patterns. A questionnaire study was designed to explore how PTCP-N structures are processed in general.

For the exploration of schemas, two expressions' data were relevant, those of *rimpuló tami* and *pivogolótami*. Recurring sound structures (*tami, rimpuló: rimpít, pivogoló: pivogolás*) generally prompted the informants to supply analyses. In the relationship between *rimpít* and *rimpuló*, meaning attribution usually incorporated the fact that *rimpít* can mean 'make rimp', whereas *rimpuló* can mean 'becoming rimp' (in Hungarian, verbs ending with *-ul* denote a change of state, those ending with *-ít* designate processes whereby some agent induces a change of state in another entity; *-ó* is the suffix of the *-Ó* participle).[13] In the case of each expression, a scale of analysability emerged, from complete lack of analysability (lexicalization) to in-depth analysability. We evaluated analysability on a scale of three degrees but with no intention to enforce clear-cut distinctions between the degrees. Degrees of analysability (based on the descriptions in meaning attributions, cf. examples of questionnaire data) are demonstrated below by responses to *pivogolótami* (see Table 7. The symbol I_n stands for the informant as a source of data.

[13] It must be added, however, that since the expressions are nonsensical, these analyses are only potentialities. The aim of the questionnaire was to explore the meaning initiating role of the *-ó* ending in a unipolar construction. In other words, we sought to find out whether the potential PTCP-N structure induced a bipolar (symbolic) interpretation of the nonsensical expression (whether the phonological structure evokes a potential semantic structure in the informants, see Langacker 2008: 16), and if so, in what proportion it was characteristic.

Table 7: Degrees of analysability for *pivogolótami*

Analysis	**Fully lexicalized meaning, lack of analysability**	**Lexicalization within the construct; partial analysis**	**Detailed analysis**
Example for meaning attribution	*ősi sumér tánc* 'ancient Sumerian dance' (I_6), *ez egy játék* 'this is a game' (I_9), *valamilyen tárgy vagy állat* 'some kind of object or animal' (I_{36})	*Pivogolótamból származik* '[something/ somebody that] comes from Pivigolótam' (I_{11})	*olyan tami, amely pivigol* 'a *tami* which *pivogol*s ('does *pivogol*ing') (I_8)
Grammatical form	N	N(pivogolótam)-i_{ADJ}	N(tami)$_{AG/NOM}$ V(pivogol)

5.2 A comparison of meaning attributions to *rimpuló tami* and *pivogolótami*

Both expressions showed a high degree of analysability, with detailed analysis reaching 88% in the case of *rimpuló tami* and 81% for *pivogolótami*. This suggests that on the basis of their linguistic forms, these expressions were considered to have a transparent structure. However, lack of analysis was more frequent for the one-word expression (17%) than for *rimpuló tami* (6%).

Table 8: Degrees of analysability for *rimpuló tami* and *pivogolótami*

Expression	***Rimpuló tami* PTCP N**	***Pivogolótami* N(PTCP-N)**
Detailed analysis	88%	81%
Partial analysis	6%	2%
Unanalyzed	6%	17%

With regard to the semantic relation between the process and the participant expressed by the noun, the descriptions reflect a clear difference between the two structures. The informants explicitly expressed (and in many cases highlighted as a motivating factor behind one-word spelling) the fact that with *pivogolótami*, the process (*pivogolás* 'pivogol.N_{DERIV}, the act of pivogoling') is not a one-off occurrence but rather a stable or at least regular feature of the thing referred to (e.g. 'a tool, a *tami*, that is inextricably linked to the fact that it *pivogol*s generally' [I_{45}]). Although this criterion also occurred once in the case of the phrase *rimpuló tami*, this is a much lower share compared to similar descriptions of the compound's meaning (see Table 9). The table only displays data where the informants explicitly

referred to a typical (constant, regular, frequent) or actual (occasional, ongoing) process (of *rimpulás* 'rimpuling' or *pivogolás* 'pivogoling') in their meaning attributions (n = 50).

Table 9: The process as a typical vs. occasional characteristic for N

	Rimpuló tami **PTCP N**		***Pivogolótami*** **N(PTCP-N)**	
The process (expressed by the PTCP)	Characteristic for N	Actual	Characteristic for N	Actual
	11 (22%)	16 (32%)	29 (58%)	1 (2%)

5.3 The constructions of *rimpuló tami* and *pivogolótami* on the basis of meaning attributions

As the expressions were nonsensical, the responses provide schematic constructional patterns that can motivate the elaboration of specific meanings. The constructions are highly similar for the two expressions. In what follows, we start off with the constructions of *pivogolótami,* and present constructional schemas and their proportions in meaning attributions by moving from active to increasingly passive structures (see Table 10).

For both expressions, semantic descriptions of the type 'a tami which rimpuls/pivogols; it is characteristic of the tami that it rimpuls/pivogols; the tami's function is rimpuling/pivogoling' are typical, i.e. the $N_{1AG\,/\,THEME}$ V_1 active construction. It is striking, however, that while the active AGENT-ACTION and the less active THEME-PROCESS relations predominate in interpretations of the phrasal pattern (93% in total), a much higher degree of variability is found in meaning attributions to the compound, with clearly active meanings having a more limited share (40%). In Table 10 the numbers in subscripts designate the processes and participants belonging together, e.g. the process V_1 has its primary participants as N_1. The semantic roles as well as the case forms are written also in subscripts after the nouns, e.g. $N_1(\text{tami})_{AG/NOM}$ designates that the noun *tami* (expresses the primary participant of the process) has an agentive role and a nominative case.

Table 10: The distribution of active and passive construals

		Pivogolótami **N(PTCP-N)**		***Rimpuló tami*** **PTCP N**	
	Entity–process	Constructional patterns applied in meaning attribution	%	Constructional patterns applied in meaning attribution	%
active	agent and its action	$N_1(tami)_{AG/NOM}$ V_1(pivogol)	26	$N_1(tami)_{AG/NOM}$ V_1(rimpul)	64
		$N_1(tami)_{THEME/GEN}$ has the characteristic for $N_2(V_1$(pivogol)-ing)	12	$N_1(tami)_{THEME/GEN}$ has the characteristic for $N_2(V_1$(rimpul)-ing)	20
		-	-	$N_1(tami)_{THEME/NOM}$ is a V_1(rimpul)-ing type of N	9
	thing capable of acting	$N_1(tami)_{THEME/NOM}$ is able to do $N_2(V_1$(pivogol)-ing)	2	-	-
	instrument of the action (used by the agent(s))	$N_1(tami)_{THEME/NOM}$ is for $N_2(V_2$(pivogol)-ing)	18	-	-
		with $N_1(tami)_{INSTR/INS}$ they V_2(pivogol); with $N_1(tami)_{INSTR/INS}$ it is possible to V_2(pivogol)	10	-	-
passive		$N_1(tami)_{INSTR/ACC}$ they use for $N_2(V_2$(pivogol)-ing)	6	-	-

The different degrees to which phrases and compounds are associated with active meanings explain why the figures profiled by the nouns in phrases vs. compounds were considered as persons or physical objects (more specifically tools) with different degrees of likelihood. In meaning attributions to *pivogolótami*, the entity was described as a physical object in 42% of cases, whereas *rimpuló tami* had a corresponding score of only 8%.

5.4 Schemas associated with the N(PTCP-N) pattern and motivating factors behind compounding on the basis of the questionnaire study

In the case of one-word spelling, informants were more likely to refrain from analysis (see criterion 1 in Table 11), and more often chose to provide descriptions of lexicalized meanings. One-word spelling activated the interpretative strategy that perceived components of the expression could be processed at a higher degree of conceptual integration[14] in comparison to two-word spelling. In accordance with this iconic motivating principle, relations marked by the adjacency of PTCP and N were interpreted as tighter, more stable and more integrated with one-word than with two-word spelling, where the distance is greater between the two component structures (see criterion 2 in Table 11).

In close correlation with the motivating factor of higher conceptual integration, the construction types informing meaning attributions were more varied for compounds than for phrases (see criterion 3 in Table 11).

The PTCP-N structure prototypically receives an active interpretation. However, an active reading of THING–PROCESS relations is more dominant with two-word than with one-word spelling (see criteria 4 and 5 in Table 11). Thus, an increase in integration (semantic lexicalization) makes it less likely that the THING receives an active interpretation. In the PTCP-N structure, the N typically denotes a PHYSICAL OBJECT, the primary figure of the PROCESS (ACTION), i.e. its AGENT or INSTRUMENT.

Table 11: Summary of results gained by the questionnaire study

	Rimpuló tami **PTCP N**	***Pivogolótami*** **N(PTCP-N)**
1. Unanalyzed	6%	17%
2. PTCP is characteristic for N	11%	58%
3. Number of types of constructional patterns	3	6
4. N is construed as an active participant	84%	40%
5. N is construed as a passive participant	0%	6%

In the N(PTCP-N) structure, N is typically an active participant, the primary or secondary figure of the process, and it corresponds to the subject or means adverbial of the verbal stem of the participle. In our data, it corresponded to the object in only 6% of cases. We found no data in which the thing denoted

[14] See also as conceptual coherence or cohesion (cf. Barðdal 2008).

by the noun would bear a locative or other circumstantial relation to the verbal stem.

When it comes to the compound *pivogolótami*, only two categories were supported by the data with regard to profiling. The expression profiles the primary figure ('the thing or person that pivogols') in fully active patterns (40%), and the secondary figure in the role of INSTRUMENT in transitional (partially active) (18%) and passive constructions (16%) (see Table 10, 10% + 6%). The informants' interpretations suggest that the compound does not profile the secondary figure either as PATIENT (the thing that undergoes the action of pivogoling) or in any other thematic role. We will return to these observations when they are compared with the results of our analysis of the corpus data (see §6.1).

6 The general semantic model of PTCP-N structures

6.1 Schematic constructions behind the corpus data

The analysis of corpus data explores the schematic structures that arise in elaborations of a single processual meaning (that of TOUCHING) with regard to the profiling of various participants. By contrast, the investigation of questionnaire data reveals constructions that license linguistic patterns as recognized by language users.

The starting point for exploring correlations[15] is that the PTCP-N construction has a basically active meaning. This has been confirmed by meaning attributions in the questionnaire, and presumably our data would converge even more to this pattern if we studied other participial components of compounds (e.g. *futó* 'run.PTCP, running' or *sikló* 'glide.PTCP, gliding'; however, here again there would be departures from active construal, e.g. by profiling the PLACE as secondary figure).

The ubiquity in the corpus of participial components in passive compounds suggests that there is a schematic construction in the background which deviates from the usual (phrasal) structure. Put differently, *érintőképernyő* 'touch.PTCP-screen' and similar expressions seem to instantiate a construction that is distinct from the baseline PTCP-N schema. Our results of the corpus study further imply that there is more than a single construction at work: compounds with *érintő-* may be motivated by several

[15] By the term correlation we do not mean statistical connection here; instead, we would like to refer to the parallelism with which the two phenomena (pattern of compounds in the corpus and constructions gained by the questionnaire) can be related to each other.

schematic structures specifying the relationship between the process and its participants in different ways.

On comparing corpus data with construction-related data, we assumed that the frequency of constructions derived from meaning attributions to nonsensical expressions cannot be correlated directly with the token frequencies of particular categories for corpus data with *érintő*- 'touching'. This is because the general PTCP-N schema is situated at the active pole of construal, whereas the linguistic data under study give evidence of the emergence of specific passive meanings. Therefore the two frequency distributions should not match, with the constructions extracted from questionnaire data showing a different manifestation of passivization than compounds with *érintő*- as their initial components. At the same time, we also expected that both distribution patterns would highlight the variability of constructions, and moreover, that the frequency of passive constructions (derived by questionnaire) would correlate with the type frequency of passive categories in the corpus data.

Thus, one criterion of comparison (and of the identification of distinct schemas) is the passive vs. active character of constructions. Constructions of the nonsensical expression *pivogolótami* are arranged on the active/passive scale into the distribution shown earlier (Table 10). To recapitulate our findings, active constructions account for 40% of the full sample, and are internally varied, with the profiled entity typically accomplishing the process (38%) or having the capacity to accomplish it (2%). Constructions classifiable as passive display similar internal variability, but their overall frequency in meaning attributions is lower (34%), of which unequivocally passive structures have a share of 6%.

The semantic categories of the corpus data on the basis of their degrees of semantic integration show a different distribution with regard to the active/passive continuum (see Table 12).

Table 12: The semantic categories of the corpus data in the active/passive continuum

	Category	**Token frequency (%)**	**Type frequency (%)**
active	C0: the profile is the primary figure as AG	0	0
partially active	C1: the profile is the primary figure as INSTR	0.7	12
passive	C2: the profile is the secondary figure as touched surface	98.3	46
	C3: the profile is a virtual secondary figure	0.2	12
	C4: the profile is the result of the process	0.4	9
	C5: the profile is an entity including the process	0.4	21

The proportion of passive semantic integrational schemas stands out, thus the corpus data match the variability of constructional schemas that we found in meaning attributions. In the corpus data, the sample is much more heterogeneous in the passive domain of the scale, with four out of five categories showing passive, or at least partially passive meaning.

Hence, our hypothesis about the scalarity of active–passive construal proved to be correct: passive meaning as a semantic motivating factor is not a homogeneous phenomenon; rather, the passive construal of a process has varied manifestations.

It follows from the discrepancy between data types that the categories of corpus data and the constructions established by the questionnaire cannot be directly compared on a schema-by-schema basis. Whereas meaning attributions rely on components to circumscribe the meaning of each expression, corpus data do not supply comparable results; a given category, e.g. the one represented by *érintőceruza* ‘touch.PTCP-pencil’, may correspond to a variety of constructional schemas in responses to the questionnaire (see Table 13).

Table 13: Documented constructions of *pivogolótami* and possible interpretative/explanatory constructions for *érintőceruza* 'touch-PTCP-pencil'

Entity–process relationship, scale of activity		**Constructions of *pivogolótami***	**(%)**	**Possible constructions of *érintőceruza***
active	agent and its action	N_1(tami)$_{AG/NOM}$ V_1(pivogol)	26	N_1(pencil)$_{?AG/INSTR/NOM}$ that V_1(touches) N_2
		N_1(tami)$_{THEME/GEN}$ has the characteristic for N_2(V_1(pivogol)-ing)	12	N_1(pencil)$_{THEME/GEN}$ has the characteristic of touching
	thing capable of acting	N_1(tami)$_{THEME}$ is able to do N_2(V_1(pivogol)-ing)	2	N_1(pencil))$_{THEME}$ is able to touch, to do the touching [process]
	instrument of the action (used by the agent(s))	N_1(tami)$_{THEME}$ is for N_2(V_2(pivogol)-ing)	18	N_1(pencil))$_{THEME}$ is for touching
		with N_1(tami)$_{INSTR}$ they V_2(pivogol); with N_1(tami)$_{INSTR}$ it is possible to V_2(pivogol)	10	with N_1(pencil)$_{INSTR}$ they touch N_2; with N_1(pencil)$_{INSTR}$ it is possible to touch N_2
passive		N_1(tami)$_{INSTR/ACC}$ they use for N_2(V_2(pivogol)-ing)	6	N_1(pencil)$_{INSTR/ACC}$ they use for touching

Thus, when the schematic constructions gained by the analysis of questionnaire data are brought into correspondence with corpus categories, syntactic construal (see e.g. *olyan tami, ami pivogol* 'a tami which pivogols' (I_2), *pivogolást végző tami* 'tami doing pivogoling' (I_3) and *egy tami, ami* […] *általában pivogol* 'a tami which generally pivogols' (I_6)) and the thematic roles associated with the event (AG, THEME, INSTR) are both important criteria. However, as a consequence of the greater schematicity of constructions, a given construction type may correspond to several categories of corpus analysis (Table 14). This gives the study its bidirectionality and dynamicity; not only do we look at instantiations from the perspective of schemas, but also feedback the lessons of token analysis to the level of schematic constructions. The fact that our corpus data cannot be reduced to the construction types established by questionnaire responses suggests that novel schemas emerge in language use, or else linguistic expressions are motivated by the extension of existing schemas, i.e. conventionalization is under way.

On a micro-level, a pre-requisite for comparing the two datasets is to provide questionnaire data with a semantic analysis in terms of profiling (see Table 14).

Table 14: A comparison of constructional schemas with regard to profiling

Category	**Corpus data (HNC)** Token frequency (%)	Type frequency (%)	**Questionnaire** Construction	%
C0: the profile is the primary figure as AG or THEME	0	0	$N_1(tami)_{AG/NOM}$ that pivogols; $N_1(tami)_{THEME/GEN}$ has the characteristic of pivogoling; $N_1(tami)_{THEME/NOM}$ is able to do pivogoling	40
C1: the profile is the primary figure as INSTR	0.7	14	$N_1(tami)_{THEME/NOM}$ is for pivogoling; with $N_1(tami)_{INSTR/INS}$ they pivogol; with $N_1(tami)_{INSTR/INS}$ it is possible to pivogol; $N_1(tami)_{INSTR/ACC}$ they use for pivogoling)	34
C2: the profile is the secondary figure as touched surface	98.3	44	-	-
C3: the profile is a virtual secondary figure	0.2	12	-	-
C4: the profile is the result of the process	0.4	9	-	-
C5: the profile is a complex process	0.4	21	-	-

This analysis further modifies the picture when it comes to the active/passive dimension in the meaning of compounds. In particular, it can be established that in the corpus data even the category implementing active meaning is only partially active (as it does not profile the agent). By contrast, in the questionnaire data, even the fully passive construction is instantiated in such a way that it profiles the primary figure of the process. This supplies a further argument for interpreting the construal of passive meaning as a key motivating factor for the emergence of compounds. Thus, an emergent schema can be posited as licensing structure behind the relevant compounds in our corpus data.

In conclusion, constructional analysis may aid the classification of actual occurrences; however, the established constructions cannot be directly matched with the pattern emerging from corpus data. A construction considered as frequent need not be frequently instantiated in actual language use, and a construction that informants regard as rare may produce a variety of compound types in the corpus.

The semantic categories supported by corpus data confirm the existence and variability of the active/passive continuum. The semantic schemas may be classified in terms of the specificity (degree of elaboration) of processual meaning, in basically the same way as shown by the active/passive scale. From this it follows that construing a passive meaning (in varied ways) clearly motivates the emergence of compounds. At the same time, compounding as an operation involves increasingly tight and specific patterns of semantic integration, leading to the emergence of new constructions as well. In other words, an increase in conceptual proximity between the components may manifest itself in semantic integration, and also in novel constructional schemas.

6.2 The meaning of PTCP-N as control cycle

Our complex analysis of the variability of *érintő*-N compounds in the corpus has generalizable results. In this section, we present a comprehensive account of PTCP-N compounds by building on the findings, making crucial use of Langacker's concept of the control cycle.

In Cognitive Grammar, semantic extension is assumed to occur in four phases (cf. Langacker 2009: 130–135; 2016), with an agent gradually extending his/her control to an entity. The starting point is the baseline of the structure, where an agent controls certain entities (located in its immediate scope). This is followed by the potential phase, in which control over a new entity arises as a possibility. Through reinforcement by repetition, this possibility becomes a stable property of the agent, which marks the action phase of the process. Finally, in the result phase, the newly controlled entity is incorporated into the agent's immediate scope. Figure 2 below represents the process of compound formation in a schematic way. Small empty circles above designate the entities being under the actor's control. They are involved in schematic (prototypically force-dynamic) actions, thus they do not represent actual objects in a specific situation. However, from the potential phase the type of the controlling action becomes specified, namely as the act of touching something.

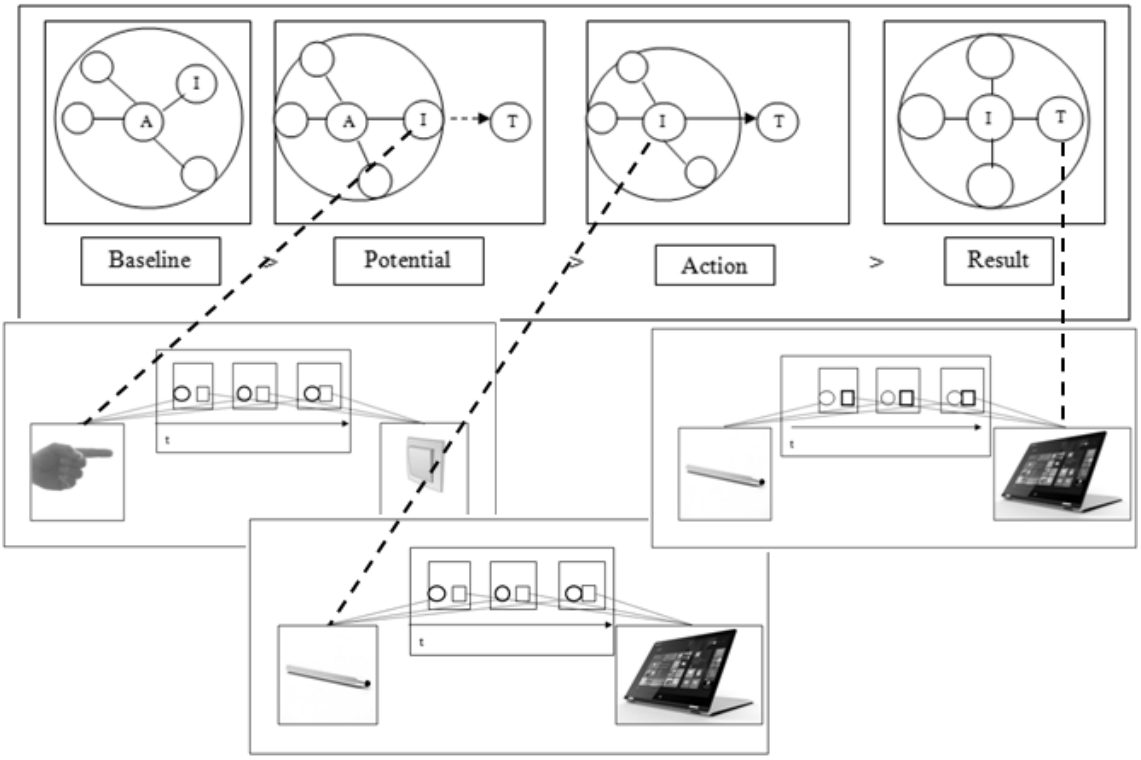

Figure 2: The development of *érintő*-N as a control cycle

This model is well-suited to the explanation of meaning extension based on the process of touching. The baseline corresponds to the situation in which the agent controls a tool which can accomplish certain actions. In the potential phase, the tool is involved in a single, transient touching event (as expressed in the phrasal construction by the PTCP modifier). However, when it becomes motivated for this possibility to be repeatedly seized upon (e.g. because the tool is generally suitable for accomplishing the process profiled by the participle), the process develops into a recurring occurrence, and the tool is endowed with the property of accomplishing it. Finally, the tool replaces the agent, and through the process of touching it is able to control other entities (see Figure 2).

In the picture, the potential, action and result phases of the cycle are illustrated by three different situations. When a tool is suitable for manipulating an entity, the cycle is set in motion, but it only comes to completion when this kind of manipulation becomes a salient property (even a raison-d-être) for the tool. In the absence of this, phrasal patterns become conventional on the phonological pole. If, however, the tool is involved in repeated acts of manipulation, and this even becomes its main purpose, the cycle proceeds to the action phase. Here, the agent's place is assumed by the

tool (via metonymization), and the latter is also profiled by the construction, allowing for the emergence and entrenchment of compounds. Compounds in the first category of our corpus data are characteristic instantiations of this phase of the cycle. However, spelling varies when the tool's regular association with the process is not yet widely known in the community, and the compound is not yet sufficiently stable as a unit in the particular situation. After this, the cycle reaches its result phase. On the one hand, this is indicated by further shifts of attention (from the manipulating tool to the manipulated entity, as shown by the second and third categories of our corpus data). Once the cycle has finished, the emergent meaning becomes a productive semantic schema with high type frequency (and with high token frequency of the constructions, but not necessarily of the individual expressions) as a consequence. On the other hand, the process of manipulation gets schematized, with less and less concrete, more metaphorical interpretations of control arising as illustrated by examples in the fourth and fifth categories of our corpus data. The course of the cycle results in the emergence of more or less specific constructional schemas (regarding the elaboration of the process TOUCHING). But the emergence of these schemas also supports the continuation of the cycle itself. Consequently, the process of the cycle and the entrenchment of constructional schemas reinforce each other mutually.

The end phase of the cycle establishes a highly schematic semantic structure (TOUCHING – TOUCH-RELATED ENTITY in this case), which, however, does not result in entrenched units, and shows high type frequency with a limited number of tokens. Thus, the last phase of the cycle triggers a process of lexicalization, which is beyond the cycle. It is worth noting at this point that the model based on the control cycle is sufficiently general to account for the emergence of further PTCP-N patterns.[16] Of course, there are varied ways of establishing control, and the controlling tool and the controlled entity also vary with the nature of the process profiled by the

[16] Our argumentation relying on the control cycle helps us to refine a previous claim of Bundgaard et al. (2006: 387), namely that "*X* an *Y* may combine aspects of a teleological process freely." By adopting the cycle as a motivating factor behind compound formation and the emergence of constructional schemas, we propose that the actual pattern of compounds in a corpus is not a free variation of conceptualization (being governed only by creativity and the context), but the result of consecutive changes in conceptual organization. Although the members of the investigated compound category (*érintő*-N) occur simultaneously in the corpus, they correspond to particular phases of a cognitive and linguistic reorganization process.

participle. For example, in the case of physical movement, the tool first assumes the position of the controlled entity, as in *futócipő* 'run.PTCP-shoe, running shoe', then the local participant of the movement, cf. *futópad* 'treadmill', lit. 'run.PTCP bench, running bench', and finally the manipulation offered by movement is only schematically part of the construction's meaning, as shown by *futótárs* 'run-PTCP-partner, running partner'. It goes without saying that changes in the motivating frames and shifts between them also require characterization specifically for each process as elaborated in discourse.

Nevertheless, in the case of compounds with an initial PTCP component, the cycle is always implemented (whichever participant is profiled). Thus, this model interprets the emergence of compounds as a process in which semantic integration between the components occurs as part of a more abstract process of schematization. The variability of corpus data is motivated by different phases of this schematization process. Hence, although the categories can be studied by themselves, they cannot be regarded as independent from the other categories and from the overall process of semantic extension. The questionnaire data, for their part, indicate that in the case of nonsensical expressions, the cycle only begins but does not necessarily reach its endpoint, which is why active construal has such a high share in the responses. It is also clear, however, that separate constructions emerge in language use in parallel with the default sequence of the cycle.

The model of control cycle has two advantages compared to the general event frame (or to the purpose-oriented action theory, see Bundgaard et al. 2006: 385–388). One is its specificity, the other is its dynamic character. On the one hand, the phases of the cycle can model the aspects of developing control over an entity (as a schematic purposeful action), with the benefit of explaining the entrenchment of particular expressions as established linguistic units of one or another phase of the cycle. On the other, the control cycle is as general as the event frame model; however, it offers a processual explanation for compound formation, hence it can also explain the emergence and availability (and even the relative productivity) of intermediate constructional schemas.

7 Conclusions

In this paper, we presented a new approach to compounds, arguing that compositional descriptions do not efficiently account for their emergence. We interpreted the emergence of PTCP-N compounds from phrases as guided

by a complex schematization process which makes varied instantiations possible and results in the emergence of schematic constructions.

By subjecting our corpus data to both quantitative and qualitative analysis (relying on Cognitive Grammar), we described the rich variability of *érintő*-N compounds. In addition, a questionnaire study was used to confirm the emergence of schematic constructions and the hypothesis of passive construal being a key motivating factor behind compounding. Employing the control cycle model of Cognitive Grammar, we finally proposed a comprehensive account for the emergence of compounds with a PTCP initial component.

Although we did not implement a compositional description, this is not to deny that usage events involve a series of operations for integrating semantic components. Compounds were presented as semantic constructions rather than as syntactic structures; however, by starting off with phrases, we also allowed room for syntactic analysis. Our results clearly demonstrate the gradient, scalar nature of compounding patterns. Scalarity was established not by a study of data involving different components, nor did we carry out psycholinguistic experiments. Rather, our argument rests on the analysis of a large amount of corpus data on compounds with the same initial component.

The control cycle model interprets the emergence of compounds as a process in which semantic integration between the components occurs as part of a more abstract process of schematization. With accepting the cycle as motivating factor of compound formation and the emergence of constructional schemas we propose that the actual pattern of compounds in a corpus is not a free variation of conceptualization (being governed only by creativity and the context), but the result of a consecutive change in conceptual organization. Though the members of the investigated compound category (*érintő*-N) occur simultaneously in the corpus, they can be arranged along with a cognitive and linguistic reorganization process.

In the future, it will be worth extending the analysis to other compounds with a PTCP initial component, which may bring refinements to the comprehensive model. Beyond this, it will be necessary to use experimental measurements with a view to identifying the roles of passive construal, degrees of elaboration in the process profiled by the participle, and the salience of particular components.

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References

Barðdal, Jóhanna. 2008. *Productivity: Evidence from case and argument structure in Icelandic*. (Constructional approaches to language 8). Amsterdam: John Benjamins.

Benczes, Réka. 2006. *Creative compounding in English: The semantics of metaphorical and metonymical noun-noun combinations*. Amsterdam: John Benjamins.

Bundgaard, Peer F. & Ostregaard, Svend & Stjernfelt, Frederik. 2006. Waterproof fire stations? Conceptual schemata and cognitive operations involved in compound constructions. *Semiotica* 161. 363–393.

Bybee, Joan. 2010. *Language, usage and cognition*. Cambridge: Cambridge University Press.

Dirven, René & Verspoor, Marjolijn. 2004. *Cognitive exploration of language and linguistics*. Amsterdam: John Benjamins.

Heyvaert, Liesbet. 2012. Compounding in cognitive linguistics. In Lieber, Rochelle & Štekauer, Pavol (eds.), *The Oxford handbook of cognitive linguistics*, 233–254. Oxford: Oxford University Press.

Kiefer, Ferenc. 2000. A szóösszetétel [Compounds]. In Kiefer, Ferenc (ed.), *Strukturális magyar nyelvtan* 3 [Hungarian structural grammar 3]. 519–567. Budapest: Akadémiai Kiadó.

Langacker, Ronald W. 2008. *Cognitive grammar: A basic introduction*. Oxford: Oxford University Press.

—— 2009. *Investigations in cognitive grammar*. Berlin: Mouton de Gruyter.

—— 2016. Baseline and elaboration. *Cognitive Linguistics* 27(3). 405–439.

Oravecz, Csaba & Váradi, Tamás & Sass, Bálint. 2014. The Hungarian gigaword corpus. *Proceedings of LREC*, 1719–1723. (http://www.lrec-conf.org/proceedings/lrec2014/pdf/681_Paper.pdf) (Accessed 2018-03-16.)

Ryder, Mary Ellen. 1994. *Ordered chaos: The interpretation of English noun-noun compounds*. Berkeley: University of California Press.

Scalise, Sergio & Fábregas, Antonio & Forza, Francesca. 2009. Exocentricity in compounding. *Gengo Kenkyu* 135. 49–84.

Ungerer, Friedrich. 2007. Word-formation. In Geeraerts, Dirk & Cuyckens, Hubert (eds.), *The Oxford handbook of cognitive linguistics*, 650–675. Oxford: Oxford University Press.

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The *Toisto* method: Speech and repetition as a means of implicit grammar learning

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Abstract

Language learning is one of the key predictors of how well immigrants will integrate into a new society. In many European countries, the resources reserved for language education have proved insufficient as people fleeing the war in Afghanistan, Iraq and Syria have entered Europe. This situation has called for ways of mobilising volunteer workers to help newcomers in a coordinated manner. In Finland, a method called *Toisto* has been developed to enable volunteers with little or no teaching experience to teach the basics of Finnish to newcomers. From the pedagogical and linguistic point of view, *Toisto* derives from a usage-based notion of language, according to which the spoken modality in general, and modelling-based instruction in particular, can be used to teach grammar without the explicit formulation or explanation of rules. In addition, *Toisto* aims to compensate for the written language bias very much present in the L2 context in the Finnish education system. In this paper, we outline the theoretical grounding and basic characteristics of the *Toisto* method. We map the ways in which a usage-based notion of language motivates a communicative, oral language pedagogy, and provide some initial evidence of the feasibility of the method. Finally, we discuss the implications of the *Toisto* method for adult language education.

Keywords: usage-based theory, volunteer, construction, communicative language learning, language education

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1 Introduction

This paper discusses *Toisto*, an accessible, volunteering-based method of L2 teaching that has been developed to enable language learning when institutional language training is either insufficient or non-existent. The *Toisto* method is based on three commonly acknowledged pedagogical principles. First, orality is the primary mode of everyday communication, and as an initial method for newcomers, *Toisto* is focused only on oral communication. The second principle concerns the social atmosphere of the learning situation. Due to the particular focus group, special attention is paid to reducing learner anxiety and maintaining psycho-social security. Third, the learning sessions simulate everyday schemata and include frequently used linguistic constructions in the form of patterns that are repeated together and individually during each lesson.

The main ideas behind *Toisto* – namely that phrases in additional languages are often learned by imitating linguistic models aloud, and that a jovial learning atmosphere accounts for learning – are commonly accepted by language learning researchers as fundamentals of learning (Larsen-Freeman & Anderson 2011), regardless of the researchers' theoretical view of language being a primarily innate versus socially acquired feature. However, teaching adult language learners is largely based on explicit grammar instruction and rule-based teaching. Textbooks often guide classroom activities, as foreign-language lessons tend to be teacher-led and the learners' own production is not readily the focus of the classroom interaction (Pitkänen-Huhta 2003). The dialogues in English as a foreign language textbooks, which have been researched more widely than any other language-learning materials, have proved artificial and grammar-focused, and are often criticised for their lack of authenticity (Wong 2002; Gilmore 2011). Parallel criticism about a lack of functionality is also relevant regarding Finnish as a second language textbooks, and discussion on the issue has been ongoing at least from the 1990s (Lauranto et al. 1993; Schot-Saikku 1993; Lauranto 1995a; Aalto 1998) until the present decade (Kela 2010; Tanner 2012). Although the Common European Framework of Reference (CEFR 2001) set communicative competence as a key goal in adult language learning, and although oral skills have accordingly become more important in language curricula, communicative teaching and learning practices were not automatically implemented in language classrooms (Harjanne 2006; Harjanne & Tella 2011; Ruohotie-Lyhty

2011), and nor have communicative tendencies become mainstream in learning materials.

Before the CEFR was published, a continuum of Finnish language teaching materials existed which presented everyday Finnish and the systematic repetition of colloquial phrases as the gateway to mastering language usage. The "direct method" (see Larsen-Freeman & Anderson 2011: 25–34) gained a foothold in teaching Finnish when Olli Nuutinen published his textbook *Suomea suomeksi*, 'Finnish in Finnish' (1977), but it relied on formal language. A more speech-based and, in this sense, functional line emerged starting from Eila Hämäläinen's phrase-based textbook *Aletaan*, 'Let's start' (1988), which included an introduction to communicative language teaching and an outline of synchronic Finnish grammar. The suggestopedic two-volume *Suomi-tytön kieli*, 'The language of Finland', by Helinä Koivisto was published in 1990, but the circulation remained small. Yrjö Lauranto's textbook series entitled *Elämän suolaa*, 'Salt of life' 1 and 2 (Lauranto 1995b, with several reprints), gained more users, with texts that progressed from use to analysis. The systematicity of the "from use to analysis" method was explained in detail in the teacher's book (Lauranto 1996), while the theoretical principles can be found in Lauranto et al. (1993), and Lauranto (1997). Books exemplifying how to practise authenticity in the Finnish as a foreign language classroom were also published, such as Kirsti Siitonen's *Auringonvalo – elämää suomalaisessa kylässä*, 'Sunlight – life in a Finnish village' (1990).

Although the CEFR served to make communicative teaching practices more widely known, mainstream Finnish textbooks remained formalistic and the dialogues artificial (see Tanner 2012: 181–187 on the reasons for this). Aalto et al. (2009) provide academic reasons for functionalism in language teaching, and each of their three-volume textbooks for secondary school (Tukia et al. 2007–2009) is accompanied by a detailed teacher's book, showing how to include an analysis of grammatical structures alongside functionalist teaching. In addition, authentic spoken dialogues have been incorporated into materials for nurses and doctors learning professional Finnish (Kela et al. 2010; Kela 2010 on the process).

The aforementioned continuum of phrase-based textbooks for learning Finnish serves to outline the tradition which gave rise to *Toisto*, namely the direct method, communicative teaching, a suggestopedic atmosphere, and authenticity in schemata. The need for communicative teaching is increasing due to migration throughout Europe, since a growing number of newcomers are not familiar with the Latin script, and many have academic

skills at a basic level. In this situation, language learning must commence before metalinguistic knowledge is acquired, or it must be followed through without metalinguistic tools.

This paper will provide a basic introduction to the *Toisto* method and its theoretical grounding. To this end, we will describe the material and methodological characteristics of a typical *Toisto* session and how the method derives from the concept of freely combinable, independent sessions. Most importantly, however, the paper will analyse the manner in which *Toisto* as a communicative method enacts and confirms certain facets of a usage-based notion of language and language-learning, by raising the question about the implicit learning of the morphosyntactic structures of the Finnish language. Hence, despite its practical emphasis, the paper includes a theoretical discussion on the relationship between implicit versus explicit language acquisition and usage-based versus rule-based L2 methodology.

2 *Toisto*: conceptual grounding

The *Toisto* method is a communicative approach based on freely combinable, 45–60 minute small-group sessions at a basic level, in which certain frequently occurring phrases and mini-dialogues depicting everyday situations are learned based on speech, listening and printable visual aids. Generally speaking, the method is usage-oriented in that it strives for a minimal gap between in-class practice and out-of-class application of what has been learned. As described in the introduction, *Toisto* can be identified as part of the long discussion about whether teaching the basics of Finnish grammar should rely on implicit learning and be phrase-based, or lean more on explicit learning and be rule-based. In this chapter, we turn our attention to the international debate about usage-based language acquisition. The frame of reference for our analysis stems from cognitive/construction linguistics, as we see the nature of language itself as a socio-cognitive semiotic system (e.g. Barlow & Kemmer 2000; Langacker 2000; 2008; Bybee 2006; 2008; Goldberg & Casenhiser 2008; Lieven & Tomasello 2008).

2.1 Usage-based vs. rule-based learning

A theory of language and language learning is usage-based inasmuch as it does not build on a strong innatist hypothesis, wherein exposure to

linguistic input activates and specifies an innate language module or a comparable cognitive device responsible for linguistic generation (N. Ellis & Robinson 2008: 4–8). In positive terms, a usage-based theory assumes that language is learned through actual interaction primarily by cognition-general learning mechanisms; moreover, if there are neuro-cognitive precursors of language that somehow precede actual language learning, these relate primarily to the particular sensitivity to verbal communication rather than to the architectural features of language (e.g. mode of syntactic processing). Self-defined "usage-based" theories, however, specify the notion by positing more explicit models of how language and linguistic structures are constituted and shaped by use (see e.g. Langacker 2000; Bybee 2006: 724–730; N. Ellis 2008: 382–396; Lieven & Tomasello 2008: 170–171). Rather than being mutually inconsistent, various usage-based models are distinguishable relative to their different analytical foci. For instance, Langacker's (1987) Cognitive Grammar is a usage-based model of a full-fledged grammatical system, whereas Bybee (1985) and Tomasello (2003) concentrate particularly on language acquisition and evolution, respectively.

The usage-based conception of grammar reaches further back in history than linguistics as a discipline, as its roots sprout from the tradition of rhetoric. However, usage-basedness was acknowledged as a relevant principle for linguistic modelling notably through M. A. K. Halliday's work in the 1970s (1978). The present article takes up the discussion pertaining to cognitive linguistics and the psycholinguistics of language acquisition; in both cases language is approached in close relation to its internalisation, namely the kind of cognitive processes that account for possessing a language. The elements that are internalised are the linguistic units belonging to a language. These units, in turn, are usually depicted as symbolic pairings of meaning and form which, insofar as the unit is properly learned, involve all the relevant information needed for their use. The relationship between usage and internalisation is typically analysed as a cyclical process whereby conventional linguistic units are contextually extended, which in turn results in the internalisation of semantic extensions.

This formulation also underlines the central semantic motivation of usage-based theories, which stems from a particular non-modular or weakly modular notion of cognition (as does the depiction of language vis-à-vis cognition-general capabilities). Insofar as language is learned as a categorisation of actual usage events, it is learned in a manner that is

uniform for lexical and grammatical units (Achard 2008: 440–441; Goldberg & Casenhiser 2008: 204–206). Thus, various construction-based models, which are naturally grouped under the rubric of usage-based models, explicitly consider, say, nouns and syntactic categories as comparable in terms of their gross conceptual features. For instance, the Finnish utterances *bussi* ('bus') and *menen bussilla kouluun* ('I go to school by bus') are both analysable as elaborations of accordingly internalised schemata. The latter of these two schemata consists of a syntactically complex structure, where the constituents with their mutual relations are internalised as inherent symbolic components of the schema.

From a usage-based perspective, then, learning grammar (morphosyntactic units) is a process driven by meaning and schematisation. As first and second language acquisition are assumed to resemble each other in this respect, usage-based models of grammar suggest a methodology for teaching that favours modelling structures with rich input of specific expressions at the expense of the explicit description of grammatical rules. The existing applications of usage-based models to L2 teaching also point to the feasibility of deriving methodology from the usage-based notion of language acquisition in general and emphasising the role of input in particular (Hämäläinen 1988; Lauranto 1997; Tukia et al. 2007; Verspoor & Nguyen 2015).

The mechanisms of linguistic categorisation and acquisition postulated by usage-based accounts are not only structured along the singular dimension of schematicity, however. Internalisation from use is characterised by a complex interplay of multiple dimensions, some of which relate to the scope of use for a particular structure (e.g. frequency and schematicity), while others relate to the experiential salience of referents and conceptualised states of affairs (e.g. prototypicality). It follows that a usage-based notion of language acquisition or the resulting conceptual structure should not be interpreted simplistically. A usage-based account of language duly attributes learning not just to use per se but to use in experiential contexts that serve to elaborate the semantic import of linguistic expressions and, consequently, their internalisations. One implication for language learning yet to be spelled out is the role of intentionality. There is substantial behavioural evidence from small infants that linguistic capabilities are grounded in motor, perceptual, and affective pre-linguistic intersubjectivity, namely the child's ability to detect and identify with conspecifics as sentient beings (e.g. Stern 1971; 1977; 1985; Meltzoff & Moore 1977; 1994; 1997; Trevarthen 1979; 1980; Trevarthen

& Aitken 2001; Astington 2006; Gallagher & Hutto 2008; de Bruin & de Haan 2012;). This pre-linguistic intersubjectivity, in turn, has implications for a usage-based notion of language in that its symbolic units are derived from experienced linguistic-intentional acts, that is, other people's expressions that are primarily apprehended as expressions of a particular subjective state (Möttönen 2016). It is therefore suggested here that a usage-based notion of language implies socio-cognitive, experiential semantics as an inherent part of learning grammar during first language acquisition, a position similar to that adopted by Tomasello (2003).

In and of itself, this general implication of a usage-based model does not translate into a particular pedagogical standpoint, but simply points to the importance of experientially rich interactions for language acquisition in infants. What needs to be considered as a separate matter are the provisions set by adults as the subjects of second language learning.

2.2 The (partial) analogy of L1 and L2 learning

To some extent, second language learning is analogous to learning one's first language, as the experientialist principle outlined above is an evident part of all human interaction. It is thus reasonable to consider the *extent* to which L2 learning in adults can be explained by processes already manifest in infants learning their first language.

As stated, the pre-linguistic phase of an infant's first language learning is characterised by motor intersubjectivity, shown in body orientation, gestures and eye contact. Even before the symbolic function is comprehended, infants are apparently able to follow the turn-taking sections in adult conversation and even participate in the dialogues with well-timed babbling and eye contact (Lieven et al. 2003; Liukkonen & Kunnari 2012). According to Lave & Wenger (1991), newcomers start becoming part of communities of practice through legitimate peripheral participation. In other words, actual verbal participation in L2 conversation is preceded by peripheral participation through nonverbal means such as joining in by using gestures, eye orientation or simple one-syllable interjections. Hence, the phase of peripheral participation in L2 learning can in fact be seen as parallel to the pre-linguistic phase in L1 learning. Peripheral participation, in turn, can be analysed as a stage that paves the way for the learning of multi-word constructions and situational schemata, which are the basic units of all grammatical and communicative skills, both in children's first language acquisition (Kauppinen 1998; Lieven et al.

2003; Lieven & Tomasello 2008) and the learning of additional languages (Wong Fillmore 1979; Pawley & Syder 1983; N. Ellis 1996; 2012; Wood 2015).

The analogy and perceived similarity between L1 and L2 learning has been explored by Lily Wong Fillmore's (1979) classic study, which remains a credible articulation of the interplay between the social and the cognitive factors in language learning. The value of Wong Fillmore's contribution is underlined by the fact that the actual "social turn" in second language acquisition research took place only fifteen years later (van Lier 1994; Lantolf 1996; Firth & Wagner 1997). Wong Fillmore analysed how five Spanish-speaking newcomers of around six years of age learned English in a naturalistic setting from their L1 English peers. The participants were observed in a playroom, longitudinally for one year.

Wong Fillmore reported how the children's learning was manifested in turn through social and cognitive strategies. When it came to the social strategies (S1–S3), the children strove to be active participants in the community, while the cognitive strategies (C1–C5) were displayed as attempts to produce situationally relevant verbal constructs. The following list is an extract from Wong Fillmore's book (1979: 209):

Cognitive and social strategies

S1 Join a group and act as if you understand what's going on, even if you don't.
C1 Assume that what people are saying is directly relevant to the situation at hand, or to what they or you are experiencing. Metastrategy: Guess!
S2 Give the impression – with a few well-chosen words – that you can speak the language.
C2 Get some expressions you understand, and start talking.
C3 Look for recurring parts in the formulas you know.
C4 Make the most of what you've got.
C5 Work on big things first; save the details for later.
S3 Count on your friends for help.

Wong Fillmore's contribution to the social-cognitive discussion is an interplay view that still seems relevant today. Apart from recognising the impact of the social factor in L2 learning as being of equal importance to the cognitive or "linguistic" factor, just as the two factors are of equal value in initial L1 learning, Wong Fillmore's research contributed to another crucial point that is comparable with the L1 learning process, namely the idea of "formulas" as units of language learning. According to the third and fourth items in the list (S2, C2), if the learner was silent for too long a period, the first social strategy "act as if you understand" would be ruined.

Therefore, the participants implemented the C2 strategy by choosing formulated, non-segmented expressions that had been learned by heart (e.g. *Lookit. Wait a minute. Lemme see. Gimme. Let's go. I don't care. I dunno.*), through which they legitimised their participation in social interaction. Sooner or later the children started to generate new functional phrases by segmenting and recreating the old phrases (C3). When "Nora" was able to say *I wanna play wi' dese* and *I don't wanna do dese*, she subsequently formed the new sentences *I don't wanna play wi' dese* and *I wanna do dese*. The formulas were made into abstractions with fillable slots: *I wanna X*/X=VP and *I don't wanna X*/X=VP, namely slots (X) that could be filled with verbal phrases (VP) bit by bit, or formulas learned by heart that would abstract into a linguistic network that also allows the construction of creative expressions (Wong Fillmore 1979). This type of formula-based description of L2 learning is similar to many depictions of L1 learning, such as Hungarian (MacWhinney 1974), Finnish (Kauppinen 1998), or a general review of a child's L1 acquisition (Lieven & Tomasello 2008).

The extent of the analogy between adult L2 learning and children's L1 learning is an open question. The majority of the existing research on adult L2 learning is restricted to course-setting and methodology based on written materials, and there is little knowledge on how adults learn informally based on spoken interaction in natural settings. In what follows, we will compare L1 learning in children and L2 learning in adults in relation to two cognitive factors: metacognition and linguistic units relevant for language processing.

The various accounts of metacognition, namely the reflective and operative meta-consciousness of thinking and decision-making, can be aligned relative to the extent to which metacognition is evoked to explain language learning. In principle, metacognitive awareness can be considered the central facet of learning or categorically epiphenomenal; accordingly, a particular model can ground learning either in explicit or implicit cognitive processes. Note that the distinction between explicit and implicit learning should not be confused with the distinction between socio-constructivist and nativist notions of language learning: in other words, the same pedagogical activity, whether relying on a functional or rule-based approach, can yield either of the two theoretical perspectives.[1]

[1] Explicit and implicit notions of language learning have, in fact, been operationalised by language-pedagogical methods prior to modern theoretical accounts thereof. "Extreme" examples of the explicit, metacognition-based approach and implicit,

It has been suggested that adults also acquire language primarily through implicit learning, by learning constructs and phrases by heart. Krashen & Scarcella (1978) argue for "prefabricated routines" in L2 acquisition. In other words, L2 learning relies on the gradual, largely implicit entrenchment of patterns, formulas and constructions in use. Krashen (1981; 1982) has developed this line of thought into the so-called Input Hypothesis or Monitory Model, the basic characteristic of which is a heavy emphasis on linguistic input as the basis of language learning. The distinctive feature of Krashen's approach is the conviction that explicit knowledge about language and grammar are strictly irrelevant for linguistic skills. For instance, we may feel that linguistic explanations of the Finnish conjugation system help us to master its use and semiotic import; however, actual learning happens regardless of this felt connection by being exposed to, and involved in, the use of conjugated verb forms.

Rod Ellis (2009: 20–23; see also Spoelman 2013: 153–155) calls the implicit approach a "non-interface" position, as it denies a functional relationship between implicit knowhow and explicit meta-knowledge in the learning process. A variation of the non-interface position exemplified by Hulstijn (2002) states that the explicit discussion of grammatical and other language features, rather than contributing to the formation of implicit skills, comprises a parallel and distinct activity. In contrast, an approach with a strong emphasis on explicit learning is called a "strong interface" position (ibid.), whereby such an approach assumes a flow of information from explicit knowledge to implicit knowhow. A "weak interface" position, as described by Rod Ellis (2009), considers explicit knowledge beneficial in the secondary, indirect sense, where it supports the implicit detection and entrenchment of linguistic features in linguistic input. Ellis (ibid.) suggests that the incorporation of explicit linguistic knowledge promotes learning in that it allows a comparison between the features of the target language and those of one's native language.

Although implicit vs. explicit and nativist vs. socio-constructivist make two mutually independent distinctions, the discussion has conflated these issues from time to time. For instance, Krashen's position has been considered nativist and, hence, untenable from a socio-constructivist point of view (see Dunn & Lantolf 1998). On the other hand, the notion of strictly implicit language learning (e.g. Krashen & Terrel 1983) has been

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non-metacognitive approach are provided by the classical Grammar-Translation method and Direct Method, respectively (Richards & Rodgers 2014).

considered by some socio-constructivists as too extreme to be realistic (Swain & Lapkin 1995; R. Ellis 2009). It can be said, however, that the notion of implicit adult grammar learning remains significant, particularly in approaches based on construction grammar and cognitive L2 pedagogy, where "the presentation of the 'rule' of a construction can never substitute for the presentation of actually occurring instances of that rule" (Achard 2008: 434–435, 440).

Another way of comparing language learning in children and in adults is to consider the linguistic units most relevant for processing. As stated in §2.1, there is converging evidence on children learning a language based on constructions (e.g. Lieven & Tomasello 2008). Whether promoted by explicit description or implicit modelling, adult learners seem to rely on similar, construction- or formula-based learning rather than deriving expressions from abstract rules (on frequency effects, see Bybee 2008: 223–225; associative learning N. Ellis 2008: 386; constructions over morphology and skewed input Goldberg & Casenhiser 2008: 204–208). As early as 1983, Pawley and Syder suggested that formulas form the basis of fluent and idiomatic language use.

A similar conclusion has been drawn by Biber (2006), who compares the syntactic tendencies of different academic fields. For instance, certain formulaic noun phrases typical of technical and sociological studies are clearly rarer among the humanities, where, in turn, language shares more features with prose. At the bare minimum, this is proof of the existence of implicit formulaic learning for L2 speakers. Similarly, Myles & Cordier (2017) suggest that native speakers learn new genres via conventional lexical clusters. Finally, formulaic learning seems to be scale-free to an extent, in that formulas may include one-morpheme constructs while many languages incorporate full formulaic sentences (see Schmitt & Carter 2004: 4).

To sum up our discussion, it seems safe to say that adult L2 learning resembles L1 learning among children to an indefinite extent in that it does incorporate implicit, formula-based learning. Given the strong normative attitude towards language teaching, held both by teachers and students, it is difficult to assess the extent to which teaching could or should be geared towards the emulation of learning in naturalistic settings. It is nonetheless clear that implicit learning does occur in adults and that the selected teaching method should maximise the time that is reserved for modelling and producing the target language. This view gains at least anecdotal support from the use of songs – a prime example of formulaic input – in

teaching a secondary language (Wood 2015; Alisaari 2016). Implicity in learning is not a goal in itself, however, and it is obvious that adult learners benefit from analytical tools at some point (see R. Ellis 2009: 15–16). Among other usage-based methods, *Toisto* strives to enable collecting experiential "data" for analysis first, rather than starting to analyse a linguistic construct that is still hypothetical for the learner.

3 *Toisto*: the basics

In this section, we will provide a basic introduction to the *Toisto* method's linguistic-pedagogical background and to the actual implementation of the method, respectively. We will concentrate on the practical needs and pedagogical principles that motivated the development of the method, as well as describing a basic session.

3.1 Methodological and pragmatic background

Academic linguistic practice has been criticised for its written language bias (Linell 1982), but this bias is also characteristic of much of L2 teaching and the study thereof (Piirainen-Marsh 1994; Kristiansen 1998; Säljö 2000; Harjanne 2006; Kormos 2006; Luukka et al. 2008; Dufva et al. 2011; Richards & Rodgers 2014). The prestige attached to writing skills is demonstrated in the manner in which written materials and assignments tend to dominate teaching and learning more as the language learners advance (Harjanne & Tella 2011). The written language bias is not just typical of the pedagogical practices maintained by teachers but also directs the expectations of the language learners in terms of what a regular language class should be like (Skinnari 2012). As a consequence, particular determination from the teacher is called for in order to avoid excessive reliance on written materials.

The aforementioned reliance on written materials can be defined as a practical tendency that is counter-productive vis-à-vis the needs of learners. The tendency is particularly harmful when one is learning a language of a distinctive prosodic nature or where communicative skills are taught with limited resources. The *Toisto* method is designed to provide a solution to this kind of challenge. *Toisto* was developed to facilitate elementary L2 learning in the context of the refugee crisis confronting Europe and the EU between 2015 and 2016. In 2015, over 1,255,600 refugees arrived in EU countries to seek asylum, mainly fleeing the war in Syria, Iraq and

Afghanistan; 32,150 sought asylum in Finland, where the number of asylum seekers was 822% more than in 2014 (Eurostat 2016). The majority were accommodated in immigration detention centres where the resources reserved for language education were either extremely limited or non-existent. The aim of *Toisto* was to provide open access (Toisto 2015–18) to simple pedagogical tools and materials designed for volunteers working at the detention centres so that they could teach practical, directly relevant elementary language skills based on speech, listening and interaction. The development of the method was informed simultaneously by two perspectives:

i. *Pedagogical*: How to provide language teaching that makes maximally efficient use of limited resources and is maximally relevant for the language learners?
ii. *Practical*: What kind of integral combination of method and materials would be most efficiently distributed among volunteers with no pedagogical training?

These perspectives were considered vis-à-vis the constant uncertainty and unpredictable changes that asylum seekers in Finland and other parts of Europe experience in their daily lives. The result was a method that relies on small-group sessions of similar structure, including scripts and printable materials, and which can be taught/attended in whatever order. Accordingly, the method would be non-cumulative (in the basic form of the method none of the sessions require previous learning) and non-hierarchical (there is no course structure with general, controlled learning aims), so that language learners can attend a session whenever it is convenient for them. At the same time, *Toisto* would not only be an instrument for teaching but also for organising teaching: complete scripts and printable materials would make it possible to arrange a session wherever volunteers and language learners could meet.

For an individual *Toisto* session, this means that categorically no explicit teaching of grammar (e.g. compositional rules or morphological paradigms) is involved. In positive terms, the teacher's verbal input consists almost entirely of the same lexical and phrasal expressions that the participants are supposed to learn. Accordingly, the activities in each session consist of listening, repeating and applying words and phrases that the volunteers model (rather than instruct) in conjunction with the use of visual aids and mime. The vocabulary and phrases are limited to one theme per session, based on what is considered directly relevant for the learners'

daily lives (for details, see the *Toisto* handbook by Huilla & Lankinen 2018.)

Selecting the content for *Toisto* sessions is the result of team-work: the ideas have been collected from asylum seekers themselves, workers in detention centres, volunteers, Finnish language teachers, and students. The *Toisto* team has maintained the idea of daily schemata and everyday vocabulary that is needed for survival in Finland. Most themes are ostensibly similar to conventional textbooks, such as buying food, asking for directions, and introducing oneself, but there are also sessions whose cultural complexity only came to light via authentic contact with learners and voluntary workers: the absence of tobacco shops made a session on buying cigarettes necessary, the cultural concept of a free library was unfamiliar to newcomers (prompting the inclusion of two library sessions), and there is also a session orientating learners to a shopping mall, to mention some of the results on which interaction with the target group is based. At the same time, the variety of syntactic structures for each session is kept to a minimum. The typical structural inventory of a *Toisto* session consists of a question and a response, with the latter varying from one occurrence to another by changing a lexical element while the syntactic structure remains the same. Different patterns of repetition and mini-dialogues (question/answer pairs) are performed by the small group so that each participant has approximately the same number of opportunities to speak and interact.

In the absence of overt instruction (meta-language) and a cumulative, hierarchical course structure, it is self-evident that the learning aims are, in a sense, implicit and undefined for the individual learner. The very sufficiency of such a modelling-based approach suggests, however, that adult language learners are on average quick to infer implied practices and learning objectives. Indeed, different learner-oriented methodologies have proved their efficacy for language-learning (Larsen-Freeman & Anderson 2011; Richards & Rodgers 2014). One of the guiding assumptions of the *Toisto* method is that, in a relatively restricted setting with repetitive activities, it is both feasible and rewarding to emphasise the initiative of the student in elementary language learning as well. In particular, it is beneficial to promote naturally occurring, namely implicit, analogy-based learning by providing an unusually rich concentration of a certain structure type, while focusing on speech at the same time. As will be seen in the following sub-section, the practical elements of *Toisto* aim to minimise the social hierarchy of the small group setting, which is also supported by the

avoidance of overt instruction. At the same time, the method provides a comforting and organised context for practising a language domain which is typically considered most threatening to one's social status, that is, the production of speech in a foreign language.

The purpose of each session is to provide learners with productive clause types and vocabulary that can be combined with ease to cope in typical everyday situations. Learners engage in as much repetition as possible, so that they have a firm, first-person motor and perceptual grasp of how to produce an utterance, but also how to vary the utterance by lexical means. Consequently, when confronted with a real-life communicative need, the learner may produce expressions that are not only understandable but also syntactically and prosodically well formed.

3.2 What is a *Toisto* session like?

There are a total of 32 ready-made *Toisto* sessions available on the *Toisto* webpage, 18 of which are basic sessions with no requirements for pre-existing skills (Toisto 2015–18). The remaining 14 sessions exhibit minimal progression and therefore require the participants to have participated in some basic sessions. A *Toisto* session lasts about 45–60 minutes and is carried out by two volunteers[2] with a group of approximately 10 language learners. The group sits in a circle formation, with the leading volunteer (L) sitting among the group and another volunteer, the so-called speaking dictionary (SD), standing. Each session consists of simple oral drills on vocabulary and phrases. Drills are carried out by the group members in turn; during a round, each learner produces a word or utterance based on a prompt given by the teacher or the previous speaker. Repetition at the group level is used as often as possible.

L's task is to model and illustrate vocabulary and to run the session by initiating rounds of drills. Vocabulary and phrases are illustrated by repetition in conjunction with gestures and visual aids. L chooses a picture, says the corresponding word, and gestures to the group (flexing both arms in an inviting manner) that they should repeat. A drill is then initiated whereby L turns to the person next to him/her and exemplifies the task in question. This could be, for instance, a memory game entailing selecting a picture card and producing the correct word. After exemplifying the task, L

[2] Each session, however, can be adjusted so that it can be carried out by a single volunteer.

gestures to the first learner that he/she should pass the turn to the next person in the circle. SD moves around the circle so that he/she is standing diagonally behind the speaker who has the turn. SD does not interfere with the progress of the round; should a learner have difficulty with a particular expression, he/she can give SD a sign (a tap on SD's extended hand) to model the expression.

The materials for each session, including a model video, manuscript/instruction sheet, printable visual materials and a vocabulary sheet can be obtained from the *Toisto* webpage. The manuscript consists of a chronological description of the session as well as lists of expressions (types) and materials used in the session. The structure of a *Toisto* session is simple and consistent from one session to another, so that a volunteer can facilitate a session based on the materials alone.

A typical session is structured as follows:

1. Greeting and introduction
2. Objectives
3. Modelling vocabulary
4. Modelling the 'speaking dictionary'
5. Modelling a dialogue or a vocabulary drill
6. Exercise round
7. Variation
8. Variation II
9. Ending: vocabulary sheets handed to the participants, thank-yous & goodbyes.

Sequences 1–5 and 9 are included in each session. The number of different exercises in steps 6–8 may vary from one session to another, and some variations may be added or omitted based on the situation or the group's needs.

Let us take a closer look at one example session, *012 Minun käsi on kipeä*, 'My arm/hand is sore'. In the session, L models the vocabulary by indicating parts of the body and repeating them with the group. After modelling the vocabulary, L and SD model how to get help from the SD. L selects a picture card showing a part of the body and says the word. L tries to do the same with another picture, but fails, simultaneously expressing confusion with facial expressions and gestures. SD reacts to L's difficulty, moves towards her, and extends her hand to L. L then touches SD's hand and SD says the correct word.

Modelling SD in session 012 is directly followed a vocabulary drill. L selects yet another picture card and says the word. After this, she gives one picture card to each learner, who say their words accordingly. Each learner

says the word to the group as a whole, with the turn-taking facilitated by L's attention (gaze and bodily orientation) and SD's change of position.

Before going on to practise the dialogue, L and SD model one more word: the adjective *kipeä* 'sore', which, as a predicative in a copula sentence, is a common way to express pain in Finnish. L shows and touches a part of her arm/hand, moans and gestures as if in intense pain. L then says the word *kipeä* while simultaneously holding a card with the word on it, and SD gestures to the group to repeat. After this, L and SD model the dialogue and get the group to practise the phrases needed for it. SD selects a card from the deck, and shows it to the group, while L holds a card or item that represents a doctor (e.g. a stethoscope). L asks SD *mikä hätänä* 'what's wrong' and SD replies by touching her hand and saying *minun käsi on kipeä* 'my hand is sore'. Gestures are made for the group to repeat both the question and the answer, after which the dialogue can be repeated for different parts of the body: each student is given a picture card after which L asks each one of them individually *mikä hätänä* 'what's wrong'.

After a few repetitions of questions and answers, the learners are given new picture cards. Once again, L asks a learner *mikä hätänä* 'what's wrong', but now each question/answer pair gets repeated by the learner with her partner. L gives the stethoscope card to the learner she has just had the discussion with and the *kipeä* card to the learner's partner. L asks the learner with the *kipeä* card the same *mikä hätänä* question, and after receiving the answer gestures that the pair should repeat the dialogue independently. After a successful attempt (SD has moved next to the pair to assist if needed), L gets the group to repeat the answer to the question. Then the turn is passed. The first learner who has the role of the doctor gives the stethoscope card to her partner, who then turns to present the question to the learner next to her.

Multiple rounds of the dialogue ensue, after which the exercise can easily be varied, for instance by giving each student two picture cards. In another variation, L introduces the word *lapsi* 'child' with the aid of another picture card. Then the group conducts the original dialogue exercise with the phrase *minun lapsi on kipeä* 'my child is ill' and different variations.

The overall structure of the *Toisto* session illustrated above is readily generalisable to basic and non-basic sessions alike. Most importantly, the consistent structure makes *Toisto* sessions and their speech-based approach accessible and allows learners to pick up the pragmatic frame quickly, which in turn allows for concentration on the detection and use of the key

expressions. Inasmuch as the development of *Toisto* has succeeded in meeting it aims, the existing sessions should constitute a flexible and comprehensive inventory, wherein the choice can be made with minimal preparation and according to learners' current needs and interests.

4 Constructional scope of *Toisto*

In the previous sections, we have established the conceptual basis of the *Toisto* method and described the structure of a *Toisto* session. The next question is what and how participants are learning when they take part in sessions. In this section, we outline the scope of syntactic features exemplified in *Toisto* sessions and discuss the advantages of *Toisto* as a complementary pedagogical tool for language teaching.

Each *Toisto* session is designed to provide participants with skills that allow them to have a mini-dialogue (typically an adjacency pair consisting of a question and an answer). This aspect is directly motivated by the criterion that a *Toisto* session should be instantly relevant for actual interactional settings that the participants encounter outside the classroom. Hence, the existing *Toisto* sessions focus on common interactional topics.

Below are the various constructions that are found in *Toisto* sessions, grouped into different Tables (1–4) according to their gross syntactic features. In each Table, the constructions are then categorised according to their primary semantic function. The manner of exposition is chosen to underline the functional range of each construction. In addition, the Tables are divided into two columns, which include the (possible) interrogative forms on the left and declarative forms (the latter usually in indicative) on the right. For simplicity, the latter are denoted by the term "construction". It should be noted that the interrogative on the left column may not always represent the construction it is meant to elicit. Frequency and information about the specific sessions in which each construction is featured have been omitted: typically, a specific construction features prominently in one session and is possibly re-applied in another 1-level session.

Table 1 consists of various copular constructions included in *Toisto* sessions. These constructions illustrate the neat semantic variation between constructions that hardly differ at the structural level.

Table 1: Copular constructions

Interrogative	Construction
a. Identificational	
Kuka sinä ole-t? who you be-2SG 'Who are you?'	minä ole-n [NAME] I be-1SG [name] 'I am […].'
Kuka hän on? who (s)he be.3SG 'Who is (s)he?'	hän on [NAME] PN3SG be.3SG [name] '(s)he is […]'
mikä numero on [COLOUR] [TOBACCO BRAND] *Mikä numero on punainen mallu?* what number be.3SG red mallu 'What number is the red Marlboro?'	se on [NUMERAL] *Se on kolkytkaks.* it be.3SG thirty-two 'It is thirty-two.'
b. Specificational	
Kuka hän on? who (s)he be.3SG 'Who is (s)he?'	hän on minun [RELATIVE] *Hän on minu-n äiti.* (s)he be.3SG I-GEN mother 'She is my mother.'
Mi-tä tuo on? what-PRT that be.3SG 'What is that?'	se on [FOODSTUFF+PRT] *Se on kala-a.* it be.3SG fish-PRT 'It is fish.'

c. Predicational						
On-ko	*kaikki*	*ok?*	*On.*	|	*Ei*	*ole.*
be.3SG-Q	everything	ok	be3SG	|	NEG.3SG	be.CNG
'Is everything alright?'			'Yes.'	|	'No.'	
Mi-ltä	*sinu-sta*	*tuntu-u?*	minä	olen	[ADJECTIVE]	
what-ABL	PN2SG-ELA	feel-3SG	*Minä*	*ole-n*	*vihainen.*	
'How do you feel?'			I	be-1SG	angry	
			'I am angry.'			
			minun	[PART OF THE BODY]	on	kipeä
			Minu-n	*käsi*	*on*	*kipeä.*
			I-GEN	hand	be.3SG	sore
			'My hand is sore.'			
oletko	[ADJECTIVE]		*Ole-n.*	|	*En*	*ole.*
Ole-t-ko	*vihainen?*		be-1SG	|	NEG.1SG	be.CNG
be-2SG-Q	angry		'I am.'	|	'I am not.'	
'Are you angry?'						
d. Other						
Paljon-ko	*kello*	*on?*	kello on	[NUMERAL]		
much-Q	clock	be.3SG	*Kello on*	*viisi.*		
'What time is it?'			clock be.3SG	five		
			'It is five o'clock.'			

Syntactically, most of the copular constructions included here exhibit the same subject-verb-predicative structure. At the same time, the meanings of complete constructions vary subtly yet notably along with those of the subjects and predicates. We distinguish between three different semantic functions – identificational, specificational and predicational, following Higgins' (1979) taxonomy. The differences between these functions are hardly explicable by native speakers; yet it seems inevitable that they are part of the use of the copular constructions, for example in denoting the difference between identification and attribution: 'I am Maria' and 'I am happy' cannot be conflated unless the predicative phrases of these clauses are not properly grasped. The same argument is applicable to the existential clauses and other adverbial-initial clauses listed in Table 2.

Table 2: Adverbial-initial clauses

Interrogative	Construction
a. Existential	
mitä [ROOM+INE] on *Mi-tä olohuonee-ssa on?* what-PRT living.room-INE be.3SG 'What is in the living room?'	[ROOM+INE] on [FURNITURE] *Olohuonee-ssa on sohva.* living.room-INE be-3SG sofa 'There is a sofa in the living room.'
b. Meteorological	
Millainen sää on? what.kind.of weather be.3SG What is the weather like?	[WEEKDAY+ESS] [METEOROLOGICALVERB] *Maanantai-na sata-a ve-ttä.* Monday-ESS rain-3SG water-PRT 'It's going to rain on Monday.' [SEASON+ADE] [METEOROLOGICAL VERB] *Kesä-llä paista-a aurinko.* summer-ADE shine-3SG sun 'The sun shines in the summer.'
c. Habitive	
	minulla on [ILLNESS] *Minu-lla on yskä.* I-ADE be.3SG cough 'I have a cough.' *Minu-lla on ystävä.* I-ADE be.3SG friend 'I have the friend.'
onko ystävällä [ADJECTIVE] [GARMENT] *On-ko ystävä-llä sininen paita?* be.3SG-Q friend-ADE blue shirt 'Does your friend have a blue shirt?'	ystävä-llä on [ADJECTIVE] [GARMENT] *Ystävä-llä on keltainen lippis.* friend-ADE be.3SG yellow cap 'My friend has a yellow cap.'
kenellä on [ARTEFACT] *Kene-llä on puhelin?* who-ADE be.3SG phone 'Who has a phone?'	minulla on [ADJECTIVE] [ARTEFACT] *Minu-lla on hyvä puhelin.* I-ADE be.3SG good phone 'I have a good phone.'
d. Adverb-initial passive constructions	
mitä [ROOM+INE] tehdään *Mi-tä keittiö-ssä tehdä-än?* what-PRT kitchen-INE do-PASS 'What do you do in the kitchen?	ROOM+INE] [VERB+PASS] *Keittiö-ssä laite-taan ruoka-a.* kitchen-INE make-PASS food-PRT 'You make food in the kitchen.'

The existential, passive, meteorological and habitive constructions listed here exhibit more structural variation than the copular constructions in Table 1. Yet they all share the feature of a clause-initial adverbial phrase that includes one of the Finnish non-directional locatives. The functions of these adverbials are spatial, temporal and habitive, respectively. As such, the most concrete uses of basic locatives are illustrated.

Table 3 illustrates the locative constructions included in the *Toisto* sessions.

Table 3: Locative constructions

Interrogative	**Construction**
a. Locative	
Mis-sä *sinä* *ole-t?* where-INE you be-2SG 'Where are you?'	minä olen [PLACE+INE/ADE] *Minä* *ole-n* *tori-lla.* I be-1SG market-ADE 'I am at the market.'
missä [SUPERMARKET SECTION/ SHOP] on *Mis-sä* *pullonpalautus* *on?* where-INE bottle.return be.3SG 'Where is the reverse vending machine?'	se on [SECTION+PRT/GEN] [POSTP] *Se* *on* *maito-hylly-n* *taka-na.* it be.3SG milk-shelf-GEN behind-ESS 'It is behind the milk shelf.' se on [ORDINAL+INE] [FLOOR+INE] *Se* *on* *toise-ssa* *kerrokse-ssa.* it be.3SG second-INE floor-INE 'It is on the second floor.'
b. Dynamic locative	
menee-kö tämä bussi [PLACENAME +ALL/ILL] *Menee-kö* *tämä* *bussi* *Tamperee-lle?* go.3SG-Q this bus Tampere-ALL 'Does this bus go to Tampere?'	tämä bussi menee [PLACENAME +ALL/ILL] *Tämä* *bussi* *mene-e* *Oulu-un.* this bus go-3SG Oulu-ILL 'This bus goes to Oulu.'
Mi-llä *sinä* *mene-t?* what-ADE you go-2SG 'How are you going to get there?'	minä menen [VEHICLE+ADE] *Minä* *mene-n* *bussi-lla.* I go-1SG bus-ADE 'I'm going by bus.'

Mi-hin	*sinä*	*mene-t?*	minä	menen	[PLACE+ALL/ILL]	
what-ILL	you	go-2SG	*Minä*	*mene-n*	*kauppa-an.*	
'Where are you going?'			I	go-1SG	store-ILL	
			'I am going to the store.'			
			minä	menen	[PLACE+ALL/ILL]	[VEHICLE+ADE]
			Minä	*mene-n*	*kauppa-an*	*bussi-lla.*
			I	go-1SG	store-ILL	bus-ADE
			'I go to the store by bus.'			

(Imperative)

Tule	*tänne!*	|	*Mene*	*tuonne!*	Joo	minä	tule-n.	|	Joo	minä	mene-n
come.IMP	here.LAT		go.IMP	there.LAT	yeah	I	come-1SG		yeah	I	go-1SG
'Come here!'			'Go there!'		'Yeah I'm coming.'				'Yeah I'm going.'		
Käänny	*vasemma-lle!*	|	*Käänny*	*oikea-lle!*							
turn.IMP	left-ALL		turn. IMP	right-ALL							
'Turn left!'			'Turn right!'								

The locative constructions have been divided into sub-groups relative to their stativity (*olla* 'to be') and dynamicity (*mennä* 'to go', *tulla* 'to come', *kääntyä* 'to turn'). In addition, the typical locative imperatives have been listed as a separate group. With regard to the constructions discussed above, the locative constructions here have two important additional elements: the locative use of *olla* 'be' is introduced, and directional illative ('into') and allative ('onto') are presented in conjunction with locations and travel. In addition, the adessive case is used in an instrumental meaning with different vehicles.

Despite the obvious internal variation, the constructions in Tables 1–3 constitute formally (and in the case of locative constructions also thematically) cohesive wholes. It can be argued that the constructions are in many cases related closely enough that they serve to specify and ground each other. For instance, habitive uses of the adessive in the cases of *ystävä-llä on keltainen lippis* 'the friend has a yellow cap' and *minu-lla on flunssa* 'I have the flu' are quite likely to yield association (and build on similar association found in many languages) between concrete habitive meaning (possession) and being ill. Cognitive aspects aside, this association, in turn, may support grasping and acquiring novel uses of habitive constructions.

The existing *Toisto* sessions, however, include a significant number of constructions with only distant or abstract commonalities. It is worth noting that only four examples of clear cases of simple transitive clauses are found. These are listed in Table 4, along with some other two-argument constructions and idiomatic phrases. The constructions based on transitive verbs are listed first: (a) *puhua* 'to speak', (b) *saada* 'to have' (in the meaning of 'to receive'), (c) *syödä* 'to eat' and (d) *haluta* 'to want'. The fourth row includes the verb *pitää* 'to like', which has an infinitival argument: *minä tykkään tanssi-a* 'I like to dance'. Some Finnish verbs (including *haluta*) can have both nominal and infinitival arguments, but this type of variation is not demonstrated in the *Toisto* sessions. The second to last row includes the construction based on the verb *maksaa* 'to cost', which has a numeric phrase as its second argument. Finally, the last category in the Table involves distinct constructions that are either only weakly productive or lack some characteristics of a clause (e.g. a finite verb).

Table 4: Other constructions

Interrogative	**Construction**
a. To speak	
Mi-tä *sinä* *puhu-t?* what-PRT you speak-2SG 'What language do you speak?'	minä puhun [LANGUAGE+PRT] *Minä* *puhu-n* *suome-a.* I speak-1SG Finnish-PRT 'I speak Finnish.'
b. Can I have / to eat	
saanko [NUM] [FOOD+PRT/GEN] *Saanko* *kaksi* *leipä-ä?* get-Q two loaves-PRT 'Can I have two loaves?'	minä [EAT/DRINK] [NUM] [FOOD+PRT/GEN] *Minä syö-n* *yhde-n* *omena-n.* I eat-1SG one-GEN apple-GEN 'I eat one apple.'
c. To want	
Mi-tä *sinä* *halua-t?* what-PRT you want-2SG 'What do you want?'	minä haluan [FOODSTUFF+PRT] *Minä* *halua-n* *pitsa-a.* I want-1SG pizza-PRT 'I want some pizza.'
d. To like	
tykkäätkö sinä [VERB+INF] *Tykkää-t-kö* *sinä* *tanssi-a?* like-2SG-Q you dance-INF 'Do you like to dance?'	minä tykkään [VERB+INF] *Minä* *tykkää-n* *tanssi-a.* I like-1SG dance-INF 'I like to dance.' minä en tykkää [INFINITIVE] *Minä* *en* *tykkää* *tanssi-a.* I NEG like.CNG dance-INF 'I don't like to dance.'

e. To cost

mitä	[GARMENT]	maksaa	se	maksaa	[NUM]	euroa
Mi-tä	*huppari*	*maksa-a?*	*Se*	*maksa-a*	*kymmenen*	*euro-a.*
what-PRT	hoodie	cost-1SG	it	cost-3SG	ten	euro-PRT

'What does the hoodie cost?' 'It costs ten euros.'

f. Idiomatic

Mitä kuuluu? 'How is it going?'

Ihan hyvää. | *Ei niin hyvää* | *Huonoa.*
'Quite alright.' | 'Not so good.'| 'Bad.'

ottaisin	[NUM]	[FOODSTUFF+PRT]
Otta-isi-n	*kaksi*	*leipä-ä.*
take-COND-1SG	two	loaves-PRT

'I'd take two loaves.'

Seuraava asiakas. | Yks punainen Mallu.
'Next customer.' | 'One red Marlboro.'

yksi	lippu	[PLACENAME+ILL/ALL],	kiitos
Yksi	*lippu*	*Tamperee-lle,*	*kiitos.*
one	ticket	Tampere-ALL	please

'One ticket to Tampere, please.'

yksi	[PLACENAME+GEN]	lippu,	kiitos
Yksi	*Tamperee-n*	*lippu,*	*kiitos.*
one	Tampere-GEN	ticket,	please

'One ticket to Tampere, please.'

The constructions listed here nonetheless exemplify frequent Finnish transitive verbs in some of their typical uses and introduce the main object types: genitive (*syön omena-n* 'I eat [one] apple') and partitive (*haluan pitsa-a* 'I want [some] pizza'), with their respective total and partial meanings. In addition, the constructions involve a considerable amount of repetitive practice in terms of elaboration of these object types. For instance, session 1.10b, which presents the construction *haluta* 'to want', includes both a vocabulary drill with nominative food terms, followed by systematic formation and repetition of partitive objects derived from the same terms. The object types are thus represented as direct corollaries of certain construal types, rather than formal properties of the vocabulary. Finally, the majority of so-called idiomatic constructions also require lexical and grammatical elaboration from the speaker: for instance, the combination of numerals and partitive complements and directional complements for *lippu* (here: 'public transport ticket').

To sum up, the constructions included in *Toisto* sessions and listed above cover a substantial number of Finnish syntactic clause types, while restricting the variation for each construction to a few examples. For the majority of constructions and sessions, the elaboration is systematically restricted to a particular argument and its possible modifier (e.g. an adjective) and the selection is limited to a particular set of options. Grammatically, the elaboration can only involve one combination of a lexical entry and a grammatical marker, the latter of which is introduced as an integral part of the construction. In addition to orality and repetition, this restricted type of elaboration-cum-selection is a recurrent and typical feature of the *Toisto* method.

5 Discussion

The sections above have outlined the theoretical and practical motivations that have informed the development of *Toisto*, as well as the chief characteristics of the method. *Toisto* stands in the tradition of various methods that underline orality, communication and the learner's active participation in L2 learning: the direct method, communicative teaching, a suggestopedic orientation, and authenticity. From a grammatical perspective, the method derives from a usage-based, constructionist view of linguistic learning and aims to utilise the same learning mechanisms that are at play in L1 acquisition. In practice, this means avoiding the explication of linguistic generalisations. In positive terms, generalisations become the responsibility of the L2 learners, yet they are facilitated with a generous amount of repetition. We argue that the method is indeed in line with the theoretical notion of language and language acquisition that it derives from. In addition, there is initial anecdotal evidence of the efficacy of *Toisto* as a primary means of teaching elementary communicative skills to language learners. It thus seems that the implicit approach to teaching grammar does work to an extent: L2 learners are able to acquire productive grammatical constructions simultaneously with vocabulary that is used to elaborate these constructions (see Huilla & Lankinen 2018).

In §4, we have detailed the constructional scope of *Toisto* sessions; what we have not yet addressed is the form of learning these constructions promote. By and large, a *Toisto session* embodies a minimalist construction-based practice in that fully elaborated constructions are used with only one or two varying lexemes in a particular elaboration site. In many cases, the elaboration with a particular word involves integration

with a grammatical marker. A simple example is provided by the construction where a nominative noun phrase serves as a plea: *lippu* [PLACE NAME + ALL/ILL] = *lippu Tamperee-lle* 'one ticket to Tampere'. At the bare minimum, the repetition of such a construction with constantly varying elaborations (place names) will entrench the overall bi-partite structure of constants (*lippu*, allative or illative marker) and variable (place name) as a sufficient communicative act in a particular context. As the place names involved in the exercise are learned first in the nominative, the directional locative added is likely to be associated with it being a DESTINATION. Far from being exhaustive in terms of the meanings of these locatives, this property is entrenched both as a part of the semantic potential of the case as well as the conventional meaning of this particular construction type. Consequently, the language learner will complete the session equipped with the ability to construct novel destinations simply by finding new place names to elaborate the construction with. Obviously, this translates into the ability to learn grammar as meaningful units, in keeping with the basic tenet of Cognitive Grammar (see e.g. Langacker 2008: 18–26) and other usage-based theories.

We thus argue that *Toisto* does promote the learning of grammar implicitly due to the combination of salient everyday contexts and restricted elaborative effort, whereby language learners are instructed by means of modelling. As we have stated, the implicit learning of grammar is not regarded as an aim per se, but it is seen as a necessary first step for learning Finnish, and a learner-centred solution for the initial phases of learning. Metaphorically speaking, *Toisto* means providing food before eating utensils: a hungry person would prefer to receive the food first, and consider the utensils and etiquette later.

The idea of progressing from use to analysis is not new in Finnish as a second language teaching (see Lauranto 1997), but obviously it needs rediscovering. Although the teaching of Finnish has a relatively long tradition of functional materials and methods (see §1), it still seems that teaching oral skills and relying on speech as the primary means of training lack cultural grounding. Närvänen's study (2017) cites *Toisto* volunteers who report the Finnish-only principle as being difficult to carry out. This is striking as the implementation of the principle with the help of the Speaking Dictionary is instructed with numerous examples thanks to the *Toisto* materials. Moreover, recent classroom studies indicate that L2 teaching is still very much oriented towards written materials and skills (e.g. Harjanne & Tella 2011).

At the same time, the global increase in work-related immigration and recurrent refugee crises have already resulted in changes to the way in which integration and education for immigrants are organised. One tangible change in the Finnish context is the shift of focus in language teaching from academic interests to facilitation of everyday encounters and interaction between newcomers and natives. In addition to the quickly expanded grass-roots activities to help refugees, the official documentation (e.g. CEFR 2001) and national curricula (e.g. *National core curriculum for integration training for adult migrants 2012*) also explicitly emphasise the communicative facet in language education and skills. In Finland, the national language test for immigrants applying for citizenship (the *YKI* test) places significant emphasis on spoken skills and functional writing (Tarnanen & Mäntylä 2006). Although these institutional changes have not yet been directly translated into pedagogical practice, they nonetheless signal an attitudinal change vis-à-vis language teaching.

Against the backdrop of these global challenges and institutional changes, it seems even more urgent to recognise the significant points of convergence between usage-based, cognitive and construction-linguistic theories of language and socio-constructivist theories of learning. Communication and active participation in intersubjective settings constitute the basic mode of learning, and this holds true for language learning as well. In addition, the communicative approach to language teaching is motivated by behavioural evidence on the non-modularity of language, language learning and linguistic subdomains. Spoken communication even seems to promote writing fluency, whereas conversation demonstrably develops L2 learners' grasp of linguistic structures (see §2.2). For a teacher of newcomers, the ability to teach spoken language through oral methodology remains the key.

Abbreviations

ADE	Adessive
CNG	Connegative
ELA	Elative
ESS	Essive
ILL	Illative
INE	Inessive
LAT	Lative
PRT	Partitive

References

Aalto, Eija. 1998. Sanoista tekoihin sanaston opetuksessa [From words to deeds in vocabulary teaching]. In Rekola, Nina & Korpela, Helena (eds.), *Toisella kielellä – näkökulmia lasten ja nuorten suomi toisena kielenä -opetukseen* [Perspectives on Finnish as a second language teaching of children and adolescents], 47–53. Helsinki: Opetushallitus.

Aalto, Eija & Mustonen, Sanna & Tukia, Kaisa. 2009. Funktionaalisuus toisen kielen opetuksen lähtökohtana [Functionalism as the basis for teaching a second language]. *Virittäjä* 113. 402–423.

Achard, Michel. 2008. Teaching construal: Cognitive pedagogical grammar. In Robinson, Peter & Ellis, Nick C. (eds.), *Handbook of cognitive linguistics and second language acquisition*, 432–455. New York: Routledge.

Alisaari, Jenni. 2016. *Songs and poems in the second language classroom: The hidden potential of singing for developing writing fluency*. Turku: University of Turku. (Doctoral dissertation.)

Astington, Janet W. 2006. The developmental interdependence of theory of mind and language. In Enfield, Nicholas J. & Levinson, Stephen C. (eds.), *The Roots of Human Sociality: Culture, Cognition, and Human Interaction*, 179–206. London: Berg Press.

Barlow, Michael & Kemmer, Suzanne 2000. *Usage based models of language*. Chicago: University of Chicago Press.

Biber, Douglas. 2006. *University language: A corpus-based study of spoken and written registers*. Philadelphia, PA: John Benjamins.

Bybee, Joan. 1985. *Morphology: A study of the relation between meaning and form.* Amsterdam: John Benjamins.

—— 2006. From usage to grammar: The mind's response to repetition. *Language* 82. 711–733.

—— 2008. Usage-based grammar and second language acquisition. In Robinson, Peter & Ellis, Nick C. (eds.), *Handbook of cognitive linguistics and second language acquisition*, 216–236. New York: Routledge.

CEFR 2001 = Common European framework of reference for languages: Learning, teaching, assessment. Council of Europe. Cambridge: Cambridge University Press.

De Bruin, Leon & De Haan, Sanneke. 2012. Enactivism & Social cognition: In search of the whole story. *Journal of Cognitive Semiotics* IV (1). 225–250.

Dufva, Hannele & Suni, Minna & Aro, Mari & Salo, Olli-Pekka. 2011. Languages as objects of learning: Language learning as a case of multilingualism. *Apples*: *Journal of Applied Language Studies* 5(1). 109–124.

Dunn, William E. & Lantolf, James P. 1998. Vygotsky's zone of proximal development and Krashen's i+1: Incommensurable constructs, incommensurable theories. *Language Learning* 48(3). 411–442.

Ellis, Nick C. 1996. Sequencing in SLA: Phonological memory, chunking, and points of order. *Studies in Second Language Acquisition* 18. 91–126.

—— 2008. Usage-based and form-focused language acquisition: The associative learning of constructions, learned attention, and the limited L2 endstate. In Robinson, Peter & Ellis, Nick C. (eds.), *Handbook of cognitive linguistics and second language acquisition*, 372–405. New York: Routledge.

—— 2012. Formulaic language and second language acquisition: Zipf and the phrasal teddy bear. *Annual Review of Applied Linguistics* 32. 17–44.

Ellis, Nick C. & Robinson, Peter. 2008. An introduction to cognitive linguistics, second language acquisition, and language instruction. In Robinson, Peter & Ellis, Nick C. (eds.), *Handbook of cognitive linguistics and second language acquisition*, 3–24. New York: Routledge.

Ellis, Rod. 2009. Implicit and explicit learning, knowledge and instruction. Ellis, Rod & Loewen, Shawn & Elder, Catherine & Erlam, Rosemary & Philp, Jenefer & Reinders, Hayo (eds.), *Implicit and explicit knowledge in second language learning, testing and teaching*, 3–25. Bristol: Multilingual Matters.

Eurostat 2016. Eurostat News release 44/2016. (http://ec.europa.eu/eurostat/documents/2995521/7203832/3-04032016-AP-EN.pdf/790eba01-381c-4163-bcd2-a54959b99ed6) (Accessed 2018-06-29.)

Firth, Alan & Wagner, Johannes. 1997. On discourse, communication and (some) fundamental concepts in SLA research. *The Modern Language Journal* 81 (3). 285–300.

Gallagher, Shaun & Hutto, Daniel. 2008. Understanding others through primary interaction. In Zlatev, Jordan & Racine, Timothy P. & Sinha, Chris & Itkonen, Esa (eds.), *The Shared Mind. Perspectives on intersubjectivity*, 17–38. Philadelphia: John Benjamins Publishing Company.

Gilmore, Alex. 2011. "I prefer not text": Developing Japanese learners' communicative competence with authentic materials. *Language Learning* 61(3). 786–819.

Goldberg, Adele & Casenhiser, Devin. 2008. Construction learning and second language acquisition. In Robinson, Peter & Ellis, Nick C. (eds.), *Handbook of cognitive linguistics and second language acquisition*, 197–215. New York: Routledge.

Halliday, M. A. K. 1978. *Language as social semiotic: The social interpretation of language and meaning*. London: Edward Arnold.

Hämäläinen, Eila. 1988. *Aletaan! Suomen kielen oppikirja vasta-alkajille*. [Let's start! Textbook of Finnish for beginners]. Helsinki: Helsingin yliopiston suomen kielen laitos.

Harjanne, Pirjo. 2006. *"Mut ei tää oo hei midsommarista!" – ruotsin kielen viestinnällinen suullinen harjoittelu yhteistoiminnallisten skeema- ja elaborointitehtävien avulla* [Communicative oral practice in Swedish through collaborative schema-based and elaboration tasks]. (Soveltavan kasvatustieteen laitos: Tutkimuksia 273). Helsinki: University of Helsinki. (Doctoral dissertation.)

Harjanne, Pirjo & Tella, Seppo. 2011. Kieliluokkien todellisuus kieltenopettajan näkökulmasta: KIELO-hankkeen alustavia tutkimustuloksia [The reality of language classes from a language teacher's viewpoint: Initial results of the KIELO project]. In Tainio, Liisa & Juuti, Kalle & Kallioniemi, Arto & Seitamaa-Hakkarainen, Pirita & Uitto, Anna (eds.), *Näkökulmia tutkimusperustaiseen*

opetukseen [Perspectives on research-based teaching], 97–113. Helsinki: Suomen ainedidaktinen tutkimusseura.

Higgins, Roger Francis. 1979. *The Pseudo-cleft Construction in English*. New York: Garland.

Huilla, Saara & Lankinen, Ninni (toim.). 2018. *Toisto-kielioppaan käsikirja* [Toisto language guide handbook]. Helsinki: Teachers without borders network, Finn Church Aid.

Hulstijn, Jan. 2002. Toward a unified account of the representation, processing and acquisition of second language knowledge. *Second Language Research* 18. 193–223.

Kauppinen, Anneli. 1998. *Puhekuviot, tilanteen ja rakenteen liitto: Tutkimus kielen omaksumisesta ja suomen konditionaalista* [Figures of talk: A coalition of situatedness and structure. Research on language acquisition and on the Finnish conditional mode]. Helsinki: Suomalaisen Kirjallisuuden Seura. (Doctoral dissertation.)

Kela, Maria. 2010. Autenttisesta dialogista ammatillisen kielenopetuksen materiaaliksi [From authentic dialogue into professional language teaching material]. In Garant, Mikel & Kinnunen, Mirja (eds.), *Professional communication, education and culture* (AFinLA yearbook 68), 29–45. Jyväskylä: AFinLA.

Kela, Maria & Korpela, Eveliina & Lehtinen, Päivi. 2010. *Sairaan hyvää suomea. Terveysalan suomea maahanmuuttajille* [Healthcare Finnish for immigrant doctors and nurses]. Helsinki: Edita.

Koivisto, Helinä. 1990. *Suomi-tytön kieli. Suggestopedinen alkeiskurssi 1 & 2* [Suggestopedic basic course in Finnish] (Language Centre Materials No. 75). Jyväskylä: University of Jyväskylä, Centre for Language Studies.

Kormos, Judit. 2006. *Speech production and second language acquisition*. New York: Routledge.

Krashen, Stephen. 1981. Bilingual education and second language acquisition theory. In *Schooling and language minority students: a theoretical framework*, 63–91. Los Angeles: California State University.

—— 1982. *Principles and practice in second language acquisition*. Oxford: Pergamon.

Krashen, Stephen & Scarcella, Robin. 1978. On routines and patterns in language acquisition and performance. *Language Learning* 28(2). 283–300.

Krashen, Stephen & Terrell, Tracy. 1983. *The natural approach: Language acquisition in the classroom*. San Francisco: The Alemany Press.

Kristiansen, Irene. 1998. *Tehokkaita oppimisstrategioita. Esimerkkinä kielet*. [Effective learning strategies. Examples from language learning.] Helsinki: WSOY.

Langacker, Ronald. 1987. *Foundations of cognitive grammar, vol. 1: Theoretical prerequisites*. Stanford, CA: Stanford University Press.

—— 2000. A dynamic usage-based model. In Barlow, Michael & Kemmer, Suzanne (eds.), *Usage based models of language*, 1–63. Chicago: University of Chicago Press.

—— 2008. Cognitive grammar as a basis for language instruction. In Robinson, Peter & Ellis, Nick C. (eds.), *Handbook of cognitive linguistics and second language acquisition*, 66–88. New York: Routledge.

Lantolf, James P. 1996. SLA theory building: Letting all the flowers bloom! Review article. *Language Learning* 46 (4). 713–749.

Larsen-Freeman, Diane & Anderson, Marti. 2011. *Techniques and principles in language teaching*. 3rd ed. Oxford: Oxford University Press.

Lauranto, Yrjö. 1995a. Normi, rekisteri ja S2-opetus [Norm, register and Finnish as a second language teaching]. *Virittäjä* 99. 261–263.

—— 1995b. *Elämän suolaa. Suomen kielen alkeita* 1 & 2 [Finnish basics 1 & 2] (Language Centre Materials No. 112). Jyväskylä: University of Jyväskylä, Centre for Applied Language Studies.

—— 1996. *Elämän suolaa. Suomen kielen alkeita. Opettajan opas* [Finnish basics. Teacher's guide] (Language Centre Materials No. 132). Jyväskylä: University of Jyväskylä, Centre for Applied Language Studies.

—— 1997. Ensi askeleita paikallissijojen käyttöön: Espanjankielisten suomenoppijoiden sisä- ja ulkopaikallissijat konseptuaalisen semantiikan näkökulmasta. [First steps in using local cases: Spanish-speaking learners of Finnish as users of inner and outer local cases, from the viewpoint of conceptual semantics] (Kakkoskieli 2.) Helsinki: University of Helsinki, Department of Finnish language studies.

Lauranto, Yrjö & Parviainen, & Rainò, Päivi. 1993. Morfologiaa vai fraaseja vai molempia? Onko vain yksi tapa opettaa suomea? [Morphology, phrases, or both? Is there only one way of teaching Finnish?] *Kieliposti* 4. 38–40.

Lave, Jean & Wenger, Etienne. 1991. *Situated Learning. Legitimate peripheral participation.* Cambridge: University of Cambridge Press.

Lieven, Elena & Tomasello, Michael. 2008. Children's first language acquisition from a usage-based perspective. In Robinson, Peter & Ellis, Nick C. (eds.), *Handbook of cognitive linguistics and second language acquisition*, 168–196. New York: Routledge.

Lieven, Elena & Behrens, Heike & Speares, Jennifer & Tomasello, Michael. 2003. Early syntactic creativity: A usage based approach. *Journal of Child Language*, 30. 333–370.

Linell, Per. 1982. *The written language bias in linguistics*. Department of Communication Studies. Linköping: University of Linköping.

Liukkonen, Henna & Kunnari, Sari. 2012. Äänteiyn kehittyneisyys 8 kuukauden iässä ja sen yhteys varhaisen tuottavan sanaston kokoon. [The development of vocalisation at the age of eight months and its connection to the size of the early productive vocabulary] *Puhe ja kieli* 32(1). 3–15.

Luukka, Minna-Riitta & Pöyhönen, Sari & Huhta, Ari & Taalas, Peppi & Tarnanen, Mirja & Keränen, Anna. 2008. *Maailma muuttuu – mitä tekee koulu? Äidinkielen ja vieraiden kielten tekstikäytänteet koulussa ja vapaa-ajalla.* [The world is changing – what is school doing about it? The use of native and foreign language texts at school and during free time] Jyväskylän yliopisto: Soveltavan kielentutkimuksen keskus.

MacWhinney, Brian. 1974. *How Hungarian children learn to speak.* Berkeley: University of California. (Doctoral dissertation.)

Meltzoff, Andrew N. & Moore, M. Keith. 1977. Imitation of Facial and Manual Gestures by Human Neonates. *Science, New Series* 198. 75–78.

—— 1994. Imitation, Memory, and the Representation of Persons. *Infant Behavior and Development* 17. 83–99.

—— 1997. Explaining Facial Imitation: A Theoretical Model. *Early Development and Parenting* 6. 179–192.

Myles, Florence & Cordier, Caroline. 2017. Formulaic sequence (FS) cannot be an umbrella term in SLA. Focusing on Psycholinguistic FSs and Their Identification. *Studies in Second Language Acquisition* 39. 3–28.

Möttönen, Tapani. 2016. *Construal in expression: An intersubjective approach to Cognitive grammar*. University of Helsinki: Department of Finnish, Finno-Ugrian and Scandinavian Studies. (Doctoral dissertation.)

National core curriculum for integration training for adult migrants. 2012. Helsinki: Finnish National Agency for Education.

Nuutinen, Olli. 1977. *Suomea suomeksi* 1–2 [Finnish in Finnish]. Helsinki: Suomalaisen Kirjallisuuden Seura.

Närvänen, Noora. 2017. *Toiston kautta kuvista muotteihin: Toisto-metodin ja sen käyttäjien kokemusten analyysia.* [From figures to formulas through repetition: Analysis of the Toisto method and its users' experiences.] Helsinki: University of Helsinki. (Master's thesis.)

Pawley, Andrew & Syder, Frances Hodgetts. 1983. Two puzzles for linguistic theory: Nativelike selection and nativelike fluency. In Richards Jack C. & Schmidt, Richard W. (eds.), *Language and communication*, 191–226. New York: Longman.

Piirainen-Marsh, A. 1994. Kielenoppijan puhe tutkimuksen kohteena [Investigating language-learner speech]. In Laurinen, Leena & Luukka, Minna-Riitta (eds.), *Puhekulttuurit ja kielten oppiminen* [Speech cultures and language learning] (AFinLA yearbook 52), 211–236. Jyväskylä: AFinLA.

Pitkänen-Huhta, Anne. 2003. *Texts and Interaction. Literacy practices in the EFL classroom*. Jyväskylä: University of Jyväskylä. (Doctoral dissertation.)

Richards, Jack C. & Rodgers, Theodore S. 2014. *Approaches and methods in language teaching.* 3rd ed. Cambridge: Cambridge University Press.

Ruohotie-Lyhty, Maria. 2011. Constructing practical knowledge of teaching: eleven newly qualified language teachers' discursive agency. *Language Learning Journal* 39(3). 365–379.

Säljö, R. 2000. *Lärande i praktiken: Ett sociokulturellt perspektiv*. [Learning in practice: A sociocultural perspective.] Stockholm: Prisma.

Schmitt, Norbert & Carter, Ronald. 2004. Formulaic sequences in action. An introduction. In Schmitt, Norbert (ed.) *Formulaic Sequences. Acquisition, processing and use*, 1–22. Amsterdam: John Benjamins.

Schot-Saikku, Päivi. 1993. Kieliopin esittelyn malleista [About grammar modelling]. In Kalliokoski, Jyrki & Siitonen, Kirsti (eds.) *Suomeksi maailmalla. Kirjoituksia Suomen kielen ja kulttuurin opettamisesta* [In Finnish around the world. Writings on teaching Finnish language and culture], 99–111. Helsinki: Castrenianumin toimitteita 44. Suomalais-Ugrilainen Seura et al.

Siitonen, Kirsti. 1990. *Auringonvalo: Elämää suomalaisessa kylässä* [Sunlight: Life in a Finnish village] (Language Centre Materials No. 79). Jyväskylä: University of Jyväskylä, Centre for Applied Language Studies.

Skinnari, Kristiina. 2012. *"Tässä ryhmässä olen aika hyvä". Ekologinen näkökulma kielenoppijaidentiteetteihin peruskoulun viidennen ja kuudennen luokan englannin opetuksessa* ["I'm quite good in this group". An ecological view to fifth and sixth graders' language learner identities in elementary school English language learning]. Jyväskylä: University of Jyväskylä. (Doctoral dissertation.)

Spoelman, Marianne. 2013. *Prior linguistic knowledge matters. The use of the partitive case in Finnish learner language*. Oulu: University of Oulu. (Doctoral dissertation.)

Stern, Daniel N. 1971. A microanalysis of mother–infant interaction. *Journal of American Academy of Child Psychiatry* 19. 501–517.

—— 1977. *The first relationship*. Cambridge, MA: Harvard University Press.

—— 1985. *The interpersonal world of the infant: A view from psychoanalysis and developmental psychology*. New York: Basic Books.

Swain, Merrill & Lapkin, Sharon. 1995. Problems in output and the cognitive processes they generate: A step towards second language learning. *Applied Linguistics* 16. 371–391.

Tanner, Johanna. 2012. *Rakenne, tilanne ja kohteliaisuus: Pyynnöt S2-oppikirjoissa ja autenttisissa keskusteluissa*. [Linguistic structures, situation and politeness: Requests in Finnish as a second language textbooks and in authentic service encounters.] Helsinki: University of Helsinki. (Doctoral dissertation.)

Tarnanen, Mirja & Mäntylä, Katja. 2006. Toisen ja vieraan kielen oppijat yleisissä kielitutkinnoissa. [Second and foreign language learners in National Language Certificate tests.] In Pietilä, Päivi & Lintunen, Pekka & Järvinen, Heini-Marja (eds.), *Language Learners of Today* (AFinLA yearbook 64), 105–123. Jyväskylä: AFinLA.

Toisto. 2015–18. *Suomen kieli sanoo tervetuloa: Menetelmäsivusto vapaaehtoistyötä tekeville kielioppaille* [The Finnish language says welcome: Methodology pages for voluntary language guides]. (http://suomenkielisanootervetuloa.fi) (Accessed 2018-06-29.)

Tomasello, Michael. 2003. *Constructing a language*. Cambridge, MA: Harvard University Press.

Trevarthen, Colwyn. 1979. Communication and cooperation in early infancy. A description of early intersubjectivity. In Bullowa, M. (ed.), *Before Speech: The Beginning of Human Communication*, 99–136. London: Cambridge University Press.

—— 1980. The foundations of intersubjectivity. In Olson, David R. (ed.) *The Social Foundations of Language and Thought. Essays in Honor of Jerome S. Bruner*.216–242. New York: Norton.

Trevarthen, Colwyn & Aitken, Kenneth J. 2001. Infant intersubjectivity: Research, theory, and clinical applications. *Journal of Child Psychology and Psychiatry* 42 (1). 3–48.

Tukia, Kaisa & Aalto, Eija & Taalas, Peppi & Mustonen, Sanna. 2007. *Suomi 2. Minä ja arki. Opettajan opas* [Finnish 2. Daily life and me. Teacher's guide]. Helsinki: Otava.

Tukia, Kaisa & Mustonen, Sanna & Aalto, Eija & Taalas, Peppi. 2008. *Suomi 2. Minä ja media. Opettajan opas* [Finnish 2. The media and me. Teacher's guide]. Helsinki: Otava.

—— 2009. *Suomi 2. Minä ja yhteiskunta. Opettajan opas* [Finnish 2. Society and me. Teacher's guide]. Helsinki: Otava.

van Lier, Leo. 1994. Language awareness, contingency, and interaction. In Hulstijn, Jan H. & Schmidt, Richard (eds.), *Consciousness in second language learning*. *AILA Review* 11. 69–82.

Verspoor, Marjolijn & Nguyen, Hong Thi Phuong. 2015. A dynamic usage-based approach to second language teaching. In Cadierno, Teresa & Eskildsen, Søren Wind (eds.), *Usage-based perspectives on second language learning*, 305–352. Berlin: DeGruyter.

Wong, Jean. 2002: "Applying" conversation analysis in applied linguistics. Evaluating dialogue in English as a second language textbooks. *IRAL* 40. 37–60.

Wong Fillmore, Lily. 1979. Individual differences in second language acquisition. In Fillmore, Charles & Kempler, Caniel & Wang, William S. Y. (eds.), *Individual differences in language ability and language behavior*, 203–228. New York: Academic Press.

Wood, David. 2015. *Fundamentals of formulaic language: An introduction*. London: Bloomsbury.

YKI. *National Certificate of Language Proficiency*. (https://www.oph.fi/english/services/yki) (Accessed 2018-06-29.)

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Relative clauses in spatial and narrative contexts in Estonian, Finnish, and Russian

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Abstract

In this article, the similarities and differences in the usage of relative clauses in Estonian, Finnish, and Russian in the overall framework of referential devices are studied. The data come from two experimental settings: "Houses" and "Narratives". In "Houses", the participants' task was to describe and compare previously defined houses to the experimenter while looking out of a window. In "Narratives", a picture-sequence-based narrative elicitation method was used to collect short and coherent spoken narratives. Collected data were coded for referential devices, including bare NPs, demonstratives, personal pronouns, zero reference, and relative clauses. In "Houses", the Russian data had the largest amount of relative clauses and the smallest amount of demonstrative pronouns; Finnish had the smallest number of relative clauses and the largest number of demonstratives. In the Estonian data, the frequencies of

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demonstratives and relative clauses were between those of Russian and Finnish. In "Narratives", the frequency of relative clauses was approximately the same in Estonian, Finnish, and Russian. This suggests that these three languages differ in the usage of relative clauses only in a spatial context.

Keywords: relative clause, demonstratives, reference, intercultural pragmatics

1 Introduction

One of the main questions about interaction is: how do people achieve mutual understanding of what they are speaking about? For example, why do people use a particular referential device in a particular context? This study is attempting to answer this question by using spoken data from two quasi-experimental contexts – one spatial and one narrative – and comparing three languages spoken in the same geographical area – Estonian, Finnish, and Russian. In this article, we are concentrating on relative clauses (RelCl, 1). The corresponding English construction is NP + RelCl, e.g., *a house which has a red roof; the boy who has long hair*. Other referential devices used in these contexts (demonstrative pronouns and adverbs, third person pronouns and lexical NPs) are discussed in Reile et al. (in press) and Hint et al. (in preparation).

(1)	(*see*/*too*)	*maja,*	*milles*	*me*	*oleme*
	(*tämä*/*se*/*tuo*)	*talo,*	*jossa*	*me*	*olemme*
	(*tot*)	*dom,*	*v kotorom*	*my*	*nahodimsja*
	(the/this/that)	'house	in which	we	are'

Reference, one of the basic interactional phenomena, means creating connection between a linguistic expression and a referent. Reference can be conveyed by various referential devices, starting with lexical NPs for new referents and ending with pronouns or zero-reference for highly accessible referents (Gundel et al. 1993; 2010; Ariel 2001). Reference is successful when all interlocutors are able to identify the referent, which means that they have a mutually shared representation of the same entity. This does not necessarily mean that the representations are exactly the same for all interlocutors, but they have to be treated as the same for purposes of the ongoing interaction. This also shows that referents are dynamic and discursive by essence (Kibrik 2011).

Referential devices are usually divided into two groups: lexical or full and minimal or reduced, (Laury 2005; Kibrik 2011: 37). In addition, there

is a group of more complex referring devices: noun phrases, which are modified by another clause. Relative clauses, the main topic of this article, can be attached to both full NPs and (usually demonstrative) pronouns or adverbs.[1]

Typologically, there are different kinds of relative clauses in the world's languages (Velupillai 2012: 323−331). The syntactic relative clause construction we are studying here, however, is rather similar in the three languages in our study. Nevertheless, this similarity of the grammatical construction does not mean that the usage of relative clauses has to be similar in these three languages. Instead, the situation can be different in that the referential practices (Hanks 1990) of languages may be quite diverse, depending on the overall system of referential devices and/or on different ways of "thinking for speaking" (Slobin 1996).

Relative clauses are traditionally divided into two groups: (i) restrictive or identifying relative clauses, and (ii) non-restrictive or descriptive relative clauses. A restrictive relative clause picks out the referent from the potential set of referents and is, therefore, important for identification of the referent. Non-restrictive relative clauses provide some new information about the referent, which is already identified (for discourse functions of non-restrictive relative clauses, see Loock 2007; Visapää 2012). It has also been said that the distinction between the two types may be irrelevant and difficult to make (e.g. Comrie 1989; Lindström 2004; Visapää 2012). However, we can accept the view that relative clauses can be used for different purposes including the identification of the referent of the head NP and describing or adding new information about an already identifiable referent. Moreover, sometimes these two functions are not separable and are both present. It has also been shown from interactional data that both types of relative clauses – restrictive or identifying and non-restrictive or descriptive – are present in everyday conversations. That is, speakers can accomplish referential repairs by relative clauses in reaction to the display of identification trouble, or they can use relative clauses to add predications about a given referent after the recipient has displayed recognition of that referent (Stoenica & Pekarek Dohler 2015).

Some studies have stated differences between discourse types regarding the usage of relative clauses. For Finnish, it has been said that the

[1] We leave open the question of whether a relative clause can or cannot be attached to a zero form or whether it is better to speak about free or bare relative clauses in the case when they do not have any head NPs.

general frequency of relative clauses is about 10% of all clauses, which shows that they are rather frequent, but not equally for all discourse types (Visapää 2012). For example, Finnish movie-reviews have about two times more relative clauses than blogs (Visapää 2012: 540). In addition, differences also occur in the types of relative clauses, as Finnish speakers tend to use restrictive relative clauses in personal ads and non-restrictive relative clauses in film reviews (Visapää 2012: 541). The use of relative clauses in Estonian is less studied, but for everyday conversations, it is found that restrictive relative clauses are somewhat more frequent than non-restrictive clauses (63% and 37% respectively, Lindström 2004: 422). However, the data used in this article are different from previously studied discourse types and cannot be compared one-to-one with these studies.

In this article, we study the similarities and differences in the usage of relative clauses in Estonian, Finnish, and Russian in the overall framework of referential devices.[2] We suggest that languages show different usage patterns for relative clauses, which are a comparatively complex, long, and "heavy" construction. In particular, we show that if a language uses demonstratives more frequently, the need for relative clauses is smaller. This is because the speaker is able to identify the referent using only demonstratives and does not need other referential means. Thus, differences in referential practices of a language (for example, everyday habitual ways of referring, or preferences for using one referential device over another) seem to have an impact on the use of relative clauses.

2 Relative clauses and demonstrative pronouns in Estonian, Finnish, and Russian

Estonian and Finnish are both Finnic languages and belong to the Uralic language family. Although they are closely related, Estonian and Finnish have remarkable differences in grammar and lexicon, the most important of which in the context of this study is the different amount and usage of demonstrative pronouns and adverbs. Russian is a Slavic language belonging to the Indo-European language family and as such, is different to Estonian and Finnish. However, due to extensive language contacts over a

[2] A more detailed study of other referential devices, especially demonstratives and personal pronouns, using the same data, can be found in Reile et al. (*in press*) and Hint et al. (*in preparation*). The Estonian and Russian data from the spatial experiment are also used in the BA Thesis of Tereza Špongolts (2017), who also helped carry out the Russian experiments.

long period of time, Estonian, Finnish, and Russian have many typological similarities and have been described as Circum-Baltic languages (e.g. Dahl & Koptevskaja-Tamm 2001).

In the following sections, we will give an overview of relative clauses in Estonian, Finnish, and Russian. In addition, the system of demonstratives and third person pronouns of the three languages will be introduced as, on one hand, demonstratives are an important part of the relative construction, and, on the other, they are frequent referential units and thus important for the overall picture of referential devices. In the overview, we concentrate on the standard varieties of these languages. However, for Finnish, in which colloquial usage of pronouns in the spoken language differs greatly from Standard Finnish, we try to specify some colloquial features, as well.

2.1 Relative clauses

Estonian, Finnish, and Russian share a rather similar construction for a prototypical relative clause. The relative clause can modify either a lexical NP which may occur with a determiner (usually a demonstrative) (2a), or a bare demonstrative pronoun (2b). The relative clause itself begins with a relative pronoun (relativizer). A relative clause is usually positioned after the head NP, but can also be used before the head. This construction has been listed as a feature of Standard Average European (Haspelmath 2001).

(2) Typical relative constructions in Estonian, Finnish, and Russian

a.	(Dem)	NP	RelPron	
Estonian	(*see*/*too*)	*maja*,	*millel*	*on kõrge katus*
Finnish	(*se*/*tämä*/*tuo*)	*talo*,	*jossa*/*missä*	*on korkea katto*
Russian	(*tot*)	*dom*,	*u kotorogo*	*vysokaja krysha*
	'that/the	house	which	has a high roof'

b.	Dem	RelPron	
Estonian	*see/too*,	*millel*	*on kõrge katus*
Finnish	*se/tämä/tuo*,	*jossa*	*on korkea katto*
Russian	*etot/tot*	*u kotorogo*	*vysokaja krysha*
	'this/that (one)	which	has a high roof'

In Estonian, the most common relative pronouns are *kes* 'who, which' for animate referents, *mis* 'what, which' for inanimate referents, and *kus* 'where' for spatial referents (for a more detailed description, see Erelt

2017: 738−739). In (Standard) Finnish, the most common relative pronouns are *joka* 'which' for all types of referents and *mikä* 'what, which' for certain abstract referents (for a more detailed description of choice between possible relative pronouns see Hakulinen et al. 2004: 722−724). For spatial referents, *jossa* 'in which' and *missä* 'where' are usually interchangeable in Finnish (Maamies 2011). In Russian, the most common relative pronoun is *kotoryi* 'which', which can occur in different grammatical genders depending on the gender of the head noun (Timberlake 2004: 209, for a more detailed approach, see Sheljakin 2002: 303−304; Timberlake 2004: 208−212). In all three languages, relative pronouns can be used in different case forms and with different pre- or postpositions according to the syntactic function of the relative pronoun in the relative clause.

2.2 Demonstratives and personal pronouns

In the three languages, the systems of demonstrative and personal pronouns are rather different. Estonian has two demonstratives: *see* 'this' refers to a proximal referent or is used distance-neutrally, *too* 'that' refers to a remote referent. Both can be used anaphorically but *too* 'that' is rather rare. Due to the rare use of *too* 'that', Estonian can be seen as an "almost one-demonstrative" language (Pajusalu 2009; Reile 2015, 2016).

Finnish has three demonstrative stems and many variants of demonstrative pronouns and adverbs. In short, we can say that the demonstrative pronoun *tämä* 'this' refers to the speaker's sphere and is used for new referents, *tuo* 'that' places the referent outside both the speaker's and the addressee's spheres; and *se* 'that, it' refers spatially to the addressee's sphere or anaphorically to highly activated referents (Laury 1997; Seppänen 1998; Etelämäki 2009; Priiki 2017). In spatial contexts (such as in the case of visible referents), Finnish demonstratives may be described as having the "traditional" proximal/distal distinction: *tämä* is proximal, *tuo* is distal, and *se* hearer-proximal (for this approach, see Larjavaara 1990).

Russian has also two demonstratives: *eto* 'this' refers to proximal, *to* 'that' to remote referents (Sheljakin 2002: 118; Timberlake 2004: 233). If a referent is a specific object or person, *eto* 'this' can be used only for identification and not for anaphoric reference (Shmelev 1996: 179). However, unlike in Finnish and Estonian, there are syntactic restrictions for using demonstratives in Russian. For example, relevant to our study, a head noun that is modified by a relative clause can typically have only *to* 'that'

as a determiner, at least in a narrative context (Sheljakin 2002: 303; Timberlake 2004: 237–238), while in Estonian and Finnish all demonstratives are appropriate (see Examples 2a and 2b).

In addition to demonstrative pronouns, all three languages have demonstrative adverbs (for example, Estonian *siin* 'here', Finnish *täällä* 'here', and Russian *tut* 'here'), the usage of which is even more determined by the spatial properties of the referents than the usage of demonstrative pronouns (Reile et al. *in press*).

Regarding their referential properties, the third person pronouns in the three languages also show important differences. The Estonian *tema*/*ta* refers mostly to an animate referent, but sometimes to an activated inanimate referent, as well. The Finnish *hän* refers typically to a person and belongs mostly to Standard Finnish (in colloquial speech, demonstratives, especially *se*, are much more common when referring to a person)[3]. The Russian personal pronoun *on*/*ona*/*ono* does not have any animacy restrictions and can refer to any kind of referent. The simplified overview of the Estonian, Finnish and Russian demonstratives and third person pronouns is given in Table 1.

Table 1: Demonstrative and third person pronouns in Estonian, (Standard) Finnish, and Russian according to their most prototypical (spatial) usages

	Demonstrative pronoun			**Demonstrative adverb**			**Personal pronoun**	
	prox-imal	distal	hearer-prox-imal	prox-imal	distal	hearer-prox-imal	person	other than person
Estonian	*see*	*too*	–	*siia, siin, siit*	*sinna, seal, sealt*	–	*tema, ta*	(*ta*)
Finnish	*tämä tää*	*tuo toi*[4]	*se*	*tänne, täällä, täältä,* etc.	*tuonne, tuolla, tuolta,* etc.	*sinne, siellä, sieltä,*	*hän*	–
Russian	*eto, etot, eta*	*to, tot, ta*	–	*sjuda, tut, zdes', otsjuda*	*tuda, tam, ottuda*	–	*on, ono, ona*	

[3] The Finnish third person pronoun *hän* is also used logophorically in both Standard and Colloquial Finnish (see, for example, Priiki 2017).

[4] *Tää* and *toi* were the most frequent colloquial variants of demonstratives *tämä* and *tuo* in the data.

3 Data

Our data come from two experimental settings, which we call "Houses" and "Narratives". The motive for experimental data collection lies in the need to obtain a well-structured dataset that is applicable for comparing referential practices in different languages, since the context, referents, and the purpose of linguistic units remain similar throughout the dataset (see also Hint et al. 2017). As referential practices depend greatly on the context, we decided to take two very different experimental settings. "Houses" represents language use in a spatial context with large referents (as opposed to the so-called table-top setting, which is somewhat more studied, see, for example Meira & Terrill 2005). "Narratives" represents reference to persons and inanimate objects in a discursive context, which means that referents are not physically present and are usually referred to anaphorically. According to the activity the subjects are performing, the settings could also be called descriptive or narrative.[5] Similar narratives have been an important method for studying referential devices since the Pear Stories (Chafe 1980, for Finnish Pear Stories, see Kalliokoski 1991), and have not lost their relevance in present-day linguistics (see, for example, Koster et al. 2011). Both experiments are, of course, just one possible setting for spatial reference and telling stories, and further research is needed to determine regularities in referential practices for other contexts.

In "Houses", the participants were given a task to describe and compare previously defined houses that they saw from a window to the experimenter. The experiment had two parts. First, the participants were to describe and compare the houses that they saw while looking out of a window (two possible referents: House 1 and House 2). Second, they were to describe and compare the house that they were in with the two houses that they described previously (three possible referents: House 1, House 2, House 3). This experimental setting enabled us to manipulate (i) distance – House 1 was nearer than House 2 – and (ii) change in deictic field – three referents instead of two referents.

The procedure of the experiment was as follows. The participants were informed that the experiment has two parts. They were then given written instructions (Appendix A) to describe and compare the pre-defined houses. When the first part of the experiment was completed, the

[5] We thank an anonymous reviewer for drawing our attention to this point.

participants were asked to turn the page of the instruction sheet and read through the second part of the instructions. A more detailed description of this experiment can be found in Reile et al. (*in press*).

The data were collected in Tartu, Estonia in the same place, and all the experimental trials were recorded with a video-camera. In total, 86 adults volunteered for participation in this experiment. There were 27 females and 6 males in the Estonian group (mean age 30), 18 females and 10 males in the Finnish group (mean age 51), and 22 females and 3 males in the Russian group (mean age 22). The material consists of 3 hours 58 minutes of Estonian, 2 hours 29 minutes of Finnish, and 2 hours 26 minutes of Russian video recordings. The length of one session was approximately 5 minutes.

Collected data were transcribed and manually coded for different referential devices that were used while referring to the houses. These referential devices included bare NPs (BareNP); demonstrative pronouns (in pronominal and adnominal use; DemPron); demonstrative adverbs (DemAdv), personal pronouns (PersPron); zero reference (Zero); and combinations between NPs, demonstrative pronouns, and demonstrative adverbs. As the participants were holding the instruction sheet in their hands and were standing with their backs or sides towards the camera, gestures and eye-gazes were not available for coding.

In the second setting, "Narratives", we used a picture-sequence-based narrative elicitation method to collect short and coherent spoken narratives. During the experiment, each participant was shown three different picture books one by one (Appendix B) and was asked to tell a short story based on the book after having gone through all the pictures in this book. Each book contained six pictures, one picture per page. The structure of the internal events was similar in each book. We were interested in which referential devices the speakers used for referring to the two same-gender main characters and to the three sequence-specific inanimate referents. We audio-recorded each participant individually in a quiet room. The test sessions mostly took 10–15 minutes. A more detailed description of this experiment can be found in Hint et al. (2017) and Hint et al. (*in preparation*).

Altogether, 60 adults volunteered for participation in this experiment. That is, 20 native speakers of all three languages were included in our study. There were 13 females and 7 males in the Estonian group (mean age 32), 13 females and 7 males in the Finnish group (mean age 46), and 18 females and 2 males in the Russian group (mean age 40).

All audio-recorded narratives were transcribed and coded for several variables by native speakers. We had to exclude 1 Estonian narrative, 6 Finnish narratives, and 3 Russian narratives due to the failure of completing the task. Consequently, our final analysis is based on 59 Estonian, 54 Finnish, and 57 Russian narratives. In the coding process, only referential units referring to the two boys and three sequence-specific inanimate referents for every story were taken into account.

Table 2 gives a summary of the coded data used in the final analysis.

Table 2: Participants and material of the two experiments ("Houses" and "Narratives")

		Participants	Referential units
Estonian	Houses	33 (27 female)	1647
	Narratives	20 (13 female)	1304
Finnish	Houses	28 (18 female)	1340
	Narratives	20 (13 female)	1460
Russian	Houses	25 (22 female)	1089
	Narratives	20 (18 female)	1171

4 Results

In the following subsections, we will analyze the usage of relative clauses as referring expressions in the two experimental settings. The first subsection focuses on "Houses"; the data from "Narratives" are discussed in the second subsection.

4.1 "Houses"

The overall amount of relative clauses (RelCl) that modify NPs referring to the houses is rather different in the "Houses" data in Estonian, Finnish, and Russian. There were 91 occurrences (5% of all referential units) of relative clauses in the Estonian data, only 26 (2%) in the Finnish data, and 150 (14%) in the Russian data. First, we compare referential relative clauses with other referential devices in the "Houses" experiment and then explain the usage contexts and functions of relative clauses in our data.

The overall frequency of different referring expressions in the data obtained from "Houses" is presented in Table 3. In the column titled "total", the whole number of all different referential units is presented, that is, the sum of occurrences of (i) bare demonstratives, (ii) NPs with a demonstrative determiner, (iii) bare NPs, and (iv) personal or zero pronouns. As only the first three are modified by a relative clause in our

data, the last column shows how many NPs (excluding personal pronouns) are modified by a relative clause. Note that in the table, relative clauses are not considered as independent referring expressions, since they are used as modifiers in the data.

Table 3: The overall frequencies of different referring expressions in "Houses"

		Estonian	**Finnish**	**Russian**
BareDem		405 (25%)	764 (57%)	197 (18%)
DemNP		466 (28%)	403 (30%)	147 (14%)
BareNP		556 (34%)	149 (11%)	392 (36%)
PersPron or Zero		220 (13%)	24 (2%)	353 (32%)
Expressions referring to the houses (total)		1647 (100%)	1340 (100%)	1089 (100%)
Relative clauses (RelCl)	Overall amount[6]	91 (1678) 5.4%	26 (1340) 1.9%	150 (1094) 13.7%
	BareDem, DemNP and BareNP with RelCl	6 %	2 %	20 %

$\chi^2 = 990.13$, $df = 6$, *Cramér's V* = 0.35,· $p < 0.001$

Table 3 reveals important differences in the spatial referring practice across speakers of Estonian, Finnish, and Russian. Finnish speakers very often used bare demonstratives (57% of all referring expressions). For Russian speakers, bare demonstratives were one of the least used devices (18%). Estonian speakers are in between Finnish and Russian speakers with respect to the usage frequency of bare demonstratives, but their percentage is closer to Russian than to Finnish. Finnish and Estonian speakers used NPs with a demonstrative determiner with approximately the same frequency (30% and 28%), and this is the only percentage in which the two languages look the same in our data. Russian speakers used demonstrative determiners considerably less often (14%). Personal pronouns and zeroes are the most frequent referential units of Russian speakers (32%), while Finnish speakers used them (that is, zeroes) only in 2% of referential acts.[7] This means that Finnish referential practice is (at least in this context) very much biased towards demonstratives, and Russian referential practice is biased towards personal pronouns and zeroes. The prevalence of

[6] There were ambiguous pronouns in Estonian (in the plural it is impossible to say whether *neid*, for example, is a demonstrative or third person pronoun) and some instances of bare relative clauses (that is, relative clauses without a head NP) in Russian, the overall amount of referential units is not exactly the same as the sum shown under "Total".

[7] Finnish personal pronoun *hän* can only be used for animate referents. This is why *hän* did not occur in the data from "Houses".

demonstratives in Finnish is partly caused by the usage of *se* as an anaphoric pronoun. However, other demonstratives are also very frequent (in Finnish). Estonian is "in between" for all types of referential units.[8]

There were 150 occurrences of relative clauses in the Russian data, which means that almost 14% of all referential expressions were modified by a relative clause. Taking into account that personal pronouns and zeroes were not modified by a relative clause, we can say that in the Russian data, the percentage of the relative clauses modifying the expressions that can be modified by a relative clause is 20%. In the Finnish data, there were only 26 relative clauses (1.9% of all referential expressions and 2% of modifiable referential expressions) and in the Estonian data 91 relative clauses (5.4% of all referential expressions and 6% of modifiable referential expressions). Estonian is "in between" Finnish and Russian again (see Table 3).

For all three languages, relative clauses were mostly used for identification of the house the person was talking about. Within the group of identifying (restrictive) relative clauses, the most frequent characteristic was the location of the house in relation to other spatial objects or the speaker (3 a-e).

(3) a. Estonian

aga	*seevastu*	***see***	***teine***	***maja***	***mis***	***seal***
but	on.the.contrary	this	second	house	REL	there

raekoja	***platsi-s***	***seisa-b***	*selle-s*	*ühtlase-s*
town.hall.GEN	square-INE	stand-3SG	this-INE	homogeneous-INE

maja-de	*ansambli-s*
house-PL.GEN	block-INE

'but on the contrary **this other house, which is standing there on Town Hall Square** in this block of houses'

[8] For a more detailed discussion on these results, see Reile et al. (*in press*).

b. Estonian

et	*ee*	***see***	*on*	*nüüd*	*vähe*	*roosaka-m*
that	PRTCL	this	be.3SG	now	little	pink-COMP

ilmselt	***kus***	***me***	***praegu***	***ole-me***,
apparently	where	1PL	now	be-1PL

teise-d	*on*	*rohkem*	*halli-ma-d*
other-PL	be.3PL	more	grey-COMP-PL

'that, uh, **this (house) we're in now**, apparently is a bit more pink, while the others are more grey'

c. Finnish

ja	*sit*	*taas*	***toi***	***mikä***	***on***	***tuola rae***(.)***koja***		***platsi-lla***
and	then	again	that	REL	be.3SG	there	town.hall.GEN	square-ADE

niin. (.)	*se*	*jotenki*	*niinku* (.)	*no*	*se*	*on*	*uude-mpi*
so	this	somehow	like	PRTCL	this	be. 3SG	new- COMP

'and then again **that (house) that's there on Town Hall Square**, somehow it's, well, newer'

d. Finnish

mutta	***tämä***	***talo***	***jossa***	***nyt***	***ole-mme***
but	this	house	REL	now	be-1PL

on	*tosiaan*	*paljon* (.)	*pide-mpi*
be.3SG	indeed	much	long- COMP

'but **this house in which we are now** is indeed much longer'

e. Russian

zdanije	***v***	***kotorom***	***my***	***nahodimsja*** (.)*ono*		*universitetskoje*	*zdanije*
building	in	REL	1PL	be.located	3SG.F	university.ADJ.F	building

'**the building we're in**, it's a university building'

Describing two or three houses at a time, Estonian and Russian speakers sometimes used relative clauses, which identified the house via belonging to the experiment (4).

(4) a. Estonian

kui	***nee-d***	***mõlema-d***	***maja-d,***	***mis***	***ee***	***siin***
than	this-PL	both-PL	house-PL	REL	PRTCL	here

mei-l	***katse-s***	***on***
1PL-ADE	experiment-INE	be-3PL

'than **both of these houses we've got, uh, here in our experiment**'

b. Russian

my	*nahodimsja*	*v*	*ochen'*	*bol'shom*	*zdanii*	*po sravneniju*
1PL	be.located.1PL	in	very	big.LOC	building.LOC	by comparison.DAT

s	***drugimi,***	*s*	*pervym*	*i*	*vtorym,*
with	other.PL.INSTR	with	first.INSTR	and	second.INSTR

kotoryje	***ja***	***opisyva-l***
REL.PL	1SG	describe-PST.M

'we're inside of a really large building compared to the **others**, the first and second ones, **I described**'

There were only a few examples of clearly non-restrictive relative clauses that did not identify the referent but rather provided new information about it. For example, in Estonian (5a), the speaker says that the house (which is already identified as it is the only two-floor house in the experiment) has a red roof and stove heating. The relative pronoun *millel* 'on which' (the first form *milles* 'in which' was not grammatically suitable for the rest of the clause and was self-repaired) is a connector which, from a strictly grammatical point of view, connects the clause *on punane katus* 'has a red roof' to the main NP (*see kahekorruseline maja* 'this two-floor house'), but, from a pragmatic point of view, also connects the next clause *tundub olevat ka ahiküte* 'seems to have stove heating' to the same NP. In 5b, a very similar Finnish example is provided. The main NP is very long in this case *tällänen kaksikerroksinen vanhanaikaisen näköinen talo* 'a kind of two-floor old-looking house', and the relative pronoun *missä* connects it to a relative clause providing a new detail for the description. 5a and 5b resemble each other due to the emergent nature of the clause: the process of thinking is observable in pauses, self-repair, and pause fillers (*siis* 'then' in Estonian and *tota* 'that.PART' in Finnish). The Russian example of a non-restrictive relative clause (5c) does not contain hesitations or pauses, but its function is the same as in 5a and 5b: the relative clause describes the previously identified house.

(5) a. Estonian

see	*kahe-korruse-line*	*maja*	***mille-s***	***siis***	***on***	***mille-l***
this	two-floor-ADJ	house	REL-INE	then	be.3SG	REL-ADE

on	***punane***	***katus*** (.)	*tundu-b*	*ole-va-t*	*ka*	*ahju-küte*
be.3SG	red	roof	seem-3SG	be-PTCP-PART	too	stove-heating

'this two-story house, **which, then, which has a red roof** (.) seems to have central heating'

b. Finnish

ensimmäise-nä	*on*	*tollanen* (.)	*lähempä-nä*
first-ESS	be.3SG	that.kind	closer-ESS

tällänen	*kaks-kerroksi-nen* (.)	*vanhan-aikai-sen*	*näkönen talo*
this.kind	two-floor-ADJ	old-time-ADJ.GEN	looking house

mi-ssä	***on*** (.)	***aika***	***korkee***	***tota*** (.)	***öö*** (.)	***puna-tiili-katto***
REL-INE	be.3SG	rather	high	PRTCL	PRTCL	red-brick-roof

'the first one is a kind of (.) the closer one (is) a kind of two-story old-looking house **that's got a rather high red-brick roof**'

c. Russian

my	*konkretno*	*nahodimsja*	*v*	*zdanii*	***kotoroje***	***gorazdo***
1PL	concretely	be.place.1PL	in	building.LOC	REL.NEUT	much

bol'she	***etih***	***dvuh***	***zdanii***
bigger	this.PL.GEN	two.GEN	building.PL.GEN

'we're inside of the building **that's much bigger than these two buildings**'

Relative clauses in the three languages can modify NPs which have a demonstrative determiner, but also NPs which do not have a determiner (2a). However, the usage frequency of such demonstrative determiners in our data differs between the languages. That is, in Estonian and Finnish, almost all house-referring NPs with a relative clause have a demonstrative determiner. In Russian, this is the case for only 1/3 of relative clauses in the data (Table 4). This can also be seen in examples 3–5 where there are demonstrative determiners in the Estonian and Finnish examples, but not in the Russian ones.

Table 4: Demonstrative determiners in the head NP modified by a relative clause

	Estonian	**Finnish**	**Russian**
Relative clauses (RelCl) in total	90	26	150
Head NPs without a demonstrative (BareNP)	11 (12%)	2 (8%)	103 (69%)
Head NPs with a demonstrative determiner (DetNP)	60 (67%, 59 *see* + 1 *too*)	19 (73%, 4 *tuo* + 15 *tämä*)	27 (18%, 11 *to* + 16 *eto*)
Bare demonstrative (BareDem) as a head of RelCl	19 (21%, *see*)	5 (19%, 3 *tuo* + 2 *tämä*)	20 (13%, 3 *eto* + 17 *to*)

$\chi^2 = 93.218$, $df = 4$, *Cramér's V* = 0.42,· $p < 0.001$

Furthermore, the three languages in our study differ in the variation of relativizers they use in "Houses". In our Estonian data, the most frequent relativizer was *kus* 'where', which was used in 77% of relative clauses. This is a result of the fact that there were many relative clauses that refer to House 3 (*see*) *maja*, *kus me oleme* '(the) house, in which we are' (see example 3b and, for frequencies, Table 5). Locative case forms of *mis* 'what' (*milles*) would be equally grammatical in this context, but just did not appear. Different case forms of the relativizer *mis* 'what' were used only in non-locative cases where *kus* 'where' would be ungrammatical. This means that in Estonian, there is a special relativizer for spatial referents used in locative cases. In the Finnish data, variation appears in all case forms. There were 11 usages of the relativizer *joka* 'which' and 15 of *mikä* 'what' (see examples 3c and 3d). Both were used in different case forms, which means that neither *joka* 'which' nor *mikä* 'what' is specialized for spatial referents. In the Russian data, only the relativizer *kotoryi*/*kotoroje* 'which' was used.

It has been stated for Finnish and Estonian relative clauses in interaction that they usually modify detached (dislocated) NPs[9] (Amon 2015; Laury & Helasvuo 2016). This can be seen in the data from "Houses" as well. For all three languages, the most usual pattern for a relative clause modifying a detached NP starts with a detached NP (in Estonian and Finnish usually a bare demonstrative or a lexical NP with a

[9] We define initial detachment very much like Chafe (1976) defines topic construction. It is a construction in which a referent is first mentioned in a syntactically free NP, and then in one of the following clauses there is a predication about it containing an anaphoric pronoun that refers to the free NP (cf. also Helasvuo 2001: 126). In our data, the predication is typically added after a relative clause.

demonstrative determiner), which is followed by an identifying relative clause. After that, a speaker starts a new sentence with a pronoun or demonstrative adverb. The main difference between the languages in our sample regarding this construction lies in the usage of demonstratives. In particular, Finnish speakers tend to use *tämä* 'this' (6b) or *tuo* 'that' (6c) in the detached NP and *se* 'it' in the main clause. This, once more, stresses the functioning as anaphoric (or, depending on definition, even personal) pronoun of Finnish *se*. Estonian speakers use *see* 'this' in both the detached NP and main clause (6a). Russian speakers use demonstrative *to* 'that' as a determiner (6d) or bare NP (6e) in the detached NP and have personal pronoun in the main clause. Detachments are overwhelmingly left dislocations in the three languages, which means that the detached NP precedes the main clause in which the same referent (one of the houses) is represented by an anaphoric pronoun or adverb.

(6) a. Estonian

siis	***see***	***kus***	***on***	***see***	***draakoni***	***restoran***
then	this	REL.LOC	be.3SG	this	dragon.GEN (name)	restaurant

baar (.)	***see***	*on*	*eraldiseisev*	*üksik*	*siuke*	*hoone* (.)
bar	this	be.3SG	detached	separate	this.kind	building

'(and) then, **this one where this Dragon restaurant and bar is, this** is a detached separate kind of building'

b. Finnish

tä-ssä	***meiä-n***	***rakennukse-s***	***mis***	***me***	***nyt***	***ollaan***
this-INE	1PL-GEN	building-INE	REL.LOC	1PL	now	be-PASS

nii (.)	***se***	*on*	*huomattavasti*	*iso-mpi*	*rakennus*
PRTCL	this	be.3SG	remarkably	big-COMP	building

'**in our building, the one in which we're in right now, well, it**'s a much bigger building'

c. Finnish

tuo	***nurkkatalo.***	***mikä***	***on***	***tuolla***	***au-*** (.)	***raatihuonee-n***
that	corner-house	REL	be.3SG	there	FALSE START	town.hall-GEN

aukio-lla	***nii***	***se***	*on* (.)	*nuor-in*(.)
square-ALL	PRTCL	this	be.3SG	young-SUPER

'**that building on the corner, which is there on Town Hall Square, so, this** is the newest one'

d. Russian

tot	***dom***,	***kotoryi***	***ko***	***mne***	***blizhe***,	***on***
that	house	REL	PREP	1SG.DAT	closer	3SG.M

men'she	*vtorogo*	*doma*(,)
smaller	second.GEN	house.GEN

'**that house that's closer to me**, it's smaller than the second house'

e. Russian

zdanije,	***kotoroje***	***s***	***krasnoi***	***kryshei***,	***ono***	*bolee*	staroje.
building	REL	PREP	red.INSTR	roof.INSTR	3SG.NEUTR	more	old

'**the building that's got the red roof, it's** older'

The use of relative clauses is also sensitive to the number and distance of the competing referents. Our results show that relative clauses are mostly used in our data to refer to House 3, as is presented in Table 5. This tendency is expected as the context with House 3 (Situation 2) involves all three houses and thus the speakers need more referring constructions to identify them. In addition, it is harder to refer unambiguously to a house you are in using other means (for example, using only demonstratives) in all three languages and this is why the relative construction (*house in which we are*) was mentioned already in the instructions for the experiment. However, we can see that in the Finnish data, there are only 13 relative clauses referring to House 3, while in Estonian and Russian there are 64 and 66. This clearly shows that Finnish speakers can manage to refer to House 3 without a relative clause much more frequently than Estonian and Russian speakers, probably due to a strong connection of *tämä* and the speakers sphere and proximity, which in the case of Estonian and Russian proximal demonstratives is weaker. In the Estonian data, most of the relative clauses refer to House 3, while in other languages relative clauses were spread much more equally. In addition, the Estonian data show

preference for the relative clause to refer to House 1 in comparison with House 2, while in Finnish the opposite is the true, and in Russian the preference is equal.

Table 5: Relative clauses in the data according to the house to which they refer

	Estonian	Finnish	Russian	Total
Situation 1 (House 1 and 2)				
H1	8 (67%)	2 (25%)	18 (60%)	28 (56%)
H2	4 (33%)	6 (75%)	12 (40%)	22 (44%)
Total	12 (100%)	8 (100%)	30 (100%)	50 (100%)
$\chi^2 = 3.869$, $df = 2$, · *Cramér's V* = 0.28, $p = 0.145$				
Situation 2 (House 1, 2, and 3)				
H1	8 (10%)	2 (11%)	18 (15%)	56 (26%)
H2	2 (3%)	3 (17%)	24 (20%)	51 (24%)
H3	64 (82%)	13 (72%)	66 (55%)	143 (66%)
H1+2	4 (5%)	–	12(10%)	16 (7%)
Total	78 (100%)	18 (100%)	120 (100%)	216 (100%)
$\chi^2 = 20.032$, $df = 6$, · *Cramér's V* = 0.22, $p = 0.003$				

4.2 "Narratives"

The overall frequency of different referring expressions in the data obtained from "Narratives" is presented in Table 6. In the column titled "Total", the total number of all the different referential units is presented, i.e., the sum of occurrences of (i) bare demonstratives (BareDem), (ii) NPs with a demonstrative or indefinite determiner (DetNP), (iii) bare NPs (BareNP), and (iv) personal or zero pronouns (PersPron, Zero). Note that in the data, relative clauses modify demonstratives and full NPs which, in turn, can occur with or without a determiner. This means that in the table, they are not considered independent referring expressions.

Table 6: The overall frequencies of different referring expressions in the "Narratives" data

	Estonian	Finnish	Russian
BareDem	51 (4%)	131 (9%)	10 (1%)
DetNP	226 (17%)	211 (14%)	93 (8%)
BareNP	574 (44%)	785 (54%)	548 (47%)
PersPron OR Zero	453 (35%)	333 (23%)	520 (44%)
Total	1304 (100%)	1460 (100%)	1171 (100%)
Relative clauses	81 (6.2%)	54 (3.7%)	44 (3.8%)
BareDem, DetNP and BareNP with RelCl	9.5%	4.8%	6.8%

Tentatively comparing it to the data from "Houses" (Table 3), "Narratives" (Table 6) reveal smaller differences between the languages. In "Narratives", Finnish speakers used demonstratives more than Estonian or Russian speakers. Russian speakers used more personal pronouns and zeroes, and Estonian is in between Russian and Finnish again. The bigger proportion of DetNPs in Estonian is not caused by the more frequent usage of demonstratives, but by more frequent usage of the indefinite determiner *üks* 'one' than in the other languages (in "Houses" there were no indefinite determiners due to the definiteness of all the referents).

The frequency of grammatical characteristics of relative constructions in the narrative data are presented in Table 7. For Estonian and Finnish, the narrative data contain much more head NPs without a determiner than in "Houses" (respectively, 61% and 56% in "Narratives", 8% and 12% in "Houses"). The same is true for the Russian data (84% in "Narratives" and 69% in "Houses"), but the difference is smaller and heads without determiners are more prevalent in both Russian datasets, which means that this feature is not a very important difference between the two Russian datasets. The percentage of NPs with a determiner is rather similar for the Estonian and Finnish data, but the type of determiners differs. That is, the determiners used in the Finnish data are mostly demonstratives (with one exception, which is the indefinite *eräs* 'one'), whereas in the Estonian data the determiners are mostly indefinite (*üks* 'one' and *keegi* '(some)one)[10]. In the narrative data there are only a few examples of bare demonstratives functioning as the head of a relative clause (one in Estonian and three in Russian).

[10] The bias of Estonian data towards the indefinite determiner *üks* 'one' in comparison with Finnish data has been discussed already in Hint et al. 2017.

Table 7: Types of head NPs modified by a relative clause in the narratives

	RelCl	**Head NP without a determiner**	**Head NPs with a determiner**	**Bare demonstrative as a head of a RelCl**
Estonian	81	45 (56%)	35 (43%; 19 *üks* 'one', 13 *see* 'this', 2 *oma* 'own', 1 *keegi* 'some')	1 (*see* 'this')
Finnish	54	33 (61%)	21 (39%; 12 *tämä* 'this', 1 *tuo* 'that', 3 *se* 'the', 3 *semmonen* 'that kind of', 1 *tämmönen* 'this kind of', 1 *eräs* 'some')	0
Russian	44	37 (84%)	4 (9%; 1 *eto* 'this', 1 *kakoi-to* 'some kind of', 2 *odin* 'one')	3 (7%; 3 *to* 'that')

$\chi 2 = 20.005$, $df = 4$, *Cramér's V* = 0.24,·$p < 0.001$

Relative clauses in "Narratives" modify detached NPs very rarely, and differ in this respect from the relative clauses in "Houses". Sentences with relative clauses in the narratives look very much like standard relative clauses in written language (examples in 7 and 8).

In the data coding process, we took into account only referring expressions that referred to the two boys or three sequence-specific inanimate referents in every story. As expected, there are considerably more relative clauses referring to the boys than referring to the inanimate referents in all three languages (see Table 8), as the boys are competing referents in all three stories and need more linguistic effort to be identified. In addition, as the boys are agents and therefore are what is mostly talked about, they have more non-identifying relative clauses, as well.

Table 8: Relative clauses according to the referent

Language	**Boys**	**Other**	**Total**
Estonian	64 (79%)	17 (21%)	81 (100%)
Finnish	39 (72%)	15 (28%)	54 (100%)
Russian	31 (70%)	13 (30%)	44 (100%)
Total	134 (75%)	45 (25%)	179 (100%)

$\chi^2 = 1.396$, $df = 2$, *Cramér's V* = 0.09,·$p = 0.498$

In the narratives experiment, the use of relative clauses differs a great deal from relative clauses in "Houses". Relative clauses in the narratives are mostly non-restrictive, that is, they are not used for identification of the referent but rather for telling something new about him/it (7, in our data, they mostly belong to appositive relative clauses according to Loock 2007). However, as there are two same-gender animate referents (boys) present at

the same time in the narratives, there are some instances of relative clauses used for identifying which boy the speaker is talking about (8). Furthermore, even when the relative clause is used for identification of the referent (one of two boys), the basis for identification cannot be spatial as in the case of "Houses".

(7) Non-identifying RelCl

a. Estonian

ilmu-b	***üks***	***teine***	***poiss.***	(.)***kes=***	***aka-b***	***mõtlema=***	*mida*	*teha.*
appear-3SG	one	other	boy	REL	start-3SG	think	what	do

'**another boy** appears, **who starts thinking** about what to do'

b. Finnish

no	*onne-ksi*	*häne-llä*	*on*	***sellainen***	***hyvä*** (.)	***ja***
PRTCL	luck-TRANS	3SG-ADE	be.3SG	this.kind	good	and

neuvokas	***ystävä***	***Keijo***	***joka***	***sitten***	***tuli*** (.)	***paika-lle***
inventive	friend	Keijo	REL	then	come.PST.3SG	place-ALL

'well luckily he's got a friend as **good and inventive as Keijo who went there then**'

c. Russian

poetomu	*on*	*pozval*	*na*	*pomoshtch*	***starshego***	***brata***
because	3SG.M	call.PST.M	PREP	help	elder.ACC.M	brother.ACC

kotoryi	***byl***	***vyshe***	***ego***	***rostom***
REL	be.PST.3SG.M	taller	3SG.GEN.M	stature.INSTR

'because of that he called **his elder brother over, who was taller than him**, to help'

(8) Identifying RelCl

a. Estonian

jaa (.)	***noormees***	***kes***	***kivi-***	***vastu***	***kivi***	***sõitis*** (.)	*nutab.* (...)
and	young.man	REL	stone	against	stone.GEN	drive.PST.3SG	cry.3SG

'and **the young man, who bump against the stone**, is crying'

b. Finnish

(.) *sitten*	***tämä***	***poika***	***joka***	***ei***	***kastele***	***tätä***	***puuta***
then	this	boy	REL	NEG.3SG	water	this.PART	tree.PART

antaa	*tä-lle,*	*tai*	*ottaa* (.)	*omenapuu-sta*	*omenan?*
give.3SG	this-ALL	or	take.3SG	apple.tree-ELAT	apple.GEN

'then **this boy who isn't watering the tree** gives (an apple) to this one, or takes an apple from the apple tree'

c. Russian

dalee	***tot***	***kotoryi***	***nabljudal***	*sryvajet*	*s*	*dereva*
further	that.M	REL	observe.PST.3SG.M	tear.3SG	PREP	tree.ACC

jabloko
apple

'then, **this (boy) who was watching**, rips an apple from the tree'

The usage of relativizers in "Narratives" differs from "Houses" in some respects. The referents we coded in "Narratives" were persons or smaller objects. Consequently, the relativizers used in relative clauses were mostly non-spatial. In the Estonian data, *mis* 'what' and *kes* 'who' were used according to the animacy of the referent. *Kus* 'where' was used only twice, in combination with an NP referring to the apple tree. In the Finnish data, only *joka* 'which' was used. In the Russian data, *kotoryi*/*kotoroje*/*kotoraja* 'which' was used overwhelmingly, *kto* 'who' was used once (in combination with the bare demonstrative *tot*, *kto*.... 'this (one), who…').

In conclusion, the overall proportion of relative clauses in the data of "Narratives" was much smaller than in the case of "Houses" (Table 9). In particular, Russian speakers used relative clauses for only 3.8% of all referential units, and Finnish speakers for 3.7%. In the Estonian data, the percentage of relative clauses is somewhat higher (6.2%).

Table 9: The amount of RelCl in "Houses" and "Narratives"

	"Houses"	**"Narratives"**
Estonian	91 (1678) 5.4%	81 (1304) 6.2%
Finnish	26 (1340) 1.9%	54 (1460) 3.7%
Russian	150 (1096) 13.7%	44 (1171) 3.8%

$\chi^2 = 52.999, \cdot df = 2, \cdot$ *Cramér's V* $= 0.34, \cdot p < 0.001$

5 Discussion and conclusion

In this article, we have discussed the occurrence and function of relative clauses in Estonian, Finnish, and Russian experimentally elicited data. These three languages use a similar grammatical construction for a relative clause (at least in our spoken quasi-experimental spatial descriptions and picture-elicited narratives data) and show other similarities. Nevertheless, there are also significant differences in the usage of this construction, particularly in a spatial context.

That is, the overall picture of functional types of relative clauses in the two experiments looks rather similar for Estonian, Finnish, and Russian. In the spatial context ("Houses"), where the main task of the participants was to describe three houses, relative clauses were mostly used in all three languages for identification of the referents. In "Narratives", relative clauses were used much more for providing some new information about the referents. In other words, in the spatial descriptive context, relative clauses were mostly restrictive and in the narratives mostly non-restrictive (appositive) for all three languages.

However, there are some important differences between the languages regarding the spatial data in "Houses". The Russian data had the largest amount of relative clauses. At the same time, it had the smallest amount of demonstrative pronouns, both across the entire dataset as well as in the heads of relative clauses. Finnish had the smallest number of relative clauses, but also the largest number of demonstratives. In the Estonian data, the frequencies of demonstratives and relative clauses were between those of Russian and Finnish. Thus, the frequency of usage of demonstratives is inversely proportional to the frequency of relative clauses (see also Figure 1).

The great difference between Finnish and Russian may be caused by the fact that Finnish has three demonstratives, while Russian has two. It might be easier to manage without relative clauses when the speaker has more demonstratives in his/her language. However, the amount of relative clauses in the Estonian data is smaller than in the Russian data and larger than in the Finnish data. Estonian has two demonstrative pronouns just as Russian does; however, one of these is used very rarely, while the other is used frequently (in the Estonian data *see* 'this' is used more frequently than both Russian demonstrative pronouns are used in the Russian data). Furthermore, Estonian speakers, despite having a relatively poor inventory of demonstratives available in their language, use them more frequently

than Russian speakers use their demonstratives. This, in turn, may result in a referring practice that results in fewer relative clauses than in Russian. In summary, according to our spatial data, there could be a connection between the frequency of usage of demonstratives and the frequency of usage of relative clauses, namely, a language with more frequent use of demonstratives (like Finnish in our case) does not rely as much on relative clauses as a language with less frequent use of demonstratives (like Russian in comparison with Finnish).

Figure 1: Demonstratives and relative clauses in a spatial context.

However, the difference in the frequency of relative clauses can be observed only in the spatial (descriptive) data. In the narratives, the frequency of relative clauses was approximately the same in Estonian, Finnish, and Russian. This suggests that these three languages differ in the usage of relative clauses only in a spatial context, where the speaker has to identify objects that belong to the same class and are located at different distances from the speaker. In other words, the three languages differ mostly in the usage of spatially identifying relative clauses, and do not have large frequency differences for relative clauses that give new information about the referent.

Moreover, there are differences in the structure of the head NPs of relative clauses across the three languages. In the spatial context ("Houses"), Estonian and Finnish relative clauses mostly modified NPs with a demonstrative determiner and Russian relative clauses mostly modified bare NPs. Usually the NPs modified by a relative clause were initially detached (left dislocations) in the spatial context in all three languages. This finding is in accord with studies of Finnish where it has been found that in natural everyday conversations detachments more frequently are right dislocations (Priiki 2015: 54). Indeed, in our spatial context, detachments with relative clauses are overwhelmingly left (initial) dislocations. This is probably due to the functions of relative clauses in this context. That is, in our spatial experiment, the identification of the house is so important that it has to be done at the very beginning of the description. This result is also in line with Laury & Helasvuo (2016) who found that in Finnish everyday conversations, relative clauses which modify initial detachments are usually restrictive; and with Marri Amon's (2015:

100−114) finding using data from Estonian conversations, that initial detachments combine rather frequently with relative clauses and usually function as an introduction for contrastive elements.

In the narrative context ("Narratives"), bare NPs prevail as the heads of relative clauses in all three languages. Furthermore, relative clauses are regular syntactic units and not detached, as they are frequently in "Houses". In a spatial context, Finnish and Estonian are equally demonstrative-biased (for example, they frequently use demonstratives nominally and adnominally). This is not the case in our narrative context, where DemNPs are not very frequent as the heads of relative clauses (see also Hint et al. 2017). In addition, "Narratives" almost lacks detachments and the relative clause constructions were rather standard-like. This latter finding is contrary to Amon (2015) and Priiki (2015) who have found that the occurrence of demonstratives in Estonian and Finnish detached NPs in everyday conversations is rather frequent. This may also indicate that picture-elicited narratives are a discourse genre, which is characterized by different features than spontaneous conversation.

The use and types of relative clauses are clearly sensitive to the context and the structures and/or referential practices present in a language. The finding that there are differences in the use of relative clauses in spatial and narrative contexts provides evidence suggesting that future studies should carefully take into account genre-specific factors. In spatial descriptions, the experimenter was listening carefully and therefore we can expect subjects to register minimal feedback, namely that the experimenter understands which house is referred to. In this particular context the relative clauses are frequently left detachments and their function is identification of the object (restrictive usage). The narratives, however, were told in a quite standard-like mode in all three languages. This is probably due to the nature of the task. The subjects were asked to tell the story to someone who is not present, therefore, depriving them of feedback. The subjects presumably relied on the standard way of narrating a story. In narrations, the events are more in focus than the identification of the referents. Consequently, subjects used non-restrictive relative clauses to add new information about the referents rather than restrictive relative clauses to identify the character. From this difference in the use of relative clauses in different genres, it is evident that further studies comparing experimental data to both natural conversations and written standard language are needed. In addition, we have shown that referential practices are highly complex. In this complexity, the use of relative clauses depends

on usage preferences and, to some extent, on the elaborateness of the demonstrative system in a language. As such, this study suggests that Finnish and Russian are comparatively different in their referential practice regarding demonstratives and relative clauses, and particularly so in a spatial context. Estonian, probably due to its shared origin with Finnish and extensive contacts with Russian, is in between these two languages with respect to its referential practice.

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Abbreviations

ADE	adessive case
ADJ	adjective marker
Adv	adverb
BareDem	bare demonstrative
BareNP	bare noun phrase
COMP	comparative
Dem	demonstrative
DemAdv	demonstrative adverb
DemNP	noun phrase with a demonstrative
DemPron	demonstrative pronoun
Det	determiner
ELAT	elative case
ESS	essive case
H1	House 1
H2	House 2
H3	House 3
INE	inessive case
INSTR	instructive case
NEUT	neutral gender
NP	noun phrase
PART	partitive case
PersPron	personal pronoun
PREP	preposition
Pron	pronoun

PRTCL	particle
REL	relativizer
RelCl	relative clause
RelPron	relative pronoun
SUPER	superlative
TRANS	translative case
Zero	zero reference

Appendix A

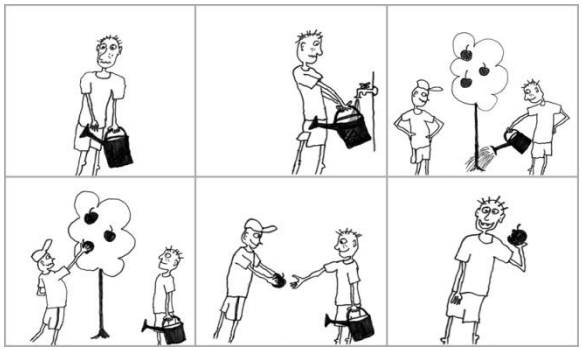
Instructions for “Houses”

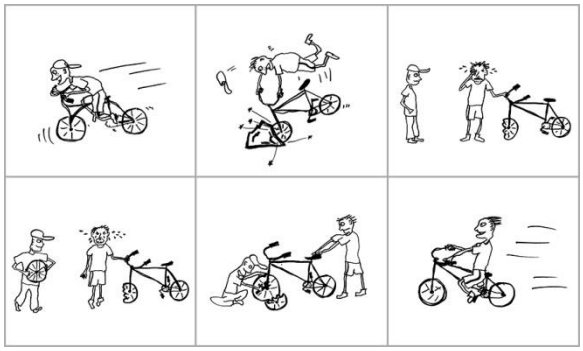
Situation 1
There are two houses in the picture. Look out the window and describe and compare the houses that have circles around them with each other.

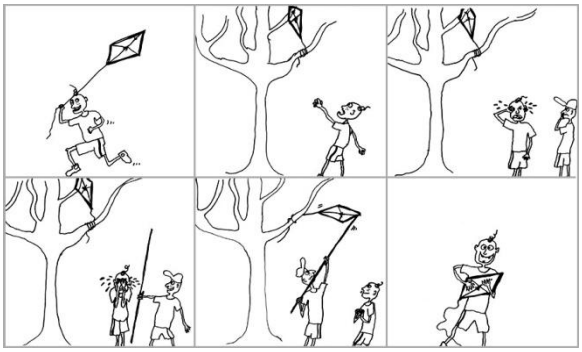
Situation 2
Now describe the house we are in and compare it one-by-one with the houses that have circles around them.

Appendix B

The pictures used in the narrative elicitation task







References

Amon, Marri. 2015. *Initial and final detachments in spoken Estonian: A study in the framework of Information Structuring* (Dissertationes Linguisticae Universitatis Tartuensis 24). Tartu: University of Tartu.

Ariel, Mira. 2001. Accessibility theory: an overview. In Sanders, Ted & Schliperoord, Joost & Wilbert Spooner (eds.), *Text representations: Linguistic and psycholinguistic aspects*, 29–87. Oxford: John Benjamins Publishing Company.

Chafe, Wallace L. 1976. Givenness, contrastiveness, definiteness, subjects, topics, and point of view. In Li, Charles N. (ed.), *Subject and Topic*, 25–55. New York: Academic Press.

—— (ed.). 1980. *The pear stories: Cognitive, cultural, and linguistic aspects of narrative production*. Norwood, N.J.: Ablex.

Comrie, Bernard. 1989. *Language universals and linguistic typology: Syntax and morphology*. Chicago: University of Chicago Press.

Dahl, Östen & Koptevskaja-Tamm, Maria. 2001. *Circum-Baltic languages*, vol. 1. Amsterdam: John Benjamins Publishing Company.

Erelt, Mati. 2017. Liitlause. In Erelt, Mati (ed.), *Eesti keele süntaks* [Syntax of Estonian language]. Eesti keele varamu 3. Tartu: University of Tartu Press.

Etelämäki, Marja. 2009. The Finnish demonstrative pronouns in light of interaction. *Journal of Pragmatics* 41(1). 25−46.

Gundel, Jeanette K. & Bassene, Mamadou & Gordon, Bryan & Humnick, Linda & Khalfaoui, Amel. 2010. Testing predictions of the Givenness Hierarchy framework: A crosslinguistic investigation. *Journal of Pragmatics* 42(7). 1770–1785.

Gundel, Jeanette K. & Hedberg, Nancy & Zacharski, Ron. 1993. Cognitive status and the form of referring expressions in discourse. *Language* 69. 274–307.

Hakulinen, Auli & Vilkuna, Maria & Korhonen, Riitta & Koivisto, Vesa & Heinonen, Tarja Riitta & Alho, Irja. 2004. *Iso suomen kielioppi* [The comprehensive Finnish grammar]. Helsinki: Suomalaisen Kirjallisuuden Seura.

Hanks, William. 1990. *Referential practice, language and lived space among the Maya*. Chicago: The University of Chicago Press.

Haspelmath, Martin. 2001. The European linguistic area: Standard Average European. In Haspelmath, Martin & König, Ekkehard & Oesterreicher, Wulf & Raible, Wolfgang (eds), *Language typology and language universals: An international handbook*, 1492−1510. Berlin: De Gruyter Mouton.

Helasvuo, Marja-Liisa. 2001. *Syntax in the making: The emergence of syntactic units in Finnish conversation*. Philadelphia: John Benjamins Publishing Company

Hint, Helen & Nahkola, Tiina & Pajusalu, Renate. 2017. With or without articles? A comparison of article-like determiners in Estonian and Finnish. *Lähivõrdlusi. Lähivertailuja*, 27. 65−106.

—— (in preparation). Pronouns as referential devices in Estonian, Finnish, and Russian.

Kalliokoski, Jyrki. 1991. Empathy as motivation for style shifting in narrative. In Verschueren, Jef (ed.), *Levels of linguistic adaptation.* Selected papers of the International Pragmatics Conference, Antwerp, August 17–22, 1987, Volume II. Amsterdam: John Benjamins Publishing Company.

Kibrik, Andrey. 2011. *Reference in discourse*. Oxford: Oxford University Press.

Koster, Charlotte & Hoeks, John & Hendriks, Petra. 2011. Comprehension and production of subject pronouns in child Dutch. In Grimm, Angela & Müller, Anja & Hamann, Cornelia & Ruigendijk, Esther (eds.), *Production-comprehension asymmetries in child language*, 99–122. (Studies on Language Acquisition 43). Berlin: De Gruyter Mouton.

Larjavaara, Matti. 1990. *Suomen deiksis* [Deixis of Finnish]. Helsinki: Suomalaisen Kirjallisuuden Seura.

Laury, Ritva. 1997. *Demonstratives in interaction: The emergence of a definite article in Finnish.* Amsterdam: John Benjamins Publishing Company.

—— (ed.). 2005. *Minimal reference in Finnish and Estonian*. Helsinki: Suomalaisen Kirjallisuuden Seura.

Laury, Ritva & Helasvuo, Marja-Liisa. 2016. Detached NPs with relative clauses in Finnish conversations. In Fernandz-Vest, M. M. Jocelyne & Van Valin, Robert D Jr. (eds.), *Information structuring of spoken language from a cross-linguistic perspective*, 149−166. (Trends in Linguistics. Studies and Monographs 283). Berlin: De Gruyter Mouton.

Lindström, Liina. 2004. Verbi asend eesti kõrvallauses. Relatiivlaused. [Position of the verb in relative clauses] *Keel ja Kirjandus*, 6. 414−429.

Loock, Rudy. 2007. Appositive relative clauses and their functions in discourse. *Journal of Pragmatics* 39. 336–362.

Maamies, Sari. 2011. *Joka* ja *mikä*: relatiivipronominin käytöstä. [*Joka* and *mikä:* The usage of relative pronouns] *Kielikello* 4. 26–29.

Meira, Sérgio & Terrill, Angela. 2005. Contrasting contrastive demonstratives in Tiriyó and Lavukaleve. *Linguistics* 43(6). 1131–1152.

Pajusalu, Renate. 2009. Pronouns and reference in Estonian. *Sprachtypologie und Universalienforschung* 62. 122−139.

Priiki, Katri. 2015. *Se oli iha hullu se hammaslääkäri.* Kaakkois-Satakunnan henkilöviitteiset *se, hän, tää* ja *toi* eteenpäin lohkeavan konstruktion osina ja ensimainintoina [Third-person pronouns *se, hän, tää* and *toi* in right-dislocation constructions and as a first mention of a person in South-Eastern Satakunta]. *Puhe ja kieli*, 35(2). 47−71.

—— 2017. Hän, se, tää *vai* toi*? Vuorovaikutussosiolingvistinen tutkimus henkilöviittauksista Kaakkois-Satakunnan nykypuhekielessä* [An interactional-sociolinguistic study of personal reference in spoken language of South-Eastern Satakunta]. Turku: Turun yliopiston julkaisuja.

Reile, Maria. 2015. Space and demonstratives: An experiment with Estonian exophoric demonstratives. *Journal of Estonian and Finno-Ugric Linguistics*, 6(2). 137−166.

—— 2016. Distance, visual salience and contrast expressed through different demonstrative systems: An experimental study in Estonian. *SKY Journal of Linguistics* 29. 63−94.

Reile, Maria & Taremaa, Piia & Nahkola, Tiina & Pajusalu, Renate (in press). Reference in the borderline of space and discourse: Free production experiment in Estonian, Finnish and Russian.

Seppänen, Eeva-Leena. 1998. *Läsnäolon pronominit.* Tämä, tuo, se *ja* hän *viittaamassa keskustelun osallistujaan.* [Pronouns of participation. Tämä, tuo, se and hän referring to participants in the conversation.] Helsinki: Suomalaisen Kirjallisuuden Seura.

Sheljakin, M. A. 2002. *Russkij jazyk: Spravochnik* [Russian language. A handbook]. Tallinn: Koolibri.

Shmelev, Aleksei. 1996. *Referencialnyje mehanizmy russkogo jazyka* [Referential mechanisms of Russian language]. (Slavica Tamperensia IV). Tampere: University of Tampere.

Slobin, Dan I. 1996. From "thought and language" to "thinking for speaking". In Gumperz, John J. (ed.), *Rethinking linguistic relativity*, 70–96. Cambridge: Cambridge University Press.

Špongolts, Tereza. 2017. *Relatiivlaused eesti ja vene keele ruumilistes kirjeldustes* [Relative clauses in Estonian and Russian spatial descriptions]. Tartu: University of Tartu. (BA Thesis.)

Stoenica, Ioana-Maria & Pekarek Doehler, Simona. 2015. Relative clauses as turn continuations in French talk-in-interaction. (A presentation at the 14th Conference of International Pragmatics Association, Antwerp, July 26–31, 2015.)

Timberlake, Alan. 2004. *A reference grammar of Russian*. Cambridge: Cambridge University Press.

Velupillai, Viveka. 2012. *An introduction to linguistic typology*. Amsterdam: John Benjamins Publishing Company.

Visapää, Laura. 2012. *Joka*-relatiivilauseen tulkinnasta [On the interpretation of *joka* relative clause]. *Virittäjä* 116(4). 533–559.

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Variation of the Estonian singular long and short illative form: A multivariate analysis[1]

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Abstract

This article aims to determine which morphophonological, morphosyntactic and semantic variables are statistically significant when choosing the illative case long or short form in Estonian. The methodological approach taken is multivariate analysis – classification trees. The results are compared to prior research that studied the same topic using univariate analysis. It is found that the important variables for choosing the long or short illative form are the direction of gradation, the quantity degree of the base form, government, stem-final alternation and the stem-final alternation pattern. Compared to the results of univariate analysis, multivariate analysis leads to similar conclusions. However, it appears that the multivariate analysis is more accurate, for example the classification tree method gives hierarchy about factors.

Keywords: morphology, morphophonology, morphosyntax, semantics, corpus linguistics, variation, illative, aditive, Estonian

1 Introduction

Estonian is a language with a rich morphology. For example, declinable and conjugable words can have either gradation (*astmevaheldus*), stem-final alternation (*lõpuvaheldus*) or no stem alternation at all (Erelt et al. 1995: 123). Also, Estonian words must be in one of the first (Q1), second (Q2) or third (Q3) quantity degrees (Erelt et al. 1995: 110–111).

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There are two types of gradation in Estonian: quantity alternation (*vältevaheldus*) and quality alternation (*laadivaheldus*). Quantity alternation means that a word's stem can be in strong or weak grade. A stem in strong grade is usually in third degree (Q3) and a stem in weak grade is usually in second degree (Q2), for example *hetk* (NOM, Q3): *hetke* (GEN, Q2): *hetke* (PART, Q3) 'a while'; *taevas* (NOM, Q2): *taeva* (GEN, Q3): *taevast* (PART, Q2) 'sky'. Quality alternation means that a stem in strong grade has a stop or *s*, which in weak grade is absent. For example, *vesi* (NOM): *vee* (GEN): *vett* (PART) 'water'; *hammas* (NOM): *hamba* (GEN): *hammast* (PART) 'tooth' (Erelt et al. 2007: 209–210).

The other stem alternation besides gradation is stem-final alternation. If the nominative form of a word ends with a consonant, then the word has stem-final alternation because in genitive form the base vowel is added. If the nominative form of a words ends with a vowel, then the word usually does not have stem-final alternation, except for words belonging to the *nimi*, *tuli*, *kole*, *habe*, *sai*, *lagi*, *käsi*, *nali* or *pääse* type. Also, *ne*- and *ke*-ending words always have stem-final alternation, e.g. *inimene* (NOM): *inimese* (GEN) 'human' or *tilluke* (NOM): *tillukese* (GEN) 'tiny' (Erelt et al. 2007: 226).

Another feature demonstrating the rich morphology of Estonian is that it has 14 cases (Erelt et al. 2007: 238–239). Furthermore, some Estonian cases show variation. In this article I study the variation of declinable words, more specifically the illative case variation. The illative case has two forms: a long form and a short form. In the academic grammar of Estonian and Handbook of Estonian the long *sse*-ending form (i.e. the long illative) is possible for all word types (Erelt et al. 1995: 56–57; Erelt et al. 2007: 245–247). However, the short illative is a second choice for some word types. Moreover, research about its actual language use shows that for many words the short form is preferred (Hasselblatt 2000; Kio 2006; Kaalep 2009). In some previous studies the short illative is considered an independent case, the so-called aditive case (e.g. Rajandi 1963: 410; Viitso 1976: 152–153; Viks 1992). Currently, the aditive case is not one of the official Estonian cases because it cannot be applied to all declinable words. In this paper the term *illative* is used for the singular long illative case form and the term *aditive* for the singular short illative case form. Both are forms of one case – the illative case.

1.1 Previous studies and purpose of this study

A compendious synopsis of the history of the illative case has been given by Hasselblatt (2000) and Kio (2006). The variation of the illative and aditive forms has been examined in previous studies (e.g. Sõnajalg 1956; Raag 1998; Hasselblatt 2000; Kio 2006; Kaalep 2009). Nevertheless, there is no consensus in the description of Estonian grammar explaining the variation of the illative case for declinable words. The academic grammar of Estonian describes the use of the short illative form as depending on the word phonological-derivational structure (for example, the short form is more common with *ik*-ending words) and frequency of the word use. Some short illative forms are adverbs or part of multi-word expressions (Erelt et al. 1995: 56). In summary, the academic grammar of Estonian is not specific about the use of the short illative form, saying only that it depends on idiolect and is not bound in normative written language (Erelt et al. 1995: 57).

Previous studies have examined how the choice between the illative and aditive is related to morphophonological variables (Metslang 2015), as well as morphosyntactic and semantic variables (Siiman 2016). This paper builds on those prior studies. The method used previously was univariate analysis – chi-square test and standardized Pearson residuals, and the results were controlled with a so-called part-whole method and using the Cramér's V effect size method. It was found that the choice between the illative and aditive may be related to gradation, the type of gradation, stem-final alternation and the stem-final alternation pattern, the final sound of the base form, the number of syllables in the genitive stem, government, multi-word expression, proper or common noun, the proper noun semantic group and the common noun semantic group. The direction of gradation, the quantity degree of the base form, part of speech, syntactic function and meaning of the verb lemma were not statistically significant factors in the choice between the illative and aditive.

The theoretical background of this study is a usage-based approach, which assumes that linguistic structures and usage events are closely related (Barlow & Kemmer 2000: viii). According to Langacker (1987: 494) the usage event is a symbolic expression which a person uses in certain circumstances and for a certain aim. Based on the usage-based approach the corpus material is valuable material for research to describe the structure of the language.

One of the goals of this article is to determine which morphophonological, morphosyntactic and semantic variables the choice between the illative and aditive depends on. The results are then compared to the prior results that used univariate analysis. The illative case variation is shown here as an example of how other morphological variations in Estonian could be examined.

The outline of the paper is as follows. §2 introduces the data and method. §3 provides an overview of the explanatory variables. §4 presents the results – initially with all the variables analysed from previous studies, then with only the variables that were significant in prior studies. Finally, the results are presented separately for all variable groups – morphophonological, morphosyntactic and semantic variables. In §5 a new variable (the number of syllables in the last foot) is added to the analysis and examined whether it changes the results. Uni- and multivariate methods are compared in §6 and a conclusion is given in §7.

2 Data and method

The same data and data collecting principles which were used for examining morphosyntactic and semantic variables in Siiman (2016) are used in this study. This consists of almost all singular long and short illative forms searched from the Keeleveeb corpuses. The Balanced Corpus of Estonian from the Keeleveeb corpuses was not used because it uses data from other corpuses, which is already in the studied material. Also, the Estonian Dialect Corpus was not used because it does not provide enough data to compare the use of the illative case in written Estonian and Estonian dialects.

The search method to collect data involved first queries through Keeleveeb from the Estonian Web Corpus (etTenTen)[2] (270 million words), a corpus collected from the internet. Hence the data is from edited and non-edited Estonian, including internet language. Also, through the Keeleveeb[3] corpus queries from all the corpuses that are in the Estonian Reference Corpus[4] (240 million words) were included. So in total, queries were from about 510 million words. The material is balanced and all word forms are included only once. In the material there are 840 forms: 420

[2] http://www.keeleveeb.ee/dict/corpus/ettenten/ (Accessed 2015-09-27.)
[3] http://www.keeleveeb.ee/ (Accessed 2015-09-10.)
[4] http://www.cl.ut.ee/korpused/segakorpus/index.php (Accessed 2015-09-27.)

illative forms and 420 aditive forms and they all are theoretically variative. Theoretical variativeness is based on the Dictionary of Standard Estonian ÕS 2013 (Erelt et al. 2013). All forms are included only once, so the illative form *majasse* 'house' could be in the initial material multiple times, but in the final 420 illative forms it is included only once. The parallel aditive form *majja* 'house' could be in the final 420 aditive forms only once. In the final data there are 41 words that have the illative and aditive form from the same word in the material.

The classification trees method is applied (see Strobl et al. 2009) because in similar grammatical alternation investigating studies the method was useful and provided dependable results (e.g. Tagliamonte & Baayen 2012; Klavan et al. 2015; Ruutma et al. 2016). Classification trees are easy to interpret: branches of a tree are divided from top to bottom and the first division is usually the one with the most significant explanatory variables. Levels are nodes in the left and right branch, where the tree can be further divided. A tree can be divided as many times as wanted so long as the nodes give meaningful information. In this paper a node had to be at least 25 observations. The software tool used to generate the tree was the statistical program R (version 3.5.1) party package.

3 Explanatory variables

3.1 Morphophonological variables

Gradation (**GRAD**). For every illative and aditive form the variable GRAD indicates if the word has gradation or not. The choice is made based on the Dictionary of Standard Estonian ÕS 2013 (Erelt et al. 2013). GRAD is a binary variable: a word has gradation or it does not have gradation.

Type of gradation (**GRAD_TYPE**). If the word has gradation, the variable GRAD_TYPE indicates whether it has quantity alternation or quality alternation. A word has quantity alternation if the nominative and partitive are in third degree and the genitive form is in second degree. For example *hetk* (NOM, Q3): *hetke* (GEN, Q2): *hetke* (PART, Q3) 'a while'. Or conversely, if nominative and partitive are in second degree and the genitive form is in third degree. For example, *taevas* (NOM, Q2): *taeva* (GEN, Q3): *taevast* (PART, Q2) 'sky'. The word has quality alternation if the nominative and partitive form second syllable first letter is a stop or *s*, which in the genitive is absent. For example *vesi* (NOM): *vee* (GEN): *vett* (PART) 'water'. Or conversely, if genitive form second syllable first letter is

a stop or *s*, which in nominative and partitive is absent. For example *hammas* (NOM): *hamba* (GEN): *hammast* (PART) 'tooth'. Words without gradation are in the level 'no'.

Direction of gradation (**GRAD_DRCT**). If the word has gradation, the variable GRAD_DRCT indicates whether it has strengthening or weakening gradation. The choice is made based on the genitive form of the word. If the genitive form is in the strong grade, then the word has strengthening gradation, e.g. *rooste* (NOM): *rooste* (GEN): *roostet* (PART) 'rust'. If the word is in the weak grade, then the gradation is weakening, e.g. *käsi* (NOM): *käe* (GEN): *kätt* (PART) 'hand'; *mäng* (NOM): *mängu* (GEN): *mängu* (PART) 'game'. Words without gradation are assigned to a level of 'no'.

Quantity degree of the base form (**QN_DGR**). For every form, the variable QN_DGT indicates the quantity degree of the base form. The base form can be in first, second or third degree and the Dictionary of Standard Estonian ÕS 2013 (Erelt et al. 2013) helps to determine it.

Stem-final alternation (**STEM_FINAL_ALT**). Based on the Handbook of Estonian, the variable STEM_FINAL_ALT indicates whether the analysed word has a stem-final alternation or not. If the nominative form of the word ends with a consonant, it always has stem-final alternation because in genitive form the base vowel is added. If the nominative form of the words ends with a vowel, then the word usually does not have stem-final alternation, except for words belonging to the *nimi*, *tuli*, *kole*, *habe*, *sai*, *lagi*, *käsi*, *nali* or *pääse* type. Also, *ne-* and *ke-*ending words always have stem-final alternation, e.g. *inimene* (NOM): *inimese* (GEN) 'human' or *tilluke* (NOM): *tillukese* (GEN) 'tiny'.

Stem-final alternation pattern (**STEM_FINAL_ALT_PTRN**). If the word has stem-final alternation, then the variable STEM_FINAL_ALT_PTRN indicates what the stem-final alternation pattern of the word is based on the Handbook of Estonian (Erelt et al. 2007: 231–233). In the Handbook of Estonian there are nine stem-final alternation patterns. The last five patterns are variants of the first three patterns and the 4th pattern consists of words without aditive forms. Therefore, in this article only the first three patterns are used. The 1st pattern is the most common. In the 1st pattern the initial stem is only used in the singular nominative case and in all other cases, as well as the plural nominative case, the inflectional stem is used. The 1st pattern includes words of the *seminar*, *redel*, *kringel*, *siil*, *sai*, *lagi*, *nali*, *sõber* and *õnnelik* types, e.g. *siil* (NOM): *siili* (GEN): *siili* (PART): *siilide* (pl. GEN): *siile* ~

siili/sid (pl. PART) 'hedgehog'. The 2nd pattern has the most widespread base form and is used in singular partitive and plural genitive cases. This pattern characterises all *s*-ending words, which have a vowel before *s*, e.g. *panus* (sg. NOM): *panuse* (sg. GEN): *panust* (sg. PART): *panuste* (pl. GEN): *panuseid* (pl. PART) 'contribution'. The 2nd pattern is common for words belonging to *suur* type, e.g. *suur* (sg. NOM): *suure* (sg. GEN): *suurt* (sg. PART): *suurte* (pl. GEN): *suuri* (pl. PART) 'big' and *küünal* type, e.g. *küünal* (sg. NOM): *küünla* (sg. GEN): *küünalt* (sg. PART): *küünalde* (pl. GEN): *küünlaid* (pl. PART) 'candle'. The 3nd pattern is similar to the 2nd, except that in the singular partitive and plural genitive the short inflectional stem is used instead of the initial stem. This pattern characterises all *ke*- and *ne*-ending words, which have a vowel before -*ne*. The short inflectional stem of these words ends with the string -(V)*s*. This pattern covers words belonging to the *soolane*, *uus–küüs* or *käsi* type, e.g. *uus* (sg. NOM): *uue* (sg. GEN): *uut* (sg. PART): *uute* (pl. GEN): *uusi* (pl. PART) 'new'; *käsi* (sg. NOM): *käe* (sg. GEN): *kätt* (sg. PART): *käte* (pl. GEN): *käsi* (pl. PART) 'hand'. (Erelt et al. 2007: 231–233) Words without stem-final alternation are assigned to the level 'no'.

Final sound of the base form (**FINAL_SOUND**). The variable FINAL_SOUND indicates the final sound of the base form, which is the singular nominative form. It can be a consonant or a vowel.

Number of syllables in the genitive stem (**SYL_GEN**). For every form the variable SYL_GEN indicates the number of syllables in the genitive stem. The forms in the data have one to six syllables in the genitive stems. The variable is divided into four levels: '1', '2', '3' and '> 3', if there are more than 3 syllables in the genitive stem.

In the §5 "New variable: the number of syllables in the last foot" the new morphophonological variable the number of syllables in the last foot of the word is included. It is controlled whether the new variable changes the results of the classification tree analyses.

3.2 Morfosyntactic variables

Part of speech (**P_O_SPCH**). Based on Explanatory Dictionary of the Estonian Language (Langemets et al. 2009) the variable P_O_SPCH indicates the part of speech of every analysed form. Types of declinable words are based on the academic grammar of Estonian (Erelt et al. 1993: 18) 'numeral', 'pronoun', 'substantive' and 'adjective'.

Syntactic function (**SYN_FUN**). The academic grammar of Estonian categorizes sentences according to the following: predicate, base, object, predicative, adverbial and attribute. Words in the illative case can be adverbials or attributes (Erelt et al. 1993: 9–11). Thus the variable SYN_FUN indicates which of these two levels a word in the illative case has.

Government (**GOV**). The variable GOV indicates the government of a word and is decided based on Mäearu's list "Valik rektsioone" ('Choice of governments'). In that list there are widespread governments like *puutuma millessegi* 'to pertain to something' (lit. 'to concern into something'), *suhtuma millessegi* 'to relate to something; to have an opinion about something' (lit. 'to regard into something'), *uskuma millessegi* 'to believe in something' (lit. 'to believe into something'). For example, if the verb *uskuma* 'believe' is in government structure, substantives *usk* 'belief', *uskuja* 'believer', *uskumine* 'believing' etc. are counted as a government structure parts. Levels are 'yes' if the form is in a government structure and 'no' otherwise.

Multi-word expression (**M_W_E**). The variable M_W_E indicates multi-word expression and is determined by the whole phrase, unlike government structure which is determined by one word. Determinations are based on the database of Estonian verbal multi-word expressions.[5] In description of this database it "contains a subtype of multi-word expressions, namely those consisting of a verb and a particle or a verb and its complements". Expressions with illative or aditive form are in the database, e.g. *jõusse jääma* 'to remain in force', *põhja kõrbema* 'to go out of business, to burn' (lit. 'to burn into the bottom'), *riidesse panema* 'to put on clothes'. Levels are 'yes', if the form is in a multi-word expression phrase, and 'no' otherwise.

3.3 Semantic variables

Proper or common noun (**PN_CN**). If the text is edited, the variable PN_CN determines whether the word is a proper or common noun and is decided by the letter at the beginning of the word. For example, if *Keskus* or *Riigikogu* begins with a capital letter, they are proper nouns. If *keskus* 'centre' or *riigikogu* 'parlament of Estonia' begin with a lower case letter, then they are common nouns. If the text is not edited, then well-known

[5] https://www.cl.ut.ee/ressursid/pysiyhendid/ (Accessed 2015-09-17.)

proper names are decided as proper nouns despite that they begin with lower case letters, e.g. *kopli* 'Kopli, district of Tallinn', *rate* 'Rate.ee, internet site'.

Proper noun semantic group (**PN_SEM**). The variable PN_SEM includes only proper nouns and indicates semantic group: INSTITUTION (*Klubi*, *Gümnaasium*, *Riigikogu* and so with the capital letter in the beginning), PERSON (all person names with capital letters, e.g. *Jeesus Kristus*) and PLACE (all place names with capital letters, also few internet sites and books). The final level is 'common noun'.

Common noun semantic group (**CN_SEM**). The first common noun semantic group is BODY PART, e.g. *käsi* 'hand', also mental *meel* 'mind' and more general *keha* 'body'. The second group is PLACE, in this level belong all substantives that mean real places, e.g. *kodu* 'home', *muuseum* 'museum', *põuetasku* 'breast pocket', also more abstract places when they are destinations, e.g. *keel* 'language/tongue', *valdkond* 'area', *üksus* 'unit'. The third group STATE comprises body states (e.g. *riidesse panema* lit. 'to put into clothes') and mind states, which get their meaning when they are in a phrase (e.g. *jõusse jääma* 'to remain in force', *unustusse jääma* lit. 'to remain into the forgetfulness'). These groups could be a bit subjective because it is hard to define abstract place and abstract state. The fourth group is OTHER, which can include government structures, e.g. *puutuma millessegi* 'to pertain to something' (lit. 'to concern into something'), *suhtuma millessegi* 'to relate to something; to have an opinion about something' (lit. 'to regard into something'), attributes, (e.g. *praegune* 'present'), times/periods (e.g. *periood* 'period'). The last level is 'proper nouns'.

Meaning of the verb lemma (**VERB_LEMMA**). The variable VERB_LEMMA indicates one of four levels: 'movement', 'existence', 'activity' or 'no verb'. The subcategorisation of verbs is quite basic. Verbs in the level 'movement' describe some kind of motion or a way of moving is described, e.g. *jõudma* 'arrive', *lahkuma* 'leave', *sõitma* 'drive'. The 'existence' level is more static, e.g. *jääma* 'stay', *kuuluma* 'belong', *olema* 'be'. Verbs in the 'activity' level describe all active and mental activities, e.g. *lisama* 'add', *suhtuma* 'regard', *töötama* 'work'. Activity verbs have participant, who is aware of his/her action and who controls his/her action. The 'no verb' level means that the analysed form is not related to any verb. For that case there is no verb in string, e.g. *väike kõrvalepõige mõistmisesse* 'little artifice to understanding', *tagasivaade märtsisse 2003* 'flashback to March 2003'. Another option is that based on the corpus string there is no

verb in the clause part where the illative form belongs, e.g. [...] *kuid püsiva järjekindlusega ülevääršusest alavääršusesse ning* [...] '[...] but constant consistency from superiority to inferiority and [...]'; [...] *Lõuna-Eesti ärikeskkonda tutvustav õppesõit Mooste mõisa kultuuri- ja ettevõtluskeskusesse* '[...] South-Estonian business environment describing learning trip to Mooste manor culture and entrepreneurship centre'.

Table 1 presents all coded variables and levels with frequency division in analysed data.

Table 1: Analysed data by coded variables (N = 840, illative = 420, aditive = 420)

	Variables	**Frequency division**
Morpho-phonological variables	**Gradation (GRAD)**	
	No	551
	Yes	289
	Type of gradation (GRAD_TYPE)	
	No	551
	Quantity alternation	205
	Quality alternation	84
	Direction of gradation (GRAD_DRCT)	
	No	551
	Weakening	277
	Strengthening	12
	Quantity degree of the base form (QN_DGR)	
	Q1	208
	Q2	104
	Q3	528
	Stem-final alternation (STEM_FINAL_ALT)	
	No	242
	Yes	598
	Stem-final alternation pattern (STEM_FINAL_ALT_PTRN)	
	No	242
	1	299
	2	216
	3	83
	Final sound of the base form (FINAL_SOUND)	
	C	480
	V	360
	Number of syllables in the genitive stem (SYL_GEN)	
	1	7
	2	234
	3	171
	>3	428

	Variables	Frequency division
Morpho-syntactic variables	**Part of speech (P_O_SPCH)**	
	Adjective	44
	Numeral	8
	Pronoun	8
	Substantive	780
	Syntactic function (SYN_FUN)	
	Adverbial	795
	Attribute	45
	Government (GOV)	
	No	711
	Yes	129
	Multi-word expression (M_W_E)	
	No	799
	Yes	41
Semantic variables	**Proper or common noun (PN_CN)**	
	Common noun	720
	Proper noun	120
	Proper noun semantic group (PN_SEM)	
	INSTITUTION	28
	PERSON	7
	PLACE	85
	Common noun	720
	Common noun semantic group (CN_SEM)	
	BODY PART	27
	PLACE	460
	STATE	61
	Other	172
	Proper noun	120
	Meaning of the verb lemma (VERB_LEMMA)	
	Movement	481
	Existence	98
	Activity	225
	No verb	36

4 Results

4.1 Classification tree using all 16 variables

Figure 1 shows a classification tree where all 16 variables[6] are included.

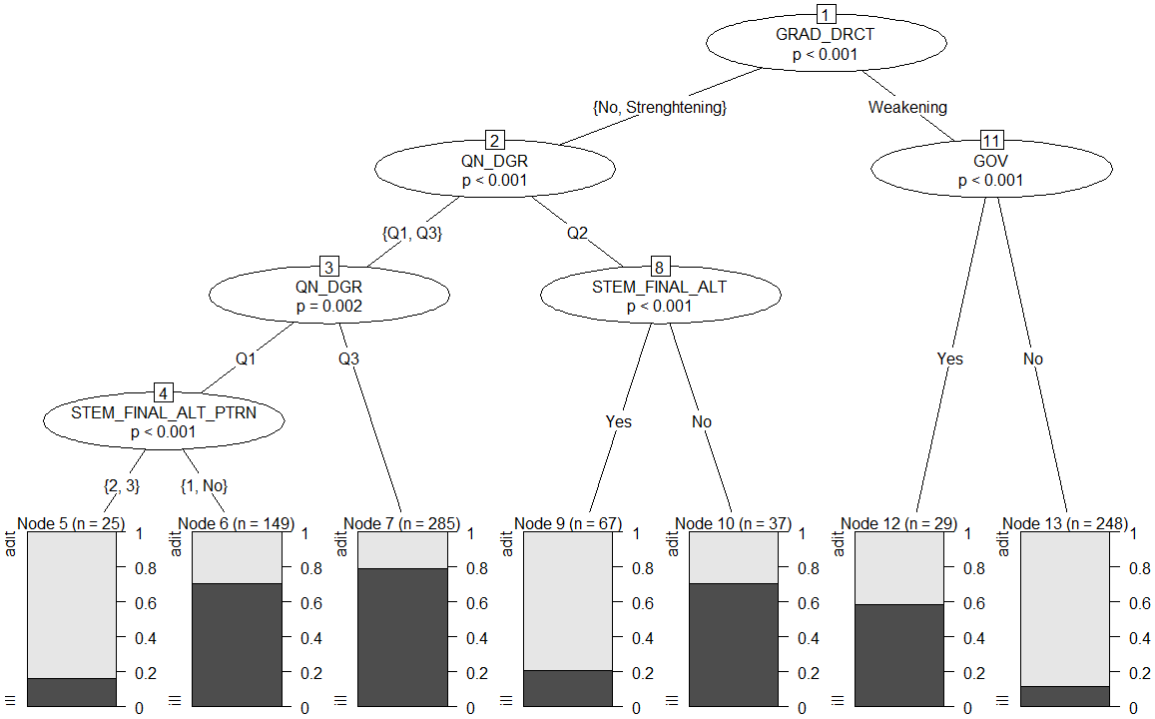

Figure 1: Morphophonological, morphosyntactic and semantic variables to which the choice between the illative and aditive could be related.

Based on Figure 1, the most significant predictor is the direction of gradation. Further splits are made based on the quantity degree of the base form or government variables. In the lower branches there are also stem-final alternation and the stem-final alternation pattern variables.

The direction of gradation variable splits the data into two groups: the first group consists of words without gradation (551) or words with strengthening gradation (12); the second group consists of words with weakening gradation (277).

In the weakening gradation group, government is the most significant predictor. If a word with weakening gradation belongs to government

[6] ctreeilldata = ctree (Adit_ill ~ GRAD + GRAD_TYPE + GRAD_DRCT + QN_DGR + STEM_FINAL_ALT + STEM_FINAL_ALT_PTRN + FINAL_SOUND + SYL_GEN + P_O_SPCH + SYN_FUN + GOV + M_W_E + PN_CN + PN_SEM + CN_SEM + VERB_LEMMA, controls = ctree_control(minbucket=25), data = illdata)
plot(ctreeilldata)

structure, illative is more commonly used, e.g. *asja**sse** puutuma*[7] 'to pertain to something' (lit. 'to concern into a thing'), *loo**sse** suhtuma* 'to relate to a story; to have an opinion about a story' (lit. 'to regard into a story'), *hinnasõja**sse** uskuma* 'to believe in a price war' (lit. 'to believe into a price war'). If a word with weakening gradation does not belong to government structure, the aditive is more frequent, e.g. *garderoobi*[8] 'dressing room', *nimekirja* 'list', *riiki* 'country'.

In the other group, i.e. words without gradation or with strengthening gradation, the most significant predictor is the quantity degree of the base form, which divides into two nodes: first- and third-degree words and second-degree words. If the word has no gradation and is in the third degree of quantity, the illative is preferred, e.g. *alaväärsuse**sse*** 'inferiority'. *Elva**sse*** 'Elva', *tootmise**sse*** 'manufacture'. Third-degree words cannot be with strengthening gradation because they are already in the strongest degree. If the word has first degree of quantity and it has no gradation or strengthening gradation, the significant predictor is the stem-final alternation pattern. The 2nd and the 3rd pattern words (mostly *ne*- and *s*-ending, see §3) seem to have a clear preference for aditive, e.g. *unne* 'sleep', *nimelisse* 'named', *metsasügavusse* 'forest-deepness'. For words without stem-final alternation or the 1st pattern words illative is mostly used, e.g. *lisa**sse*** 'appendix', *mentorklubi**sse*** 'mentor-club', *kuusetüve**sse*** 'bole of fir'.

For second-degree words without gradation or with strengthening gradation the stem-final alternation is the next significant predictor. If these words do not have stem-final alternation, the illative is more commonly used, e.g. *Viljandi**sse*** 'Viljandi', *Poola**sse*** 'Poland', *kütke**sse*** 'fetter'. If there is a stem-final alternation, the aditive is more likely to be chosen, e.g. *teise* 'second/other', *liiklusõnnetusse* 'traffic-accident', *rakendusse* 'application'.

For third-degree words without gradation (285) the illative is more commonly used (226 forms of 285), while third-degree words with weakening gradation (243) make more use of the aditive (204 forms of 243). For third-degree words the significant predictor of the choice between the illative and additive is the direction of gradation, i.e. whether the word is without gradation or with weakening gradation.

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[7] Illative forms have *sse*-ending in bold because it is an agglutinative ending. Translations are in nominative case.

[8] Aditive forms do not have bold endings, because it is a fusional ending. Translations are in nominative case.

Next it is looked at only *ne*- and *s*-ending words, it means mostly words in the 2nd and the 3rd stem-final alternation pattern. If these kinds of words are first- or second-degree words (89), they seem to have a preference for aditive (74 forms of 89), if they are third-degree words (210), the illative is preferred (159 forms of 210).

It is notable that 8 morphophonological, 4 morphosyntactic and 4 semantic variables were analysed and that the significant predictors were 4 morphophonological variables and 1 morphosyntactic variable (no semantic variables were significant predictors). The result that most of the significant variables were morphophonological variables confirms the claim in the academic grammar of Estonian that the use of the short illative is related to a word's phonological-derivative structure.

Based on the academic grammar of Estonian the use of the short illative is also related to morphosyntactic factors, e.g. whether a word is part of the government structure or part of a multi-word expression. The Figure 1 classification tree confirms that the choice between the illative and aditive is related to whether a word is part of the government structure. The classification tree does not provide information about whether the choice between the illative and additive relates to whether a word is part of a multi-word expression.

The analysis does not claim that the choice is related to words lexical meaning (Erelt et al. 1995: 56), because in the Figure 1 classification tree there are no semantic variables. It is difficult and rather subjective to divide proper or common nouns into a few semantic groups. It could be a reason why semantic variables are not in the classification tree.

4.2 Classification tree using significant variables from prior univariate analyses

It is quite surprising that the most significant predictor when using all variables is the direction of gradation. Only significant variables will be analysed based on prior studies, which are gradation, the type of gradation, stem-final alternation, the stem-final alternation pattern, the final sound of the base form, the number of syllables in the genitive stem, government, multi-word expression, proper or common noun, the proper noun semantic

group and the common noun semantic group.[9] The results are shown in Figure 2.

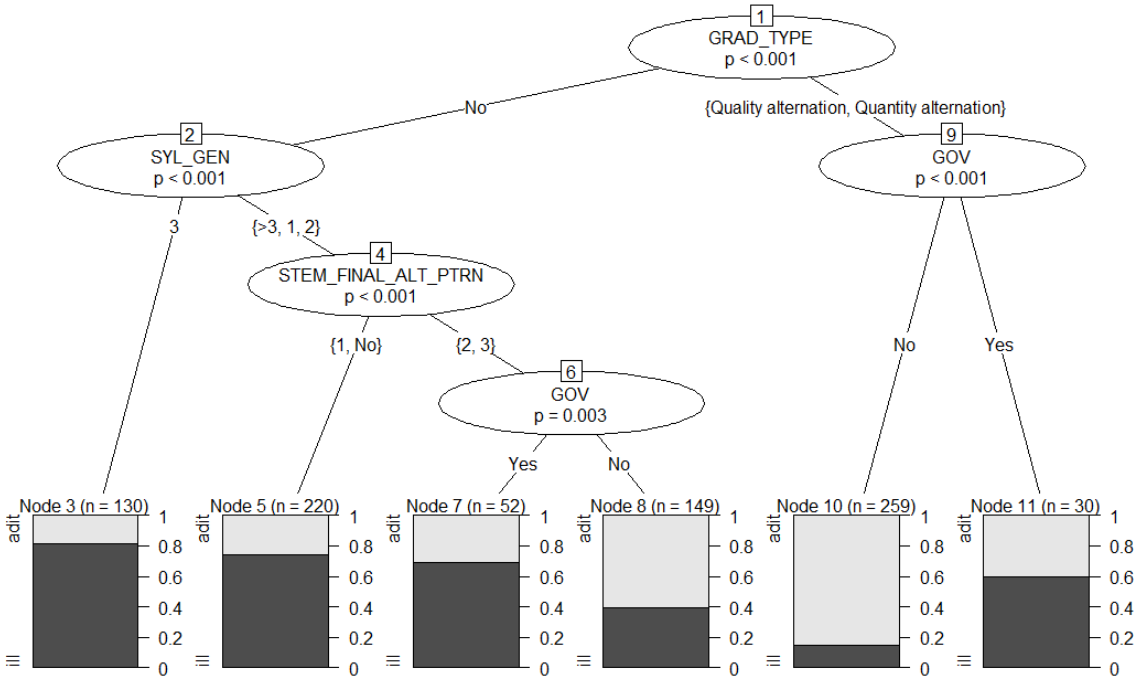

Figure 2: Classification tree using morphophonogical, morphosyntactic and semantic variables for which the choice between the illative and aditive was related based on univariate analysis (Metslang 2015; Siiman 2016).

The strongest predictor is the type of gradation, which splits the tree into two branches: without gradation or with gradation (with quality or quantity alternation). It is interesting that the strongest predictor is the type of gradation, not gradation itself.

Words with gradation have only one split. Words with gradation have a tendency to use illative when they belong to a government structure, e.g. *signaali**sse** suhtuma* ‘to relate to a signal; to have an opinion about a signal’ (lit. ‘to regard into the signal’), *usu**sse** puutuma* ‘to pertain to a belief’ (lit. ‘to concern into belief’), *kõrreroste**sse** nakatuma* ‘to be infected by blight’ (lit. ‘to infect into blight’). If the word with gradation does not belong to government structure, the aditive is more often used, e.g. *ajalukku* ‘history’, *atmosfääri* ‘atmosphere’, *parki* ‘park’.

[9] ctreeilldata = ctree (Adit_ill ~ GRAD + GRAD_TYPE + STEM_FINAL_ALT + STEM_FINAL_ALT_PTRN + FINAL_SOUND + SYL_GEN + GOV + M_W_E + PN_CN + PN_SEM + CN_SEM, controls = ctree_control(minbucket=25), data = illdata) plot(ctreeilldata)

The number of syllables in the genitive stem is a predictor for words without gradation. A distinction is made between 3-syllable words and other word lengths. 3-syllable words without gradation make more use of illative, e.g. *vestluse**sse*** ‘conversation’, *Hollandi**sse*** ‘Holland’, *kinnise**sse*** ‘closed’. 1-, 2- and more than 3-syllable words without gradation have next predictor the stem-final alternation pattern. For the 1st pattern words or word without stem-final alternation the illative is used more frequently, e.g. *maja**sse*** ‘maja’, *universumi**sse*** ‘universe’, *Soome**sse*** ‘Finland’. The illative is also used more frequently with the 2nd the 3rd pattern words which belong to government structure, e.g. *suhtuma teineteise**sse*** ‘to relate to each other; to have an opinion about each other’ (lit. ‘to regard into each other’), *sisenema administreerimiskeskuse**sse*** ‘to enter to an administration-center’, *puutuma teispoolsuse**sse*** ‘to pertain to the afterlife’ (lit. ‘to concern into the afterlife’). However, if these words do not belong to a government structure then the aditive is more common, e.g. *unne* ‘sleep’, *juhatusse* ‘management’, *üleriigilisse* ‘nationwide’.

There was no predictor like gradation in Figure 1 and 2 classification trees, but it appears that this variable has a central role in choosing between the illative and aditive. In Figure 1, one branch has words without gradation or with strengthening gradation and the other branch has words with weakening gradation. In Figure 2 one branch is words without gradation and the other branch is words with gradation. A significant predictor in both classification trees is also government.

A more specific analysis focusing separately on morphophonological, morphosyntactic and morphosemantic variables is next discussed.

4.3 Classification tree using only morphophonological variables

In Figure 3 a classification tree using 8 morphophonological variables[10] is presented. The 8 variables analysed were gradation, the type of gradation, the direction of gradation, the quantity degree of the base form, stem-final alternation, the stem-final alternation pattern, the final sound of the base form and the number of syllables in the genitive stem.

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[10] ctreeilldata = ctree (Adit_ill ~ GRAD + GRAD_TYPE + GRAD_DRCT + QN_DGR + STEM_FINAL_ALT + STEM_FINAL_ALT_PTRN + FINAL_SOUND + SYL_GEN, controls = ctree_control(minbucket=25), data = illdata)
plot(ctreeilldata)

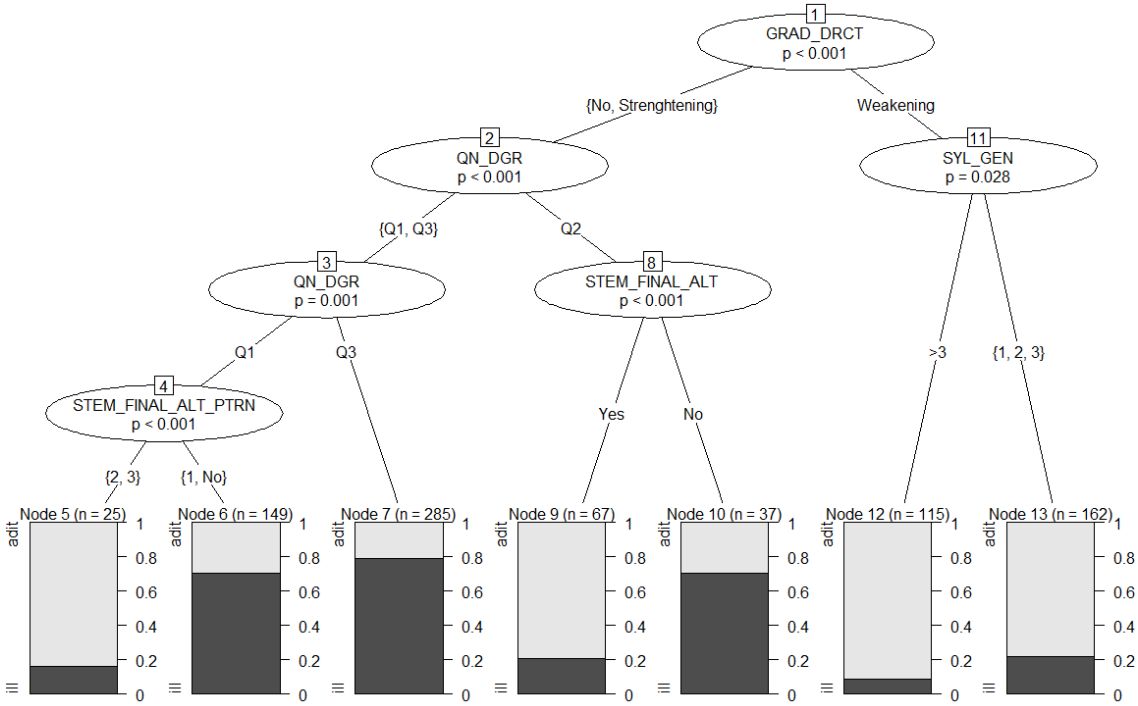

Figure 3: Morphophonological variables to which the choice between the illative and aditive could be related.

As expected, the left branch of the morphophonological variables classification tree is similar to the classification tree shown in Figure 1, in which all the variables were included. The left branch consists of words without gradation and with strengthening gradation. The right branch contains words with weakening gradation, which divides according to the number of syllables a word has in the genitive form. Words with more than three syllables in the genitive stem are more likely in the aditive than words with one, two or three syllables in the genitive stem. It is important to note that all of these words are mostly in the aditive, so the difference is not significant.

4.4 Classification tree using only morphosyntactic variables

Figure 4 shows the results of analysis using only morphosyntactic variables. The choice between the illative and aditive could be related to part of speech, syntactic function, government and multi-word expression.[11]

[11] ctreeilldata = ctree (Adit_ill ~ P_O_SPCH + SYN_FUN + GOV + M_W_E, controls = ctree_control(minbucket = 25), data = illdata)
plot(ctreeilldata)

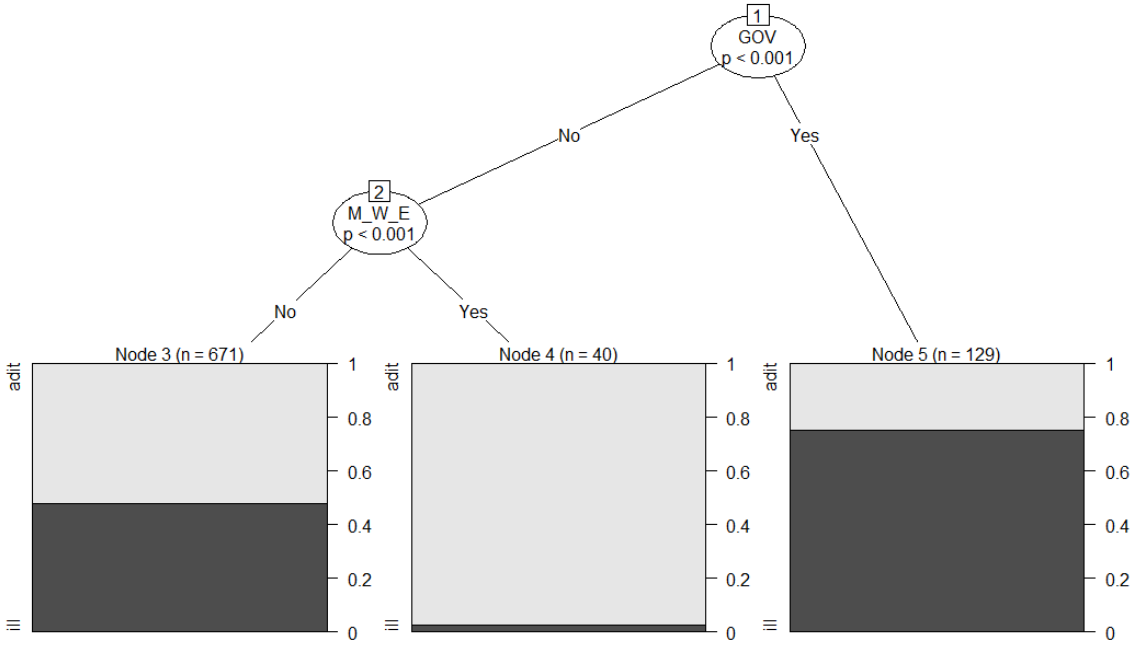

Figure 4: Morphosyntactic variables to which the choice between the illative and aditive could be related.

As shown in Figures 1 and 2, the most significant morphosyntactic predictor is government. If the word belongs to government structure, the illative is used more often, e.g. *asja**sse** puutuma* ‘to pertain to something’ (lit. ‘to concern into a thing’), *loo**sse** suhtuma* ‘to relate to a story; to have an opinion about a story’ (lit. ‘to regard into a story’), *hinnasõja**sse** uskuma* ‘to believe in a price war’ (lit. ‘to believe into a price war’). If the word does not belong to government structure, then the choice between the illative and aditive is related to a multi-word expression. Words that belong to a multi-word expression are mostly in the aditive, e.g. *pähe hakkama* ‘to go to your head’, *meelde tulema* ‘to remind’ (lit. ‘bring into the mind’), *põhja kõrbema* ‘to go out of business; to burn’ (lit. ‘to burn into the bottom’). In the illative there is only one example – *jõu**sse** jätma* ‘to remain in force’. If the word does not belong to a multi-word expression, then the aditive is slightly more common than the illative. A similar tendency has been shown before – that the illative is used more often with words with government structures (Erelt et al. 2007: 247; Siiman 2016: 218) and that the aditive is preferred for words that belong to a multi-word expression (Erelt et al. 1995: 56–57; Kio 2006: 126; Siiman 2016: 219).

4.5 Classification tree using only semantic variables

Lastly, it was analysed which semantic variables – proper or common noun, the proper noun semantic group, the common noun semantic group and meaning of the verb lemma – could be related to the choice between the illative and aditive.[12]

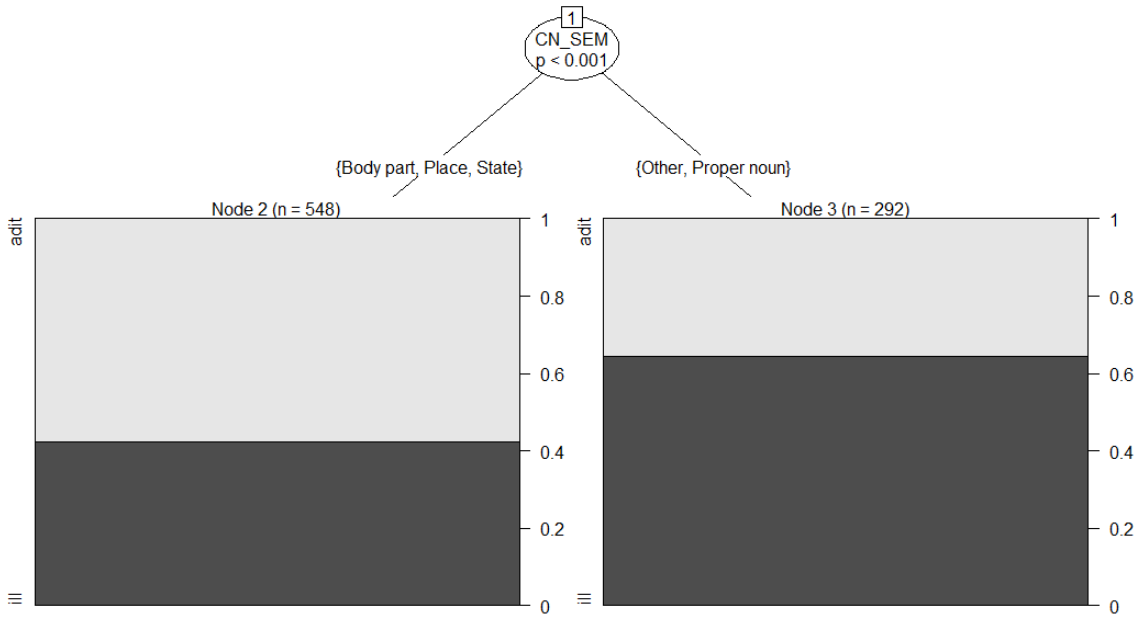

Figure 5: Semantic variables to which the choice between the illative and aditive could be related.

Figure 5 shows that the most significant semantic predictor is the common noun semantic group. For body part, place and state words, the aditive is more commonly used, e.g. *koju* 'home', *kurku* 'throat', *vabadusse* 'freedom'. Words in the group 'other' and proper nouns are more likely to be used in the illative, e.g. *pisikese**sse*** 'tiny', *Pärnu**sse**, Tartu**sse***.

5 New variable: the number of syllables in the last foot

One morphophonological variable analysed in the previous sections was the number of syllables in the genitive stem: 1, 2, 3 or > 3. However, more than half of the data (428 words out of 840) is in level '> 3'. Thus, to avoid too much data coded in a single level it was decided to consider prosody

[12] ctreeilldata = ctree (Adit_ill ~ PN_CN + PN_SEM + CN_SEM + VERB_LEMMA, controls = ctree_control(minbucket = 25), data = illdata)
plot(ctreeilldata)

and count the number of syllables in the last foot of the word. This means that the syllables are counted from the genitive form last stressed syllable. I am often concerned with secondary stress (not primary stress) when identifying the last stressed syllable. The number of syllables in the last foot can be 1, 2 or 3. It is not always clear, which syllable is the last stressed syllable of a word and how to syllabify a word (e.g. Hint 1980a, 1980b, 1980c). In this article words are syllabified based on Dictionary of Standard Estonian ÕS 2013 (Erelt et al. 2013). There are 4 levels: '1' if there is one syllable in the last foot (e.g. *bakalaureusetöö* 'bachelor thesis', *jõud* 'strength', *tondilugu* 'ghost story'), '2' if there are two syllables in the last foot (e.g. *inimene* 'human', *patsient* 'patient', *tonn* 'ton'), '3' if in the last foot there are three syllables (e.g. *Holland* 'The Netherlands', *Siber* 'Siberia', *Viljandi*) and '2 or 3', if the last foot can be based on the Dictionary of Standard Estonian ÕS 2013 (Erelt et al. 2013) two or three syllables long (e.g. *administreerimiskeskus* 'administration centre', *keskkonnateadlikkus* 'environmentalism', *ministeerium* 'ministry'). In Figure 6 are included all 16 variables and the new variable number of syllables in the last foot (SYL_LF).[13]

[13] ctreeilldata = ctree (Adit_ill ~ GRAD + GRAD_TYPE + GRAD_DRCT + QN_DGR + STEM_FINAL_ALT + STEM_FINAL_ALT_PTRN + FINAL_SOUND + SYL_GEN + SYL_LF + P_O_SPCH + SYN_FUN + GOV + M_W_E + PN_CN + PN_SEM + CN_SEM + VERB_LEMMA, controls = ctree_control(minbucket = 25), data = illdata)
plot(ctreeilldata)

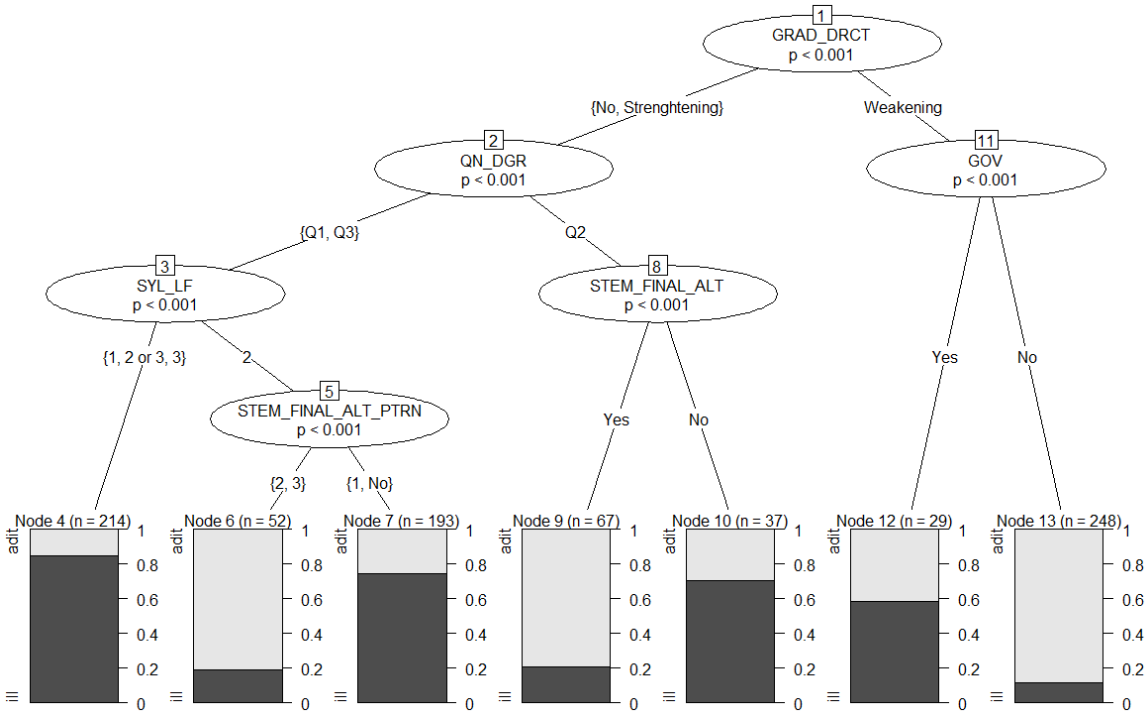

Figure 6: Classification tree using the number of syllables in the last foot variable (SYL_LF)

It turns out that Figure 6 is quite similar to Figure 1 where all 16 variables without new variable were analysed. Again the most significant predictor to choose between the illative and aditive is the direction of gradation, followed by the quantity degree of the base form, government and stem-final alternation. The difference from Figure 1 is that the quantity degree of the base form is not followed by the same variable again, but by the new variable 'the number of syllables in the last foot'. The branches do not split by first- and three-degree words, but by the number of syllables in the last foot. The lowest branch is again the same 'the stem-final alternation pattern'.

The strongest predictor is the direction of gradation, which divides the tree into two nodes: words without gradation (551) or words with strengthening gradation (12), which prefer the illative (374 illative forms out of 563). In the other branch are words with weakening gradation (277), which are used in the aditive (231 aditive forms out of 277). Words with weakening gradation split into two groups by government. If the word has weakening gradation and belongs to government structure, it has a tendency to occur in the illative, e.g. *asjasse puutuma* 'to pertain to something' (lit. 'to concern into a thing'), *loosse suhtuma* 'to relate to a story; to have an opinion about a story' (lit. 'to regard into a story'),

*hinnasõja**sse** uskuma* ‘to believe in a price war’ (lit. ‘to believe into a price war’). If a word with weakening gradation does not belong to government structure, then the aditive is more likely to be chosen, e.g. *garderoobi* ‘dressing room’, *nimekirja* ‘list’, *riiki* ‘country.’

Words without gradation or with strengthening gradation are divided by the quantity degree of the base form. In the first group are first- and third-degree words and in the second group are second-degree words. For first- and third-degree words the significant predictor is the number of syllables in the last foot. For second-degree words the significant predictor is stem-final alternation. Second-degree words without gradation or with strengthening gradation with stem-final alternation are mostly in the aditive, e.g. *ajakirjandusse* ‘press’, *liiklusõnnetusse* ‘traffic accident’, *teise* ‘second/other’. Similar words without stem-final alternation are mostly in the illative, e.g. *kütke**sse*** ‘feter’, *loetelu**sse*** ‘list’, *Poola**sse*** ‘Poland’). These same branches were in Figure 1 where the new variable was not taken into account. First- and three-degree words without gradation or with strengthening gradation split by the number of syllables in last foot to 2-syllable words or 1-, 2- or 3- and 3-syllable words. Words in the last branch make more use of the illative, e.g. *peatuse**sse*** ‘halt’, *päevakeskuse**sse*** ‘day-centre’, *Viljandi**sse*** ‘Viljandi’. It is difficult to describe this branch but the conclusion is simple: third-degree *ne*- and *s*-ending words occur more in the illative because in this branch there are mostly third-degree *ne*- and *s*-ending words based on the current data. In the other branch there were words with two syllable foot. If these words had the 2nd or the 3rd stem-final alternation pattern, then the aditive is more frequently used, e.g. *juhatusse* ‘management’, *jäädvustamisse* ‘perpetuate’, *üleriigilisse* ‘nationwide’. The 1st pattern or words without stem-final alternation pattern are more likely in the illative, e.g. *bussitaski**sse*** ‘bus wagon’, *Ruhnu**sse*** ‘Ruhnu’, *voodi**sse*** ‘bed’. Based on the data it is possible to conclude that third-degree *ne*- and *s*-ending words are mostly in the illative and second-degree *ne*- and *s*-ending words are mostly in the aditive. The same conclusion was found in §4.1, where the 2nd and the 3rd pattern first- and second-degree words (89) preferred aditive (74 forms out of 89) and third-degree words (210) were mostly in the illative (159 forms out of 210).

Figure 6 shows that the number of syllables in the last foot is a significant predictor. The number of syllables in the last foot takes into account pronunciation. In further research the number of syllables in the genitive stem could be replaced by the number of syllables in the last foot to be more accurate. The purpose of this article was to analyse previous

variables using multivariate analysis, and therefore it was not possible to not take into account the number of syllables in the genitive stem or to replace this variable.

6 Comparison of univariate and multivariate analysis

In previous studies 8 morphophonological, 4 morphosyntactic and 4 semantic variables were analysed using univariate analysis (Metslang 2015; Siiman 2016). Morphosyntactic and semantic variables were controlled with a so-called part-whole method and the Cramér's V effect size method. It was found that the choice between the illative and aditive could be related to gradation, the type of gradation, stem-final alternation and the stem-final alternation pattern, the final sound of the base form, the number of syllables in the genitive stem, government, multi-word expression, proper or common noun, the proper noun semantic group and the common noun semantic group. From all of the 16 variables the direction of gradation, the quantity degree of the base form, part of speech, syntactic function and meaning of the verb lemma were not statistically significant in the choice between the illative and aditive.

These same variables were analysed in this article using multivariate analysis – classification tree method. Based on the classification tree analyses the most significant predictors in the choice between the illative and aditive are the direction of gradation and the quantity degree of the base form. In a prior study the direction of gradation and the quantity degree of the base form were not statistically significant factors (Metslang 2015). To control for these results the data from Metslang (2015) was analysed using the classification tree method, which resulted in the direction of gradation being the most significant predictor for choosing between the illative and aditive. Words with weakening gradation had only one predictor 'the direction of gradation' and these words made more use of the aditive, e.g. *põhja* 'bottom; north', *selga* 'back', *sõlme* 'knot'. Words with strengthening gradation or without gradation have besides 'the direction of gradation' three more predictors: 'the quantity degree of the base form', 'the number of syllables in the genitive stem' and 'the stem-final alternation pattern'.

Hence, making a new analysis with the classification tree method using data from Metslang (2015) leads to the result that the most significant factor is the direction of gradation and the next most significant factor is the quantity degree of the base form. The direction of gradation was not a

significant factor in Metslang (2015) using univariate analysis because perhaps there were only 12 illative forms with weakening direction of gradation and 12 illative forms with strengthening direction of gradation. The method resulted in the direction of gradation variable being not statistically significant: $X^2(2, N = 1710) = 3.03$, $p = 0.2$. Metslang (2015) and this study results differ because of the different method and data collection principles. Due to balanced data in this study, the data includes more illative case forms and it is possible to get statistically significant results.

Siiman (2016) analysed 4 morphosyntactic and 4 semantic variables. Of the 8 variables, 5 were significant factors. One statistically significant factor was government, which is significant also in this study. Based on uni- and multivariate analysis the words in government structures occur in the illative and words that are not in government structures prefer the aditive. When all 16 variables were analysed none of the semantic variables were significant (see Figure 1). Considering only semantic variables in the classification tree (see Figure 5), then the results of Siiman (2016) and this study are similar: i.e., proper names (people and place names) have a tendency to occur in the illative and common noun place and state phrases are mostly in the aditive. Based on the current analyses the aditive is preferred also with body part words.

Univariate analysis answers the question “With what variables is the illative more often used and with what variables is the aditive more commonly used?” Multivariate analysis answers the question “Which variables are significant in the choice between the illative and aditive?” Thus, univariate analysis gives preliminary results, e.g. words without gradation are mostly in the illative. Multivariate analysis gives more specific results, e.g. third-degree words without gradation are usually in the illative. For first-degree words without gradation, the choice between the illative and aditive may also be related to the stem-final alternation pattern. For second-degree words without gradation the illative and aditive may also be related to stem-final alternation. In summary, the significant factors for the choice between the illative and aditive are the direction of gradation, the quantity degree of the base form, government, stem-final alternation and the stem-final alternation pattern. Based on univariate analysis, there are more significant factors and the direction of gradation and the quantity degree of the base form are not significant factors.

The fewer branches a classification tree has, the easier it is to interpret the tree. If there are many variables, the description of words could be

confusing, e.g. the illative is more common with first-degree words without gradation or with weakening gradation without stem-final alternation or with the 1st stem-final alternation pattern, e.g. *mur**usse*** ‘grass’, *per**esse*** ‘family’, *sõn**asse*** ‘word’.

It appears that the classification tree method is more accurate than univariate analysis because classification tree gives hierarchy about factors, not only *p*-values. In Siiman (2016) factors were hierarchically organised only using the Cramér’s V effect size method. Only morphosyntactic and semantic variables were used and the results are similar to the results of the current study.

Based on the Cramér’s V effect size method the significant predictors for the choice between the illative and aditive were the common noun semantic group (0.22), government (0.21) and multi-word expressions (0.2). The effect size was smaller with variables the proper noun semantic group (0.15) and proper or common noun (0.12) – variables that were not in this article’s classification trees. (Siiman 2016: 227)

Multivariate analysis seems to be well suited for analysing linguistic data since it is less sensitive to sample size – it is possible to determine the minimum number of observations and the results are not missing by the disproportionate distribution of the observations. Univariate analysis is needed to find good preliminary results, but multivariate analysis methods should be used to explore grammatical alternatives.

7 Conclusion

This study examined the variation of the Estonian illative case based on Estonian language material. Using classification trees, it was explained which morphophonological, morphosyntactic and semantic variables most affect the choice between the illative and aditive.

In the first analysis, all the variables were considered, according to which the significant predictor in choosing the long or short illative case was the direction of gradation followed by the quantity degree of the base form, government, stem-final alternation and the stem-final alternation pattern. It turns out that the choice between the illative and aditive is affected by morphophonological variables, which confirm the claim in the academic grammar of Estonian that the choice between the illative and aditive is related to a word’s phonological-derivative structure.

Morphophonological, morphosyntactic and semantic variables were also analysed separately. Considering only morphophonological variables,

the significant predictors for the choice between the illative and aditive were the direction of gradation, the quantity degree of the base form, stem-final alternation, the stem-final alternation pattern and the number of syllables in the genitive stem. Analysis of only morphosyntactic variables indicated that the significant predictors were government and multi-word expression. The same result was obtained in earlier studies, in which government structures prefer the illative (Erelt at al. 2007: 247; Siiman 2016), and in which multi-word expressions are more in the aditive (Erelt et al. 1995: 56–57; Kio 2006: 112–113, 126; Siiman 2016). Considering only semantic variables, the significant predictor for the choice between the illative and aditive was the common noun semantic group. In a previous study, the additive was preferred with the proper noun semantic group (personal names and place names) (Siiman 2016). In this study, the illative was used with proper nouns and with the common noun semantic group 'other'. Furthermore, in both studies the common noun place and state phrases occurred mostly in the aditive. In this study, the aditive also occurred with body part words.

Regarding third-degree words, it turns out that according to this analysis, the choice between the illative and aditive is related to the direction of gradation: words without gradation are more used in the illative and words with weakening gradation prefer the aditive. It was also concluded that in the case of words with a weakening gradation the choice between the illative and aditive is related to government. *ne*- and *s*-ending words (words in the 2nd and the 3rd stem-final alternation pattern) are more likely in the aditive, if they are first- or second-degree words. If these *ne*- and *s*-ending words are third-degree words, then they are more often used in the illative.

One morphophonological variable was added to the 16 variables already analysed – the number of syllables in the last foot. It was found that the analysis would be more accurate if the variable number of last foot could replace the variable the number of syllables in the genitive stem.

Comparing uni- and multivariate analysis, the multivariate method gives more information and is more precise, i.e. it can draw conclusions about the concurrence of several variables. According to the analysis here, the most significant predictors for the choice between the illative and aditive are the direction of gradation and the quantity degree of the base form. However, this result was not obtained in a univariate analysis, and so it can be argued that although a univariate analysis might be suitable for a preliminary analysis, the results should be verified by multivariate analysis.

Then the results can be calculated on the basis of fewer observations and it is possible to set the minimum number of observations.

In the future, the illative variation should also be investigated by other methods. In addition to data from a corpus analysis, surveys could be carried out for studying the illative variation by analogy or experiments could be conducted where Estonian speakers select whether they prefer the singular long or short illative form. The illative variation is a good example of a grammatical alternation, the study of which could be generalised to similar alternation in other languages.

References

Barlow, Michael & Kemmer, Suzanne. 2000. Introduction: a usage-based conception of language. In Barlow, Michael & Kemmer, Suzanne (eds.), *Usage-based models of language*, vii–xxviii. Stanford–California: CSLI Publications.

Erelt, Mati & Kasik, Reet & Metslang, Helle & Rajandi, Henno & Ross, Kristiina & Saari, Henn & Tael, Kaja & Vare, Silvi. 1993. *Eesti keele grammatika II. Süntaks. Lisa: Kiri* [Estonian grammar II: Syntax. Appendix: Orthography]. Tallinn: Eesti Teaduste Akadeemia Keele ja Kirjanduse Instituut.

—— 1995. *Eesti keele grammatika I. Morfoloogia. Sõnamoodustus* [Estonian grammar I: Morphology. Word formation]. Tallinn: Eesti Teaduste Akadeemia Eesti Keele Instituut.

Erelt, Mati & Erelt, Tiiu & Ross, Kristiina. 2007. *Eesti keele käsiraamat* [Handbook of Estonian]. Tallinn: Eesti Keele Sihtasutus.

Erelt, Tiiu & Leemets, Tiina & Mäearu, Sirje & Raadik, Maire. 2013. *Eesti õigekeelsussõnaraamat ÕS 2013* [The dictionary of standard Estonian ÕS 2013]. Tallinn: Eesti Keele Sihtasutus.

Hasselblatt, Cornelius. 2000. *Eesti keele ainsuse sisseütlev on lühike* [The illative singular in Estonian is short]. *Keel ja Kirjandus* 11. 796–803.

Hint, Mati. 1980a. *Minevikuline ja tulevikuline aines keelesüsteemis. Prosoodiatüübi nihked ja selle tagajärjed* [Past and future subject matter in the language system. Prosody type shift and its consequences]. *Keel ja Kirjandus* 4. 215–223.

—— 1980b. *Minevikuline ja tulevikuline aines keelesüsteemis. Prosoodiatüübi nihked ja selle tagajärjed* [Past and future subject matter in the language system. Prosody type shift and its consequences]. *Keel ja Kirjandus* 5. 270–278.

—— 1980c. *Minevikuline ja tulevikuline aines keelesüsteemis. Prosoodiatüübi nihked ja selle tagajärjed* [Past and future subject matter in the language system. Prosody type shift and its consequences]. *Keel ja Kirjandus* 6. 349–355.

Kaalep, Heiki-Jaan. 2009. *Kuidas kirjeldada ainsuse lühikest sisseütlevat kasutamisandmetega kooskõlas?* [How to describe the short illative singular in harmony with usage data]. *Keel ja Kirjandus* 6. 411–425.

Kio, Kati. 2006. *Sisseütleva käände kasutus eesti kirjakeeles* [The use of the illative case in standard Estonian]. Tartu: University of Tartu. (Master's thesis.)

Klavan, Jane & Pilvik, Maarja-Liisa & Uiboaed, Kristel. 2015. The use of multivariate statistical classification models for predicting constructional choice in spoken, non-standard varieties of Estonian. *SKY Journal of Linguistics* 28. 187–224.

Langacker, Roland W. 1987. *Foundations of cognitive grammar, Vol. 1: Theoretical prerequisites.* Stanford: Stanford University Press.

Langemets, Margit & Tiits, Mai & Valdre, Tiia & Veskis, Leidi & Viks, Ülle & Voll, Piret. 2009. *Eesti keele seletav sõnaraamat* [The explanatory dictionary of the Estonian language]. Eesti Keele Sihtasutus.

Metslang, Ann. 2015. *Ainsuse pika ja lühikese sisseütleva valiku olenemine morfofonoloogilistest tunnustest: Korpusanalüüs* [How the choice between the singular long and short illative case depends on the type of morphophonological variables: A corpus analysis]. *Emakeele Seltsi aastaraamat* 60 (2014). 127–147.

Mäearu, Sirje. *Valik rektsioone* [Choice of governments]. (http://keeleabi.eki.ee/artiklid/rektsioone.html) (Accessed 2015-09-23.)

Raag, Virve. 1998. *The effects of planned change on Estonian morphology*. Uppsala: Studia Uralica Upsaliensia 29. (Doctoral dissertation.)

Rajandi, Henno. 1963. *Morfeemide liigitus deskriptiivses lingvistikas* [Classification of morphemes in descriptive linguistics]. *Keel ja Kirjandus* 7. 409–414.

Ruutma, Mirjam & Kyröläinen, Aki-Juhani & Pilvik, Maarja-Liisa & Uiboaed, Kristel. 2016. *Ambipositsioonide morfosüntaktilise varieerumise kirjeldusi kvantitatiivsete profiilide abil* [Descriptions of the morphosyntactic variation of ambipositions by means of quantitative profiles]. *Keel ja Kirjandus* 2. 92−113.

Siiman, Ann. 2016. Ainsuse sisseütleva vormi valiku seos morfosüntaktiliste ja semantiliste tunnustega: Materjali ning meetodi sobivus korpusanalüüsiks [How the choice between the singular long and short illative case is related to morphosyntactic and semantic variables: Which material and methods are suitable for a corpus analysis]. *Emakeele Seltsi aastaraamat* 61 (2015). 207−232.

Sõnajalg, Ingrid. 1956. *Illatiiv eesti kirjakeeles* [The illative case in standard Estonian]. Tartu: University of Tartu. (Diploma thesis.)

Strobl, Carolin & Malley, James & Tutz, Gerhard. 2009. An introduction to recursive partitioning: rationale, application, and characteristics of classification and regression trees, bagging, and random forests. *Psychological methods* 14(4). 323–348.

Tagliamonte, Sali A. & Baayen, Harald R. 2012. Models, forests, and trees of York English: Was/were variation as a case study for statistical practice. *Language variation and change* 24(2): 135–178.

Viitso, Tiit-Rein. 1976. *Eesti muutkondade süsteemist* [On the inflection system in Estonian]. *Keel ja Kirjandus* 3. 148–162.

Viks, Ülle. 1992. *Väike vormisõnastik I. Sissejuhatus ja grammatika* [A concise morphological dictionary of Estonian I. Introduction and grammar]. Tallinn: Eesti Teaduste Akadeemia, Keele ja Kirjanduse Instituut.

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James P. Blevins. 2016. *Word and Paradigm Morphology*. Oxford: Oxford University Press. Pp. 249.

Reviewed by Tarja Riitta Heinonen

1 Introduction

The back cover advertises the volume *Word and Paradigm Morphology* by James P. Blevins to a wide readership – even to non-specialists as an introduction to morphological theory from the word and paradigm perspective. I therefore imagined that I, with a degree in linguistics and some familiarity with morphological issues, would safely fit into the target audience for this book. After having worked through the book twice with considerable effort, I am sorry to conclude that I cannot quite share the optimism of the blurb.

As the volume addresses "a wide readership", it is not an easy-to-read textbook, which would first introduce the reader to the basic concepts of the field before going further into details, recent developments, and the like. Instead, the reader is thrown onto the middle of the battlefield of competing morphological camps (the good ones being those that do not believe in morphemes). I would have preferred an overview on the current state of affairs in morphological theory, which would have provided a backdrop for a more detailed account of the word and paradigm approach. Only upon reading the book for the second time, and with the help of some further reading, was I able to make decent sense of it all, and to see the consistent thread through the book I had missed on the first go. On the other hand, the style is somewhat repetitive, which makes reading flow less smoothly. My experience is very likely related to the fact that the book was written over a long period of time, and that its goal and focus were changed more than once (p. x).

While the book is demanding, it is also rewarding. There are plenty of useful references, and examples from languages like Latin, Georgian, Estonian and Russian give food for thought. Theoretical issues and morphological phenomena are successfully presented side by side. In the last two chapters, Blevins ponders what kind of morphological model is compatible with what we know about paradigmatic relations, language

learning and use. I found the section most relevant for *any* book on linguistic theory.

2 The classical model and what is wrong with the concept of *morpheme*

The volume is divided into two parts: the first is dedicated to the *classical WP model*, while the second deals with *contemporary WP models*. The focus of the first part is, however, on the weaknesses of the morpheme-based analysis, rather than on the properties of the WP model per se. The discussion starts with Hockett's 1954 classification of grammatical models into three types: Item and Arrangement (IA), Item and Process (IP), and Word and Paradigm (WP). The title of Hockett's paper actually refers to "two models", not three, since it is about the models IA and IP and how they compare to one another, but the WP model would have deserved "the same consideration", even though "lack of time prevented this", as Hockett puts it (1954: 210).

For a novice, much of Chapter 1 *Revival of the WP model* is difficult to follow. The WP model is characterized as classical, or even ancient, but a reader who has not studied Latin or Greek at school does not get much wiser. A reference is made to a 1959 paper by Robert H. Robins (*In defence of WP*), and, later on, the analyses of Greek and Latin examples come from modern sources. An account of what the classical model was or is like would have been in order here, since there are several references to Priscian and/or the classical model all through the book (see, for instance, p. 54 Footnote 4, and pp. 106–108, 119, 127). The treatment of the recent adaptations, or the real revival phase of the model, is postponed to the second part of the volume.

Chapter 2 *The Post-Bloomfieldian legacy* tackles the concept of morpheme, "a minimal unit of meaning", the main antagonist of the story. It used to be an uncontroversial term for language description, and it is still used as such, particularly in introductory textbooks (p. 19). However, according to Blevins, this practice is based on a simplified view of morphological analysis consisting merely of the segmentation and classification of atomistic constituents. On the contrary, the morpheme should be regarded as a "purely theoretical construct" that is not related to any pretheoretical notion (p. 42).

The concept of morpheme has come to be associated with the generative theory, and, in the bigger picture, it is generatively and

functionally oriented schools of thought that are set against each other. Spencer (2013: 1–2) confirms that the morpheme has been "under sustained attack" in recent decades and asserts that it is completely incompatible with such notions as *lexeme* and *word form*: one cannot even "rationally believe that *cats* consists of a 'cat' morpheme *cat* and a plural morpheme *-s* and simultaneously believe that there are lexemes such as CAT with forms {*cat*, *cats*}". Perhaps a heavy emphasis is intended on the word *simultaneously*, since in his 1991 textbook, Spencer was able to handle all these concepts and a lot more (Spencer 1991).

Chapters 3 to 5 cover the cornerstone concepts of the WP model, *Words*, *Paradigms* and *Analogy*, one by one. It is argued that words offer a psychologically more realistic approach to language processing than sub-word units. Recent experimental evidence seems to confirm this view: word frequencies affect lexical processing (pp. 48–49; see also Lõo et al. 2018), and related word forms are mentally linked (p. 50). The fact that word forms may be related in two ways (they may be inflectional forms of the same lexeme, or they may represent derivationally related different lexemes) leads to a familiar question on how to distinguish regular derivation from inflection, and how to analyze hybrid categories such as participles.

The partially pedagogic concepts of *paradigm* and *inflectional class* are the topic of Chapter 4. New word forms are deduced on the basis of already known forms and exemplary paradigms for given inflectional classes. However, what is important in the present context is the fact that the forms are quite often differentiated from each other in a way that speaks against a morpheme-based analysis. For instance, if a Russian noun ends in *-u*, it is dative, accusative, or instrumental singular depending on its declensional class; the element *-u* does not have a context-independent meaning (p. 72). One might counter by claiming that the element *-u* is simply polysemic, but such an analysis is more contrived than one that appeals to paradigm slots. The same applies to theme vowels. In Spanish, there is a phenomenon called *vowel reversal*. A first conjugation verb *hablar* 'to speak' has the 3rd indicative form *habla* and the subjunctive form *hable*. In the second and third conjugation verbs (such as *vivir* 'to live') the pattern (*a*/*e*) is inverted: *vive* in the indicative, *viva* in the subjunctive (p. 112). Again, the vowel cannot be the sole marker of mood, and the interpretation of a verb form is based on knowing its inflectional class. Chapter 4 also covers such key terms as *principal parts* and *conjugational series*, as well as how paradigms are generally organized.

The end of the chapter asks how much of this organization is pedagogical idealization.

In Chapter 5, analogy is (unsurprisingly) contrasted with rules. Proportional analogy provides a way of deducing new forms from already known forms without the need to control the grammatical features that are associated with the forms. For instance, if the genitive singular of an Estonian noun is *X*, the nominative plural is *Xd* (p. 114). Conflicting grammatical features can be ignored. Several similar cases are cited from Latin verb inflection. Moreover, the concept of a non-morphemic element, *morphome* (originally from Aronoff) is introduced (p. 105). At the end of the book, the concepts of morpheme and morphome will be reunited for a brief reappraisal of what a general model for morphology could be like (pp. 224–225). I will return to this point at the end of the review.

3 The contemporary models

The second part of the volume covers "Contemporary WP models". A major division is made between *Realizational models* and *Implicational models* (Chapters 6 and 7, respectively). Realizational models do not make up a uniform framework but are "defined less by shared assumptions than by a shared morphemic adversary" (p. 121). In actual fact, the realizational model resembles the good old-fashioned IP model in that its *rules of exponence* are like interpretive counterparts of the processes. For instance, most English plural nouns are of the form *Xs* (linked with the features 'Noun' and 'Plural') if the corresponding singular form is *X*. Word forms can be seen as well-formed representations of specified sets of features (p. 161). Some of the realization models also make use of a different type of rule, a *rule of referral*, which copies or "takes over" a form from one paradigm cell to another (pp. 126–134). The rules are ordered and arranged into blocks (pp. 123–130, 136–138) according to their specificity and proximity to the stem. In some more complicated cases, the rule ordering may be used, or rather manipulated, to achieve the correct outcome (pp. 139–144).

Implicational models are based on the observation that "one inflection tends to predict another" (repeated from Matthews 1991: 197). In Chapter 7, this observation is combined with two assumptions: 1) variation within a system corresponds to uncertainty, and 2) implicational structure within a system corresponds to a reduction of uncertainty. As variation is further associated with the information-theoretic interpretation of uncertainty as

entropy, the line of reasoning leads to a new kind of view on paradigmatic organization. Uncertainty, identified as a number of variable case endings, can be measured. The entropy of a cell increases as a function of the number of (equiprobable) variants. If the variants are paradigmatically interdependent (measured by conditional entropy), uncertainty is reduced. An average conditional entropy per paradigm cell is typically less than the number of cell variants would suggest (p. 179). Other concepts that can be similarly operationalized include the choice of principal parts (by ranking the paradigm cells in terms of relative informativeness), cohesion (with the help of mutual information), and validity of analogy (pp. 182–183).

Another fundamental question is how versatile inflectional systems can be. Is there an upper limit for the number of inflectional classes, and how is the number of inflectional classes determined in the first place? An earlier attempt to address this question was formulated as the Paradigm Economy Principle (Carstairs 1983). This principle, as well as the analysis in the present book, ignores stem alternation, which may be an ungrounded simplification. Finnish is cited to have up to 82 declensional classes, while the expected number derived from variant case endings is much lower (pp. 189–192). In Finnish, however, stems and suffixes co-vary and cannot be separated from one another at least for any practical purposes. It is possible to construe a classification based on the case endings only, but to my knowledge such a set of declensions has never been proposed for Finnish. (I sketched such a scheme for *Iso suomen kielioppi*, a descriptive grammar of Finnish, but that part was not published in Hakulinen et al. 2004). In any case, the choice of suffix is conditioned phonologically, i.e., suffixes must be compatible with the stems (contrary to what is stated on page 191).

The final chapter explores profounder questions such as the source of morphological patterns, the status of regular and irregular formations, learnability and communicative constraints. Two general hypotheses are proposed: 1) form variation serves a fundamentally discriminative purpose, and 2) the organization of a linguistic system is strongly influenced by its communicative function. For a pattern to be discriminative, it is sufficient that forms are distinguished from each other, they do not need to be formally associated with specific features (this is shown by several case studies, especially one on Georgian verb inflection, pp. 139–146, 165–168, and 211–214). Regular and irregular patterns serve complementary functions in a system (pp. 201–202): regular patterns promote generalizability, irregular patterns enhance discriminability. Viewed this way, irregular forms are not merely historical relics, they have a synchronic

function: they make the contrasts in the inflectional system more salient than regular formations are able to do (compare the present and the past tense forms of *walk*, *walked* and *go*, *went* in this respect). An optimal morphological model is characterized as adaptive, discriminative and usage-based.

I find the ponderings in the final chapter interesting but rather abstract. Subsection 8.5 on *Morphological typology* does not address typological differences per se, focusing instead on the *typological applicability* of unit-based versus relation-based (WP) models. If I understand correctly, a complementary view on units and relations is considered, in which the morphemic and morphomic approaches could be made use of in one and the same general model. This comes as rather a surprise at the end of the volume, which has argued against morphemes throughout its 200+ pages.

My main concern about this book is that it could be more balanced. Morphological phenomena in which meaningful sub-word elements *are* involved are basically disregarded: agglutinative forms and patterns, cliticization and grammaticalization of independent word forms, and affix clipping (e.g. *-ism* > *ism*) would have deserved more attention. Also, the unclear status of representational "formatives" is left almost unaddressed (only briefly mentioned on p. 221).

The best feature of the book is its rather timeless attitude: properties and models of morphological systems are studied from the perspective of two millennia. In this respect, it is a valuable source of material and models of thinking for anyone interested in morphological theory.

References

Carstairs, Andrew. 1983. Paradigm economy. *Journal of Linguistics* 19. 115–128.

Hakulinen, Auli & Vilkuna, Maria & Korhonen, Riitta & Koivisto, Vesa & Heinonen, Tarja Riitta & Alho, Irja. 2004. *Iso suomen kielioppi* [The Comprehensive Grammar of Finnish]. Helsinki: Suomalaisen Kirjallisuuden Seura.

Hockett, Charles F. 1954. Two models of grammatical description. *Word* 10. 210–234.

Lõo, Kaidi & Järvikivi, Juhani & Tomaschek, Fabian & Tucker, Benjamin V. & Baayen, Harald R. 2018. Production of Estonian case-inflected nouns shows whole-word frequency and paradigmatic effects. *Morphology* 28. 71–97.

Matthews, Peter H. 1991. *Morphology*. Cambridge: Cambridge University Press.

Robins, Robert H. 1959. In defence of WP. *Transactions of the Philological Society* 58. 116–144.

Spencer, Andrew. 1991. *Morphological theory: An introduction to word structure in Generative Grammar*. Oxford: Blackwell.

—— 2013. *Lexical relatedness: A paradigm-based model*. Oxford: Oxford University Press.

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Milla Luodonpää-Manni, Esa Penttilä & Johanna Viimaranta. 2017. *Empirical approaches to cognitive linguistics: Analyzing real-life data*. Cambridge: Cambridge Scholars Publishing. Pp. 350.

Reviewed by Edyta Jurkiewicz-Rohrbacher

1 Introduction

The book is the outcome of two workshops on cognition, grammar, meaning, usage and corpora organized in 2014 and 2015 by the Finnish Cognitive Linguistics Association. It comprises nine papers covering diverse research areas (grammatical constructions and concepts, translation strategies, semantics, language acquisition) based on material from five European languages: English, Finnish, German, Russian and Spanish.

The papers are preceded by a short introduction written by the editors, which describes recent developments in empirical methods within cognitive linguistics. In a sense, it serves the purpose of a complementary view, which helps the reader to associate each of the following papers with an appropriate methodological frame. As it becomes apparent, usage-based approaches to language studies are quite heterogeneous both when it comes to the method of obtaining data and to further analysis. This is also reflected in the current volume, as should become clear from the following summary of the papers.

2 Summary of the chapters

Chapter 1 by Tuomas Huumo, Aki-Juhani Kyrölänen, Jenna Kanerva, M. Juhani Luotolahti, Tapio Salakoski, Filip Ginter & Veronika Lappala, *Distributional semantics of partitive A argument constructions*, examines Finnish clauses containing the partitive agentive argument in two-place predications as in (1):

(1) *Huolto* *tunnusti,* *että* *useita* *uudehkoja*
maintenance admit.PST that several.PL.PAR newish.PL.PAR

autoja *on* *reputtanut* *tämän* *testin.*
car.PL.PAR AUX.PRES.3SG fail.PTCP this.GEN test.GEN
'Maintenance admitted that several fairly new cars have failed the test.'

The first methodological problem to arise is obtaining the data itself, as the construction in question is a rare phenomenon. The authors thus turn to a web corpus, the Finnish Internet Parsebank, in order to retrieve observations. A manual revision of the concordance reveals 78 occurrences of the construction in the corpus with 41 distinct verbs. Basing on the obtained sample, the role of animacy and semantic roles of agentive arguments, quantifiers, epistemic usages, and the behaviour of patient-like arguments are examined.

The second part of the analysis focuses on the verbs themselves, and complex quantitative methods are employed. Namely, the semantic similarity between verbs appearing in the Partitive A construction is examined using a model based on the *word2vec neural network* trained to reconstruct linguistic contexts of words. A strong positive correlation between the frequency of use and semantic similarity between verbs is discovered. Thus, the authors conclude that these two measures form a gravitation centre fulfilling the function of attractor.

In Chapter 2, *Changes in figure-ground alignment in translation: Condensing information in subtitling*, Jukka Mäkisalo & Marjatta Lehtinen expand on the Cognitive Retention Hypothesis formulated in their former studies as their starting point. The authors assume that a study of a translation from source to target text should distinguish two levels: linguistic and cognitive, because while the latter is mostly preserved, the former is subject to syntactic and lexical change.

In the paper, Mäkisalo & Lehtinen examine this claim with regard to the cognitive Figure-Ground phenomenon – the unknown spatial or temporal property of an object called *Figure* is defined with reference to an entity with known properties (called *Ground*). They study English film dialogues and their Finnish audio-visual translations, and quantitatively evaluate the differences in Figure-Ground retention and lexical-semantic retention in target text. While cognitive structure is only slightly changed, differences in linguistic structure are significant and greater than in the case of the former pilot study on informative prose.

Chapter 3 *How light can a verb be? Predication patterns in V + NP constructions in English, Finnish, German and Russian* by Marja Nenonen, Juha Malli, Alexandre Nikolaev & Esa Penttilä deals with the problem of meaning distribution in V + NP predicates where the verbal part carries barely any descriptive content, as in *to make a face*. Such *light verb* constructions have previously been studied in Germanic languages. Here the authors also contribute to the question how to identify light verbs in Finnish and Russian.

As a starting point, they assume the existence of idiom-prone verbs like *to take, to make, to give* in all the studied languages, and they identify the most common ones in dictionaries. The authors determine that the distributions of verbal lexemes in V + NP constructions are similar across languages. Moreover, the sets of the most common lexemes include verbs with similar semantic explications. The authors examine more thoroughly the contributions of the meanings in V + NP constructions where the nouns refer to body parts. They come to the conclusion that while there are certain similarities between verbs with regard to their phonological, morphological and semantic properties, the semantic contribution to the meaning of the constructions varies. Therefore, in the last presented stage verbs reflecting the meaning of 'take' are examined in the corpora of fiction and newspapers. The meaning of the construction *take* + NP in each retrieved example is evaluated on a three-step scale with regard to the lightness of the verbal contribution. The distributions are fairly similar in all languages and allow the authors to create a *lightness continuum*. On the one end the verbal semantics strongly participates in the compositional meaning of the whole construction: the verb is "heavy", as in *to take someone to the hospital*. Meanwhile on the other end the main semantic contribution belongs to the NP and the whole construction can be replaced by a separate verb of a similar meaning without loss of information. For example *to take a vote* is a light verb construction since it is interchangeable with *to vote.*

In Chapter 4, *A usage-based and contextual approach to clausal aspect in Finnish*, Salla Nurminen touches upon some rather understudied factors related to the Finnish clausal aspect – a semantic category modelled by the notions of duration and change (or lack of it). A clause is aspectually bounded when a limit indicating the completedness of situation is present:

(2) *The children came to the park.*

The aspectually unbounded clause is related to the notion of continuity – proceeding without interruption or without reaching the limit:

(3) *The shy animal slowly came closer.*

Nurminen focuses on three frequent verbs: *olla* 'to be', *tehdä* 'to do' and *tulla* 'to come'.

In the first part of the paper Nurminen discusses the role of temporal, durative and iterative adverbials such as *maanantaina* 'on Monday', *tunnin* 'for an hour', *kahteen kertaan* 'twice' as limit markers. Basing on an impressive number of nearly 2400 observations obtained from the digital version of Finnish daily *Helsingin Sanomat* she concludes that the role of expressions of repetition and duration does not appear to be as significant as formerly claimed by scholars since it is rather infrequent in the sample. Conversely, she considers adverbials expressing time to be potential triggers of bounds or bounded temporal windows for otherwise unbounded clauses. However, it must be underlined that the study is introspective, not quantitative.

In the second part of the paper, Nurminen discusses boundedness in the context of negation, modal constructions and generic context. She asserts that the previous layered models of the Finnish clausal aspect neglected those properties, and suggests that situations in clauses characterized by one of those three factors can be considered in terms of aspectuality to be unbounded through one of additional layers.

Finally, the author turns to the contextual perspective on clausal aspect, that is, on the interaction between the clause and its neighbour clauses in a text. In the paper mainly clause-external elements such as subordinated clauses containing the connector *kun* and *kunnes* 'until' are discussed, but the need for more detailed studies is expressed, as the study sample turned out to be insufficient for research on that topic.

Chapter 5, *The natural translation of idiomatic constructions*, by Esa Penttilä discusses concealed language contact between English and Finnish using the example of instant word-for-word translations of idioms. Obtaining the data is particularly challenging in this case, as the parameters of translated constructions are vague. The author turns to the Internet and applies Google search queries for English idiomatic phrases that do not have accurate equivalents in Finnish. Two primary areas give possible prospects for such studies: social media and journalism. In the case of fora and similar channels word-for-word translations are used and expected to

be understood by the narrow group of readers; similarly, in the case of the press the multinational, English-centred context increases the chance of code-switching. Penttilä manages to identify several idioms (e.g. *rampa ankka* 'lit. lame duck, an authority in power whose successor has already been elected', *apina selässä* 'lit. monkey on one's back, a burden') that have infiltrated Finnish from English, but concludes that the phenomenon requires further study.

Chapter 6, *The choice between generic scientific terms in linguistic research written in Finnish*, by Milla Luodonpää-Manni describes the results of a qualitative corpus study on differences in usage of terms generally assumed to be self-explanatory that are associated with the scientific register, such as 'theory', 'hypothesis' and 'model'. Analysis of a corpus comprising sixty scientific papers reveals various usages of the same term. Luodonpää-Manni examines possible contributing factors, namely: degree of certainty and stability as to the scientific constructs discussed by scholars, the scope of the scientific constructs, degree of abstraction of the constructs, and definition of scientific constructs in broader terms. An additional factor related to the onomasiological salience is the question of style and convention. The usage-based data is supplemented by questionnaire answers, where scholars were directly asked to characterize the differences between generic terms. This triangulation of methods enables the author to draw conclusions without relying on own intuition.

In Chapter 7, *Topic-marking prepositions in Spanish: contrasting corpus and questionnaire data in the analysis of prepositional synonymy*, Anton Granvik discusses four Spanish prepositions (*de*, *en torno a*, *sobre* and *acerca de*) used for topic marking, which are equivalent to the English group of prepositions: of, on, about, regarding and concerning. Granvik starts from the No-Synonymy Principle, and first characterizes the four prepositions as to their semantic structure and number of meanings they comprise besides the topic-marking function. In the next stage, Granvik extracts from the Corpus del Español 100 clause samples where the prepositions in question mark the topic. Granvik observes that the share of the 100 clauses in comparison to the sample from which they were obtained correlates directly with amount of all meanings each preposition covers. Basing on this distribution he tries to estimate the total number of topic-marking function occurrences in the corpus. The data set is then analysed quantitatively using statistical modelling (multinomial logistic

regression) and the final results are visualized with a dendrogram constructed by performing hierarchical cluster analysis.

The significant factors obtained from the quantitative corpus study allow the author to identify prototypical usage contexts for the prepositions in question and test them further in an open-ended and corpus-testing questionnaire. Granvik concludes that while *de* and *en torno a* form their own distinct behavioural profiles, the remaining *sobre* and *acerca de* are less constrained and more general. The results, however, do not provide a straightforward answer as to the constructional character of topic-marking prepositions.

In Chapter 8, *The role of morphological verb constructions in processing Russian reflexive verbs*, Aki-Juhani Kyröläinen, Vincent Porretta & Juhani Järvikivi examine real-time processing of Russian morphologically complex verbs with regard to the role of frequency and semantic similarity. Information on the frequency and dispersion of four-morphemic reflexive verbs is acquired from the Russian National Corpus in the form of nine variables describing verbal roots, bases, suffixes, reflexive roots and roots' verbiness. The possibly correlated variables are converted using a statistical method called *principle component analysis* into three linearly uncorrelated variables, which capture 96% of the variance. The authors describe an experiment in which twenty-six Russian native speakers were asked to perform a lexical decision task where they were expected to classify the stimulus appearing on the screen as a real Russian word or a pseudoword. The overall set of the potential stimuli consisted of 80 existing reflexive verbs, 80 existing prefixed verbs, 160 pseudowords and 10 words used as a warm-up before starting the experiment. During the experiment the response reaction time was measured. Additionally, having fulfilled the first task, participants were asked to evaluate reflexive – non-reflexive, and prefixed – non-prefixed verb pairs as to their semantic similarity on a five-level scale. In the analysis, the relations between reaction time and frequencies obtained from the corpus are tested.

The results of the psycholinguistic experiment and the principle component analysis are compared using a statistical model: *a generalized additive mixed model*. The results show that the reaction time is negatively correlated with the frequency of a particular morphological construction, as well as with the relatively high frequency of a verbal root. A relatively high frequency of the base from which a reflexive verb was derived, on the other hand, has an opposite effect on reaction time. These three factors correspond directly to the three components obtained from the corpus

analysis, so thanks to triangulation of methods the results seem robust. They are also in line with previous research on complex word processing, but in this case they contribute to the knowledge about processing of morphological structure.

Chapter 9, *Development of early directives in Finnish: A usage-based approach*, by Maija Surakka is a case study of a 2.5–3 year-old Finnish-speaking child's acquisition of directive expressions. The author uses two methods of obtaining data: recordings and notes, but her analysis is multimodal: that is, she also considers action and shared knowledge in the family to be important factors. The study provides a general numeric comparison of five types of grammaticalized meaning structures, but otherwise it is introspective. The author presents the studied utterance together with its paraphrase and then elaborates on them, taking into account both the verbal and nonverbal meaning resources. The author observes a considerable change in the child's development, in particular in an increasing usage of imperatives. Surakka also succeeds in identifying in the child's speech the presence of mental concepts of *wanting* and *others* that need to be established prior to the acquisition of such expressions.

3 Conclusions

One matter worth drawing attention to is the editors' choice to divide the book into *Part one: Corpus-based studies* and *Part two: Research based on information from language users*. These headings may be considered slightly misleading for potential readers, and it seems appropriate to clarify that matter here. First, as may be seen above in the chapter summaries, most studies in part two apply triangulation of data and methods, hence both corpus and elicited data are obtained. Secondly, the editors use the term *corpus* mainly in reference to collections of a defined size and content, often considered representative for some type of language variety, e.g. national corpora, reference corpora. It should not be forgotten that a text sample representative with regards to the research hypothesis may be called a corpus too. In that sense also the collection of child utterances from Surakka's paper can be considered a corpus documenting the development of directivity markers in the child's language.

On the whole, the papers in the volume provide extensive insight as to the range of empirical approaches currently applied in cognitive linguistics: next to corpus-illustrated, introspective studies, research supported by basic statistical testing and complex analytical models is presented. Also very

visible is the increasing orientation towards multimethodological approaches in contemporary cognitive linguistics.

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Jonathan J. Webster (ed.). 2015. *The Bloomsbury Companion to M. A. K. Halliday*. London: Bloomsbury. Pp. xiv + 512.

Reviewed by Sirkku Ruokkeinen

1 Introduction

Bloomsbury Companions is a series of single volume works providing an accessible resource to specialized fields in the humanities. *The Bloomsbury Companion to M. A. K. Halliday* gives a nineteen-chapter overview of the career and thinking of Michael Alexander Kirkwood Halliday (1925–2018), linguist, teacher, and developer of *systemic functional linguistics* (SFL). *Companion* proceeds in four thematic parts, each concentrating on a different segment of Halliday's career. Beginning with a biographical sketch of Halliday's life and early career in Part I, proceeding to his influences in Part II, and his most important theoretical contributions to linguistics and semiotics in Part III, the work ends in a section on the later application and development of his theories by others in Part IV. Although it would be impossible to encompass the full breadth and depth of Halliday's work in a single volume, the *Companion* performs admirably in delivering a roughly chronological representation of both Halliday's life and career.

2 The making of a mind: Influences

Consisting only of one chapter by Jonathan J. Webster, Part I opens the volume with a biographic sketch discussing Halliday's youth, early interest in linguistics, and studies in China. Building partially on Chapter 1 and mixed with further biographical notes to explain the motivations behind Halliday's theories, the following five chapters forming Part II focus on the most noteworthy influences upon Halliday's thinking and the epistemological issues forming the basis of Halliday's views on language.

Chapter 2 by David G. Butt opens Part II with a consideration of Halliday's work as a natural science of meaning. Butt critically investigates Halliday's scientific principles and the methodology applied in his theoretical output. In Chapter 3, Xuanwei Peng discusses the philosophy of Halliday's teachers in China, Luo Changpei and Wang Li, and their effect

upon Halliday's theories of language. The chapter concentrates on the influences on SFL, more specifically on the speech function categories and process types. Xuanwei Peng also explores the more extensive interconnectedness of the epistemology of SFL and the "holisticality" of Chinese thinking.

Chapter 4 by Braj B. Kachru discusses the British tradition of linguistics, and the work of Halliday's supervisor, J. R. Firth. Kachru discusses the backdrop from which the Firthian tradition sprung, Firth's work, and the rather extensive criticisms levelled upon him. The chapter opens with a discussion on the search for a socially realistic paradigm of linguistics which sprung from the rejection of the transformational-generative grammar during the late 1960s and 1970s. Firth, whose interest in the social aspect of language was apparent as early as in the 1930's, was re-evaluated in light of this new view of linguistics. Firth viewed language as *function* – a position which, Kachru notes, is reminiscent of Hallidayan *meaning*, despite the difference in terminology. Firth's work on prosodic analysis has also been applied extensively, even before his "re-discovery", but his concept of *context of situation*, and its suggested position in linguistics, had largely been ignored. Adopted from the anthropologist Bronislaw Malinowski, the concept denotes the contextualization of linguistic data. The chapter concludes with a consideration of the relevance of Firthian linguistics to the present-day discussions.

Halliday himself has written Chapter 5, which discusses the influence of Marxism on his thinking. Subsequently, the chapter reads as something in-between an autobiography and epistemological overview. Halliday's Marxist linguistics developed initially as a result of his contact with the Chinese linguists Luo Changpei and Wang Li, and later, with the British Communist Party Linguist Group. The group critically examined "bourgeois" assumptions about language, such as thinking written language superior to the spoken varieties and sought to bring attention to previously understudied and underappreciated languages and language varieties. Although Halliday admits that Marxism did not have direct influence over his work on linguistics, he does connect the development of appliable linguistics and functionality to Marxist ideologies.

Much like the other chapters of Part II, Ruqaiya Hasan's discussion of the development of SFL in Chapter 6 is founded on the description of Halliday's life events and influences. The evolution of SFL is presented as "a reading of something that has come into being by the repeated and timely conjunctions of a number of 'naturally occurring' events" (p. 103).

The foundation of SFL is traced back to a 1942 course in Chinese, inspired by J. R. Firth. After taking the course, Halliday continued his studies of Chinese in Peking and Guangzhou until returning to Britain for a postgraduate degree at the University of Cambridge under the direction of J. R. Firth. Hasan identifies two themes of SFL which can be traced back to these early years of Firthian influence: giving equal value to different language varieties and viewing language as social action. Hasan connects the work on *Categories of the Theory of Grammar* (1961), declaring Halliday's separation from the principles of transformative-generative grammar, to the teaching experience Halliday gained during his early Edinburgh years. The development of a social semiotic theory of linguistics was slow during the following years, in University College London, where Halliday arrived for a position as the Director of the Communications Centre in 1963. Halliday's early work on register and tenor was conducted here, and he made contact with scholars such as the sociologist Basil Bernstein. Halliday's early work on systemicity and the identification of the metafunctions of language Hasan traces back to discussions with Alex Henrici, a mathematician with an interest in computational linguistics. The rest of the closing chapter of Part II concentrates on a discussion on the metafunctions in relation to linguistic meaning, theorization of the process of language, and linguistics as a discipline.

3 Ideas about language: The theories

Part III of the *Companion* discusses Halliday's most well-known and recognized ideas on language. Prominent scholars have come together to discuss different themes and topics within Halliday's work, such as the axial rethink and the probabilistic nature of language, child language development and language teaching, intonation, text linguistics, and stylistics.

Christian M. I. M. Matthiessen opens Part III in Chapter 7 with a consideration of Halliday's views on language. Halliday's perspective to language as a meaning-making resource is contrasted with the traditional approach to language as a collection of rules. The contrast is explored in connection to linguistic organization, grammatical modularity, relationships between theory and application, grammar and lexis, and system and text. Matthiessen proceeds to point out that while the approaches are quite different, they are, at least in theory, complementary. SFG's position in the family of unification grammars is discussed briefly

before moving to Halliday's *axial rethink*. The axial rethink refers to Halliday's view on the significance of the relationship between *paradigmatic* and *syntagmatic* axes in linguistics. The different axes relate to different types of linguistic relationships: syntagmatic axis refers to the horizontal structure of elements, for example, the relationship between words in a sentence, while paradigmatic axis refers to the vertical system of units, or the relationship between words which may replace one another in a sentence. Previously, the axes had been given equal weight, but Halliday's view of the paradigmatic axis is rather more intricate. The units are seen as a network of simultaneously occurring systems. Language and linguistic analysis is given a 'paradigmatic base', the consequence of which is the opening of several important theoretical considerations which Matthiessen explores for the rest of the chapter. These include, for example, the clustering of systems, modelling of lexicogrammar as a continuum instead of as isolated modules, and the interpretation of language as a probabilistic system; a system of units implemented at certain, measurable rates in a language. Matthiessen closes the discussion with an overview on the reception of Halliday's ideas on language, which reveals that although Halliday's theories were not initially well received, many of them have been accepted, in the decades since, as an integral part of our view of language.

Christian M. I. M. Matthiessen continues the examination of Halliday's conception of the probabilistic nature of language in Chapter 8. According to Matthiessen (p. 204), Halliday (2003/1964: 40) defines his work on language as the description of "patterns inherent in the linguistic performance of the native speaker", an approach which necessarily involves an identification of primary patterns in register of choice, the description of the linguistic patterns, and their statistical analysis. Thus, language may be described as a *meaning potential*, or a system of potential meanings available to the speaker. After this initial description of the theory, Matthiessen proceeds to describe the *cline of instantiation*, which describes the relationships between text, system, and context. The chapter ends in an investigation of some probability types and their application in corpus linguistics.

In Chapter 9, Jane Torr discusses Halliday's work on child language development. Torr begins with an overview of the relevant theories at the time of publication of Halliday's *Learning how to mean* (1975), which presents a detailed analysis of Halliday's son Nigel's language acquisition. The chapter concentrates on key features of the work, including the

theoretical foundations of studying child language development in the light of metafunctions (interpersonal, ideational, textual), the data, methodology, and results. Halliday recorded Nigel's language by hand, for 15 months, when he was 9–24 months old. Six-week intervals were analyzed and a series of system networks established for the description of Nigel's language. Halliday's networks reveal six linguistic microfunctions (instrumental, regulatory, interactional, personal, imaginative, heuristic) in use at 9–18 months, while at 18–24 months, the child's language may be divided to two macrofunctions (pragmatic, mathetic). At 24 months, Nigel's language had moved beyond macrofunctions, towards adult language.

Chapter 10, by J. R. Martin, describes Halliday's grammar. The chapter concentrates on Halliday's systemic views on language, foundations of which were narrated by Matthiessen in Chapter 7. Martin presents different types of approaches to linguistic description, including tree diagrams known from generative grammar, function labels, and class labels. The differences between formal and functional theories are explored, as are types of approaches adopted according to the language studied. Later Martin discusses constructing a network to represent the systems of choice taken through language. The exploration of grammatical description is accompanied by discussions of the theoretical motivations for the approach.

In Chapter 11, Bradley A. Smith & William S. Greaves's description and discussion on Halliday's work on intonation opens with a reminder of Halliday's approach to data in intonation research. Rather than restricting the research material to spoken language, Smith and Greaves note, Halliday maintains that written text – more specifically, plays – may be used for the study of intonation. They continue on to discuss Halliday's work on punctuation, which he showed to have evolved to answer for the loss of intonation in writing – although Halliday found punctuation is a poor substitute for the variance achieved in spoken language. The chapter further recounts Halliday's work on intonation in infant language, and the position of intonation in SFL. Choices of *tone*, or the selection of, e.g., rising or falling pitch are found to be functional in English, and to form a system, much like selections in their location (*tonicity*), and grouping (*tonality*). Systems of *rhythm* and *salience* deal with sections of speech stream and the location of accented syllable, respectively. Such detailed model requires meticulous transcription of realizations, which Smith & Greaves present before a short section modelling the analysis. The chapter ends in a

consideration of the application of Halliday's intonation description in linguistics.

Jonathan J. Webster's discussion on Hallidayan text linguistics in Chapter 12 approaches the topic from the perspective of the SFL metafunctions. Text is viewed as a semantic entity which is a construct of meaning, whereas the clause, the basic lexicogrammatical unit, is a construct of wording. Hence textual meaning, Webster (p. 317) notes, refers to the creation of discourse. Textual meaning is expressed through *texture*, or the organization of clauses of a specific theme to form a coherent whole. Halliday (2002/1990: 187) stresses the need to analyze text using the same theoretical approaches regardless of genre or text type, arguing that otherwise, the approach is *ad hoc* type of private commentary. Webster ends the chapter with a discussion of Halliday's works applying the presented text linguistic approach to fictional and non-fictional texts.

In Chapter 13, Geoff Williams discusses Halliday's contribution to language education. His approach is a rather practical one, as is befitting of appliable linguistics: in the beginning of the chapter he asks, "what key insights about education […] might Halliday's work offer" to language teachers (p. 327). The chapter first focuses on some key concepts, such as education and language, and their impact on the classroom environment. He then proceeds to explore Halliday's educational initiatives and their potential for curriculum development. Halliday's *language-based theory of learning*, specifically, is explored in some length.

In Chapter 14 Annabelle Lukin discusses Halliday's approach to the linguistic analysis of literature. The chapter begins with an exploration of Halliday's history of interest in the analysis of literary texts in his early career. The linguistic analysis of texts is typically restricted to non-fictional texts; Lukin reminds the reader that Halliday has criticized this restriction based on genre, as well as the close readings of literary texts, and maintained that any text analysis, regardless of the text type, should have a linguistic component to it. Similarly, a linguistic analysis should contain a consideration of the context, else the analysis is left incomplete. In the analysis of a literary text, language ought to be studied much like any language of any other text, "as the selection by the individual writer from the total resources at his disposal" (Halliday 2002/1964: 17), while the analysis of context of situation and context of culture are conducted utilizing the concepts of field, tenor and mode, again, as when analyzing any other text. Lukin ends the chapter with a description of four of Halliday's studies applying approach described to literary analysis. These

include an analysis of the grammatical patterns of Yeats' *Leda and the Swan*, transitivity in Golding's *The Inheritors*, lexicogrammatical patterns in Priestley's *The Inspector Calls*, and the metafunctions in Tennyson's *In Memoriam.*

4 Directions of development: Later applications

Part IV of the *Companion* contains five articles discussing the application of Halliday's theories to other areas of linguistics and to other semiotic systems. The part opens with Michael O'Toole's comparison of two uses of 'function' in the analysis of different modes of art in Chapter 15. The Hallidayan metafunctions and Yurii Tynyanov's concept of *function*, i.e. the correlation of a factor of a piece of art to its other factors, are utilized for the analysis. O'Toole substitutes the well-known systemic functional terminology with *representational*, *modal* and *compositional functions* to reflect the differences created by the differing semiotic systems. The analysis following explores the applicability of the functional model to the analysis of painting and music.

In Chapter 16, Kay L. O'Halloran, Marissa K. L. E. & Sabine Tan apply systemic functional theory and concepts to produce a multimodal semiotic analysis of the way architectural design is presented in two video texts. The texts chosen for analysis are three-dimensional computer generated imagery (3D CGI) animations of walkthroughs in houses appearing in *Grand Designs*, which is a British reality show focusing on unusual homes. As there is still much to learn on the patterns of semiotic choices, as well as on the application of multimodal semiosis, their chapter is constructed so as to provide tools and practices for the future analyses.

Erich Steiner's discussion in Chapter 17 on Halliday's contributions to translation theory opens with a consideration of the influences upon Halliday's thinking about translation and linguistics. For example, Malinowski's orientation to linguistics, inspired by translation methodologies, is connected to Halliday's early scale-and-category grammar. The chapter proceeds to Halliday's influences upon the translation theory, such as the problematization of machine translation and the exploration of the relationship between translation and second language teaching. Later parts of the chapter discuss the impact of systemic functional thinking, register studies, and Halliday's own theory of translation to translation studies and translation pedagogy.

Kazuhiro Terua & Christian M. I. M. Matthiessen's discussion in Chapter 18 presents an overview of SFL based approaches to language description and comparison. Beginning from Halliday's own work during his early career, Kazuhiro & Matthiessen proceed to early 2000s contributions and the renewed interest in the systemic description of languages.

Finally in Chapter 19, John Bateman & Mick O'Donnell discuss Halliday's connection to the field of computational linguistics and its development. The focus of the chapter is on the interaction between Halliday and the early computational linguists developing machine translation, natural language parsing, text generation, and corpus linguistics. Bateman and O'Donnell note that Halliday not only conducted cooperative work with the early computational linguists but also actively contributed to the development of the methods of computer analysis.

5 Conclusion

The Bloomsbury Companion to M. A. K. Halliday is a collection of short overviews into central themes within the works of M. A. K. Halliday. *The Companion* discusses his influences, theories and publications, as well as the practical application of his theoretical contributions to linguistics and semiotics. It also provides a meta-narrative of the development, reception, and impact of Halliday's work. The structure of *The Companion* and the chapters themselves have been constructed so as to follow Halliday's career somewhat chronologically, which allows for a fresh perspective to Halliday's epistomological development. Covering of all of his main research areas, the central chapters allow the reader to trace the development of the linguistic ideas, as well as the logic behind their development.

For a reader new to Halliday's work, *The Companion* might be best digested if used together with a previous editorial work by Webster, namely *The Essential Halliday* (2009), which contains a collection of thematically ordered key texts by Halliday. But should the reader already be somewhat familiar with Halliday's work, the *Companion* is a wonderful resource for a deeper understanding through the tracking of the logic behind, as well as the development of Halliday's theories about language.

References

Halliday, M. A. K. 1961. Categories of the theory of grammar. *WORD* 17. 241–292.
—— 2003/1964. Syntax and the consumer. In Webster, Jonathan (ed.), *On language and linguistics* (Collected works of M. A. K. Halliday 3), 36–49. London: Continuum.
—— 2002/1964. The linguistic study of literary texts. In Webster, Jonathan (ed.), *Linguistic studies of text and discourse* (Collected works of M. A. K. Halliday 2), 5–22. London: Continuum.
—— 1975. *Learning how to mean: Explorations in the development of language*. London: Arnold.
—— 2002/1990. The construction of knowledge and value in the grammar of scientific discourse: With reference to Charles Darwin's *The origin of species*. In Webster, Jonathan (ed.), *Linguistic studies of text and discourse* (Collected works of M. A. K. Halliday 2), 228–254. London: Continuum.
—— 2009. *The essential Halliday*. Edited by Jonathan J. Webster. London: Continuum.

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