Constructional Change at the Interface of Cognition, Culture, and Language Use: A Diachronic Corpus Study of German Nominalization Patterns

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1. Introduction

After a rather long period of neglect, the past few years have seen an increasing interest in the diachronic study of word-formation (cf. e.g. Scherer 2007; Hilpert 2013). Both the development of individual word-formation patterns and shifts and **[p.156]** reorganizations in the word-formation system as such have come to the center of attention in theoretical as well as empirical investigations (cf. e.g. Munske 2002). The study of morphological change can arguably yield valuable insights whose implications reach beyond the domain of morphology itself. For example, corpus-based studies can help to understand the abstractions and generalizations language users make over specific instances of language use (cf. e.g. Taylor 2012; Hilpert 2013). This in turn has important implications for the question of how language is represented, organized, and structured in the mind.

This paper aims to contribute to this line of research by investigating the diachronic change of two highly productive German word-formation patterns, namely nominalization in the suffix *-ung* and Infinitival

Nominalization. Drawing on analytical tools from Cognitive Grammar (e.g. Langacker 1987, 1991) and Construction Grammar (e.g. Hoffmann & Trousdale 2013), I will argue that the diachronic development of both patterns is best accounted for within a usage-based and constructionist framework. In this view, language is considered a complex adaptive system whose global properties emerge from complex interactions of multiple independent factors on the local level (cf. Beckner et al. 2009).

It is widely acknowledged in historical linguistics across different theories and frameworks that language change does not take place in a vacuum, but operates at the interface of cognition, culture, and language use (cf. Bybee 2010: 194). In the remainder of this paper, I will address these three factors in turn and demonstrate how they shape the specific word-formation patterns in question.

2. Cognitive Factors: Categorization and Conceptualization

In Cognitive Linguistics, language is considered a "structured set of meaningful categories" (Geeraerts & Cuyckens 2007: 5). Grammar, then, is treated as "a prototypically structured, schematic network built up from categorised instances of actual language use in context" (Pleyer 2014: 238). Linguistic units are seen as prompts for conceptualizations (cf. e.g. Langacker 1987), i.e. embodied simulations of entities and/or relations. Hence, word-class-changing word-formation patterns are not merely meaningless indicators of syntactic transposition. This becomes clear if we consider present-day examples of German *ung*-nominalization and Infinitival Nominalization:

(1)   Als Bub verfolgte Stegmeier in Friedrichshafen die <u>Landung</u> des Graf Zeppelin. 'As a boy, Stegmeier witnessed Count Zeppelin's <u>landing</u> in Friedrichshafen.' (A11/FEB.03322 | COSMAS II)

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(2)   Das Starten und das <u>Landen</u> sind immer die schwierigsten
         Situationen. 'The take-off and <u>landing</u> are always the most difficult
         situations' (BRZ08/AUG.04488 | COSMAS II)

Taking up Langacker's (2008: 43) distinction between conceptual
content on the one hand and construal on the other, the nominalizations
die Landung in (1) and *das Landen* in (2) do not differ from their base verb
landen '(to) land' in terms of conceptual content, which can, in principle, be
captured in truth-conditional terms. All three expressions refer to the same
event, i.e. the landing of an aircraft. However, they differ in the way this
event is shaped and construed. For this reason, the two word-formation
products are interchangeable only to a limited extent: *das Landen des Graf
Zeppelin* would seem rather odd in (1) since it profiles the process of
landing rather than the event as a whole. In (2), by contrast, *die Landung*
would be entirely acceptable since the context allows for both a processual
reading and a more 'holistic' construal. In a commonly employed
perspectival metaphor (cf. e.g. Konerding 1993: 162; Verspoor 1996: 437),
the Nominalized Infinitive (NI) can be said to evoke a construal in which
the conceptualizer's viewpoint is involved in the ongoing event itself. The
boundaries of the event are not 'in view' (cf. Verhagen 2007: 53). In the
case of *ung*-nominalization, on the other hand, the event is conceptualized
from a 'bird's-eye' perspective. The event is viewed as a whole, from its
beginning to the end. Consider the case of (*Gerichts-*) *Verhandlung* '(court)
trial': A complex frame is evoked which consists of a canonical sequence of
distinct events, e.g. testimonies, pleadings, and, finally, a verdict; but rather
than profiling this succession of events, *Verhandlung* refers to the trial as a
whole.

These two schematic construal options ('holistic' vs. 'processual') are
linked to the respective word-formation patterns, i.e. *ung*-nominalization
and Infinitival Nominalization. From a Construction Grammar perspective,

these patterns can be seen as c o n s t r u c t i o n s , i . e . form-meaning pairings at various levels of abstraction whose meaning cannot be derived from their constituent parts (non-compositionality condition). In addition, Goldberg (2006: 5) argues that "patterns are stored as constructions even if they are fully predictable as long as they occur with sufficient frequency" (frequency condition).[1] Word-formation patterns, like all other constructions, are regarded as generalizations over actual language use. Language users register the formal and semantic (including pragmatic and discourse-functional) properties of the linguistic utterances they encounter (cf. Croft 2001: 18). In addition, "there is abundant evidence that speakers of a language know, at least implicitly, the frequency profile of the things in their language." (Taylor 2012: 283) **[p.158]** Language does not present itself to us as an "unstructured total set of equiprobable co-occurring attributes" (Rosch 1978: 28). Instead, it is characterized by decidedly non-random (in some cases Zipfian) distributions at all levels of description (cf. also Goldberg 2006: 75-83).

The dynamic nature of language as a complex adaptive system follows straightforwardly from the view of constructions as generalizations over actual language use in context. On the one hand, the hearer's understanding of both the form and the meaning of a construct (i.e. the concrete realization of a construction, cf. Traugott & Trousdale 2013: 2) can deviate from the speaker's intended usage. On the other hand, by virtue of being able to generalize over the expressions they encounter, language users can also "create new expressions in conformity with these generalizations." (Taylor 2012: 173) Therefore, constructions are inherently dynamic. The diachronic development of *ung*-nominalization can illustrate this point.

As Demske (2000) has noted, *ung*-nominals in Early New High German (ENHG, c. 1350-1650) seem to evoke much more processual readings than

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[1] The theoretical debates about the frequency condition and the empirical problems it entails will not concern us here (cf. e.g. Stefanowitsch 2009 for discussion).

their present-day counterparts. This intuitive impression is substantiated by the syntactic constructions in which the word-formation products occur. For example, ENHG *ung*-nominals tend to occur as complements of prepositions (cf. Demske 2000). I hold that the [PREP NOM (COMPL)] pattern[2] exhibited in (3) and (4) below can be considered a construction in its own right for a number of reasons: First, it is highly frequent as long as it is still productive (see Figure 1). Second, the instances of this construction constitute independent, and in principle omissible, parts of the sentences in which they occur. Third, the non-compositionality condition can be seen as fulfilled if we consider the default semantics of *ung*-nominals within and outside of this construction. (Again, 'semantics' is understood in the broad Cognitive Grammar sense here, including construal alternatives along with conceptual content.)

(3)   sie lebt <u>in</u> beständiger <u>Übung</u> der Liebe GOttes/ 'it [the soul] lives in constant <u>practice</u> of God's love' (OOBD-1710-KT-neu | MzENHG)

(4)   dieses wird durch die Distillation <u>in</u> <u>Scheidung</u> der Elementen alles gefunden. 'All this is found by distillation <u>in</u> <u>separating</u> the elements.' (WOBD-1710-ST-133 | MzENHG)

[p.159]

(5)   <u>bey Vermeidung</u>/ daß er selbst solches praestiren mueste/ 'to avoid [lit. <u>with avoiding</u>] that he would have to carry out this [penalty] himself' (LEGA_P2_OMD_1709_WaeysenOrdnung | GerManC)

The [PREP NOM] construction, by virtue of referring to a temporal (and, in some cases, also a causal) relation, evokes a highly processual (hence: 'verby') reading, especially when the PREP slot is filled by *in* or *bei*. In the most frequent and most prototypical variant of this construction, a theme

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[2] (COMPL) denotes an optional genitive, as in (3), or subordinate clause, as in (5), complementing the nominal.

argument is given either in a genitival complement as in (3) and (4) or in a complement clause as in (5). These complements contribute further to the processual semantics of these examples. A comparison of (6) with (7) demonstrates that genitival complements, taking up the direct object argument of the base verb, also contribute to a 'verby' construal of *ung*-nominals in contexts other than [PREP NOM] constructions. In (7), *Vergebung* 'forgiveness' arguably denotes an abstract, generic concept, whereas in (6), it can be interpreted as referring to the act of forgiving.

(6)   waren Sie seiner erbarmenden Gnade, der voelligen Vergebung aller
        Suenden und des ewigen Lebens versichert. '...you were entirely sure
        of his [God's] merciful grace, the complete forgiving of all sins, and
        eternal life.' (SERM_P3_NoD_1765 | GerManC)

(7)   Liebste Schwester, verdient er keine Vergebung? 'Dearest sister,
        does he deserve no forgiveness?'
        (DRAM_P2_OMD_1747_Schwestern | GerManC)

In Present-Day German, the [PREP NOM] construction is limited to a number of idiomatic expressions such as *unter Begutachtung* 'under review', *nach Abwägung aller* N 'after considering all N', which are largely restricted to more formal contexts (cf. Demske 2000: 397). In the 150-year period from 1650 to 1800 covered by the GerManC corpus (Durrell et al. 2007; 688,302 tokens), we can observe a highly significant decrease in the construction's frequency (Kendall's τ=-0.71, $p<0.01$; see Figure 1)[3]. In addition, we find a significant decrease in the relative frequency of *ung*-nominals accompanied by genitival complements as in (6) (Kendall's τ=-0.47, $p<0.05$).

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[3] For the use of Kendall's Tau to assess the significance of diachronic frequency changes, see Hilpert & Gries (2009).

Furthermore, we find a significant increase in the use of *ung*-nominals with determiners (Kendall's τ=0.6, p<0.01).[4] Brinkmann (1949: 14) already emphasized **[p.160]** the "nominalizing" impact of the determiner[5], and Vogel (1996: 131) points out that determiners shift the semantics of nominalizations towards a 'count noun' construal. Figure 2 shows that this increase pertains both to definite and indefinite articles as well as to other kinds of determiners.
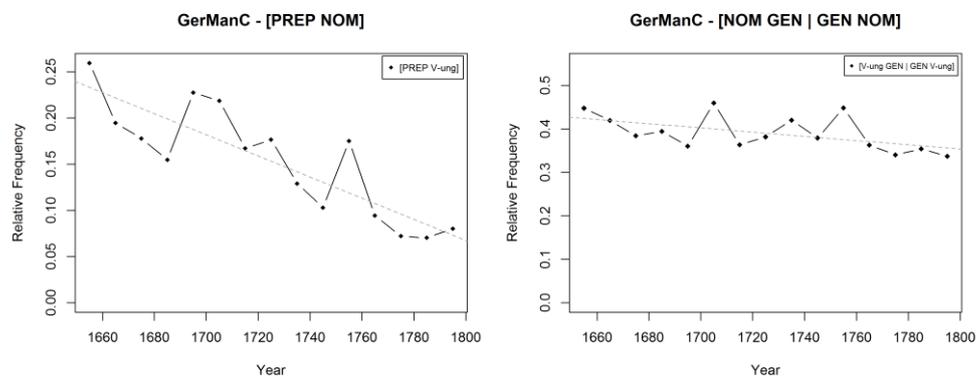

Figure 1: Frequency of *ung*-nominals in [PREP NOM] constructions (left panel) and *ung*-nominals accompanied by a pre- or postnominal genitive (right panel) relative to the total number of *ung*-nominals in the respective corpus period.

[p. 161]

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[4] Apart from definite and indefinite articles, demonstratives, numerals, possessive pronouns, and prenominal genitives are counted as determiners in the present analysis. The term 'articles', by contrast (e.g. in the analysis presented in Figure 3) only refers to definite and indefinite articles.

[5] A reviewer has remarked that "it is rather the other way around; arguably, the use of the determiner follows from the 'nouniness' of the verbal noun". I would argue that both views are correct and that both factors interact; see also section 4 below.
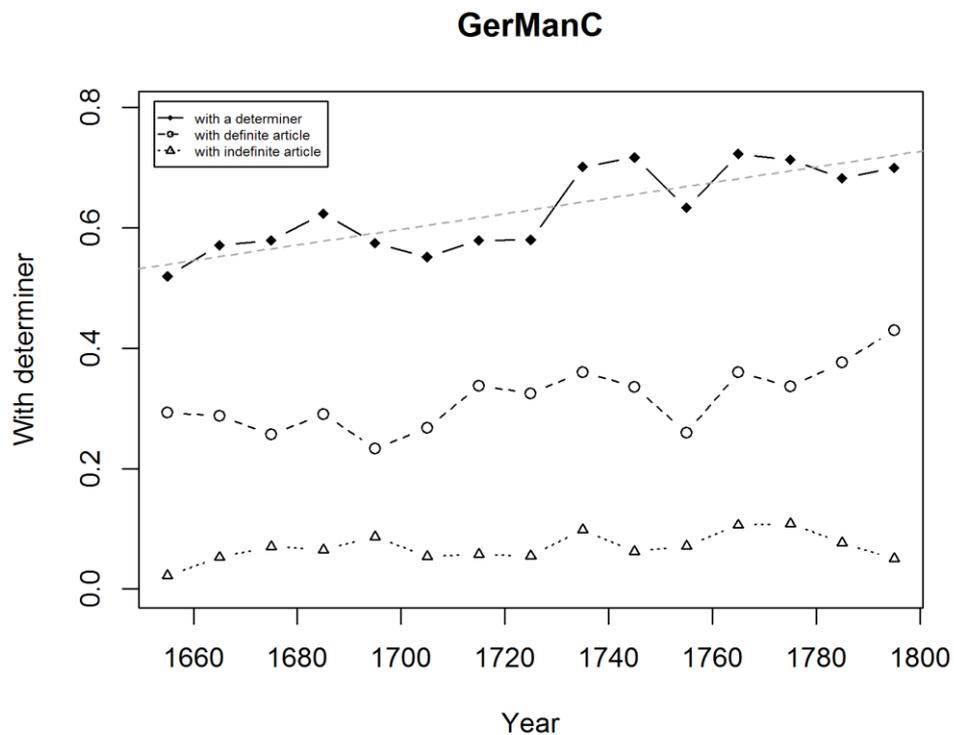
GerManC

Figure 2: *ung*-nominals with determiners in relation to the total number of *ung*-nominals in the respective corpus period.

The increasing use of *ung*-nominals with determiners could, at least partly, also be attributed to the obligatorification of the determiner, which started out as early as the Middle High German period and subsequently spread to ever more contexts (cf. Nübling et al. 2013: 294-297). However, if we consider only the article constructions in the GerManC corpus rather than the corpus as a whole, we find that the proportion of *ung*-nominals with a determiner in relation to the sum total of article constructions increases significantly, as well (Kendall's τ=0.87, p<0.001; see Figure 3).

Yet another development pointing to an increasingly 'concrete' and 'nouny' construal of *ung*-nominals is the use of pluralized forms. While these are highly infrequent in the Middle High German period (cf. Hartmann 2013b), we find an increase in the use of pluralized forms both in the Mainz Early

New High German corpus (MzENHG, a yet unpublished corpus mostly based on texts collected for a project on German noun capitalization, cf. Bergmann & Nerius 1998; 683,302 tokens) and in the GerManC Corpus (Figure 4). In the latter, the increase proves highly significant (Kendall's $\tau=0.77$, $p<0.01$).

To sum up, then, the diachronic development of *ung*-nominalization can be viewed as a "nominalization process with 'nominalization' taken literally" (Demske 2002: 68). A usage-based account provides a straightforward explanation for this development as well as for the emerging constraints affecting the word-formation pattern, which have been discussed extensively in the literature (cf. e.g. Demske 2000; Shin 2001; Knobloch 2002; Roßdeutscher & Kamp 2010). From a usage-based perspective, these constraints can be seen as conventions specified by the constructional schema, which is subject to diachronic change. For example, **[p.162]** atelic verbs that denote cyclic activities in the sense of Croft (2012), i.e. undirected dynamic activities without a transition to a result state, can no longer be nominalized with the *ung*-suffix. This fits in with the observation that present-day *ung*-nominals tend to denote "bounded" events construed as a whole, rather than profiling the progression of unbounded events. By contrast, *ung*-nominals such as *murmelung*(*e*) 'muttering' are attested in earlier stages of German.
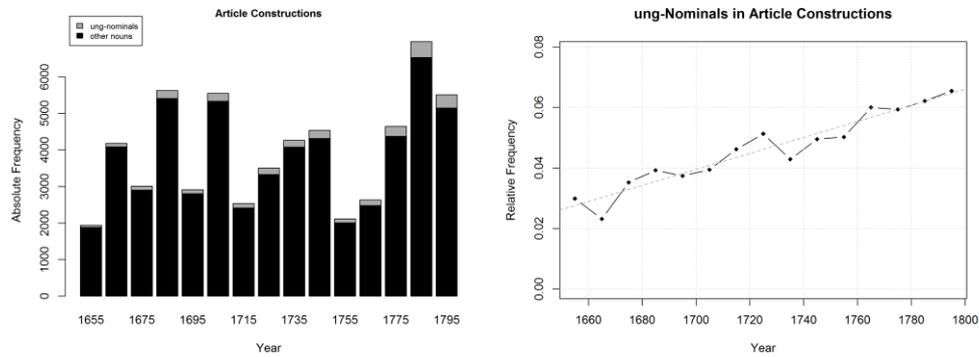
Figure 3: Left panel: Absolute frequency of *ung*-nominals and other nouns in determiner constructions; right panel: *ung*-nominals with article in relation to the sum total of article constructions in each corpus period.

In Present-Day German, *Murmelung* is deemed infelicitous because it does not conform to the [p.163] (semantic pole of the) contructional schema that language users have abstracted over actual instances of language use. This is largely compatible with Shin's (2001) and Roßdeutscher & Kamp's (2010) event structure-based accounts of present-day constraints on *ung*-nominalization.
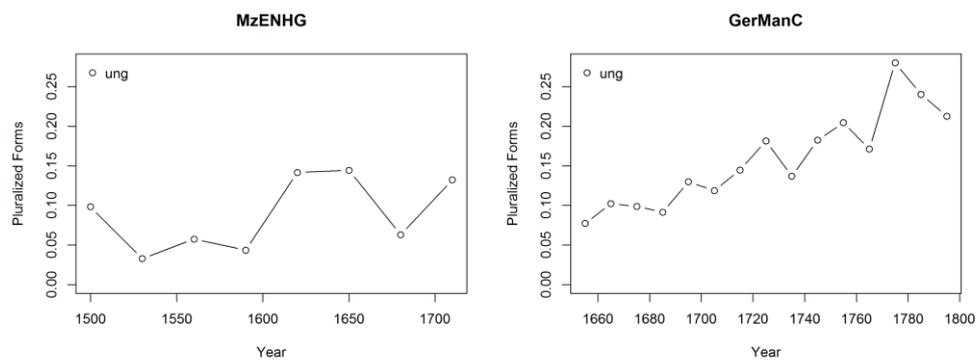

Figure 4: Pluralized forms, in the MzENHG Corpus and in the GerManC Corpus respectively, in relation to the total number of *ung*-nominals in each corpus period.

The developments that bring about the change of the constructional pattern do not constitute "word-formation change in the narrow sense" as defined

by Scherer (2006), who argues that only changes in word-formation constraints **[p.164]** can be seen as instances of word-formation change proper. Instead, processes of semantic change and lexicalization modify the semantics of the construction itself. Due to the prevalence of more 'nouny' word-formation products in *-ung*, the constructional schema that users of Present-Day German abstract from the instances they encounter differs considerably from the schema obtained by speakers of, say, Early New High German.

In the case of Infinitival Nominalization, a loosening of restrictions seems to have taken place. As Werner (2012: 168) points out, Nominalized Infinitives (NIs) from verbs denoting punctual events, e.g. *Zerschlagen* 'smashing', are not attested in earlier stages of German, which points to a constraint being effective until the ENHG period.[6] This loosening of restrictions might be a reaction to the need to coin new NIs to "replace" *ung*-nominals. At the same time, the increasing potential productivity of Infinitival Nominalization (see section 4 below) might further contribute to the decrease in productivity of *ung*-nominalization.

3. Cultural Factors: *ung*-Nominalization and its Competitors

The diachronic development of *ung*-nominalization also illustrates the role of cultural factors in word-formation change. In the Old High German (750-1050) and Middle High German (MHG, 1050-1350) periods, *ung*-nominalization was frequently used to coin terms for religious concepts previously referred to only in Latin and Greek (cf. von Heusinger & von Heusinger 1999; Pimenova 2002). Most importantly, the suffix *-ung* was highly productive in mystic texts (cf. Hartmann 2013b) and in translations of Latin clerical texts. For example, in the Rule of Zwiefalten (a Latin-German interlinear gloss of the Rule of Saint Benedict), *swîgunge* 'silence'

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[6] In Werner's terminology, verbs denoting 'inhomogeneous' processes are excluded. These can be seen as roughly correlating to the "achievements" in Croft's (2012) typology.

and *murmelunge* 'muttering' are used as translations of *silentium* and *mussitatio*, respectively (quoted from Hartmann 2013a: 170):

(8)   Lat. *Et sic at cepta benedictione ingrediatur ad legendum et summū fiat* <u>*silentium*</u> *ad mensam ut nullius* <u>*mussitatio*</u> *ut*[*rum*] *uox nisi solius legenti ibi audiatur.*

MHG *also ginomin dem segine er ingange zi lesinde vnde obrustiv werde* <u>*swigunge*</u> *zim tische daz kaines* <u>*murmilunge*</u> *oder stimme niwan ainigis des lesers da werde gihorit.*

'After the blessing, he began to read, and at once there was <u>silence</u> at the table so that no one's <u>muttering</u> or [any] voice but that of the reader was heard'

[p.165] Von Heusinger & von Heusinger's (1999) quantitative analysis of German-Latin word lists assembled from scholastic and mystical texts reveals that the vast majority of Middle High German *ung*-nominals correspond to Latin nominalizations in *-atio,* which leads them to the conclusion that many new coinages in *-ung* in this period are based on those Latin models. Later on, *-atio* was to become a new competitor for *-ung* in German.

Throughout the entire German language history, *ung*-nominalization has been subject to competition, which is partly determined by cultural factors, as well. In the Old High German period, it competes with, among others, implicit derivation (*reiten* '(to) ride' − *Ritt*) and derivation in the suffix *-ī* (e.g. *toufī* 'baptism') (cf. Pimenova 2002). While these two patterns become almost entirely unproductive, new competitors emerge over time. In the ENHG period, the verbal loan suffix *-ieren* becomes highly productive due to influence from French (cf. Schmidt 2007: 153). This does not only expand the inventory of potential bases for *ung*-nominalization, but it also introduces the nominal loan suffix *-(a)tio(n)* as a new competitor, cf. e.g. *produzieren* '(to) produce' − *Produktion* − *Produzierung* − (*das*) *Produzieren*. However, the use of non-native nominalizations in *-(a)tio(n)*

as well as of *ung*-nominals with non-native bases is strongly conditioned by the text types the word-formation products occur in. If we consider the humanistic, legal, scientific, and newspaper texts represented in the GerManC corpus to be closer to the conceptually 'written' pole and the subcorpora containing dramatic and narrative texts as well as sermons to be closer to the conceptually 'oral' pole – on a scale of 'writtenness' vs. 'orality' as proposed by Koch & Oesterreicher (1985) –, we find that the two types of word-formation products are distributed unequally (see Figure 5). In the more 'oral' text types, a significantly smaller amount of *ung*-nominals is derived from non-native bases than in those text types closer to the 'written' end of the scale (Fisher's exact test, $p < 0.01$, odds ratio=2.86). Similarly, the token frequency of nominalizations in the loan suffix -(*a*)*tio*(*n*) is much smaller in the 'oral' than in the 'written' texts (Fisher's exact test, $p < 0.01$, odds ratio=0.1).

Another development that can be linked up with cultural factors is the overall increase in the use of nominalizations across different text types. As Figure 6 shows, the realized productivity (i.e. type frequency, cf. Baayen 2009; Hilpert 2013) of all three word-formation patterns – *ung*-nominalization, Infinitival Nominalization, and nominalization in -(*a*)*tio*(*n*) – increases. This increase is significant for both Infinitival Nominalization and nominalization in -(*a*)*tio*(*n*) in the ENHG period (Infinitival Nominalization: $\tau = 0.71$, $p < 0.05$; *-ation*: $\tau = 0.79$, $p < 0.01$). This can be explained by the trend towards a so-called 'nominal style' (*Nominalstil*) in certain language varieties, which is assumed to have emerged in response to the need to express fairly complex concepts efficiently and unambiguously (cf. e.g. Klein 1999: 1372 on political and legal texts).
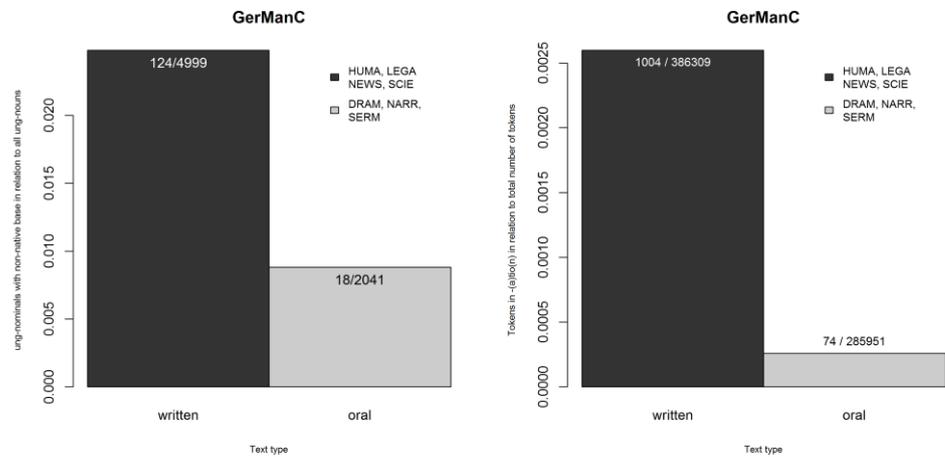
[p.166]

Figure 5: Distribution of *ung*-nominals with non-native bases (left panel) and nominals in -(*a*)*tio*(*n*) (right panel) in conceptually 'written' vs. 'oral' text types of the GerManC corpus.
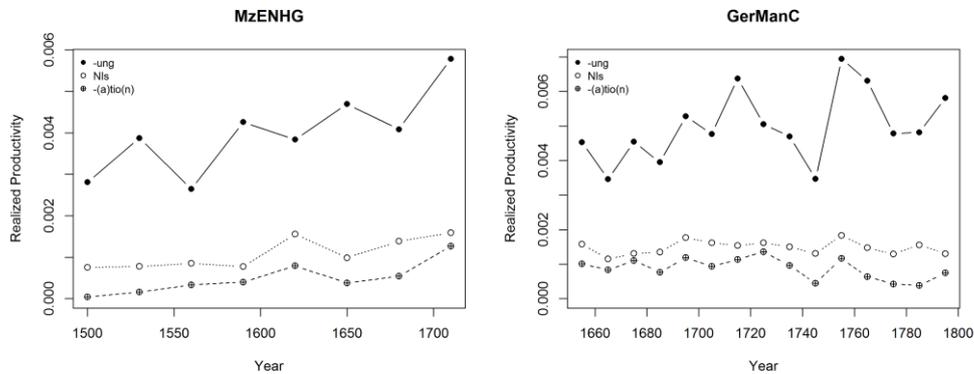
[p.167]

Figure 6: Realized productivity of *ung*-nominals, Nominalized Infinitives (NIs), and derivatives in -(*a*)*tio*(*n*) in the MzENHG Corpus and the GerManC Corpus respectively.

With the emergence of language "cultivation" and language purism in the 17th and 18th centuries, however, both non-native words and nominalization in general became subject to criticism. In line with this trend, *ung*-nominals such as *Gebärung* 'birth' or *wachsung* 'growth' were replaced by derivatives coined according to the older word-formation pattern of implicit

derivation, e.g. *Geburt* or *Wuchs* (cf. Schmidt 2007: 153). As Wustmann (1903: 334), a language purist himself, notes, *ung*-nominals were often perceived as an ugly-sounding "deformation" of the language that should be avoided. Although many of the language **[p. 168]** purists' suggestions went unheard, some did have an impact on actual language use. Figure 7 plots two examples of *ung*-nominals being superseded by derivatives coined according to a competing word-formation pattern: As a corpus search in two subcorpora of the COSMAS II database (the historical HIST corpus[7] and the contemporary W corpus) reveals, *Teilnehmung* 'participation' fell entirely out of use in favor of *Teilnahme*. Similarly, *in Anbetracht* 'in consideration' supersedes the previously dominant construction *in Ansehung*. A Kendall's Tau test proves both the decrease of *Teilnehmung* and that of *in Ansehung* to be significant (*Teilnehmung:* τ=-0.41, p<0.05; *Ansehung*: τ=-0.67, p<0.01).

In summary, the various "sources" of nominalizations pertaining to a specific word-formation pattern are partly culturally conditioned and, consequently, subject to change. In the MHG period, many *ung*-nominals are coined in mystical texts and religious translations. At that time, Latin is still the almost exclusive language of the sciences and humanities. In the ENHG period, however, the German language gains importance in the latter domains. Hence, academic terminology becomes another important source for *ung*-nominalizations (cf. e.g. Eichler 1996). But cultural factors do not only determine (at least partly) which words enter the language: They also affect the decline of specific word-formation products. As a result, they might also contribute to the emergence of word-formation constraints affecting *ung*-nominalization.

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[7] Meanwhile (June, 2014), the GerManC Corpus has been integrated into COSMAS II's HIST corpus. The corpus analysis reported on here, however, has been conducted well before this extension, i.e. on the basis of the older HIST database that did not yet contain GerManC.

4. Conclusion: A Usage-Based Approach to Word-Formation Change

This paper has presented a cognitively oriented, usage-based approach to word-formation change. We have seen that the word-formation products of *ung*-nominalization tend to become more 'nouny' over time, while Infinitival Nominalization is established as the new default pattern for deriving nouns from verbs. This view is confirmed by the diachronic development of the potential productivity of both patterns, i.e. the relation of hapax legomena (words attested only once in the corpus) belonging to the morphological category in question to the sum total of tokens belonging to that category. The measure of potential productivity is supposed to indicate the number of neologisms coined according to a specific pattern (cf. Baayen 2009; Hilpert 2013). In line with Demske's (2000) analysis, the potential productivity of *ung*-nominalization shows a highly significant decrease in the period covered by the GerManC corpus (Kendall's $\tau = -0.51$, $p_{one\text{-}tailed} < 0.01$). According to Barz (1998) and Werner (2012),
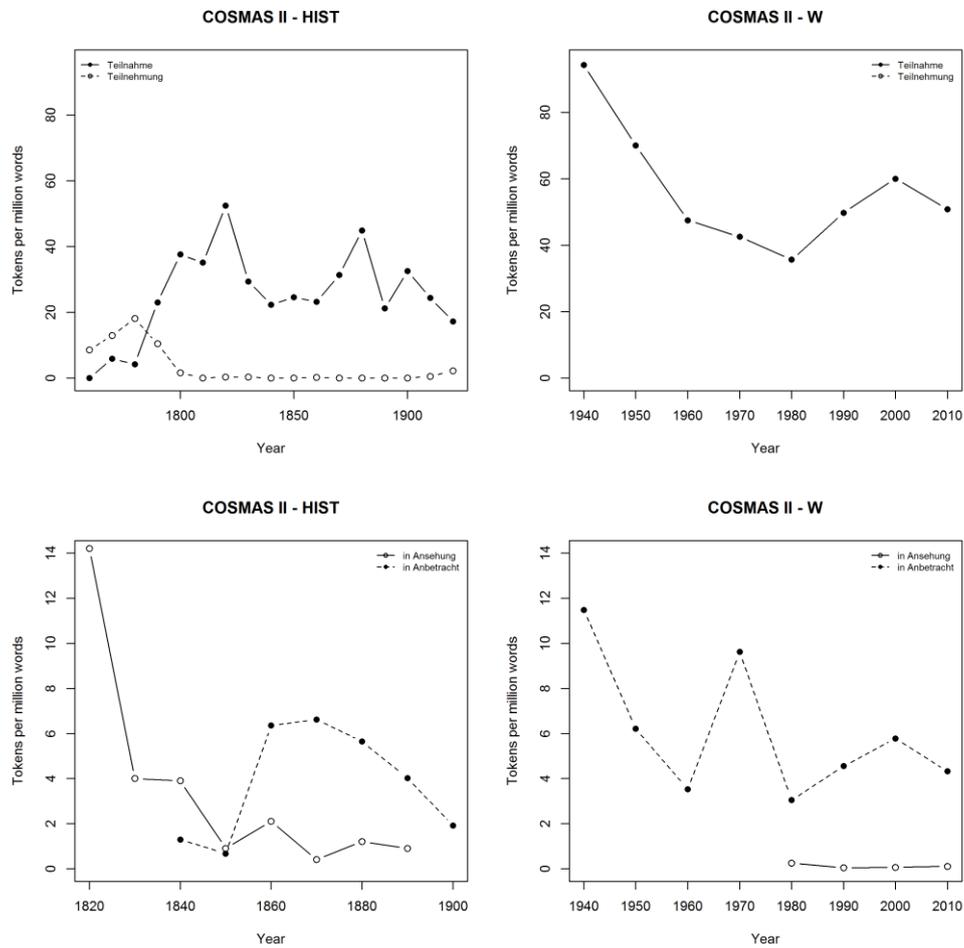
[p. 169-170]

Figure 7: The diachronic development of *Teilnehmung* vs. *Teilnahme* and *in Ansehung* vs. *in Anbetracht* in two subcorpora of the COSMAS II database.
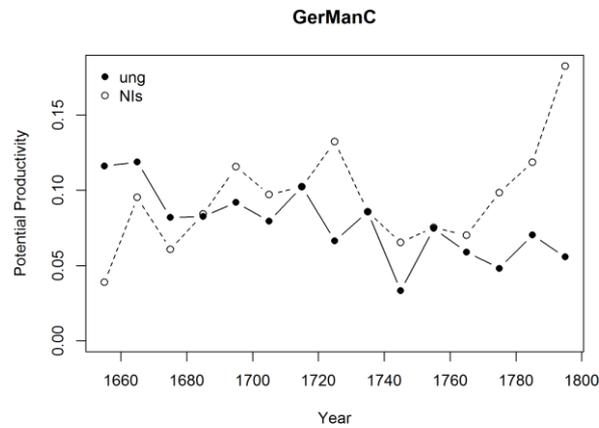
[p.171]

Figure 8: Potential productivity of *ung*-nominalization and Infinitival Nominalization over the period covered by the GerManC Corpus.

Infinitival Nominalization is then used as a "replacement process", which leads us to predict that its potential productivity increases. This is indeed the case ($\tau=0.33$, $p_{\text{one-tailed}}<0.05$). Figure 8 plots the diachronic development of both patterns in the time covered by the GerManC corpus.

Importantly, the empirical findings presented throughout this paper are in line with a usage-based conceptualization of language. In this view, a language is considered a "massive, highly redundant inventory of conventional units" (Langacker 1988: 133). This characterization – which is largely compatible with the constructionist view of language as an inventory of form-meaning pairings – entails that the classic distinction between the lexicon as "a list of basic irregularities" (Bloomfield 1933: 274) and the grammar as a set of combinatorial rules is seriously flawed. Instead, we can conceive of linguistic knowledge in terms of a "constructicon". In contrast to classic conceptualizations of the lexicon, the constructicon is best thought of as a network of interconnected units of linguistic information (cf. e.g. Diessel 2004: 13-40; Ziem & Lasch 2013: 95). As numerous empirical studies have shown (cf. e.g. Bergen 2012; Taylor 2012), our linguistic

knowledge is by no means limited to connecting one specific form to one dictionary-like, context-independent meaning. Instead, it is much more detailed and multi-faceted. The meaning profile that we abstract away for a specific construction from actual instances of language use includes, for example, discourse-functional information (cf. Croft 2001: 18), i.e. information about the context in which a construction is used felicitously. Consequently (and trivially), different language varieties have **[p.172]** different terminologies, as we have seen with the example of the distribution of loan words in -(*a*)*tio*(*n*) and *ung*-nominals with non-native bases.

In addition, the patterns of change that can be observed with regard to the nominalization patterns investigated here fit in with the idea that language is shaped by domain-general cognitive processes such as categorization and conceptualization. Different nominalization patterns can be linked up with different schematic construal options, and the (prototypical) construal evoked by a specific pattern can change over time. We have seen that the syntactic constructions in which nominalizations occur – e.g. the 'verby' [PREP NOM] construction vs. the 'nouny' determiner construction – tend to influence the conceptualization evoked by the word-formation product in question. Hence, the increasing 'nouniness' of *ung*-nominalization goes hand in hand with changes in the distribution of its word-formation products over different constructional patterns at the syntactic level. Morphology, syntax, and semantics are inextricably interwoven.

While historical linguists were among the first to recognize the highly dynamic nature of language as a complex adaptive system, the methodological implications which this view entails have not been fully explored so far. Investigating 'language-as-used', rather than the 'competence' or 'I-Language' of an idealized speaker, calls for a decidedly empirical approach. Drawing on different measures of frequency and productivity as well as a variety of constructional analyses, this paper has still only offered but a glimpse of the multitude of methodological

approaches applied in current corpus linguistics. Importantly, however, these quantitative methods are not an end unto themselves. The results of quantitative analyses feed back into linguistic theory, providing (tentative) answers to major theoretical questions in a bottom-up fashion.

Studying word-formation change is therefore an indispensable part of an empirically oriented historical linguistics that is more than it is sometimes reduced to. Most importantly, historical corpus linguistics is much more than frequency counting or number-crunching for its own sake. While Chomsky famously stated that "[c]orpus linguistics doesn't mean anything" (Andor 2004: 97), Hilpert (2013: 207) points out that diachronic corpus analyses can help answer key theoretical questions about issues such as "the status of constructions as mental representations, the level of abstractions at which generalizations are made, or the question whether two developments are related or independent." In this view, historical corpus linguistics is by no means a self-contained or even meaningless enterprise: Historical linguistics is a cognitive science.

[p.173ff.]

Corpora

COSMAS II   http://www.ids-mannheim.de/cosmas2/
                    (last checked 07/11/2013)

GerManC   http://www.llc.manchester.ac.uk/research/projects/germanc/

(last checked (07/11/2013)

MzENHG   Mainz Early New High German Corpus

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