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„German loanwords in the English language“

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Table of contents

Table of figures

> "English is a vacuum-cleaner of a language. It sucks words in from any language it makes contact with. Perhaps I should not anthropomorphize. A language has no life of its own. It exists only in the mouths and ears and hands and eyes and brains of its users. It is the English speakers who suck the words in. People like you and me."
>
> (Crystal 2006, 59)

1 Introduction

As poetically indicated by David Crystal in the introductory quote, English is a language with a long history of borrowing from other languages. That languages influence each other is practically unpreventable, as much as purists dislike the notion; yet, the English lexicon is particularly rich in foreign imports. Crystal states that 350 languages have left their traces in the English vocabulary and suggests that up to 80% of English words may be of foreign origin (2006: 59), a number which has found agreement by other authors (cf. Minkova & Stockwell 2009). Another indicative figure which speaks volumes about the mixed heritage of English lexis is that only 31.8% of the 10,000 most frequent words in English can be traced back directly to Old English, according to Minkova & Stockwell (2009: 57).

Without a doubt, among the many languages English has borrowed from, French and Latin have exerted the highest impact (Durkin 2014: 425-426). However, German has contributed significantly as well. Both English and German are West Germanic languages, and in addition to going back to the same ancestors, they share a history of contact which goes back to the Middle Ages. Constant exchange has been promoted by trading, political, educational and scientific relations, among others (cf. Ehlert 2012, Durkin 2014). While in recent years, linguistic influence from English on German has received more attention, borrowing in the opposite direction, from German to English, has been one of the most productive means to import new vocabulary.

When looking at literature about language contact, specifically for English, it can be observed that the majority of introductory works focus on the effects that Latin, French, and Scandinavian languages had on shaping English (c.f. Schreier & Hundt 2013, Durkin 2014). Celtic languages might be mentioned, too, although usually just briefly, as there are few written sources dating

back to the contact situations between Celtic languages and Old English. Works about the influence of German on English, however, seem to be of rarer nature. Ehlert (2012) offers an overview over German loans, but restricts his work to British English; Kloss (1966), in contrast, focuses on American English exclusively. Koenig (1942) analyses the number of German loan words attested in American newspapers between 1930 and 1940. Pfeffer & Cannon (1994) provide a concise dictionary of German loanwords in English. However, it stands to reason that more contributions of German origin might have been uncovered in the meantime. The Oxford English Dictionary, which much of this paper is based on, is updated four times a year with at least 1,000 new and revised items, which illustrates how dynamic the English vocabulary is (Minkova & Stockwell 2009: 5).

The aim of this Diploma Thesis is therefore to illuminate borrowings from German from an up-to-date point of view, based on a regularly updated online corpus. The paper is divided into two parts: first, I will provide an introduction to the study of language contact in general and borrowing phenomena in particular. Second, data from the Oxford English Dictionary will be analysed in order to answer three major research questions. The first analysis is concerned with semantic fields, and the guiding question will be whether any particular fields can be established in which borrowing from German has been particularly productive. The second examination is based on a diachronic comparison of importations from German over the centuries of contact with English and will focus in the question which historical events have had the most impact on the process of English drawing on German lexis. Finally, the third analysis will determine whether words from one word class dominate over others in quantity.

2 Theoretical Part

2.1 The study of Language contact

Contact linguistics as a scientific discipline only emerged when historical linguists discovered that different languages affected each other in their developments. According to Winford (2003: 6), first controversies about the histories of languages had arisen in the nineteenth century. Until then, languages had generally been perceived to grow and change naturally, and it had been thought that the only changes that affected them were teleological, comparable to how evolution

in living organisms had been seen. Language groups were often metaphorically referred to as branches of a family tree. This notion was challenged with the discovery of first indices for contact-induced changes in languages (Winford 2003: 6); which marks the hour of birth for contact linguistics. The debate whether changes were only caused internally or whether external sources could impact on language change apparently fuelled further research and resulted in a vast body of studies. New sub-disciplines focused, for instance, on ethnic minorities, immigrant languages, or the sociology of language (Winford 2003: 7).

According to Weinreich (1953: 86, quoted in Winford 2003: 9), the subdiscipline's aim in its advent was "to predict typical forms of interference from the sociolinguistic description of a bilingual community and a structural description of its languages". Winford (2003: 9-10), however, stresses the complexity of contact phenomena, critically suggesting that it might be an "ambitious" goal to calculate or foresee contact-induced changes. Nevertheless, Winford (2003: 10) adopts Weinreich's definition and extends it from phenomena in bilingual communities to any situations of language contact. He also states that contact linguistics not only surveys mixing of languages, but "covers all the linguistic consequences of contact, including phenomena such as simplification" (2003: 10).

Weinreich (1953: 44) further asserts that analyses of the "purely structural considerations" as well as "psychological reasons" and "socio-cultural factors" need to be considered in order to achieve full insight into the processes at hand; by "structural factors" he refers to factors "which stem from the organization of linguistic forms into a definite system". Broadly speaking, these can be classified as morphological, syntactic, and phonological factors. Purely structural approaches, such as those that were undertaken in the early days of contact linguistics, would not suffice. Winford (2003: 10) explains that this is, on the one hand, proven by the fact that language contact situations which might be comparable structure-wise may still result in divergent outcomes. On the other hand, it is also displayed by erroneous predictions in the past, where only structural features had been considered. These insights lead Weinreich to believe that said psychological and socio-cultural aspects play vital roles in the assessment of language contact situations (in Winford 2003:10).

What follows from these observations is the inclusion of psychological and socio-cultural factors for the examination of contact-induced changes (Winford 2003: 10-11), as will be described in more detail further below.

2.2 Forms of language contact

Three general forms of effects may be experienced as a consequence of language contact: language maintenance, language shift, and the creation of new languages (Winford 2003: 11-12).

First, the term language maintenance may be used to describe events where the variety spoken by the majority basically remains the same language, but is more or less heavily influenced by contact with another language; or, as Winford (2003: 11) defines the term, "*language maintenance* refers simply to the preservation by a speech community of its native language from generation to generation" [original emphasis]. This native language may undergo changes induced by outside languages. Such changes are usually incorporations of foreign features, such as lexicon, and are referred to as borrowings (Winford 2003: 12). One example for this would be Anglicisms in languages like German or French. They can often be traced back to the major role English plays in technology and popular culture and result in an extended lexicon, while German, or French respectively, is largely maintained and unaltered. According to Winford, one important factor in distinguishing borrowing in language maintenance situations from other types of contact induced influences is the agent of change: "borrowing involves recipient language agentivity, and this crucially distinguishes it from the other major type of cross-linguistic influence that involves source language agentivity in cases of second language learning" (Winford 2003: 12, cf. van Coetsem 1988:3). Another phenomenon which falls into the category language maintenance is code switching. This term describes speech acts in which bilingual speakers alternate between using two or more different languages. As the focus of this paper is on lexical borrowings, more details about language maintenance will be provided further below.

Second, language shift describes phenomena where two linguistic varieties meet and, as a consequence, one of them becomes the main language for both speaking communities, while the other is abandoned by its native speakers (Winford 2003: 15). Winford (2003: 15) distinguishes

two kinds of language shift: one of them caused by immigrants or minority groups adapting to their new habitats and shifting to the majority's variety, the other by invasion or colonization, where the colonizers' language may be introduced or even imposed upon the colonized. Language shift, in both categories, may result either in partial or complete desertion of the neglected native language.

Third, an encounter of two different languages may lead to yet another phenomenon: language creation. Winford (2003: 18ff) differentiates three types of language creation, namely bilingual mixed languages, pidgins, and creoles.

Bilingual mixed languages, or intertwined languages, result from "long-term contact between two ethnic groups leading to bilingualism and increasing mixture of the languages" (Winford 205:19). What follows from this persisting contact is a hybrid form of both languages which becomes an established variety in the speaking community. Winford (2003: 19) cautions against oversimplification, yet suggests that in most cases, one of the two source languages provides the majority of grammatical structures, while the other supplies the lexicon. While "many similarities in design" may be discovered in a comparative analysis of bilingual mixed languages, Winford (2003:19) states that they do not follow any general rules, and that "no single formula can be applied to describe or predict the mixture".

In contrast, Pidgins are usually highly reduced and simplified vernaculars which may draw on the lexicon and grammar of two languages in contact to varying degrees (Winford 2003: 20). They often emerge through trading contacts or military occupation and frequently serve corresponding purposes exclusively. The extent of mixture is variable; in some cases, the Pidgin may utilize just one of the two varieties in contact. Winford (2003: 20) notices that there might be a tendency of the language community whose territory a trading point falls into to linguistically dominate the pidgin. Further, the author asserts that the classification of Pidgins may be problematic, as elaboration and simplification, respectively, vary greatly between different Pidgins. What is more, originally rather unrefined and plain Pidgins may become more elaborate and complex over time, which complicates classification even further. In addition, boundaries may overlap with other types of languages (Winford 2003: 21).

Creoles are perhaps even more controversial than pidgins as regards their definition and classification. Winford (2003: 21) introduces them as contact vernaculars, emerged as a consequence of the deportation of slaves to European colonies and the resulting need of a means of communication between them and the European settlers. The author later discusses the origin of creoles, stating that they were created by "slaves and other subordinated groups" who drew from the colonizers' languages as well as their own native languages (Winford 2003: 304). What is essential is that creoles, as opposed to pidgins, soon became utilized as the first languages for offspring born into these situations. This context also explains the term creole itself: the label was originally used for "people born in the colonies" (Winford 2003: 305) and later became used for describing newly emerged languages spoken by the slaves' and settlers' descendants. Their function as a first language has traditionally been the main factor for the classification of languages as creoles:

> As with pidgins, the identification of these contact vernaculars is based on a variety of often conflicting criteria, including their putative origins, their communicative functions, and their structural characteristics. According to the first two criteria, creoles have traditionally been defined as pidgins that were adopted as native languages ('nativized') by newly emergent creole societies. (Winford 2003: 306)

Summing this up, it could be said pidgins may develop into creoles by undergoing processes associated with their "nativization" (Winford 2003: 306), through which lexicon and grammar become more complex. Winford (2003: 306-307) however views this assertion critically, pointing on the one hand to the lack of proof for relatedness between pidgins and creoles, and on the other hand emphasising the wide range of historical and sociolinguistic backgrounds of different creoles.

Drawing the attention back to central topic of this paper, the question might arise which of these forms of language contact apply to contact situations between English and German. As shall be seen in more detail further below, several contact situations have emerged between both languages in different contexts. While most works on English-German language contact focus on

the role German played in scientific discourse of the nineteenth century (cf. Durkin 2014), English and German were also exchanged through trading contacts between the Germany and the UK, the USA, and other English speaking countries; German was spread by Protestants emigrating to the USA; and it reached foreign shores as a result of war reports and German refugee movements during WWI and WWII, to just name a few of the past encounters of the two languages. Generally speaking, the majority of contact situations between the two were either under conditions where both languages were maintained, or in which speakers of German shifted to English. The only German creole found during the research of this paper is Unserdeutsch, which did not emerge out of contact with English, but with Tok Pisin (cf. Maitz, König & Volker 2016). As the scope of this thesis is limited to loanwords, the focus of the upcoming theoretical elaborations will mainly be on language maintenance situations. More in-depth analyses will be given at the appropriate stages in the discussion of the corpus research in the second part of this paper.

2.3 Language Maintenance

As stated above in the introduction to language contact in general, language maintenance describes situations in which two (or more) languages that are in contact remain used by their respective speech communities. Pauwels (2005: 719), in her definition of language maintenance, stresses that the maintained language continues to be used in "all spheres of life" and that it is in "competition with the dominant or majority language to become the main/sole language" (ibid.). However, this scenario is only partly applicable to the various contact situations between German and English, as will be elaborated in the following paragraph.

The great majority of German loanwords, as shall be seen in the OED analysis further below, were borrowed in scientific contexts. While German was one of the most important languages in academia in the 19th and early 20th century, it would be a stretch to call it a dominant or majority language in any geographical area apart from central Europe. Also, the German language never actively threatened to replace English in scientific publications from English speaking territories. Similar statements could be made about the trading, political, and military relationships between the two languages. It seems, therefore, that we will have to adhere to a looser definition than

Pauwels' if we want to consider German loanwords in English as products of language maintenance, following the classical definition of loanwords. An exceptional case are German loanwords brought to English by migrating speech groups like the Pennsylvania Germans. Pauwels' definition would apply to some of these situations, although in the opposite direction: English would be seen as the dominating language, and German could be regarded as the maintained language in this setting. Nevertheless, borrowings in these instances occurred from English to German as well as vice versa.

Another possible approach to classify these foreign words would be the following: Durkin (2014: 188) briefly describes what is called language-shift-induced imposition by other authors. This phenomenon can be observed if formerly bilingual speech communities shift to one of the two languages, resulting in the death of the other language. Native speakers of the receding language would introduce some of its native elements to the persisting language. The prime example for language-shift-induced imposition would be Early Scandinavian: Durkin establishes the possibility of a longer period of bilingualism with an eventual slow shift of the Scandinavian settlers from bilingualism to English (Durkin 2014: 188). Keeping in mind other potential scenarios, Durkin suggests the possibility that a large number of Early Scandinavian loanwords may be traced back to this period of shift. The situation of German in America is, to a degree, similar: many of the German communities became bilingual. Some groups, eventually, became monolingual in English, but not without introducing some of their native vocabulary to English.

2.3.1 Settings for language maintenance

We have already discovered that language contact may be experienced in a number of different settings. Winford (2003: 29ff) for instance broadly distinguishes three different categories: casual contact, contact in settings with 'unequal' bilingualism, and settings with equal bilingual situations. The first class, casual contact, or also distant contact (cf. Loveday 1996), applies to the majority of contact situations between English and German. Winford asserts that distant contact situations may be caused by exploration, trade, mass media, second language teaching or travel, and suggests that they may be the source for the largest amount of lexical borrowings (Winford 2003: 30-31).

The second class described in Winford's classification of contact settings are those involving unequal bilingualism, which correspond to Loveday's (1996: 20) settings of bounded or subordinate bilingualism (cited in Winford 2003: 33). Winford calls these settings unequal because they typically consist of one dominant speaker community and one linguistic minority, and he indicates that lexical as well as structural borrowings may be more frequent in these settings than in casual ones. The differences in power and prestige attached to both languages is crucial for the borrowing processes involved (Winford 2003: 37). Some of the causes for contact in unequal bilingual settings are "immigration, invasion, or military conquest, the realignment of national boundaries, or the establishment of inter-group contact for purposes of trade, marriage, and so on" (Winford 2003: 33). His description of two-way borrowings in colonial settings suggests that the author would regard the aforementioned German words in American English as loanwords, as opposed to language-shift-induced impositions (Winford 2003: 33, cf. Durkin 2014: 188). Finally, Winford's equal bilingual situations describe settings of bilingualism in which both languages share a similar amount of power and prestige, which, he envisions, results in lower number of loanwords (Winford 2003: 37). He argues that differences in prestige exert higher pressure for the minority language to borrow vocabulary, which explains the lower motivation for borrowing in equal bilingual settings (ibid.).

Adding to this, Hoffer states that trade and casual contact lead to a smaller amount of lexical borrowings. This stands in contrast to "side-by-side contact over decades or centuries", which tends to result in a large number of lexical imports (Hoffer 2002: 3). This statement at first glance may contradict Winford's description, but both remarks need to be viewed separately. More intense contact between languages A and B may result in more loanwords from, say, B in language A if compared to less intense contact, as Hoffer suggests. At the same time, extensive trade with various nations allows for a great number of overall loanwords from a vast amount of different languages. Basically, Hoffer considers the relative amount of lexical borrowings from language B, while Winford looks at the relative proportion of loanwords compared to the overall lexicon of a language.

2.3.1.1 Linguistic factors

While all language contact situations can be broadly classified into different settings like invasions, conquests, or cultural contact, it is possible to describe them more thoroughly by analysing the individual variables attached to each setting. These variables are broadly divided into two categories: linguistic factors on the one hand, and extralinguistic factors on the other hand. The latter can include various social, cultural, political, and psychological notions and will be described further below. As pointed out by Winford (2003: 10), linguistic factors used to be the only focus in many early works on language contact; today, extralinguistic factors are often considered to be equally or perhaps even more important.

According to Field (2002: 5), two linguistic factors are relevant for the amount of exchange in contact situations: frequency and formal equivalence (cf. Van Hout and Muysken 1994, Weinreich 1953). Frequency refers to the number of occurrences of a word in the donor language, relative to the whole lexicon. Field argues that words with high frequencies in the donor language are more likely to be borrowed than such with low frequencies because they will exert more pressure on the receiving language; however, he also mentions that high frequencies in the receiving language may inhibit borrowing (Field 2002: 5). Formal equivalence describes whether or not a given form has a structurally and formally corresponding form in the receiving language; if yes, then borrowing will be facilitated.

In addition, Winford (2003: 51-53) describes a number of linguistic constraints which may either impede or promote borrowing. Among them are morphological and syntactic characteristics of the lexical classes of both languages involved, the morphological complexity of lexical items, and typological differences in word structure. Winford also mentions the frequently cited hierarchy of borrowability, according to which words from open word classes, such as nouns, are more easily borrowed than items from closed lexical classes, such as pronouns (Winford 2003: 51).

2.3.1.2 Extralinguistic factors

As we have discovered above, contact-induced phenomena are not only influenced by linguistic characteristics of the languages involved, but also by extralinguistic factors; among them are

sociocultural and psychological circumstances (cf. Winford 2003: 10). It has been argued that linguistic factors may form the basis for any contact-induced phenomena, but "extra-linguistic factors [...] can override any purely structural resistance to change" (Winford 2003: 25). They may also work in the opposite direction and inhibit borrowings even if importations are likely due to structural compatibility (ibid.). Winford (ibid.) lists a number of potential social factors:

> [...] the types of community settings, the demographics of the populations in contact, the codes and patterns of social interaction among them, [...] the ideologies and attitudes that govern their linguistic choices[,] [...] the degree of bilingualism among the individuals and groups in contact, the history and length of contact, the power relationships between the groups, and so on.

An analysis of the interplay of these determinants may help understand why some contact situations result in more intense borrowing than others. However, as pointed out earlier, it seems impossible to make reliable predictions about the future products of language contact phenomena (Winford 2003: 19).

Despite this, various approaches have been developed to arrive at a framework which aids to classify the effects of the abovementioned factors. For instance, some scholars have made it their goal to find out in how far sociocultural context influences whether languages will be shifted or maintained. Answers to this question may prove vital to assist language communities in making the right decisions to avoid language shift and maintain their native tongue. Pauwels (2005: 726ff) offers a brief review of four different approaches from applied linguists. She first summarizes Kloss' (1966) theory of "clear-cut and ambivalent factors promoting LM", in which Kloss distinguishes factors which clearly encourage language maintenance, such as an "early point of immigration", from factors which are ambivalent and may also promote language shift, such as the educational background of migrants. The second work included in Pauwels' analysis is Smolicz' (1980, 1981) theory of "language as a core value". In its essence, this theory suggests that all speech communities adhere to their own sets of values which are deemed essential for a lasting feeling of group identity; language maintenance becomes more likely if language is among these cultural values (Pauwels 2004: 727). The "ethnolinguistic vitality" theory is the third approach described by Pauwels. In this theory, the ethnolinguistic vitality of speech communities depends on a range of objective factors (such as economic status or representation

in education) as well as subjective factors, the latter of which result in the group's self-percepted vitality. Languages spoken in groups with higher ethnolinguistic vitality are expected to be maintained in contact situations, while others would be more likely to shift to another language. Finally, Pauwels refers to the "market value of language" theory, according to which languages are thought of as saleable resources; therefore, minority languages which are considered economically useful are more likely to be maintained (Pauwels 2004: 728).

Ultimately, the values attributed to each language also lead to different levels of prestige that become attached to them. Hamel (2008: 43) writes about "Sprachhierarchien", 'language hierarchies', which he claims have a higher impact on the role of specific languages than the languages' quantitative distribution and use. According to him, these hierarchies are caused by uneven distributions of various languages in different usages and domains, i.e. which languages are spoken at workplaces, in families, at schools etc. Thus, it is to some degree possible for governments, for example, to control the expansion of minority languages (Hamel 2008: 43-44). German in the United States proves an illustrative example of a demonstration of this power. According to Ramsey (2002), the language was used relatively widely up until the early 20th century:

> It was through the public school, along with the family, parochial schools, and the churches, that the German language was preserved for the generations of German-Americans with no firsthand knowledge of Germany and its language. Beginning in 1869 German-language instruction was required by law to be offered in many of Indiana's public schools. Indiana's Germans hoped the law would attract more immigrants to the state.

German enjoyed a good reputation in the states until the onset of World War I. Starting with the American declaration of war in 1917, German was institutionally eradicated in the USA due to an expanding anti-German sentiment and increased American patriotism (Ramsey 2002) and swiftly disappeared not only from schools; whole communities were Americanised in efforts to prove their loyalty.

Ammon (2008: 49), in his analysis of German as a scientific language, picks up on this notion. He illustrates that scientific publications at the beginning of the 20th century were mostly

comprised of German, English and French papers, each of which contributed roughly the same amount of publications. The developments over the 20th century, which have resulted in near dominance of English publications over dwindling numbers of research in German, can largely be attributed to the negative stigma of German associated with both World Wars, National Socialism, and the temporary economic ruin of the German speaking countries (Ammon 2008: 49). Ammon further refers to a systematic boycott of German as a globally used language of sciences, apparently initiated by France and Belgium (cf. Reinbothe 2006, cited in Ammon 2008: 49). Both institutionalised suppressions of German, on the one hand in American everyday life and on the other hand in European scientific discourse, demonstrate the impact of political decision makers on the potential expansion of a language.

2.3.2 What is borrowing?

Among the various scholarly texts on borrowing, there seems to be consensus on at least one aspect: the overall ambiguity of the terminology, especially the term *borrowing* itself. A number of authors (cf Hoffer 2002: 3, Durkin 2014: 3, Haugen 1950: 211, Ehlert 2012, 28) agree that the word *borrowing* is in this context somewhat misleading for several reasons. On the one hand, the loan is neither requested by the borrowing language nor granted by the source language, and the parties involved might not even actually be aware of the loaning process. On the other hand, the loan is never paid off, as would be implied by the typical use of the term. Despite these shortcomings, *borrowing* is still used as a technical expression by linguists.

But then, which phenomena exactly are covered by this metaphor, and what sets borrowing apart from other contact-induced changes? Haugen, in his immensely influential paper, defined borrowing as "the attempted reproduction in one language of patterns previously found in another" (1950: 212). Many of the more recent works quote Haugen and offer similar definitions, for instance Thomason & Kaufman (1988: 3), who state that the term borrowing refers to “the incorporation of foreign features into a group’s native language by speakers of that language” (in Winford 2003: 12). Loanwords are the manifestations of borrowing within the domain of lexicon and are perhaps what comes first to the reader’s mind; borrowing can, however, also involve other language features, like syntax or phonology. Hoffer (2002: 3) describes that the various

sub-domains of language systems show different levels of borrowability and states that vocabulary and phonology are more likely to be borrowed than morphology, syntax or stylistic features. This can be explained by Thomason & Kaufman's (1988: 37-38) assertion that lexical borrowings are the first elements borrowed from a foreign language and may occur without widespread bilingualism, as opposed to structural features, which are only borrowed in situations where the majority of the borrowing speech community speak both languages. Further below, a short overview on structural borrowing will be given, along with a more detailed elaboration on lexical borrowing.

Like language contact in general, borrowing may occur in various settings. Field (2002: 3) states that a large number of studies focus on extensive borrowing situations which occur as a consequence of intensive contact between two languages: typically, a great quantity of speakers in such situations fluent in both the donor and the recipient language. One example for such intensive contact would be between the two languages Balochi and Brahui (cf. Thomason & Kaufman 1988). Field stresses, however, that borrowing is also possible "when there is casual contact between languages, i.e., among their speakers" (Field 2002: 3). He gives *kosher* from Yiddish, *pizza* from Italian, and *sauerkraut* from German as examples; all of them are loanwords which have found their way into American English through their usage within respective immigrant groups (Field 2002, 3). In these settings, only the Yiddish, Italian or German migrants were bilingual, while the majority of the remaining population was monolingual.

Reviewing recent research, Field (2002: 4) specifies a number of reasons for borrowing that have been considered by contact linguists within the last decades:

a. as a result of the cultural dominance of the donor language (Watson 1989: 49-51; Mougeon and Beniak 1989: 303-307; Hill and Hill 1986: 4; cf. Gal 1989: 318);
b. to be associated with speakers of the dominant language (and gain socially from its prestige) (Mertz 1989: 112; Hill and Hill 1986: 103ff; Thomason and Kaufman 1988: 44ff; Grosjean 1982: 336-337);
c. to fill gaps in a recessive language well along in the process of shift (Myers-Scotton 1993[...]: 167; Huffines 1989: 212; Bavin 1989: 270ff; Haugen 1989: 65; Grosjean 1982: 336; Karttunen and Lockhart 1976: 16ff);
d. to facilitate understanding with younger speakers who are no longer familiar with original forms of the recessive language (Bavin 1989: 277; Haugen 1989: 67);
e. for affect or convenience (Hoffmann, 1991, pp. 102-103; Grosjean 1982: 311-313)

While the above list offers explanations on why languages borrow in general, this paper focuses on lexical borrowing in particular, for which additional reasons will be elaborated on below. Keeping in mind the relationship between English and German and considering that German has never had significant cultural dominance over English, reasons a. and b. do not seem to apply too well in our context. This is particularly true for contact in the classical sense, that is, in which both languages were spoken in one geographic area; when looking at contact in specific fields, for instance in science, one could speak of German dominance. Similarly, in none of the well-known contact situations between the two has English been the recessive language, which cancels out reasons c. and d. for our examinations. All in all, reason e. might come closest to describing why English has borrowed from German.

In addition to the causes for borrowing, Field also describes factors which account for the kinds and extent of the process. (Field 2002: 4). By referring to Thomason and Kaufman (1988:65ff), he lists "(a) the intensity and length of contact; (b) the relative number of speakers of each variety; (c) cultural and political (therefore, economic) dominance of one group of speakers, and so on" (Field 2002: 4). For example, in contact situations where two languages exist within close proximity of each other for centuries, borrowing would be assumed to be more likely than in situations in which two languages barely touch each other over the span of a few decades. Field does not fail to make his readers aware of potentially controversial combinations of these factors; for instance, one speech community might be smaller in numbers than the other, yet might be more politically and/or culturally dominant. Such contact situations could result in more than one possible outcome. Commenting on this, Field also notes that, usually, only speakers of the minority language become bilingual (Field 2002: 4), as the pressure is higher in this direction.

Thomason and Kaufman (1988: 74ff) use these factors for devising a borrowing scale of five categories:

Their first category applies to "casual contact"; they state that loaning only occurs within the lexical domain, and that "non-basic vocabulary will be borrowed before basic vocabulary" (Thomason & Kaufman 1988: 74). In addition, only content words are expected to be borrowed.

These contact situations are characterised by a lack of widespread bilingualism, and the authors assert that prestige loans and "borrowings into the languages of superordinate groups from those of numerically inferior subordinate populations" are typical. Category two describes "slightly more intense contact" and may include some instances of structural borrowing, as well as the borrowing of function words. Their third category focuses on "more intense contact"; at this stage, personal and demonstrative pronouns as well as derivational and inflectional affixes may be introduced. In addition, phonemic borrowings are more likely. Category four, "strong cultural pressure", is likely to involve "extensive word order changes", and borrowed grammatical features such as affixes will be applied to native lexicon. Finally, their last category is that of "very strong cultural pressure", in which structural features of the target language may undergo drastic changes.

Let us briefly bring back our focus to the relationship between English and German, and consider which of these steps of Thomason's and Kaufman's scale might apply. With the exception of the early times of Old English, when Germanic invaders settled in what is now England, contact between the two languages has been mostly casual. It could be said that German and English have touched mostly in two different settings: on the one hand, a number of German settlements have been established in English-speaking territories, for instance political or religious refugees such as the protestant refugees in the seventeenth century or the "Forty-Eighters" from the 1840s and 1860s, (cf Borchard 2010, Siebel-Achenbach et al 2008), who migrated to the UK, the USA, and Australia, among other destinations. This accounts for why, from the Middle Ages onwards, English has mostly introduced content words from non-basic vocabulary. According to Thomason and Kaufman's theory, more intensive contact would have been necessary in order for English to borrow basic vocabulary, function words, or even structural features.

2.3.2.1 Lexical borrowing

As we have seen above, lexis is usually the language system within which borrowing occurs first in a contact situation. According to Durkin, "lexical borrowing occurs when the lexis of one language […] exercises an influence on the lexis of another language […], with the result that the borrowing language acquires a new word form or word meaning, or both, from the donor

language" (2014: 8). As we shall see below, the distinction between the borrowing of form and meaning has become crucial for the distinction between several kinds of lexical borrowing.

The reasons for lexical borrowing are plentiful; on a basic level, two main motives can be distinguished: need and prestige (Winford 2003: 37). Need borrowings are often introduced to fill a lack of names for and expressions about new concepts. They can therefore frequently be traced back to new items, people, locations, or abstract ideas being introduced to a speech community (cf Winford 2003: 37). Or, as Grosjean reports: "Uriel Weinreich, the wellknown [sic] researcher on bilingualism, once said [that] it is only natural to use ready-made designations from the other language instead of coining new words; after all, few users of language are poets!" (Grosjean 2010: 60). Culinary terms, such as German *Strudel* or Danish *Smørrebrød*, could be named as illustrative examples for need loans; there are no direct translations in English, as there were no equivalent traditional dishes in the respective areas and therefore no equivalent names for concepts like "[a] dessert of thin pastry rolled up round a fruit filling and baked" (oxforddictionaries.com, s.v. *Strudel*) or "A Danish open sandwich" (oed.com, s.v. *Smørrebrød)*, so the signifiers were borrowed along with the dishes themselves. Another example would be untranslated scientific terms, such as the German term *Sprachbund,* which, due to a lack of direct translation, is also used by English linguists.

Prestige loans, on the other hand, are typically rooted in the status differences between two languages. Usually, speech communities value certain foreign languages more positively and others more negatively, which is connected with factors such as political or economic power. If one language is particularly highly esteemed, it is more likely that lexis from that language will be borrowed into the receiving language. For example, French reached a prestigious status in England as a consequence of the Norman Conquest in the 11th century and the subsequent substitution of English with French aristocracy (Winford 2003: 37-39). An exemplary phenomenon in English which can be traced back to that time can be found in near synonyms like *swine*, *pig*, and *pork*, which stem from Old German, old English and Old French, respectively (cf. Winford 2003: 39).

The reasons for borrowing loanwords have also been classified into more than two groups by other authors, however. Weinreich (1953) offers seven different explanations for why loanwords are borrowed from other languages (as cited in Appel & Muysken 2005: 165-166):

(1) Through cultural influence;
(2) Rare native words are lost and replaced by foreign words;
(3) Two native words sound so much alike that replacing one by a foreign word resolves potential ambiguities;
(4) There is a constant need for synonyms of affective words that have lost their expressive force;
(5) Through borrowing, new semantic distinctions may become possible;
(6) A word may be taken from a low-status language and used pejoratively;
(7) A word may be introduced almost unconsciously, through intensive bilingualism.

Some of these reasons could clearly be divided into the aforementioned categories need and prestige loans, but the distinction is not always clear cut. The analysis of loanwords in the OED further below will show that (1) applies for the majority of German loanwords in English. A smaller number of borrowings can be explained by (5), for example loans like *Ritter* or *Lied*, whose direct translations 'knight' and 'song' differ slightly in meaning.

Now that we have looked at specific classifications of reasons why lexical borrowings are introduced from other languages, let us move on to the finer distinctions between different kinds of lexical loans.

One way to differentiate the outcomes of lexical borrowings is offered by Myers-Scotton (2002, cited in Haspelmath 2008: 5-6), who distinguishes between cultural borrowings and core borrowings. Cultural borrowings are introduced along with new objects or ideas. They are usually imported by "influential groups"; Haspelmath's examples are *espresso* and *zeitgeist* (Haspelmath 2008: 6). Core borrowings, on the other hand, are signifiers from another language, used to refer to already existing concepts in the borrowing language. They may exist alongside with or replace native expressions; the example used by the author is *OK* borrowed into German, which replaces *einverstanden* (Haspelmath 2008: 6, cf. Myers-Scotton 2002: 239).

Another approach for the classification of lexical borrowings is Haugen's taxonomy (cf. Haugen 1950: 212ff; Hoffer 2002: 5ff). Haugen first distinguishes two kinds of processes for how

speakers may reproduce elements from foreign languages: import and substitution. For Haugen, an import is a reproduction which resembles the original close enough so that native speakers of the donor language would have no problems understanding it. In contrast, a substitution is an inadequate reproduction which would not, or less clearly, be recognized by the speech community from which the element was borrowed. These two characteristics can be mapped as in the table below to arrive at three different combinations, which is how Haugen arrived at the following definitions.

Table 1: Haugen's borrowing framework

	import	**no import**
substitution	loanblend	loanshift
no substitution	loanword	(no borrowing)

Accordingly, a loanword, in the strict sense, is a (more or less) complete import of form and meaning without substitution (cf. Haugen 1950, Hoffer 2005, Field 2002). Note, however, that the term loanword may, in a broader sense, be used as a hypernym to refer to any of the other categories (cf. Haugen 1950: 213, Hoffer 2005: 5). According to Field, loanwords can be further classified according to the degree of their phonological integration: either full, partial, or none at all (2002: 8). Examples for German loanwords (in sensu stricto) in English would be *rucksack*, *Nazi* or *quartz,* whose meaning as well as morphemes are the same in both languages.

The next category are loanblends. They are usually the product of combining foreign and native morphemes, or, to adhere to Haugen's terminology, a morphemic substitution and importation (Haugen 1950: 215). Depending on which part of a word is foreign and which is native, several types of loanblends can be distinguished: Hoffer names blended stems, blended derivatives, and blended compounds (Hoffer 2002: 5). Blended stem describes the phenomenon when a foreign stem and a native stem are mixed; Haugen's example is American Norwegian /kårrna/, which blends English *corner* with Norwegian *hyrrna* (1950: 218). Blended derivatives combine foreign roots with native affixes; an example would be Pennsylvania German adjectives, which often blend English roots with native suffixes, like *fonnig* for English *funny* or *tricksig* for *tricky*.

Finally, blended compounds are borrowed compound words which are partly substituted by native elements. Haugen again uses a Pennsylvania German example: *bockabuch,* based on English *pocketbook* (Haugen 1950:219).

The third type, loanshifts, include morphemic substitutions without importation (Haugen 1950:214-215). In other words, a foreign meaning is imported, but not its shape, which is replaced by a native word (Greavu 2013: 102). Generally, two kinds of loanshifts can be distinguished: semantic loans (also called extensions) and loan translations (also referred to as calques) (cf. Winford 2003: 45, Greavu 2013: 102, Field 2002: 8-9). First, in semantic loans, the semantic meaning of a native element is "extended to include a new, usually related concept" (Field 2002: 9). One example would be Italian *fattoria*, which originally only meant 'farm' but gained the additional meaning 'factory' as a consequence of contact with English (Weinreich 1968: 49, cited in Greavu 2013: 102f). Depending on the degree of semantic overlap, Haugen distinguishes further subtypes such as loan synonyms, semantic displacements, or semantic confusions (cf. Haugen 1950: 219). Second, loan translations are words which are newly created. This process imports foreign concepts, but uses native morphemes to name them; loan translations are often word for word translations. The classic example is English *skyscraper,* which has led to the loan translations *Wolkenkratzer* in German, *gratteciel* in French, or *rascalielos* in Spanish (Haugen 1950: 214). Another example, demonstrating German influence on English, is *superman,* a loan translation based on German *Übermensch* (Crystal 1991: 205, cited in Field 2002: 8).

Yet further options would be to use the classification of Betz (1936) or Duckworth's (1977) adaptation thereof, both of which. appear to be particularly popular within German contact linguistics (both cited in Ehlert 2012). Haugen's terminology however seems to remain the most quoted in English literature on borrowing phenomena (cf. Field 2002: 8, Ehlert 48-49, Durkin 2014: 8, Hoffer 2002:5, Haspelmath 2008:5). Greavu (2013), Hoffer (2002) and Ehlert (2012) provide a concise overview over several of the most popular classifications. Because the OED online dictionary offers no distinction between different kinds of borrowings and because it would exceed the limits of this paper to classify more than 3,000 loanwords manually, the term loanword will be applied loosely except for obvious cases of loanshifts and loanblends.

Before concluding this general overview on lexical borrowing, I want to point out some issues which may arise while studying loanwords. First, when examining single words of foreign origin within a recipient language, it is not always possible to distinguish loanwords from codeswitching (cf. Winford 2003: 107). Different approaches have been proposed to counter this problem, but Winford concludes that no uncontroversial solution has been found (2003: 107-108). Appel & Muysken (2005: 172-173) also comment on this debate and criticize the apparently generally accepted notion that the degree of morphological and structural adaptation to the recipient language is sufficient for an analysis. According to this popular view, which is also (although critically) suggested by Field (2002: 185), loanwords are structurally integrated into the new language, while code switches are not. Appel & Muysken (2005: 173) base their opposition on the Dutch loanword *computer*, which is considered a loanword although it is not fully phonologically integrated. A second problem may be tracing back loanwords to their original source language. On the one hand, lexicon may 'travel' from one language to the next through several consecutive contact situations, and in addition, the loanwords in question might undergo multiple structural changes. In retrospective, it may be difficult to tell which is the original source language and which was just a so-called vehicle language (Minkova & Stockwell 2009: 58). On the other hand, words may be formed by compounding roots from different languages; such hybrids with mixed etymology may be formed directly in English, or may again be borrowed from another language (ibid.). As will be seen below, the latter is actually the case for some of the words which are considered German loans in this paper; they were coined in German, but combine, for instance, Greek and Latin morphemes.

2.3.2.2 Borrowing of other language features

We have learned from the preceding sections that lexicon tends to be the language system which languages borrow from most easily and, therefore, loanwords tend to be the most frequent borrowings. However, Thomason and Kaufman's (1988: 74ff) five level borrowing scale has illustrated that also non-lexical features may be borrowed. Field (2002: 3) suggests that some phonological and structural traits from one language may be introduced to another without lexical

borrowing, but indicates that borrowing words is usually the first step before any other features are adapted (cf. also Haugen 1950: 225f).

As for borrowings in phonology, Haugen (1950: 226), distinguishes phonemic redistribution, in which existing phonemes are rearranged to correspond to foreign sequences, and phonemic importation, which introduces new phonemes. According to him, phonemic redistribution is the more common phenomenon, while phonemic importation can usually only be noticed in the speech of bilinguals.

Turning the focus to grammatical features, both syntax as well as morphology may be borrowed from other languages. Field (2002: 3) implies that morphemes are more likely to be borrowed the less bound they are; for example, derivational affixes are considered more closely bound than function words and therefore less frequently borrowed. Winford (2003: 91) agrees with this, adding that derivational morphology can be borrowed along with loanwords. The author concludes by noting that "[t]here is still much disagreement on the extent and type of structural borrowing possible under contact". Syntactic features, on the other hand, are considered to be even more closely tied to the grammar of a language; therefore, Field (2002: 3) argues, they are "the very last to be borrowed".

3 Quantitative part

The following part of this paper is an attempt to analyse lexical borrowings from German. The main source for information on loanwords is the Oxford English Dictionary (OED.com), which I will refer to as OED. The online version of this dictionary is a comprehensive corpus and provides information on the origin and frequency of words in addition to their definitions. The editors have also taken care to separately indicate meanings which have changed with time, and the majority of lexical items have been classified according to their usage.

Three approaches will be used for the corpus analysis: first, the forty most commonly used loans of German origin will be listed and conclusions will be drawn from a semantic analysis and the loaning processes involved. Second, a diachronic view will be taken, examining frequencies of

the entrances of German loans as well as the contexts in which borrowing has been most productive. Third, word classes of the one hundred most popular loans will be examined to test the scale of borrowability.

The first approach will mainly consist of a semantic analysis. The aim here will be to survey whether commonly used loans might be categorized and grouped according to semantic fields, and whether certain of these fields dominate over others. Haspelmath (2008: 9) states that not much systematic research has been done examining this question but suggests "many regularities"; for instance, he asserts invaders would be likely to borrow expressions to discuss native fauna and flora, and that invaded peoples would in turn be inclined to borrow military terms. Another plausible hypothesis would be that culinary terms are more likely to subsist than others, simply because the dishes described by those loans were introduced to the speakers of the target language at the same time as the foreign terms themselves. A prerequisite for the survival of their names is the passing on of the foods and beverages themselves.

This analysis is in addition supposed to help illuminate which kinds of loan words tend to persist in high frequencies, for instance, whether need loans tend to be more commonly used than prestige loans. OED provides a function to display entries according to language of origin, which can then be further sorted by entry, frequency, or date; the list generated by this and sorted by frequency will be the starting point for this inquiry. In order to support findings from the OED website, further inquiries in corpora such as the COCA might prove essential.

In the second analysis, OED's timeline function will serve as a point of departure for an examination of the dates when German loans entered the English language for the first time. This inquiry will not only illustrate which eras in history produced most loans, but will also allow for further investigating trends concerning semantic classes. This will finally lead to a conclusion as to which historical phenomena have left the biggest impact on the influence of German on English, with regard to loaning processes.

Durkin's (2014: 45) assertion that some word classes are more likely to be borrowed than others will receive special attention in the third part in this section. For this, the one hundred loans with the highest frequency will be categorized according to their word class.

One particularly important factor to consider when undertaking corpus analysis is the sample size, as well as the composition of the corpus itself. For example, the relative amount of loanwords will naturally depend on whether the sample includes only core vocabulary or also specific registers. Durkin (2014: 30ff) illustrates this by highlighting the results of different studies which examine the proportion of foreign words in English. For instance, when looking at high-frequency wordlists like the *General Service List of English Words (GSL),* which only include a highly condensed vocabulary shared by many speakers of English in everyday language, then words inherited from Old English or Middle English make up 47.08% of the overall sample, while High German contributes 0% of loans. In contrast, an analysis of the 92,500 main entries of the OED inspected by Durkin (2014: 24f) suggests that roughly 5% of all loan words are of German origin. This insight illustrates that any accounts claiming the relative amount of foreign vocabulary in English should be taken with a grain of salt. The much higher number of borrowings in the OED can be explained by the large number of technical, highly specific loanwords with low frequencies in the average use of English.

3.1 Part one: semantic analysis

As described above, this first analysis looks at those German loanwords which score the highest overall frequencies. To obtain such a list, all of the entries covered by the OED were first filtered so that only items of German origin were displayed. Subsequently, these 3,493 entries (oed.com, August 4, 2017) were sorted by frequency. The following list presents the top 40 items obtained from this procedure.

Before looking at this list, however, let us make a brief detour to explore how these word frequencies are calculated by the OED. On their website, the editors state that the frequency bands displayed for each word are based on data provided by Google Books Ngram (books.google.com/ngrams). A thoughtfully conceived process to calculate the frequencies

guarantees representative figures in the OED. For instance, all frequency scores include alternative spellings, as well as inflections and plural forms. Currently, frequencies have only been computed for what is labelled modern English in the OED's key to frequency: they have considered frequencies from 1970 to the present day, exclusively (OED.com). The OED distinguishes eight frequency bands. All words are assigned to these bands based on their individual frequency scores. Items in frequency band 8 are extremely frequent, while band 1 features particularly rare words. Descriptions of and examples for each band can be found in the OED key to frequency (oed.com). These frequency bands will occasionally be referred to in the analyses to follow.

Let us now return to our first investigation. The list below shows the 40 German loans with the highest frequency ranks between 1970 and today, as well as the date of the oldest known sources of the borrowings. Abbreviations from the OED were adopted: c1400 stands for circa 1400, a1340 means before (ante) 1340.

Table 2: 40 most frequently used German loanwords

Rank	**Word**	**Class**	**First attestation**
1	*Land*	noun	1920
2	*Antibody*	noun	1901
3	*Slip*	verb	a1340
4	*Protestant*	noun and adjective	1539
5	*antigen*	noun	1908
6	*shore*	noun	c1400
7	*chromosome*	noun	1889
8	*Nazi*	noun and adjective	1930
9	*strip*	noun	1459
10	*shelf*	noun	c1405
11	*sketch*	noun	1668
12	*mit*	preposition and adv.	1794
13	*Seminar*	noun	1889
14	*mutant*	noun and adjective	1901
15	*zin.*	noun	1651
16	*ecology*	noun	1875
17	*-ol*	adjective	1907
18	*schizophrenia*	noun	1912
19	*quartz*	noun	1676

20	*leukaemia*	noun	1855
21	*methyl*	noun	1840
22	*mucosa*	noun	1867
23	*uranium*	noun	1790
24	*nucleotide*	noun	1908
25	*semester*	noun	1826
26	*ester*	noun	1852
27	*ozone*	noun	1841
28	*ambivalence*	noun	1912
29	*mitochondrion*	noun	1901
30	*coach*	verb	1612
31	*allergy*	noun	1908
32	*polypeptide*	noun	1903
33	*heroin*	noun	1898
34	*aspirin*	noun	1899
35	*kindergarten*	noun	1851
36	*Lied*	noun	1852
37	*testosterone*	noun	1935
38	*Herr*	noun	1653
39	*shaman*	noun and adjective	1698
40	*shore*	noun	1440

Likely, two aspects will immediately draw the reader's attention: First, while the items on this list stem from a variety of different contexts, the majority of them seems to be derived from several fields of academic study. Second, speakers of German might be surprised by the selection of supposedly German loanwords, since a great number of them could be identified as *Fremdwörter*, 'foreign words', in German itself.

The reason why so few of these loanwords are likely to be associated with German loanwords is that the majority of these words appears to stem from other languages, in particular Latin (e.g. *mutant* and *mucosa*) and Greek (*ecology*), which were the predominant languages at universities. This can be explained by a predilection for a Latinate style of writing, which, according to Durkin (2014:307), has been evident in English since the fifteenth century and became even more popular in the Renaissance. Writing in these classical languages spread across Britain in the two centuries to follow. Especially with the rise of new technologies and the expansion of scientific research, both of which resulted in the development of highly specialised registers, English

"[drew] directly or indirectly on the lexical resources of Latin in order to name specific phenomena or processes" (Durkin 2014: 309). Why then are these words classified to be of German origin by the OED?

The majority of these borrowed terms were coined by German scientists, but are compounds drawing morphemes from Latin and Greek (e.g. *antibody, schizophrenia, leukaemia,* or *ambivalence*). New coinages based on the classical languages used to be common practise, and according to Durkin (2014: 309), "the peaks in borrowings from Latin and Greek are very largely attributable to the exploitation of words and word-forming elements from Latin and Greek in the development of new technical vocabulary". Durkin continues by stating that even French and German loans consisted largely of technical terms, and that they, too, used Latin and Greek sources to construct new terminology (Durkin 2014: 309). There is still no consent on how such loanwords should be classified; Durkin argues that they can be considered as German loans even if they draw entirely on, e.g., Greek, as "they are words that have been coined within German by German scientists and, in this respect, they are more a part of the lexis of German than they are of the lexis of Latin or Greek of any era" (2014: 343).

The fact that the majority of frequently used loanwords are scientific terms leads to the deduction that academic register might have served as a significant gateway for German loanwords to enter the English language. From this, one could further surmise that German speaking universities contributed significantly to academic discourses in the 19th and early 20th century, when the larger part of these rather technical terms were introduced to English. Indeed, Durkin states that an "explosion of French publications in the natural sciences and other areas of technical knowledge in the eighteenth and nineteenth centuries [was] followed in the later nineteenth century by a similar explosion of scholarly and technical publications in German" (Durkin 2014: 307). The author further asserts that the impact of German on English vocabulary was significantly influenced by "the modern language of science"; an exclusion of technical terms would completely change the relative contribution of German loanwords in English (Durkin 2014: 45).

As the focus of this paper is on German loanwords and because this section is aimed at examining the typical semantic fields in which German influenced English, a second list of 40 loanwords was devised. While all of the items from the above list will be included in the diachronic approach further below, all foreign calques were omitted from the present analysis. Likewise, words which might have spread to English via German but originate from another language were also excluded. Etymologies were examined by researching the loanwords on OED.com, en.oxforddictionaries.com, and etymonline.com, while bearing in mind that the latter two take some of their information from the OED itself. Ultimately, only those words which had their origins in one of the historical and geographical varieties of German found their spot in this new list. This process of looking up the etymology of each of the items and excluding non-German vocabulary, however, had its ambiguous elements, too.

One of the problems encountered was close contact with other languages, particularly other Germanic or even West Germanic languages. For instance, because of the geographical closeness of the Netherlands, England, and Germany, and tight political, economic, and linguistic contact between the three countries, it is in some cases unclear whether vocabulary entered English via Dutch or German, or whether it entered all three languages at the same time, perhaps even before they evolved into separate branches. One example for this would be the word *shore*, with the meaning 'the land bordering on the sea or a large lake or river' (OED.com), which appears in English sources for the first time around 1400. All three dictionaries seem to agree that it either stems from or is cognate with Middle Low German *schore, schare* and late Middle Dutch *schore, schor*, but it appears impossible to state for certain how and when the word was introduced to English. According to etymonline, it might also be possible that the word goes back to a Proto-German root, **skur-o-,* in all three languages. Other words in the list that might have entered English via Dutch and/or German are *plunder, peg, Swede, splint, shaft,* and *to pad,* and again, *shore*, but with the meaning 'prop or beam set obliquely against something weak or unstable as a support' (OED.com, s.v. *shore*), from the domain of shipbuilding.

On the opposite side of the map, German has, for centuries, constantly been in touch with Slavic languages, which have left their own traces and, in turn, impede etymological research to some extent. Words like *quartz* and *hamster* can be traced back to Old High German, but it is

controversial whether they have emerged there or whether they actually stem from Slavic languages (etymonline.com). While *hamster* is depicted as a German loan in the OED, etymonline suggests that the item might be traced back to Old Church Slavonic *chomestoru*, noting that the animals originally stem from southeastern areas in Europe. For the mineralogical term *quartz,* OED lists two possible etymologies: the word might either go back to Middle High German *querch/twerc,* 'dwarf', or it might be related to a West Slavonic word for hard, such as Polish *kwardy/twardy*, Czech *tvrdý*, or Lower Sorbian *twardy*. Summing up these observations, although both *quartz* and *hamster* seem to be German loans on first glance, the matter becomes less clear if one takes a closer look. It is therefore also open for debate whether these words should be included in a paper on German loans.

Durkin (2014: 13) comments on this issue and stresses that the etymologies of words are always just hypotheses which might be more or less plausible, but can never be truly verified. The author indicates five characteristics for well supported etymologies (Durkin 2014: 13-14):

1. The supposed borrowing is first recorded later than the supposed donor (assuming that we have a dependable documentary record for each language in the relevant period).
2. The supposed borrowing shows form(s) entirely explicable from the form(s) of the supposed donor (allowing for later known processes in the borrowing language).
3. The supposed borrowing shows meaning(s) entirely explicable from the meaning(s) of the supposed donor as starting point.
4. There is a known historical context of language contact in which the borrowing could have occurred.
5. There is no alternative explanation for the supposed borrowing, or at least none that is as convincing as the assumption of borrowing from the supposed donor.

While it will not be possible to regard each of these features for every loanword discussed in this paper, they can be used as general points of reference in doubtful cases.

Another issue that came up in the creation of this list was the frequent occurrence of ethnonyms and demonyms. Ethnonyms are terms for referring to members of ethnic groups, while demonyms are used to point out residents from a specific area. The distinction between both categories may not always be clear, as they may overlap. Among the most frequent German loans, four examples for terms that fall into at least one of these two categories are *Yiddish*, *Serb*, *Nordic*, and *Swede*. Another item, *Hamburger,* can be used as a demonym, but checking against

the Corpus of Contemporary American English (corpus.byu.edu/coca/) reveals that the word is actually much more frequently used to refer to the minced beef patties served in bread rolls than the inhabitants of the German city Hamburg.[1]

The problem with ethnonyms is that their etymologies can be difficult to trace due to their usually old age. For the item *Serb*, for instance, OED state that it entered English via German in the 1550s and 1560s. OED distinguishes two meanings of the word, which apparently can be traced back to different paths; in the sense of 'Sorb, a member of the Slavonic race inhabiting Lusatia in the east of Saxony' (OED.com), it had spread to German from Upper Sorbian and Lower Sorbian and can ultimately be followed back to a Slavonic base. Together with the second meaning of the word, 'a native or inhabitant of Serbia' (OED.com), it might have also used post-classical Latin as a vehicle to spread into German. Apart from when *Serb* entered English, no other dates are given in the OED entry or etymonline.com, which further obfuscates the word's etymological origins.

Similarly, any judgement about whether to count *Swede*, *Nordic*, and *Yiddish* as German loans is also ambiguous. *Swede,* too, was spread to English via Middle Low German (OED), but other Germanic languages have similar terms for the people of Sweden, all of which likely go back to Proto-Germanic "**sweba* 'free, independent,' or else to **geswion* 'kinsman'" (etymonline). Old English *Swéon* (plural), Old Norse *Svíar* (Swedish *Svear*), Old English *Swéoþéod*, and even medieval Latin *Swei* seem to have strongly interwoven histories. It remains an open question whether *Swede* can therefore legitimately be called a German loan.

Moving on to the ethnonym *Yiddish*, an inspection of the OED entry will show that it is considered an Anglicization of German *jüdisch*; etymonline, however, state that the word is a borrowing from Yiddish and that it originally goes back to Latin *Iudaeus.* One reason for the diverging etymological explanations is that Yiddish and German speakers alike migrated to English speaking countries at the same time and might have introduced the item simultaneously,

[1] Which is supported by the fact that the most frequent collocations to *Hamburger*, according to the COCA results, are *bun, meat, stand,* and *eating.*

which is supported by the fact that both dictionaries state that the word entered English around 1880 (oed.com, etymonline.com).

Nordic, then, is another illustrative example of why it is not always straightforward to categorize words based on their etymology. According to OED, *Nordic* is a German loan first borrowed in 1824, but the editors do point to post-classical Latin *Nordicus* for a comparison. What is interesting, however, is that the OED entry states a much earlier occurrence of *nordicus* in British writing from the 12th century. Additionally, Etymonline classify *Nordic* as a French loan which might have been influenced by German *Nordisch*; this only contributes to the confusion. Considering and comparing all of the given sources, it appears that no definite answer can be given without more rigorous research as to the ultimate etymology of the word.

One additional entry describes groups of people living together, but is, in their strict senses, neither an ethnonym nor a demonym: *Amish*. This group of people are named after the founding father of their community, Jakob Ammann (Kraybill 2013: 18), and will therefore be excluded from this list of representative or even archetypal German loanwords.

These discussions illustrate clearly that classification of loan words is not always unambiguous. It follows that the selection of the items which finally remain in our list are to some degree subject to the author's decisions; another writer would likely have come up with a slightly diverging list. Having taken into consideration all of these problems, the list of the top 40 German loanwords from above has been reanalysed and improved. Below, the newly devised list can be found: the 40 most frequently used German loans, excluding calques and non-Germanic loans which spread to English via German.

Table 3: 40 most frequently used German loanwords, excluding calques

Frequency band	Rank	Word	Class	First attestation
6	1	*Land*	noun	1920
6	2	*slip*	verb	1340
6	3	*shore*	noun	1400
6	4	*strip*	noun	1459

6	5	*shelf*	noun	1405
6	6	*mit*	preposition and adv.	1794
5	7	*zinc*	noun	1651
5	8	*quartz*	noun	1676
5	9	*kindergarten*	noun	1851
5	10	*Lied*	noun	1852
5	11	*Herr*	noun	1653
5	12	*shore*	noun	1440
5	13	*Yiddish*	noun and adjective	1875
5	14	*Serb*	noun and adjective	1695
5	15	*eigenvalue*	noun	1927
5	16	*plunder*	verb	1632
5	17	*Gestalt*	noun	1909
5	18	*Hamburger*	noun	1617
5	19	*Nordic*	noun and adjective	1824
5	20	*queer*	adjective	1513
5	21	*cobalt*	noun	1728
5	22	*peg*	noun	1440
5	23	*frau*	noun	1809
5	24	*Gesellschaft*	noun	1964
5	25	*hamster*	noun	1607
5	26	*hinterland*	noun	1890
5	27	*Swede*	noun	1614
5	28	*feldspar*	noun	1757
5	29	*splint*	noun	1325
5	30	*slag*	noun	1552
5	31	*U-boat*	noun	1914
5	32	*Tag*	noun	1914
5	33	*gneiss*	noun	1777
5	34	*Berliner*	noun	1859
5	35	*shaft (n3)*	noun	
5	36	*uproar*	noun	1526
5	37	*muffin*	noun	1703
5	38	*pad (v1)*	verb	1553
5	39	*quark (n1)*	noun	1903
5	40	*dasein*	noun	1846

In addition to the items' language of origins, OED offers several further categorizations to aid their users' orientation. Words are classified either by their subject, for instance Education or Politics, their usage, such as euphemistic or humorous, or the region in which they are usually used, such as Australasia or the Caribbean. Each category is further divided into subcategories;

for instance, the subject category Agriculture & Horticulture consists of the subcategories Agriculture, Forestry, Horticulture, and Beekeeping. Note that for this paper, I will capitalise all subject categories to emphasise when I am referring to the OED classification. Likewise, ampersands will indicate when two subjects together form one category in the OED terminology, as in Religion & Belief, as opposed to using the connector and.

One of the questions stated in the beginning of the quantitative part of this paper was whether the items in question could be grouped semantically, and if there was a tendency of one group to dominate over others. The OED categorization offers 22 main categories by subject: Agriculture & Horticulture, Arts, Consumables, Crafts & Trades, Drug use, Economics & Commerce, Education, Heraldry, History, Language, Law, Manufacturing & Industry, Military, Organizations, Philosophy, Politics, Religion & Belief, Sciences, Social Sciences, Sport & Leisure, Technology, and Transport. All items were looked up again in the OED online dictionary, and the indicated subject category was noted. In some cases, more than one category may apply to one item, for instance for *zinc*, which belongs to Manufacturing & Industry as well as Science. Additionally, in some cases, no subject category was named by the OED, for instance for *Herr* or *Gesellschaft*. It also seems that none of the verbs and adjectives have been classified in this way.

The graph below shows the relative amount contributed by each of the categories to the 40 most commonly used German loans. A strong prevalence of scientific terms can be noted even after the exclusion of technical Latinate or Greek words: the category Sciences contributes 32.3% of all of the inspected loans. Manufacturing & Industry ranks second, with roughly half as many contributions, or 16.1%. Consumables and Military share rank three, adding 9.7% each to English vocabulary, while Crafts & Trades and Transport each contribute 6.5%. Finally, the categories Arts, Education, Law, Philosophy, Politics, and Religion & Belief each make up 3.2% of our selection of 40 high frequency loanwords.

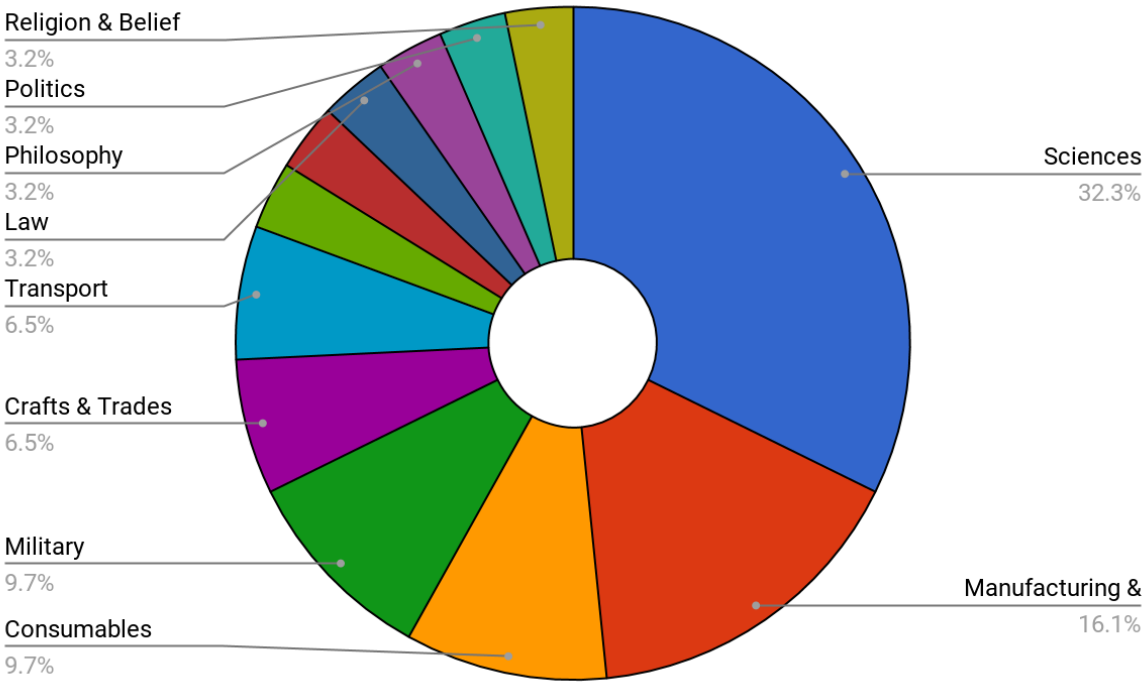


Figure 1: Semantic categories of Top 40 German loanwords

What this graph shows is a tendency of German to influence the vocabulary of English especially in the area of new inventions and discoveries in several fields. The majority of these innovations have a scientific or technical background, but food as well as cultural artefacts also contribute significantly. What one needs to keep in mind when looking at these figures, however, is that they represent only a fraction of the overall body of German loanwords.

Let us briefly turn to the question whether speakers of English have been more inclined to borrow need or prestige loans from German. Since the majority of the selected loanwords are scientific terms, especially if we also consider those from the first version of the top 40 list, a generalising answer would be that need loans dominate over prestige loans. Words like *shore, zinc, quartz* or *hamster* had no native equivalents before their introduction to English, which establishes them as need loans. Other cases are not as clear cut: *Lied*, for instance, has the equivalent 'song' in English, so one could jump to the conclusion that it is merely borrowed due to a higher prestige. However, according to its OED entry, *Lied* is also used specifically to refer to songs "characteristic of the German Romantic period", for which English has no particular technical

term. Similar statements can be made about *Land, Gestalt, frau*, or *Gesellschaft:* they all have near synonyms in English, which are however used slightly differently than the German loans. Does this qualify such words as need loans? Researching them in the COCA reveals that they are usually used instead of their English equivalents to convey a German atmosphere or to emphasise the Germanness of persons or things especially in fictional texts. For example, the first result in the COCA search for *Frau* is the following sentence: "He confessed to feeling slightly feverish, and allowed Frau Svoboda to apply a compress to his brow" (Wray 2016). The character's last name could here equally have been preceded by 'Ms.'; the author's preferred choice was *Frau* due to the word's implications and connotations. For this reason, I would argue that *Land, Gestalt* etc. should be considered as prestige loans, although the distinction is perhaps not as clear as with the classic examples *pork* and *beef*, as exemplified further above.

The initial questions of this section were whether any semantic fields dominate the overall picture of German imports into English lexis, and whether any comments can be made about the relationship between need and prestige loans from German. To summarise the results of the semantic analysis: an examination of this small-scale sample strongly suggests a prevalence of scientific and technical terms. English has borrowed from German in other areas as well, especially terms which describe society and culture, but from what can be said based on the most frequently used loanwords, the German language has made the biggest impact in academia, manufacturing, and related branches. The following section will aim at revealing the history behind these developments.

3.2 Part two: timeline

For the second part of the corpus analysis, another function of the online OED was used: timelines. By working with this feature, researchers are provided access to diagrams which show the number of new words in English, grouped together in intervals of either 10, 50, or 100 years. Because choosing intervals of 10 years seemed to result in a highly exhaustive analysis which would likely exceed the limit of this paper and because using 100-year periods would not allow for analyses to be sufficiently detailed, the option of 50 year periods was selected. In addition, users are enabled to restrict the range of words and filter by subject, region, or origin. Hovering the cursor over one of the diagram's bars presents a preview of some of the period's loanwords,

while clicking on the bar forwards the user to an alphabetical list of all entries matching the selected criteria.

As mentioned before, the aim of this part of the paper is to illustrate the development of lexical importations of German into English. For each timespan, two main aspects were considered. First, the amounts of loanwords in each category were compared, assuming that the relative size of semantic categories corresponds to the significance of this category in relations between German- and English-speaking countries. For instance, if 300 loanwords in any given period were borrowed in the category Science while the category Politics contributed 15 loans in the same period, it was assumed that German influence was generally more predominant at universities than in governments. The obvious drawback of this assumption is that size and priority do not necessarily coincide. Semantic fields with few contributions may have had a larger impact, if those loanwords were, for instance, used much more commonly. One example for this would be *Protestant*, which is the fourth most frequently used German loanword; its category Religion & Belief only contributes 106 loanwords, or 3% of the overall amount of German borrowings. In order to circumvent this shortcoming, the frequency of all loans of each period was studied in addition. Adopting both approaches ensures that both large categories as well as significant individual words are found. Unfortunately, as elaborated above, frequencies are only provided for recent usage of English; it would be preferable and more accurate to interpret word frequencies of the individual time periods.

In a first step, to get an overview of the overall impact of German, the absolute numbers of new loanwords per period of the most substantial donor languages were compiled from the OED corpus. According to Durkin (2013: 25), the languages which have contributed the most loanwords to English are, in descending order, Latin, French, Greek, German, Italian, Spanish, Dutch, early Scandinavian, Japanese, Arabic, Portuguese, Sanskrit, Russian, Maori, Hindi, Hebrew, Persian, Malay, Urdu, Irish, Afrikaans (post 1975), Yiddish, Chinese, and Middle Low German. In order not to exceed the limits of this project, a visual comparison was created for the six main donor languages only, as can be seen below. For emphasis, the line representing the development of German loans is slightly broader than the remaining lines.

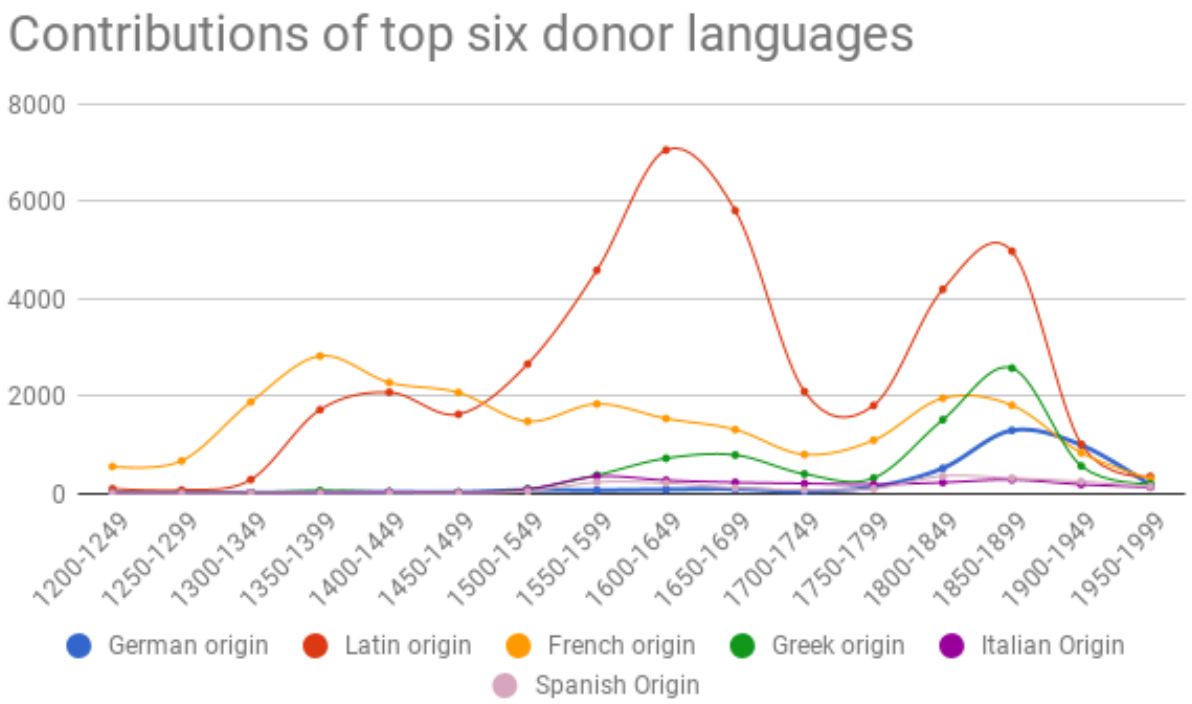


Figure 2: Development of top 6 contributing languages

As can be seen in the graph above, loanwords of Latinate origin clearly dominate the overall picture; it is only in the periods before 1500 that it is distinctly surpassed by French, a phenomenon which can be traced back to the Norman conquest and its aftermath. German contribution to new lexicon starts off slower than all other donors, contributing fewer than a hundred words within each period of fifty years. The proportion increases in the late eighteenth century and peaks in the second half of the nineteenth century. In relation to the other languages, the influence of German on English lexicon is strongest in the early 20th century, in which German contributes 991 loanwords and outranks both French (829 loans) and Greek (558 loans). In this period, the extent of German as a source for new words even comes close to that of Latin (1,006 loans). Italian and Spanish seem unaffected by the developments of the other four languages and contribute relatively evenly from the 16th century onwards, a starting point likely connected to the onset of colonialism. Finally, all lines show a decline in the last century; the drop was particularly sharp for Latin, Greek, and French. This trend can be explained by the strong position English has gained as a global language within the last decades.

To sum up these observations, German has been a constant contributor to English lexis over the centuries from 1300 to 2000. It gained significance particularly in the nineteenth century, which supports the earlier observations that the status of German profited from its high rank in academia. In the individual sections below, we will explore each period in more detail and discover which developments shaped the relationship between the two languages.

3.2.1 1200-1249

Of the three loanwords that were introduced in the early 13th century, only *to spear,* which goes back to the same root as German *sperren,* 'to lock', is portrayed to be in common usage in today's English. Its OED entry, however, is ambiguous: on the one hand, it belongs to frequency band 4. According to the OED key to frequency, this means that the word may "occur between 0.1 and 1.0 times per million words in typical modern English usage" and can "be used unproblematically in fiction or journalism" (OED.com). On the other hand, *to spear* is described as being obsolete and used only in some dialects of English. The word's definition in its OED entry is "[i]n general sense: To close, shut, etc.". If used with an object, it can also mean "to shut or close (a door, lid, etc.) firmly or securely; †to bar or block (a way)" (ibid.). Contemporary dictionaries like the Oxford English Dictionary or Collins Dictionary, however, do not list this meaning; instead, they define *to spear* as "[p]ierce or strike with a spear or other pointed object" (oxforddictionaries.com). This entry seems to be a homonym, which is also registered in the OED; however, this *to spear* goes back to the same root as German *Speer*, 'spear', and is first attested in the 18th century. The higher frequency of the homonym might be responsible for the ambiguously high frequency band of our *to spear*. If this is the case, other words might need to be revised by the editors as well.

Woodwall was first introduced referring to a singing bird, likely the Golden Oriole, *Oriolus galbula*; in the 15th century it gained an additional meaning and since then has referred to the Green Woodpecker, *Gecinus viridis*. *Slibbery* was used to describe something smooth and slippery, but is obsolete nowadays. It should be noted that all three entries were added to the

OED in the early 20th century and have not been fully updated since then; otherwise it might be possible to draw more inferences from them.

3.2.2 1250-1299

Paralleling the previous period, three loanwords can be traced back to the second half of the 13th century. Looking at the data, we face the same problem as with *to spear* in the previous period. *Stand*, meaning "an open tub; a barrel set on end" (oed.com), is stated to be obsolete, except for dialectal use; however, it scores frequency band 5, which puts it on one level with words like *conditional, appropriate,* or *comprehend* in conventional modern English usage. Like *to spear, stand* also has a homonym with several different shades of meaning; it is however in frequency band 6, which rules out the possibility of an interference.

The interjection *hale* which was introduced in this period, as well as the appellation *Isegrim*, do not seem to be used any longer nowadays. Again, all entries were added to the OED around 1900 and are not completely up to date.

3.2.3 1300-1349

Ten loanwords were introduced in the first half of the 14th century. With the exception of *to slip* and *splint,* none of the loanwords from this period are used in regular texts in Modern English.

The majority of the remaining loans were related to shipbuilding and waterways to some extent: *shaltree* and *sheltbeam* both referred to poles likely to be used for propelling ships; *swall* is defined as "[a]n agitated mass of water" (OED.com, s.v. *swall*), and *eldring* was introduced from German to refer to a fish species, potentially *Leuciscus phoxinus* (ibid.). The other words imported in this period are *baldric,* a belt used to support a sword*, to brock,* 'to give mouth, speak querulously', *spreth,* 'frail, liable to sin'*, waw,* a measure of weight*,* and *to wrick, '*to move from side to side'.

3.2.4 1350-1399

Over the course of the latter half of the 14th century, 17 new borrowings from German are attested. The present data shows several tendencies for new loanwords to occur: first, a number of new borrowings have to do with woodworking: *wainscot,* wood of high quality from a foreign oak; *raff,* imported timber; and perhaps *to spald,* '[t]o splinter, split, break up, lay open or flat' (OED.com). Second, *affodil* and *walsh-nut* seem to be early examples for German botanical terms to be introduced to English; more plant names will be borrowed in later decades. *Walsh-nut* was used simultaneously with *walnut*, but is obsolete in Modern English. Another noteworthy phenomenon is the introduction of both *centner* and *weigh-scale*, which hints at increased international trade. Further loans introduced in this period are *wig,* a bun or cake; *to welter*, 'to roll or twist the body'; *speer*, a screen to prevent air-draugth; *hepe*, a pruning knife; *to humble*, humming and buzzing*; to reise,* 'to travel or journey'*; skleir,* a veil*; to slipe,* 'to make smooth or polish', especially weapons; *wildware,* fur of wild animals; and the adjective *wrack*. The latter six are obsolete in Modern English.

The graph below shows an overview of how these words are classified semantically in the OED. Note that adding up the numbers of all bars equals a higher number than 17 because some words belong to more than one category.

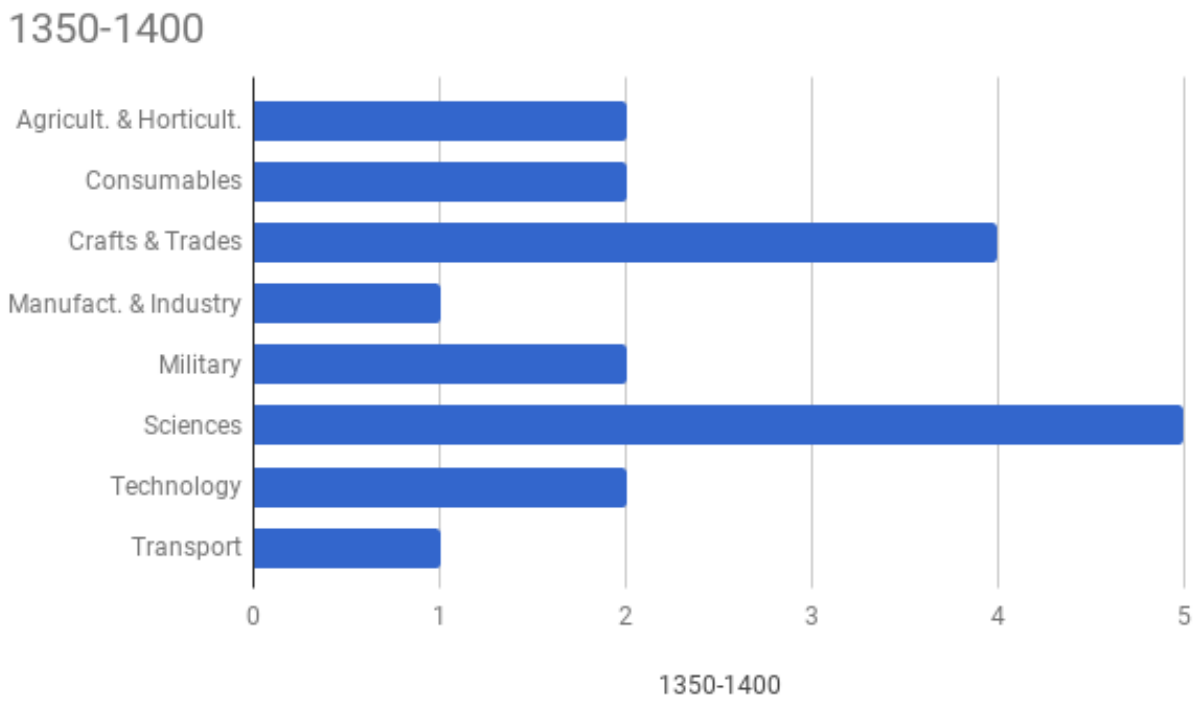


Figure 3: Semantic categories between 1350 and 140

In this graph, a slight predominance of scientific terms can be noticed, followed by the category Crafts & Trades. Due to the relatively small number of loanwords in this period, the differences between the bars are not as drastic as in the following periods.

3.2.5 1400-1449

The first half of the 15th century saw the borrowing of 22 new loanwords from German. A perhaps surprisingly large proportion of them are frequently used by typical speakers of Modern English; two of the words feature in frequency band 6, and three are contained in band 5. The most frequently used words from this period are *shelf, shore, peg* and *shaft*.

As in the previous period, a graph was created to display the relative size of the different semantic categories from which words were imported. As can be seen, the differences in size between the different groups is already more distinguished in comparison to Figure 3.

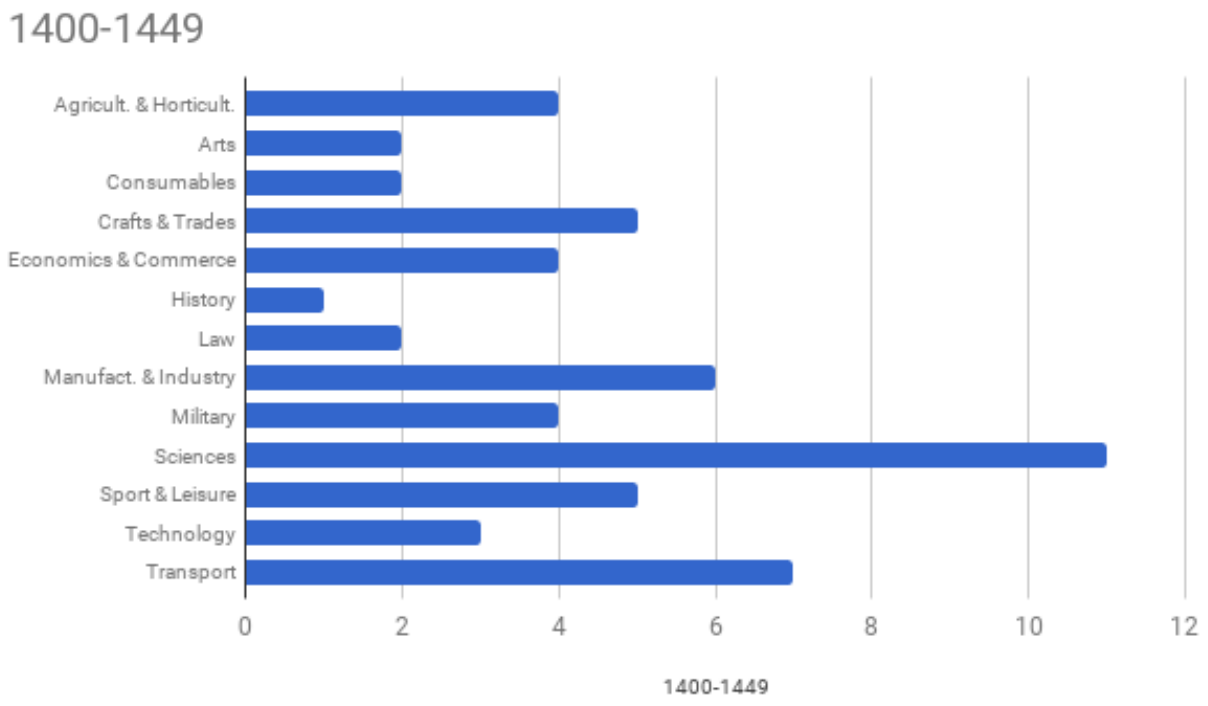


Figure 4: Semantic categories between 1400 and 1499

What this diagram shows is that there seems to have been a predilection in the early fifteenth century to borrow German termini in the categories Sciences, Transport, and Manufacturing & Industry, above anything else. What is also striking is the higher number of categories in this period; the categories Arts, Economics & Commerce, History, and Law give their debut performances.

The largest semantic category is Sciences. The most frequently used loans from this domain describe landscapes or terrain, like *shore* or *sump.* Other examples are *minnow*, which may refer to either small fish in general or the species *Phoxinus phoxinus* in particular; *to mizzle*, meaning 'to rain in fine droplets'; *to skite*, 'voiding excrements'; *spirling*, another fish, namely *Osmerus eperlanus;* and *to baff,* meaning 'to bark or yelp' (OED.com).

In the category Transport, one can find mainly nautical terms like *shore,* which is defined in the OED as "[a] piece of timber or iron set obliquely against the side of a building, of a ship in dock,

etc., as a support when it is in danger of falling or when undergoing alteration or repair; a prop or strut". Additional loanwords from this category are *woolding*, 'the action of winding rope or chain round a mast or yard', or *shoot*, which according to its OED entry is a "rope (or chain) attached to either of the lower corners of a square sail".

The new loanwords from the semantic category Manufacturing & Industry are *peg* and *shaft*, both of which are terms from mining, along with the arguably misplaced *shore, shelf, sump,* and *sook.* The latter four only appear in this category due to newly gained additional meanings or compounds from later centuries, such as *shore-hold* from the 20th century. This problem was frequently encountered during the analysis of borrowing from such early times: the usage of any given word can change over time, which has been the case for a number of German loanwords. Every definition a word in the OED ever had, as well as the equivalent semantic category, is included in its entry. For this reason, some loanwords may appear in semantic categories even if they were not used in that sense at the time under consideration, which may render the number of words per semantic category unrepresentative. For example, *shelf* appears in the category Sciences due to its relevance in Geology, where it is used to refer to rock beds. It only received this meaning in the late 17th centuries, but is, due to this second meaning, also categorized as a scientific term in other centuries, as is the case here. According to the sources included in the loan's OED entry, *shelf* was first borrowed to refer to the furniture.

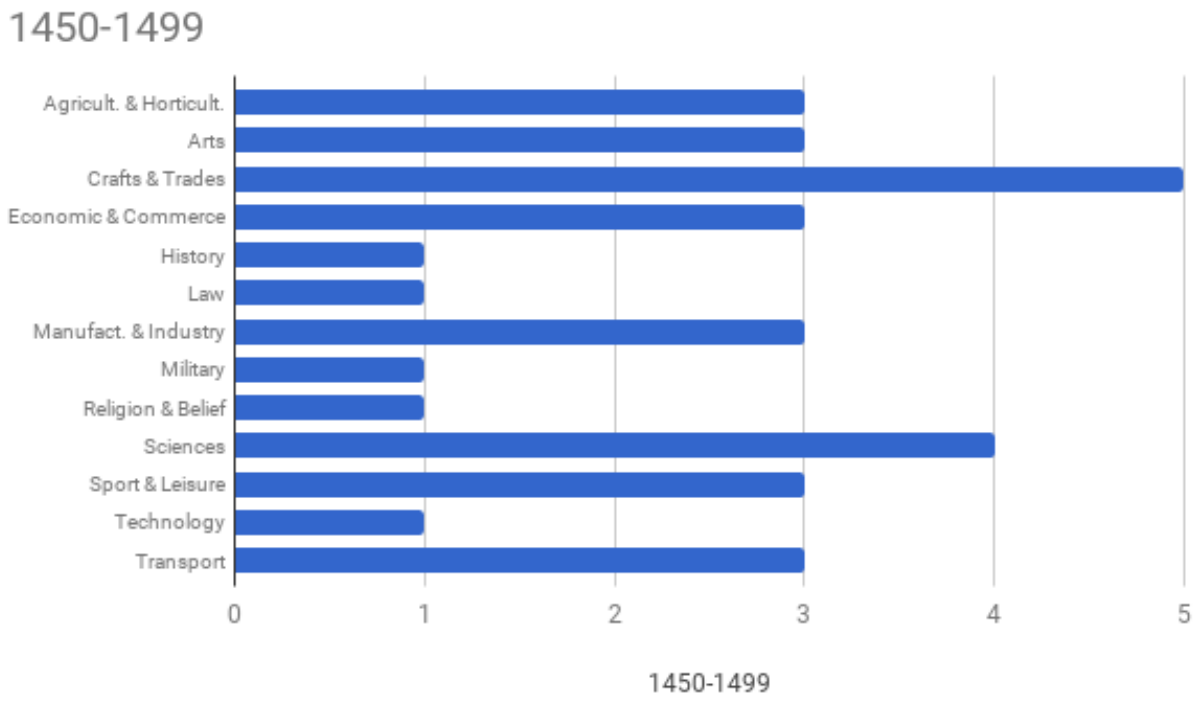
Additional borrowings from the period between 1400 and 1449 are *whirl, mulch, bower, crushel, lintworm,* and *reise.*

3.2.6 1450-1499

16 loanwords were borrowed from German between 1450 and 1499. The most commonly used loan from the period is *strip* from the semantic category Crafts & Trades, which also happens to be the largest category, as can be seen in the graph below. Another loanword from this epoch with high frequency in current English is *to wriggle*, which in its first attestations describes the movements of serpents and fish, exclusively. Next up is *sod* from Earth Sciences, with the definition "piece or slice of earth together with the grass growing on it, usually square or oblong

in shape and of moderate thickness, cut out or pared off from the surface of grass land" (OED.com). Further common loans are *sext* from Religion & Belief, *wrack, slipe*, the noun *wissel* with its corresponding verb *to wissel*, and *fimble*. The remaining loanwords of this period are *clapholt, keel, ray, splite, winbrow, wrakling* and *wroke*; all of them are obsolete in the typical use of English in the late 20th and early 21st century.

The graph below shows slight changes if compared to the previous two periods, both of which were dominated by the category Sciences. The difference should be seen critically due to the small sample size and category overlap, but the increased size of Crafts & Trades can be interpreted as a manifestation of strengthened economic ties between speakers of German and English.



Contrasting the graph with the list of borrowed words, it does not seem that any one certain trade or discipline heavily dominated over others. While Crafts & Trades is larger than any of the other categories, the size different is not too significant. The loanwords borrowed from German in this period are distributed widely among several fields.

3.2.7 1500-1549

Between 1500 and 1549, 64 new loanwords were introduced from German, which is more than twice as many as in the previous period. Of these 64 borrowings, almost a third, 17 loans, fall into the category Science; within this category, Medicine and Life Sciences contribute almost equally to the English lexicon, with 9 and 8 loanwords, respectively. The second largest semantic category for loans to be borrowed in this period is Crafts & Trades, with 13 loans; it can be further divided, in descending order, into the fields Coins & Banknotes, Woodworking, Costume, Leather-making, Locksmithing, and Fur Trade. Consumables and Economics & Commerce contribute 6 loanwords each. The remaining categories are, in descending order, Religion & Belief, Agriculture & Horticulture, Military, Manufacturing & Industry, Sport & Leisure, Technology, Transport, Arts, and Politics. The relative size of each category is presented in the graph below.

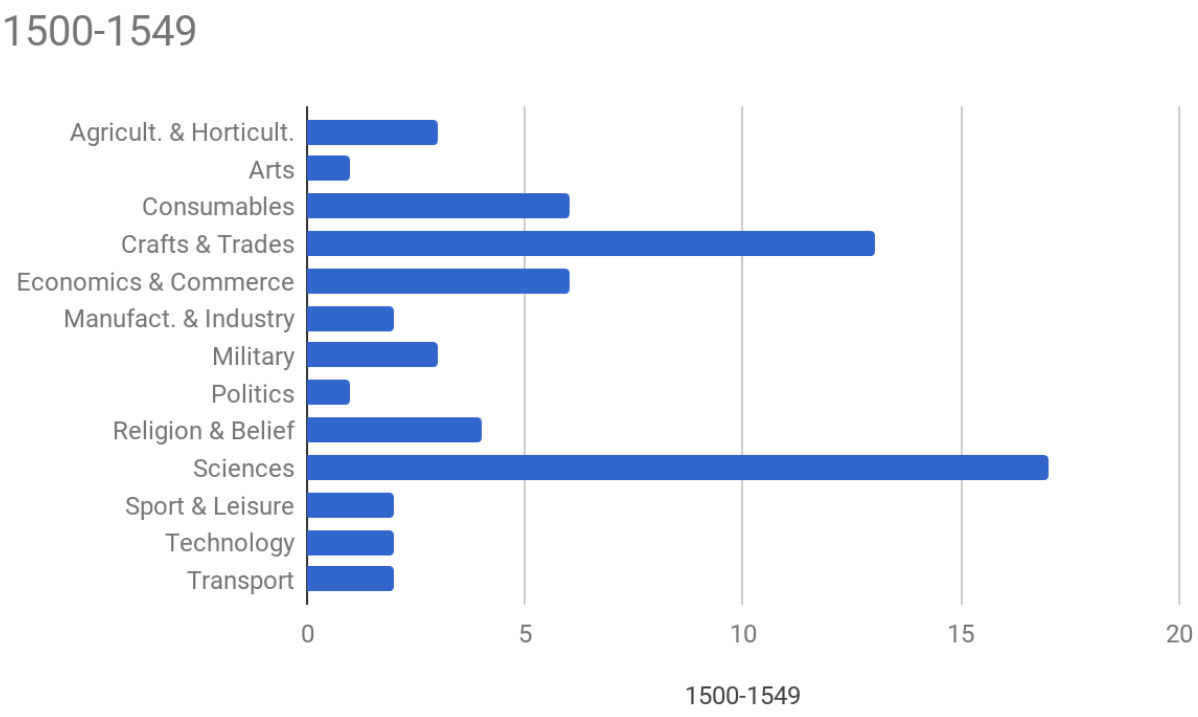


Figure 5: Semantic categories between 1500 and 1549

In comparison with the previous period, notable developments can be witnessed in the growing proportions reached by the categories Sciences and Consumables in particular, as well as Crafts

& Trades. In contrast, significantly fewer items were borrowed in the groups Agriculture & Horticulture, Arts, Manufacturing & Industry, and Transport.

Taking into consideration loan frequencies in Modern English, several observable trends seem worth pointing out. On the one hand, a large part of the more commonly used words in recent English from this period refer to various monetary systems, for instance *gulden, pfennig, heller, stiver, kreutzer, Lubish* (in *mark* or *schilling Lubish), silverling,* and, in a more general sense, *gelt*; these borrowings, as well as *hawker*, can be considered signs of the continued significance of German trade, likely caused by the rise of the Hanseatic League. Entries like *shippound* and *lispound* also support this observation. Another set of words which survived until today is of edible nature; namely *buckwheat, scone, marzipan,* and *marchpane.* In addition, consequences of the pioneering work of 16th century biologists can still be seen in current use of English; for instance, *larch*, *withershins*, *sorb-apple, lucern, witwall, knule,* and *brunel* were all borrowed from German during this time span. Furthermore, some loanwords expose information about the social hierarchies of Early Modern Germany, such as *uproar*, *landgrave, Rhinegrave, lance-knight,* and *fussefall.*

This representative selection of loanwords illustrates the most important developments of the period. On the one hand, the renaissance had slowly reached Northern Europe by the 15th century, and benefitted from mass book printing which had been enabled by the invention of the printing press in Germany (Fulbrook 1991: 33). Education slowly became more available, and new ideas could be exchanged and promoted more easily. As books became more popular, the prevalence of Latin texts soon weakened, and more books were translated into vernacular languages (Harry Ransom Center). The availability of German religious texts and increased literacy eventually resulted in the Reformation, which started in 1517 (ibid.).

The Reformation had a long-lasting effect on the European history, and is clearly evident in the by far most frequently used German loanword first borrowed in that period: *Protestant*. Furthermore, the Reformation ultimately resulted in emigration waves from the German speaking countries to America via England, which paved the way for increased language contact between German and English.

Another notable change was the end of feudalism and the beginning of mercantilism, by which further industrial growth was encouraged. Large parts of the European economy were subject to the German capitalists and bankers from the Fugger and Welser families, who both arrived at the peak of their wealth in the first half of the 16th century (Fulbrook 1991:34ff). Germany's strong economic position in Europe in this period can serve as an explanation why a large number of terms from the domains of Manufacturing & Industry, Economics & Commerce, and Crafts and Trades were introduced to English between 1500 and 1549.

As most of today's academic disciplines and subdisciplines were not considered distinct scientific branches until the 18th or 19th century, scholars in the 16th century usually researched more broadly across what would today be regarded several fields. Examples for influential scholars of that time are Otto Brunfels, Leonhart Fuchs, and Hieronymus Bock, who have been named The Three Founders of Botany (Dickman 2013). All three of them were born and taught in today's Germany, where they also carried out their researches as physicians and botanists. Copernicus, Albrecht Dürer, and Conrad Gessner are further examples of well-known intellectuals of the period.

3.2.8 1550-1599

The time between 1550 and 1599 sees, in general, a continuation of the events in the earlier 16th century. As can be seen in the graph below, the semantic category Sciences gets even further ahead of the remaining categories in this time span and contributes 21 out of 58 new loanwords.

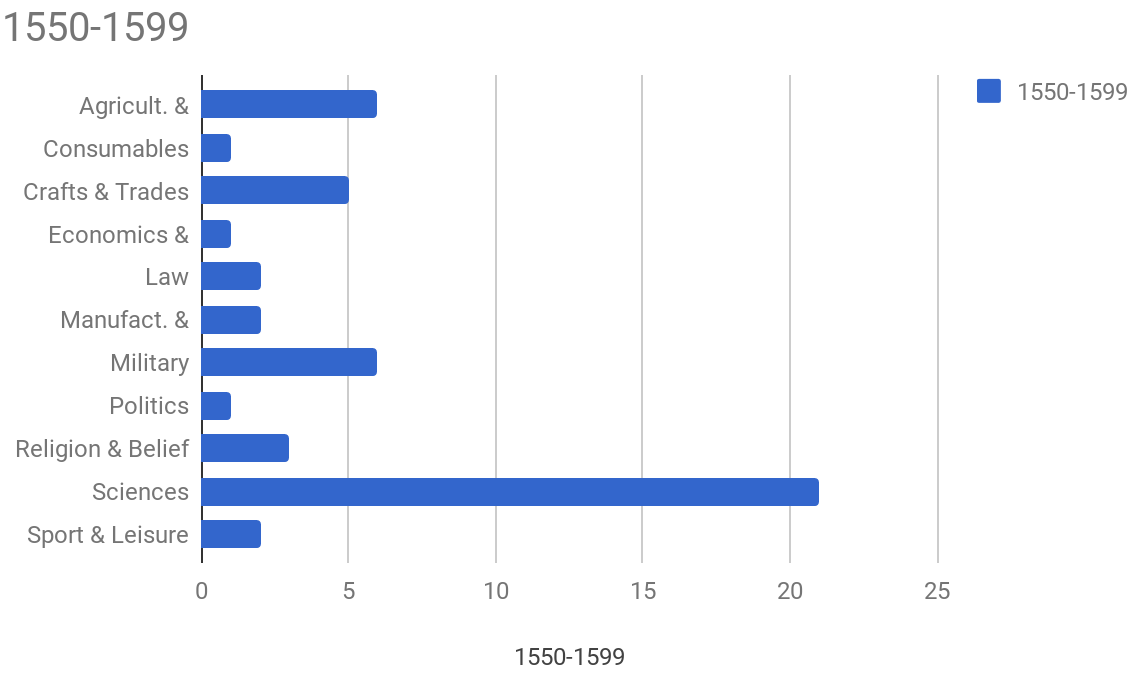


Figure 6: Semantic categories between 1550 and 1599

What this graph also shows is notable growth in the groups Agriculture & Horticulture and Military. With 6 loanwords each, they are the second largest categories in this period. In comparison to the first half of the century, both overtook the categories Crafts & Trades and Economics.

Comparing the new loans from the largest category, Science, with the corresponding borrowings from the previous period, the subcategory Life Sciences gained upper hand and now contributes more than half of the academic loans. Botanical loans like *crowberry, hollow-root, knawel, amelcorn, holewort* and *hirse,* as well as zoological terms such as *siskin, brambling, to feak, to pad, lasset,* and *luce* suggest a continued trend of German influence in biological nomenclature. The remaining words are divided almost equally between the subcategories Medicine and Physical Sciences, which might point to increased interest in these sciences at German-speaking universities. The loans that fall into the subcategory Medicine are partially names of medicinal

plants, such as *hollow-root* and *hazelwort*, and partly terms for medical conditions, namely *duseling* and *skalfering*, both of which are however extinct in Modern English. Finally, examples for loanwords from the Physical Sciences are *slag, spar* or *cat-silver*.

Looking at one of the two second largest categories, Agriculture & Horticulture, it seems worth pointing out that five out of the six loans in this category are, again, plant names: *troll flower, haskwort, ragwort, standelwort,* and *swordling*. With the exception of *troll flower*, none of them seem to be used nowadays, according to their OED entries. The category Military contributes six loans, as well, all of which can still be found in Modern English: *Croat, spill, ritter, reiter, burgrave,* and *Rittmaster*. Some, like *ritter* and *reiter*, only occur in historical contexts nowadays, in which they specifically refer to German warriors.

Another category with several borrowing occasions is Crafts and Trades. In its core meaning, the loanword *spill* is nowadays usually substituted by the more modern *spool*. *Shock* refers to 'a lot of sixty pieces' (OED.com) and together with *batz,* 'small coin worth four kreuzers in Switzerland and South Germany' (ibid.), points at Germany's remaining a big player in international trade. The other two loans are *crants*, 'garland', and *knock*, 'bundle of heckled flax' (OED.com).

Other loans from that time span which are still used in Modern English are, in descending order according to their current frequency, *slag* from the metal industry, *junker* which refers to a 'young German noble' and may be used as a derogatory term, *spar* referring to certain minerals, *Switzer*, which is nowadays usually replaced by 'Swiss', *Owlglass*, an Anglicization of the legendary jester's name Till Eulenspiegel, and *spare-rib.*

3.2.9 1600-1649

In this period, 73 new words of German origin are recorded in English. The graph below provides an overview over the most important semantic fields for loanwords borrowed in the period from 1600 to 1649. Taking these numbers as a starting point, the field where most exchange happened between the two languages was, in unison with the overall tendency, Sciences. Other major fields

in which English drew on German vocabulary during this time span were, in descending order, Crafts & Trades, Military, Technology, and Religion & Belief.

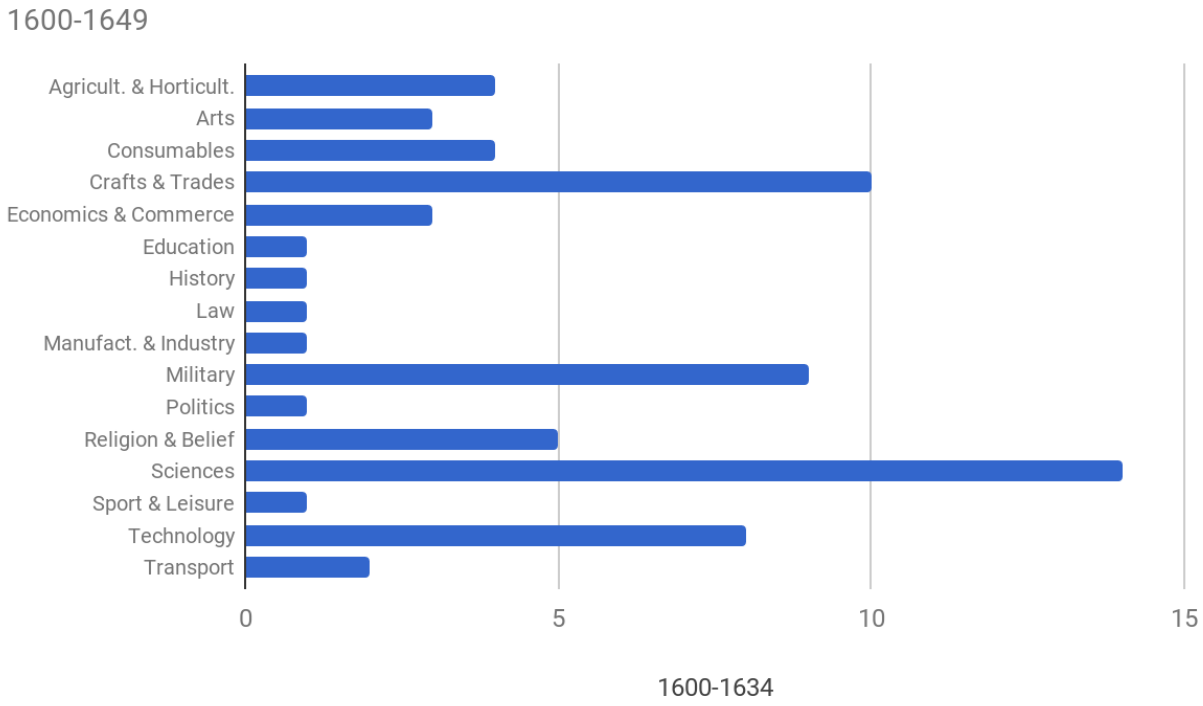


Figure 7: Semantic categories between 1600 and 1649

Among the 14 loans from Sciences, the trend from the earlier periods is continued: ten of the borrowed loans can be attributed to the subcategory Life Sciences. As opposed to earlier time spans, the OED list now states that more borrowings go back to occupation with animals: *hamster*, *speck*, *dorse, miaow, ure-ox,* and *marder.* The other loans listed among the category are *yogurt, trabant, bibenella,* and, perhaps surprisingly, *Swede*. Closer investigation reveals that *Swede* may not only refer to the inhabitants of Sweden, but can also be used to refer to either Swedish ships or a particular kind of turnip, which could be taken as an explanation for the loan's occurrence in this category. However, these turnips were only introduced into Scotland in the late eighteenth century, and the categorization of *Swede* is therefore likely another example for the technical shortcoming discussed further above. The remaining loans from the domains of Sciences other than Life Sciences are *quartet, to wobble, slap,* and *synergist*.

The second largest semantic category from this period is Crafts & Trades, with ten loanwords. Today's most commonly used loan in this category is the noun *slap*, 'a smart blow, esp. one given with the open hand' (OED.com), although it is not apparent from the OED entry why it is listed in this category. Comparable to the sixteenth century, quite a number of German terms for coinages were introduced into English: *groschen, rappen, mariengroschen, fennin,* and *Hungar (*also *Hungardollar)*. The remaining loans in this category are from the realms of woodworking, *scabbard* and *spane,* and textiles, *drilling* and *slyre.*

Further, a variety of military terms were borrowed from German in this time, such as *knapsack, spanner, generalissimus, morgenstern,* and *swine's feather*. Two explanations for the introduction of military terms seem plausible: equipment might have been invented in German speaking territory and traded, or the terms might have been borrowed due to the "wave of unrest across a number of European states" in the early 17th century, which resulted in warring encounters such as the Thirty Years War (Fulbrook 1991: 53).

The next largest category is Technology, which is further divided into Measurement, consisting of the loans *morgen, loth, ohm, skippound,* and *steifkin*, and Engineering, with the loans *to wobble, slap,* and *spanner*, the latter two of which were already brought up above.

Of the remaining entries, it seems worth highlighting, among others, the first occurrence of *Hamburger;* initially only used to refer to the inhabitants of Hamburg, it gained culinary significance at the end of the nineteenth century and could refer to a kind of steak, sausage, or, by now the main connotation, a minced beef patty. *Sauerkraut, to melt (*'malzen', from the brewing industry), and the aforementioned *speck* are further proofs of German cuisine entering the English-speaking world. They might be traced back to the beginning migration of Germans to the United States, which was largely motivated by the same motives as the unrest mentioned above.

3.2.10 1650-1699

Between 1650 and 1699, 83 new loanwords were borrowed from German. The second half of the seventeenth century sees an even more distinguished lead of the category Sciences in comparison

to other categories, with one striking new aspect: while the largest subcategory by number of loans remains Life Sciences, the majority of high frequency loans is dominated by the subcategory Mineralogy. Examples for such borrowings are *zinc, quartz, bismuth, blende, glimmer,* or *mispickel,* to name just a few. Altogether, 31 loanwords are placed into the category Sciences in the OED. Apart from Mineralogy, contributions from Zoology, such as *roller, orfe, sugar-bird, hazel-hen, steinbock, citril (*also *citril finch)* or *winnard*, make up a large amount of items in this category, which continues the trend of the earlier periods.

As can be seen in the graph below, none of the remaining categories can match the number of loanwords in the Sciences category. The nearest equivalents would be Manufacturing & Industry and Religion & Belief*,* both of which contribute seven loans each. Even though Manufacturing & Industry is divided into the subcategories Manufacturing, Mining, and Commercial Fishing according to the OED categorization, all of the loans actually go back to mining: *zinc, quartz, kibble, stulm, garcopper,* and *slackstone.* The only exception to this is *fall*, a whaling term. The most frequent loan from Religion & Belief is *shaman*; the remaining loanwords are either from Judaism, such as *Rav*, *matzo,* or *shamas*, or of mythological background, like *sylph* and *killcrop*.

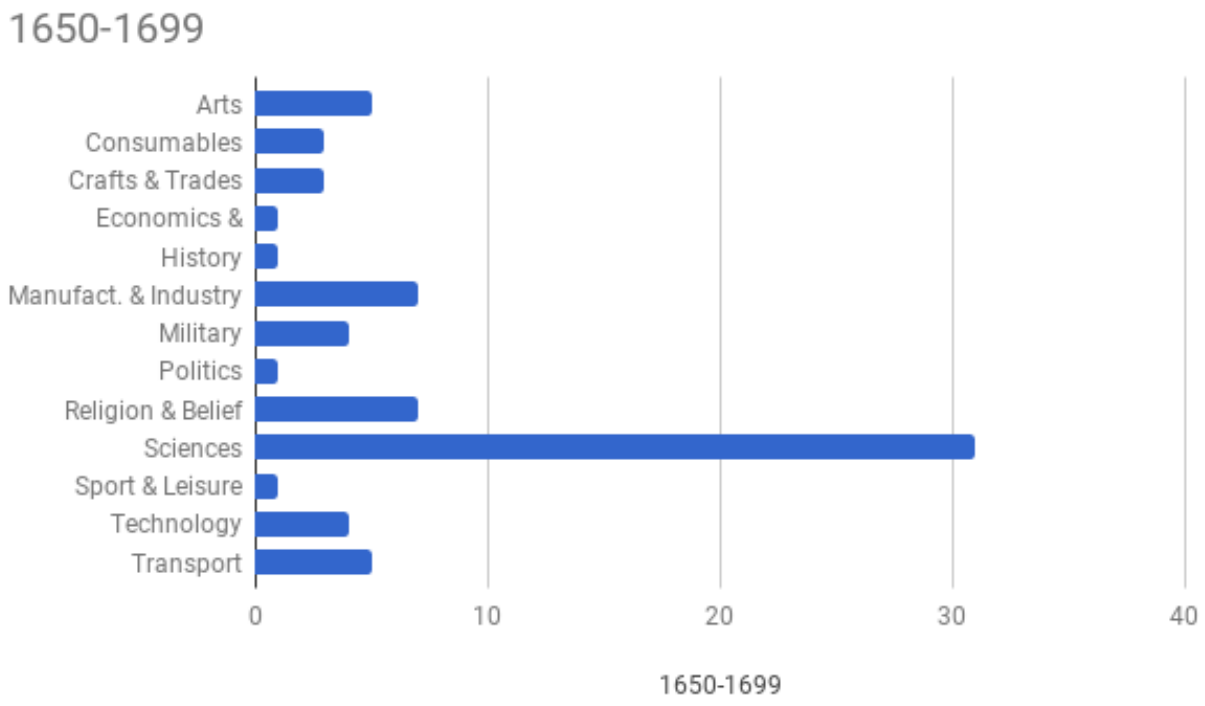


Figure 8: Semantic categories between 1650 and 1699

The bar chart above shows that the remaining categories make rather modest contributions: five loanwords each in Arts and Transport, four loans each from the categories Military and Technology, and three borrowings in Consumables and Crafts & Trades. Due to some of the words being attributed more than one category, there are some overlaps; for instance, *zinc* and *quartz,* which are already mentioned above, reappear in the category Technology; *smuggler* is classified as belonging to both Transport and Economics & Commerce, and *howitzer* shows in both Military and Sport & Leisure.

Further notable loans from the period are *sketch*, which entered English via German 'Skizze' and originally goes back to Italian, *Herr*, *snow*, a particular sailing vessel, *to ogle,* 'äugeln', *automat*, and *empirie.*

3.2.11 1700-1749

The beginning of the 18th century sees a significant decrease of the amount of new borrowings. Only 34 loanwords from German documented in the OED go back to this period, which might seem surprising due to the increased migration to America. Considering that the majority of

loanwords from German is borrowed in scientific contexts, one possible explanation for the decline in borrowing could simply be that fewer academic discoveries were made in this period. This is supported by the fact that most of Europe had suffered dearly under the Thirty Years War and the reoccurring plague pandemics (Fulbrook 1991: 64-65), which implies that there plainly were far fewer resources available for inventions and academic research. According to Fulbrook, Germany was particularly affected by a decline in economic power as well as a high mortality rate "at a time when England was developing as an important trading nation" (Fulbrook 1991: 65).

The graph below shows the relative contribution of all semantic categories in this period. A first glance reveals that trends from previous epochs generally seem to be continued, with the exception of the categories Drug Use, Philosophy, and Social Sciences, which occur for the first time, and Agriculture & Horticulture, which is not present in this period. We will see if these findings can be confirmed by taking a closer look at the individual groups.

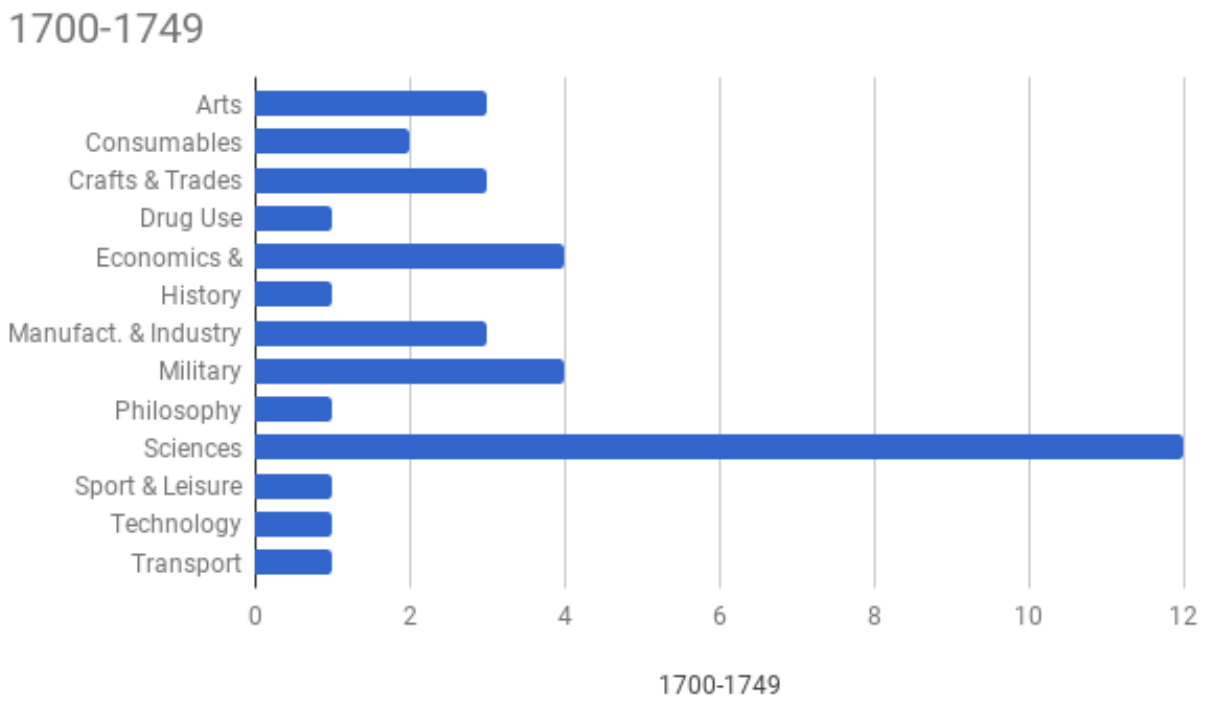


Figure 9: Semantic categories between 1700 and 1749

As in the preceding decades, the semantic category Science dominates over other categories, and the phenomenon from 1600-1649, in which Zoology and Mineralogy outdistanced Botany for the first time, is continued in this period. Some instances would be *cobalt, hornstone,* or *spat* for mineral names borrowed from German, and *hausen, amsel* and *rellmouse* for animals. When filtering the list for scientific terms, *veneer* appears, too; however, according to the sources cited in OED, the word was originally used with the meaning "one of the thin slices or slips of fine or fancy wood, or other suitable material, used in veneering" (OED.com) exclusively. It was not until the 19th century that *veneer* was used as a name for grass-moths, and not before the 20th century that it became a technical term in dentistry. It once again seems that the word's appearance in the semantic category Science within this period is an error produced by its multiple meanings. Further loans from Sciences are *muffin* and *seltzer*, both of which appear if the list is filtered for medical terms; as it seems, *muffin* does so due to the 19th century compound *muffin faced* and 20th century compound *muffin countenance,* both of which are classified as anatomical terms in the OED.

The categories Economics & Commerce and Military saw the introduction of four loanwords each. The trading terminology introduced from German in this period are *slump (*also *slump number)*, *brack, bracker,* and, again, *muffin; brack* and *bracker* both refer to baltic trading customs. The Military loans from the early 18th century are *pandour, tolpatch, velt-marshal,* and the aforementioned *cobalt*.

Looking at the remaining categories, even more double occurrences can be noticed, such as *veneer,* which also appears in the category Arts. Further loans which have not been mentioned yet are *posaune* and *orchestic* in Arts, *swarmer,* a particular kind of fireworks rocket, in Crafts and Trades, *maw seed* in Drug Use, *teleology* in Philosophy, *pumpernickel* in Consumables, *barghest* in Religion & Belief, *postament* in Manufacturing & Industry, *houseline* in Transport, and *Heimweh* and *Lettish*, which are not further classified semantically.

3.2.12 1750-1799

In the second half of the 18th century, 127 new words were imported from German, which means borrowings almost quadrupled in comparison to the previous period. As shown in the bar chart representing the categories' proportions, the contribution of terms from Sciences skyrockets between 1750 and 1799, once again leaving all other categories far behind.

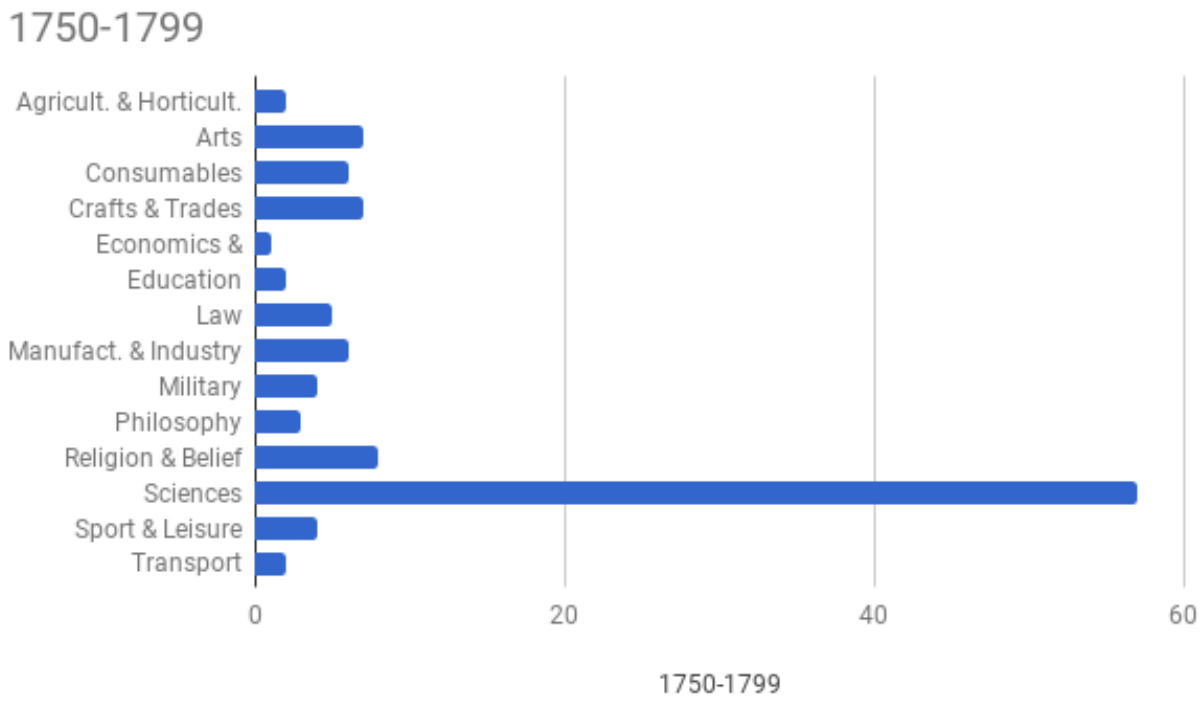


Figure 10: Semantic categories between 1750 and 1799

The late 18th century sees a continuation of scientific disciplines being the main contributor of German loanwords in English. For the first time, Physical Sciences clearly predominate over Life Sciences: of 57 loans in the category Sciences, 45 belong to the subcategories Earth Sciences, Chemistry, and Physics. 44 of these are mineralogical terms, which implies a considerable development of geological research at German Universities of the time.

New technologies of this time revived debates over the origin of the earth, which indeed inspired additional studies and the emergence of Field Geology (Adams 1938: 210). Interest in mining was further increased by its growing economic potential. Because of these reasons, geology

slowly emerged as a distinct scientific field over the course of the eighteenth century (cf. Adams 1938: 209ff). In addition to the large number of loanwords from this semantic field, the significance of German contribution to Geology is also manifest in the high frequency of the geological terms borrowed to English. Of the ten most commonly used loanwords borrowed between 1750 and 1799, five are from this category, namely *uranium, graphite, feldspar, gneiss,* and *hornblende.* Further examples for mineralogical terms would be *zircon, syenite, tellurium, pitchblende, wolfram, leucite, meerschaum, prehnite, titanite,* and *wacke,* to name just a few. A variety of minerals also dominate the subcategories Physics and Chemistry; *phoronomy* is the only loanword in the category Physical Sciences which is not linked to geology.

In addition to minerals, German scientists again made contributions to zoological and botanical nomenclature in this period. Examples for animal names borrowed from German are *poodle, aurochs, kiewiet, nordcaper, balm-cricket,* and *zizel;* German plant names introduced in this period are *Riesling* and *mangel-wurzel.* The OED list also displays *ahuehuete* in this category; however, according to its entry, the loanword stems partly from French and partly from Spanish and ultimately goes back to the Nahuatl language. According to the OED classification, *Ahuehuete* and *kakkerlak* were also borrowed in medicinal contexts.

The remaining categories are, as in the prior period, dwarfed by the mass of loanwords from the category Sciences. The second largest contributor is Religion, with eight loans, followed by Arts and Crafts & Trades with seven loans each. The loanwords of religious backgrounds can partly be traced back to Christianity, such as *messianic, Dunker, Schwenkfelder, Piarist,* and partly to Judaism, such as *minyan* or *yom tov.* Both of the latter two might have been borrowed directly from Yiddish and Hebrew in addition to German. Further loans are *macrobiotic (*also *macrobiotic diet)* and, in the subcategory Mythology, *erl-king.* Loans from the domain of Crafts & Trade are mostly either monetary terms, such as *thaler* and *schilling,* or refer to cultural concepts from the Middle East, like *aba*, a traditional Arab garment, and *araba*, a typical carriage from the Ottoman Empire.

Due to the relatively small contributions of the remaining categories, a selection will be made of further notable loanwords from the second half of the 18th century. Loans like *Riesling,*

Rudesheimer and *Marcobrunn* point at raised interest in German and Austrian wines and could have been borrowed either out of culinary or oenological interest. *Reich, hausfrau,* and *mein Herr* were also borrowed in that period and might be proof of increased migration, as well as some further loans which were likely used in everyday language by German Americans, such as *mit, nix, kraut, nix, to smouse*, or *snip-snap-snorum.*

3.2.13 1800-1849

The borrowing of German loanwords exploded in the nineteenth century. 517 new words were borrowed within its first fifty years, which is slightly more than the sum of the entire loanwords of all of the previous epochs. The graph below shows, once again, the size of each semantic category in this period. As can be seen immediately, Sciences remains far ahead of all other categories as the uncontested leader.

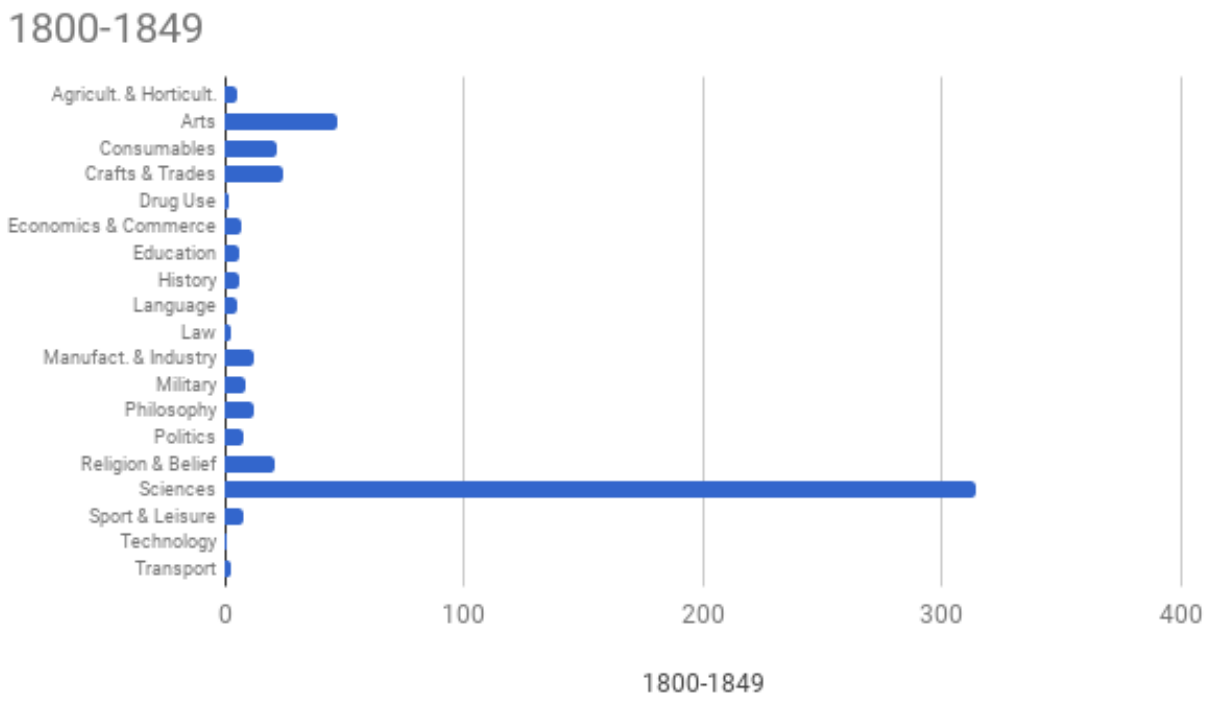


Figure 11: Semantic categories between 1800 and 1849

However, even though none of the other categories can match the large number of academic terms, some of them have also grown significantly. The perhaps most notable difference is the increase of terms borrowed in Arts from 7 loanwords in the previous period to 47 loanwords

between 1800 and 1849, which allowed the category to secure the second rank in this chart. In addition, the semantic category Language contributes German loanwords for the first time.

The majority of new loanwords can be attributed, once again, to the contribution of technical terms to the scientific discourse. Of the 314 loanwords belonging to the category Sciences, 258 have been declared by the OED editors as terms from Physical Sciences, 42 as words from Medicine, 37 as loans from Life Sciences, 2 from Mathematics and 1 from Veterinary Medicine. Overall, the category is still largely dominated by the subcategory Earth Sciences, which contributes 167 loans; the large majority of these are minerals, such as *biotite, loess, rutile, perovskite, augite, microcline, magnesite, monazite, Zechstein,* and *sanidine.* In addition, 93 loanwords from the subcategory Chemistry were introduced in this period, for instance *methyl, ozone, acrylic, ethyl, paraffin, acetyl,* and *aldehyde.* Leaving Physical Sciences and looking at the next largest subcategory Medicine, the loanwords introduced in the first half of the nineteenth century stem from a variety of sub disciplines, such as Pathology, Anatomy, Pharmacology, or Physiology; once again, some items can be found in several subdisciplines. Examples for medical loanwords from German would be *osteoporosis, histology, pepsin, internist, homeopathy, vorstellung, osteoid, rinderpest,* or the interjection *ouch*. Proceeding to the next subcategory, Life Sciences, it seems noteworthy that some of the categories, like Palaeontology, Microbiology, and Cell Biology are listed for the first time, which might hint at the scientists' becoming more specialised or even at categories' emerging as new subdisciplines during this epoch. Examples for words that were introduced by biologists of various fields are *monism, trilobite, pronotum, filtrate, exine, kohlrabi, biliverdin, mesonotum,* and *lammergeyer.*

The second largest contributor in the years between 1800 and 1849 is Arts, a category with relatively low significance up until now. The majority of loans are from Performing Arts, for instance, *choral, accordion, Meistersinger, to yodel, melisma, glockenspiel, minnesinger, mordent,* and *septet (*also *septett).* This shows a clear predilection for singing, and music in general, which with now doubt at least partially goes back to the achievements of composers like Haydn (1732-1800), Mozart (1756-91), Beethoven (1770-1827), Schubert (1797-1828) and Strauss the Elder (1804-49) and the Younger (1825-1899) (Fulbrook 1991: 94-112). Further borrowings were made in the domains of Literature, Visual Arts, and Decorative Arts, for

example *Nibelung, Nachlass, Robinsonade, Nibelungenlied,* and *recensor*; *self-portrait* and *stereochromy;* and *knosp.*

Next are the categories Crafts & Trades, with 24, Consumables, with 22, and Religion & Belief, with 21 loanwords. The borrowings from the first group are largely comprised of chemicals, such as *methyl, acrylic,* and *ethyl,* monetary terms like *krone*, *zwanziger,* and *centesimo,* and a variety of loanwords from other backgrounds, such as *accordion*, *barouche, polos, kettle-stitch,* or *ricker.* The second group, Consumables, consists mostly of different foods, such as *pretzel, mettwurst, lebkuchen, schinken, krapfen,* the jewish *kugel*, as well as wines and spirits, like *schnapps, Steinberger, Liebefraumilch, Niersteiner, Johannisberger, kirschwasser,* and *Steinwein.* The by far most commonly used religious terms from this period are *Amish* and *nihilism*, further examples would be *monism, Pfarrer, cleresy, ministerium,* or *kloster*. Other loanwords from spiritual contexts are mythological terms like *to hex, kobold, nixie, alp,* or *doppelgänger*. The majority of all loanwords from these three categories can be said to refer to common, everyday concepts. It therefore seems plausible that most of them were spread via German immigration to the US, where L1 speakers of German introduced the products, cuisine, religion, fables and myths they brought along with them.

The remaining categories are, in descending order, Philosophy, Manufacturing & Industry, Military, Politics, Sport & Leisure, Economics & Commerce, Education, History, Agriculture & Horticulture, Language, Law, Transport, Drug Use, and Technology. Philosophy in the 19th century was influenced by German idealism and Post-Kantian Thinkers like Schopenhauer, Jacobi, Fichte, Hegel, and Marx, all of whom were Germans (philosophicalsociety.com, cf. also Fulbrook 1991: 110); they coined terms and promoted ideas which were adopted by speakers of English, like *Dasein, nihilsm, monism, Anschauung, Naturphilosophie, Naturphilosoph, Aufklärung, Ding an sich,* or *acosmism.* The category Manufacturing & Industry saw the introduction of termini from the mining, oil and gas, and papermaking industries: *paraffin, to stack, deckle, glance, stock-work, carpholite,* and *calc-sinter.* The strong predominance of terms from coal mining underlines that German coal production significantly shaped the European market, which had gained importance due to the increased development of railroads, where coal was used as fuel (Fulbrook 1991: 114).

As for the military loanwords first attested between 1800 and 1849, the majority are not further categorized by the OED. Most of them describe roles, such as *Rittmeister, fugleman, yager,* or *pikanier*; others refer to weapons, like *carthoun.* One further loanword from this semantic category is *Warasdin*, which might either refer to the Croatian town or to the soldiers from that area (OED.com). Political terms that were borrowed to English include *Reichstag, zollverein, Reichsrat, Sonderbund,* and *Tugendbund;* most of them were introduced by German-Americans and are today only used in historical contexts. Of the terms listed in the category Sport & Leisure, *schimmel, shabracque,* and *sweeny* originate from horseback riding jargon; *alpenstock* was coined by mountaineers; *draisine* was a name for pioneering bicycles and *rounce* a card game. The latter two loans might also be borrowings from French, according to their OED entries. Finally, *Nordic* and *pretzel* are also listed in Sport & Leisure, due to the *pretzel curve* in baseball and *Nordic skiing*; neither of these compounds, however, was used this early.

Further loanwords still used in recent English from this period include the demonyms *Aleut* and *Lett*; *ablaut* from linguistics; *robot,* a historical term for a system of serfdom; and *poltergeist, Sehnsucht, Residenz,* and *Fach,* none of which are further classified by OED.

3.2.14 1850-1899

The considerable increase of new borrowings seen in the previous period is not only continued, but even surpassed between 1850 and 1899. 1295 new loanwords, or nearly 37% of all lexical borrowings from German, were imported in these years, which results in the 19th century being the epoch in which by far the most loanwords were borrowed. Summing up all loanwords borrowed between 1800 and 1899, more terms were imported from German in this era than in all previous and following periods combined.

As in the preceding sections, a graph was created to illustrate the amount of contributions of the various semantic categories. However, as can be seen below, the dominance of terms from Sciences is even more pronounced than in the periods before, which impedes comparison of the

remaining groups. A second bar chart therefore follows immediately below, from which this vast category was omitted to facilitate comparisons between the remaining categories.

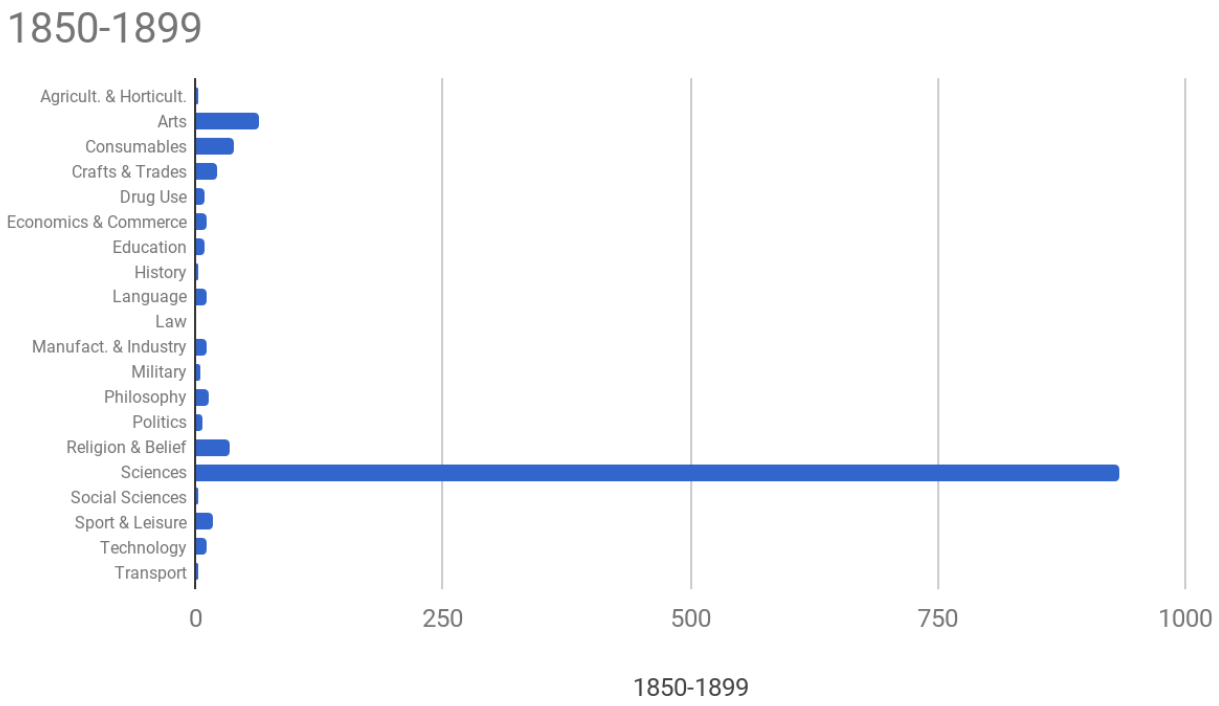


Figure 12: Semantic categories between 1850 and 1899

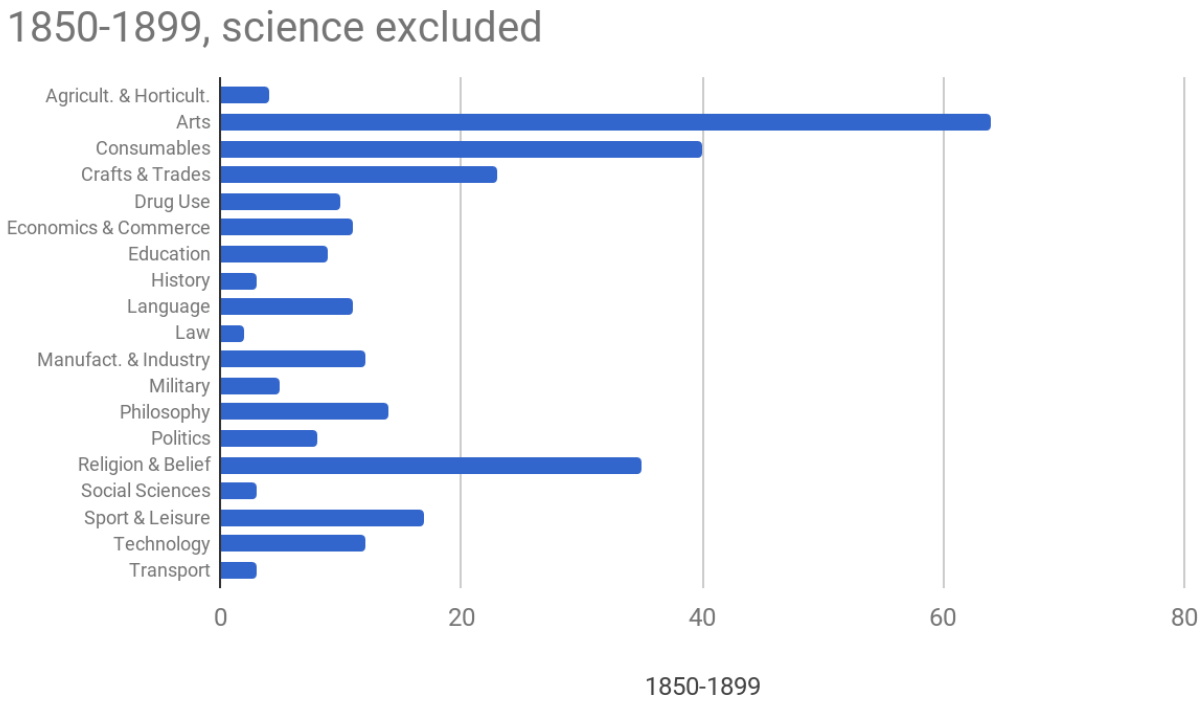


Figure 13: Semantic categories between 1850 and 1899, excluding loanwords from Sciences

As can be seen in the two graphs above, 933 items, which is more than 70% of all German loanwords introduced to English between 1850 and 1899, go back to various scientific disciplines. The second bar chart illustrates more clearly than the first that Art is, as in the previous period, the second largest contributor, with 64, or roughly 5%, of all loans, followed by the approximately 3% which were borrowed from culinary and religious contexts each. The next largest category is Crafts & Trades, which contributed roughly 2% of all loans of this period.

All in all, English borrowed 933 words in the category science from German in this period. With 607 loans, the largest scientific category is Physical Sciences, followed by Life Sciences, with 232 loans, and Medicine, with 169 loanwords. Looking at the various scientific subdisciplines more closely, 23% of all loans are classified as chemical terms, another 23% stem from Earth Sciences, roughly 5% each go back to zoology or botany, and approximately 3% each to Physiology and Pathology. Additional subcategories within the domains of science where English borrowed from German were, in descending order, Cell Biology (34 loans), Anatomy (27 loans), Pharmacology (23 loans), Genetics (18 loans), Embryology (16 loans), Psychology (14 loans),

Physics, and Microbiology (12 loans each). The remaining scientific subcategories Astronomy, Ecology, Ophthalmology, Immunology, Veterinary Medicine, Taxonomy, Geometry, Neurology, Radiology and Palaeontology each contributed ten loanwords or less. Getting into detail about the majority of these loanwords would exceed the limits of this paper, therefore, an attempt will be made in the following paragraphs to provide a representative overview.

In the subcategory Physical Sciences, 301 loanwords are classified as terms from Chemistry; examples include *ester, aspirin, spectrometer, ketone, tryptophan, alkyl, bilirubin, lysine, glycine, arginine, cysteine, substituent, carotene, choline, purine, alanine, amyloid, aliphatic,* or *histidine.* 299 loans were borrowed within the contexts of Earth Sciences; of these, 233 are minerals, 69 belong to Geology, and 17 to Geography. Instances for the first group are, among others, *magnetite, montmorillonite, myelin, cristobalite, phlogopite, tonalite, bornite, tridymite, sepiolite, kieselgur,* or *greisen;* examples for the second group would be *hinterland, tectonics, graben, allochthonous, authigenic,* and *horst;* and finally, representing the third group, *kar, karst, ria, firn, hornfels, graupel,* or *epicentrum.*

Turning to the second largest subcategory, Life Sciences, the largest subcategories are Animals and Plants. 71 zoological loanwords were borrowed from German in this period, among them anatomical and physiological terms such as *mesenchyme, protamine, myoblast, plasmodium, prehallux, prepollex, meta-, pro- and mesopterygium,* or *parosteal, and*, remarkably, quite a variety of names for fish, such as *zander, bitterling, schill, wels, zope,* and *saibling.* Loans such as *plankton, miracidium, frass, rhabdom, nekton, retinula, chordotonal* etc. suggest extensive study of invertebrates like insects, molluscs and crustaceans at German-speaking universities. In addition, some mammal names, like *baum marten*, *sisel,* and *brant fox*, and ornithological terms, like *kit, ornis, pterylography,* or *sprosser*, were introduced from German. Similar tendencies can be noticed when examining the botanical terms loaned in this period. The majority of the 66 loanwords go back to plant physiology, such as *phloem, meristem, plastid,* or *tracheid.* Another predominant branch of study might have been mycology, which is supported by the occurrence of terms like *oogonium, oospore, gametangium,* or *zygospore.*

With 34 loanwords, the next largest category is Cell Biology; it features loans such as *chromosome, chloroplast, neutrophil, mitosis, mast cell* or *plastid* and partly overlaps with the

two following subcategories, Genetics and Microbiology, which contribute 18 and 12 loans, respectively. The remaining categories are Ecology with 6, Taxonomy with 4 and Palaeontology with 1 contribution. Included in these categories are *biocoenosis, syntrophy, phylum,* and *notal*.

Let us zoom out of the subcategory Life Sciences again to scrutinize more closely the remaining subcategories within Sciences, namely Medicine, Mathematics, and Veterinary Medicine. Medicine is split into several disciplines, the larger ones being Physiology, Pathology, Anatomy, and Pharmacology; contributions include words such as *leukaemia, mucosa, aspirin, carotene, eosinophil, poliomyelitis, pentose, botulism, anlage, microcephaly,* or *Kur.* In fact, a vast number of loans from medicine overlap with other categories like Chemistry or Cell Biology; naturally, distinctions are not always clear cut. *Augend* and *periphractic* are examples for loanwords from Mathematics, and *cryptorchidism* and *perniosis* are representative of lexical borrowings from Veterinary Medicine.

Returning to the overview in the graphs above, the remaining categories might seem insignificant due to their few contributions; let us take a closer look to find out if this assumption is true. The second largest category, with 67 contributions, is Arts. Although dwarfed in quantity by the vast number of scientific terms, many of the loanwords in Arts are still used frequently nowadays. Among the most common words in this category are loans such as *Lied, Festschrift, Volk, leitmotiv, spiel,* or *zither*; all in all, most of the loanwords are from the domain of Performing Arts. Some of the most influential German and Austrian musicians from the 19th century were already mentioned in the section covering the years between 1800 and 1849. What also draws attention is the fact that the majority of these terms are etymologically unambiguously German, as opposed to the scientific terms, which clearly tend to draw on Greek and Latin lexis.

The third largest class in the graph above, with 40 loanwords, is Consumables, followed closely by the category Religion & Belief with 35 contributions. Consumables is similar to Arts insofar as the loans in this category also seem to draw on morphemes native to German; likewise, they too show relatively high frequencies. However, the loanwords from Arts seem to be used slightly more frequently in recent texts: *Lied* and *Festschrift* appear within the most commonly used 100 words of the period, while not a single food or beverage does. Examples from the category

include *8furter, strudel, wiener, schnitzel* (also *Wiener Schnitzel), Kuchen, lager beer,* and *auslese*. Roughly two thirds of the loans are edibles, while just below one third refer to drinks. Six of the loanwords have Yiddish origins: *kreplach, tzimmes, farfel*, *lokshen, shicker,* and *gefüllte fish*. In addition, although *pancake* has been in the English lexicon since before 1400, *Pfann(e)kuchen* was borrowed as a separate loan in the nineteenth century.

The loans in Religion & Belief are further separated into the subcategories Religion, which is the largest by far, Belief Systems & Practices, and Mythology. Almost a third of all loans have Yiddish origin, like *golem, Shabbos, rebbe, shul,* or *link,* 'not pious'. Some of the most commonly used loans of these categories are *kultur, dom, hex, soteriological, panentheism,* or *Venusberg. Kultur, dom,* and *golem* all appear within the 100 most commonly used words of the period.

The category is followed by Crafts & Trades (23 loans), Sport & Leisure (17 loans), Philosophy (14 loans), Manufacturing & Industry (12 loans), and Technology (12 loans). The first of these, Crafts & Trades, is dominated by its subcategory Costume, which features on the one hand chemical terms like *benzaldehyde* and *geraniol*, but on the other hand words like *to bushel, sheitel,* or *to moloker*. It might be unexpected that chemical substances would be so predominant in this category: most of them were used in the perfume industry, which according to the OED classification falls into the domain of Cosmetics, which in turn is a subcategory of Costume.

Sport & Leisure includes the subcategories Games, which quantitatively towers over its sister subcategories Sport, Horses & Riding, and Hunting, Fishing & Shooting. The late 19th century saw borrowings like *dachshund, to spiel, pinochle, schneider, schwartz, skat, spieler,* and *Haflinger.* Examples taken from the category Philosophy are *Weltanschauung, Aufhebung, panentheism,* or *Weltansicht.*

Just more than half of the loanwords in the next category, Manufacturing & Industry, belong to its subcategory Manufacturing; the remaining loanwords are from Mining and Building. *Tectonics, Vaseline, manganin, trommel* and *spiegeleisen* serve as representative examples from these subcategories. The most commonly used loanword from the next category, Technology, and

among the most popular 2% of all loans in this period, is *micron*. Fellow technological terms originate from a broad range of fields; further instances are *augend, anastigmat* or *electrotonus.*

Lastly, for an overview over the remaining, even smaller categories, I will make a selection of loanwords within the most frequently used words of the period which have not been mentioned so far. Some examples are terms from educational contexts, like *seminar*, *practicum* and *kindergarten, Reichswehr* from Military, *schwa* from Language or *heroin* from the category Drug Use. In addition, there is a number of loanwords which have been used frequently in the last four decades and were not categorized by the OED: *Yiddish, Berliner, Bund, masochism, Wesen, rucksack, Wirt, Quelle*, and *fest.*

3.2.15 1900-1949

In the first half of the 20th century, 991 new loanwords from German were introduced, and at first glance, it once again seems that the majority of the most frequent words are from academic register, many of them being calques drawing on Latin and Greek vocabulary. This is underlined by figure 14 below, which illustrates a repeatedly clear dominance of the semantic category Science. It accounts for almost two thirds (64%) of all borrowings in this period.

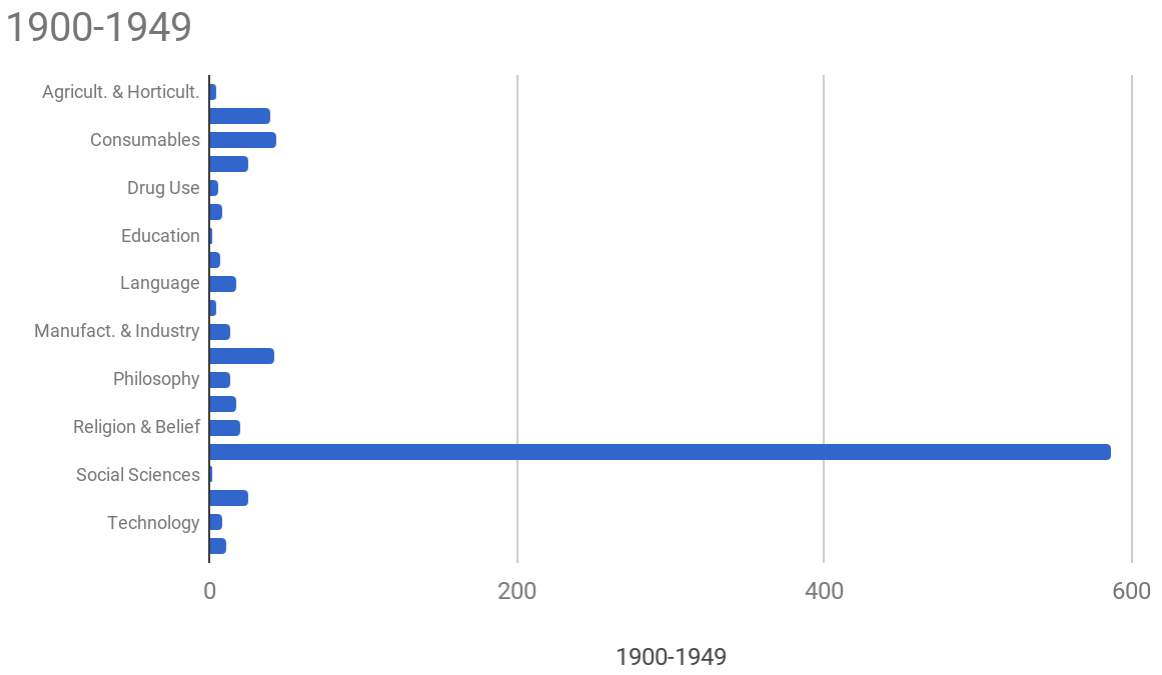


Figure 14: Semantic categories between 1900 and 1949

To visualize the quantitative differences between the remaining categories more clearly, a second graph was made. As can be inferred from this second bar chart, the categories Consumables, Military, and Arts, in this order, are in the lead, each of them contributing around 40 loanwords. Together, they make up roughly 14% of all loanwords borrowed between 1900 and 1949. They are followed by borrowings from the categories Crafts & Trades and Sports & Leisure, then, in descending order, by Religion & Belief, Politics, Language, Philosophy, Manufacturing & Industry, Transport, Economics & Commerce, Technology, History, Drug Use, Law, Agriculture & Horticulture, Social Sciences, and finally, Education.

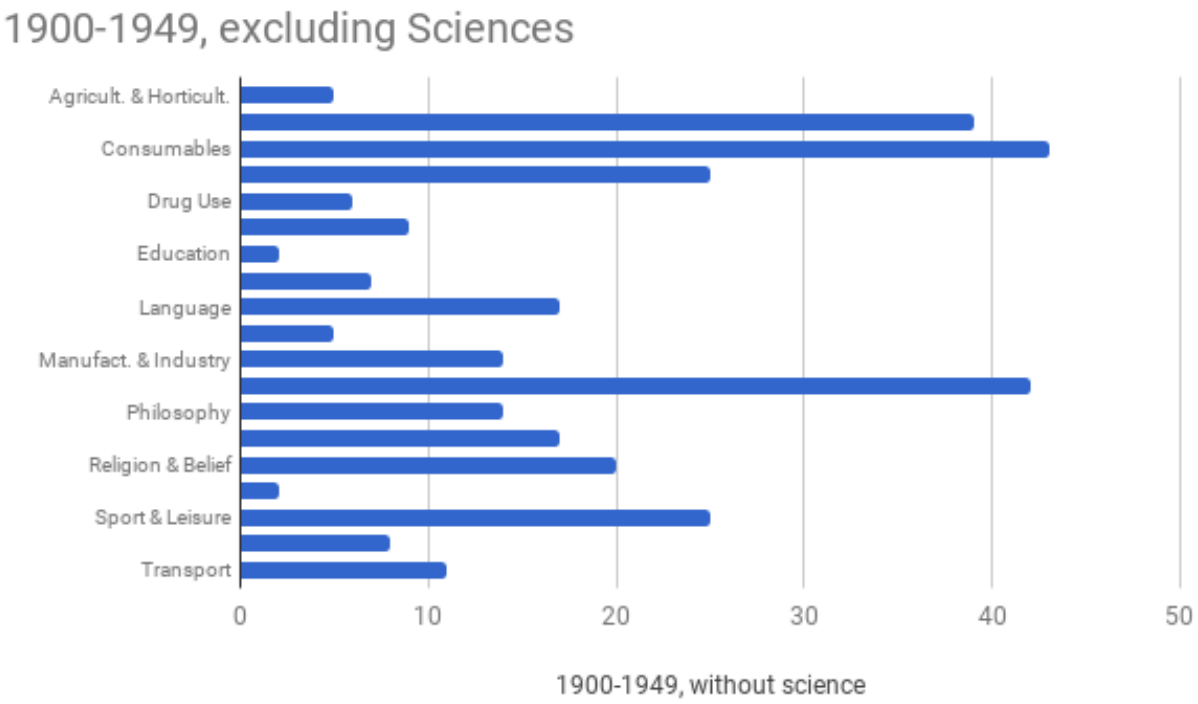


Figure 15: Semantic categories between 1900 and 1949, excluding loanwords from Sciences

What should immediately catch one's attention when comparing these results to the bar chart presenting the previous period is how the category Military moved up the ranks, having multiplied eightfold in comparison to the years between 1850 and 1899. Other categories whose share has grown are Transport, Law, History, Politics, Language, and Sport & Leisure: their proportional contribution in this period doubled (the latter two), tripled, or even quintupled (the first category) in comparison to the latter 19th century. On the other end of the spectrum, the category which decreased the most was education, contributing only a third of its earlier proportion. Other semantic categories which have shrunk are Religion & Belief, Drug Use, Arts, Sciences, Technology, and Social Sciences, although the decline is not as drastic.

Let us first have a look at the largest category, which contributes 64% of all loans of this period: Sciences. Of the 586 loans, 330 belong to the subcategory Physical Sciences, 165 to Life Sciences, 148 to Medicine, 12 to Mathematics, and one to Veterinary Medicine.

Examining the various disciplines in Physical Sciences, the largest subcategory by far is Chemistry, with 214 loanwords, followed by Earth Sciences, with 102 contributions. The first of these two categories, features, among others, loanwords like *ol*, *nucleotide, polypeptide, testosterone, histamine, adenosine, micelle, co-enzyme, radon, chromatogram, carotenoid, dopa,* or *proline;* they suggest a heightened interest in organic chemistry and biochemistry, and it can be assumed that many of them will also feature in the category Life Sciences. The chemical terms introduced in this era have had a great impact on the current lexicon and show high frequencies. In fact, 42 of them also emerge within the 100 most frequently used loanwords borrowed between 1900 and 1949. Moving on to earth sciences, high frequency samples like *pluton, batholith, stromatolite, ooid, tektite,* or *tillite* indicate the discovery and classification of new minerals, while *Riss, interstadial, sima* and *sial* suggest extensive research in Geology.

Turning to the category Life Sciences, the subcategories Plants (30 loanwords) and Animals (29 loanwords) still dominate over the remaining branches. However, in comparison to earlier periods, the difference has decreased significantly. In addition, while they may be the largest categories by number, borrowings from other subcategories are used more frequently. For instance, the first animal which appears in the list of loanwords within Life Sciences is *boxer*, a dog breed; however, it only reaches rank 19 when sorted by frequency. What is more, the loanwords in these subcategories overlap significantly; for instance, some of the terms in Plants are *histamine, plasmodesma*, and *allelopathy.* They can also be found in the subcategories Medicine, Organic Chemistry, Cell Biology, and Ecology.

For these reasons, the following list is a representation of the whole subcategory Life Sciences rather than its separate branches. An excerpt of the most commonly used loanwords from the various Life sciences are *mutant, nucleotide, mitochondrion, testosterone, taxon, histamine, adenosine, monocyte, haploid, auxin, liposome, nephron, carotenoid, porphyrin, proband, macrophyte, chromaffin, heterochromatin, biotope, Rottweiler,* and *pinscher*.

Similar to Life Sciences, the subcategory Medicine is split up into several branches resembling each other in size; the largest of them are Physiology with 33 and Psychology with 29 loanwords. Loans coined by physiologists naturally tend to converge with the aforementioned biological

subdisciplines, therefore, double entries seem a common phenomenon once again. Examples include *antibody, adenosine, monocyte, inotropic, secretin, chromaffin, androstenedione,* and *eccrine.* The concepts conceived by psychologists of the time are strikingly different insofar as they do not overlap with any of the other scientific subcategories. What they do have in common is their frequent occurrence in today's English. Some of the words introduced from German at that time are *schizophrenia, autism, Gestalt, schizoid, eidetic, orgone, logotherapy, engram and mnemic, ego-psychology, and defusion*. Some of these terms, according to their OED entries, were coined by acclaimed psychologists like Eugen Bleuler and Sigmund Freud. One puzzling find in Psychology is *flak*, presumably due to the compound *flak-happy,* 'shell-shocked'.

The next largest subcategories are Pharmacology with 22 loans, and Anatomy and Pathology, with 21 loans each. Some of the most commonly used loans from the period in these disciplines are *inosine, Salvarsan, veronal* and *Prontosil* in Pharmacology, *nephron, menarche, neocortex, inotropic* and *eccrine* in Anatomy, and *allergy, allergen, dysplastic,* and *extrasystole* in Pathology. These data show once again that categories need not necessarily contribute a great number of words in order to have an impact; *allergy* today is in OEDs frequency band 5 and thereby among the most frequently used German loans. In addition, it seems worth pointing out that *inosine, Salvarsan, veronal* and *Prontosil* were all marketed by the German chemical company Bayer, who had also introduced *Aspirin* and *Heroin* in the nineteenth century. According to Torp, German producers like Bayer & Hoechst, Schering, or Merck empowered Germany to become the "pharmacy of the world" (2011: 247).

After this extensive overview on scientific discoveries between 1900 and 1949, let us take a look at the subcategory Consumables. 43 loanwords from this domain were borrowed from German within this period, and the majority of them, 74%, refer to food. A short excerpt can be provided by naming *quark, muesli, bratwurst, Stollen, Bundt, streusel, and Spätzle* as samples. The remaining 26% percent of the category refer to drinks like *Kabinett, Gewürztraminer, to lager, lauter, Sylvaner,* or *Sekt.* Strikingly, 12 of the 32 terms for edibles are of Yiddish origin, for instance *bagel, blintze, latke,* and *cholent.*

With just one loanword less, the next largest category is Military. As mentioned above, the number of loans in this branch underwent rapid growth in the period between 1900 and 1949, and there can be no doubt that this expansion was caused to a great degree by World War I and World War II. The most frequently used military vocabulary introduced during this time includes *Nazi, flak, blitzkrieg, Stuka, Stalag, Waffen SS,* and *Hakenkreuz,* which clearly supports this assertion. *U-boat, to strafe, Minnie* and *Machtpolitik* are examples for loans introduced during World War 1. All in all, 10 of the loanwords had their first appearance between 1914 and 1917, while 27 words were first introduced in 1930 or later.

The category Arts is close to Military in size: 39 loanwords were borrowed in this domain. Once again, Performing Arts dominates over the other categories, with loans such as *formant, wili, to noodle, klezmer, Staatsoper, schmaltz,* or *Sprechstimme.* The subcategory Literature however grew in relation to Performing Arts, contributing, among others, *mutant*, *Dada, Bildungsroman, Sachlichkeit, Weltliteratur,* and *Künstlerroman.* Other loans in Arts include *kitsch*, *Jugendstil, Gesamtkunstwerk, Sezession,* and *Formgeschichte.*

The next largest category Crafts & Trades, with 25 borrowings, shows a wide assortment of terms from Cosmetics, Clothing, Ceramics, Woodworking, Print, and Textiles. Although it is one of the larger categories, none of the loans in it rank higher than frequency band 3, so according to the OED key to frequencies, they "are not commonly found in general text types like novels and newspapers" (OED.com). *Yarmulke, dirndl, Fraktur, textura, Schwabacher* and *lederhosen* are among the items of relatively higher frequency, and all of them go back either to Costumes or Printing & Typography. Further examples from Crafts & Trades are *loden, Bandkeramik, raschel, vorlage,* and *kletterschuh.*

The semantic category Sports & Leisure also includes 25 borrowings from German between 1900 and 1949. Sorted by frequency, the first term in the list is *bagel*, but on closer investigation it becomes clear that this is due to the term's appearance in tennis slang in the 1970s. For the remaining loanwords, the dominating category is Sports with 12 loans (excluding *bagel).* This stands in contrast to the previous period, in which more terms were introduced within the category Games. More examples for Sports are *to dunk*, which was, like *bagel,* also first

introduced in culinary contexts, *snorkel, Wandervogel, to abseil,* and *karabiner.* Half of the loans in the subcategory Games have a Yiddish background, e.g. *dreidel, to kibitz, vigorish,* and *stuss;* other examples from Games include *nim, Zugzwang,* and *patzer.*

Further frequently used loans from smaller categories are *DIN* from Economics & Commerce, *formant* and *categorial* from Languages, *Jugendstil* from Manufacturing and Industry, *categorial* and *relativization* from Philosophy, *Land* and *Ostpolitik* from Politics, *Verstehen* from Social Sciences, and *raster* and *diathermy* from Technology. In addition, it seems noteworthy that 78 of all 911 loanwords have Yiddish origin, which might be explained by increased Yiddish migration during this time.

3.2.16 1950-1999

In the second half of the 20th century, 165 new borrowings from German are documented, which is a dramatic decline of 83% compared to the previous period and sets back German influence on English vocabulary to a level from before 1800. One of the reasons for this drastic decrease is the abovementioned Anti-German sentiment which could be witnessed in the 20th century. Another plausible reason is the rise of English as a global language, which has made borrowing from other languages, especially in Sciences, less essential. Perhaps one could even go so far as to say that a certain saturation has been reached, at least temporarily.

The graph below illustrates the proportions contributed by the various categories to lexical borrowings from German. As can be inferred from the bar chart, the semantic category Science once again dominates over the other categories; however, the difference is not as profound as in earlier times. For instance, in the first half of the 20th century, Science supplied 64% of all loans, but in the latter half, only 37% of all loans belong to this category.

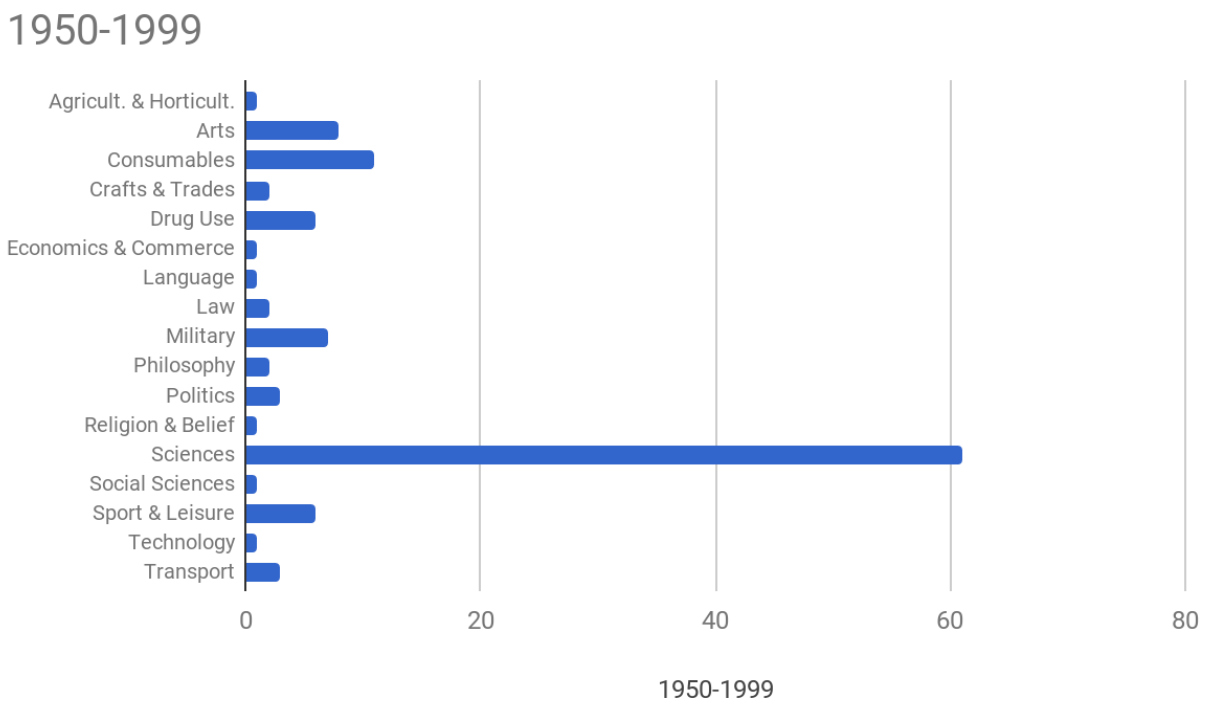


Figure 16: Semantic categories between 1950 and 1999

The remaining categories are relatively small, none of them provide more than 11 loanwords, or 7% of all loans from the period. The second largest category is Consumables with 11 loans, followed by Arts with eight items, then Military with seven borrowings; up next are Drug Use and Sport & Leisure with six loans each. In relative growth, the biggest winner is the category Drug Use, which developed from providing 0.66% of all loans to 3.6%. No loanwords were borrowed in the categories Education, History, and Manufacturing & Industry.

Let us begin with examining the largest category, Science, once again. The loanwords borrowed in the second half of the 20th century stem from a wide range of scientific branches: 21 from Earth Sciences, 14 from Chemistry, 8 from Pharmacology, 5 from Ecology, and 4 each from Animals, Palaeontology, and Plants. Further subcategories which provide only three or less loanwords are Physics, Pathology, Anatomy, Physiology, Immunology, Microbiology, Genetics, Cell Biology, and Veterinary Medicine. Again, overlaps within some of these categories are highly likely due to some of their boundaries not being that clear, e.g. between Genetics, Cell

Biology, and Animals. At the same time, it should always be kept in mind that the OED categorisations were undertaken by humans and might be controversial in themselves, especially as not all of them are up to date.

Examples in Earth Sciences include, as usual in the science department, calques based on Latin on Greek such as *bioturbation, bioturbated, minerotrophic,* and *metaphyton*, but also terms formed from German words, like *tonstein, lagerstätte* and *lebensspur.* The majority of terms are minerals like *sudoite, moganite, imhofite,* and *novákite.* Moving on to the next subcategory, Chemistry, the loans in this branch are mostly chemical compounds like *Sarin*, *fagine, psilocybin, muscimol, melittin,* or *psilocin.* While *Sarin* is a nervous gas developed in Germany, all of the latter six are toxins which can be extracted from animals, fungi or plants, which suggests increased interest in toxicology in the past half-decade. Further loans include *exergy, kallidin, macroglobulin,* and *nonactin.*

The entries in the subcategory Pharmacology are partly drugs obtained from fungi or plants, like *reserpine, macrolide,* and *valinomycin;* another discovery is *pyridostigmine,* which can protect against nerve gases, perhaps developed to be used against *Sarin*. Next is Ecology, which also features the aforementioned *bioturbation*, along with *bombykol*, a sex pheromone, *minerotrophic,* and *Waldsterben.* Next are the subcategories Animals, Palaeontology, and Plants, with four loanwords each. Some loans from these branches which have not been mentioned in other subcategories yet are *Simmental,* a cattle breed, *Zugunruhe*, which is a migratory restlessness in birds, *thylakoid,* a part in chloroplasts, or *cyanelle,* a cyanobacterium. Further examples from the remaining subcategories include *zeitgeber*, *metachrony, eigenfrequency,* and *Gedankenexperiment*.

Sciences is followed by the categories Consumables, Arts, and Military. The borrowings in the category Consumables are in this period dominated by beverages: *spritzer, pils, trockenbeerenauslese* and *Eiswein* are among the most commonly used, followed by *Qualitätswein* and *viertel.* Terms that refer to foods include *Weisswurst* and *knaidel*, the latter of which has Yiddish background and derives from German *knödel.* As for Arts, none of the words surpass frequency band 2, which marks them as “technical terms from specialized discourses”

which would be “unknown to most people” (OED.com). Examples include *textology, pantonal, Liederabend*, and the two Yiddish expressions *shtik* and *tummler*. Within military contexts, the two most frequently used loanwords are the two nerve gases *Sarin* and *Soman*, both of which had been developed by the German chemical industry conglomerate IG Farben under Nazi rule. Further examples include the *ohne mich* culture, *Stumbannführer,* and *Grepo.*

Drug Use and Sport & Leisure contributed six loanwords each. Next to some loans which were already named in Pharmacology, other German influences are *LSD* and *Tabun.* An analysis of Sport & Leisure points at increased influence of German skiing terms within the English-speaking culture: *mogul*, ‘bumps in ski slopes’ (cf. Austrian *Mugel*), *to wedeln, Ratrac* and *vorlaufer.*

Further loanwords from the period which have not yet been mentioned are *Gesellschaft, Umwelt, glitzy, Stasi, Gastarbeiter, klutz, teletex, Mitbestimmung, S-bahn, opi, ODESSA, untermensch, Ossi, Historikerstreit, cladogenesis,* and *meister*; these examples were chosen according to their relatively high frequencies as stated by OED.

3.2.17 Discussion

The data of the prevision sections shows that German has, over the centuries, contributed to the English lexicon in several ways. The graph below joins all of the bar charts from each 50-year period above to illuminate the relative sizes of all categories in every time span discussed; due to the mass of information in this format I recommend revisiting the individual bar charts for a clearer picture. Although the graph below may contain too much data to extract information about every semantic category, it succeeds in showing the increases and declines of the overall largest categories in a new way.

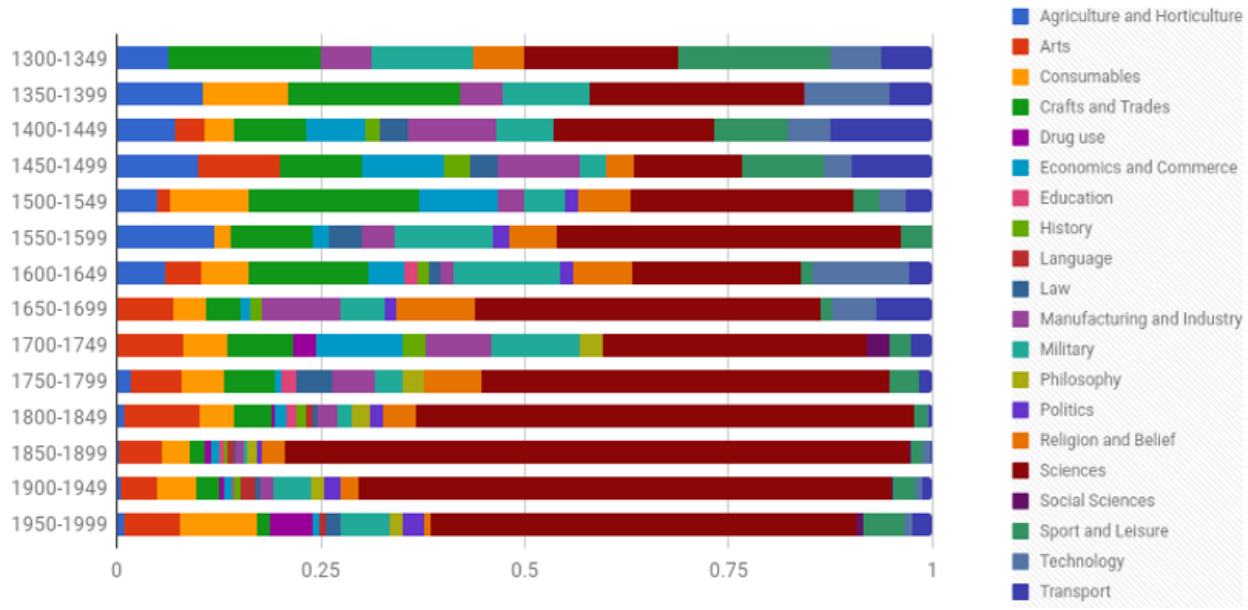


Figure 17: Representation of loanwords from all semantic categories, in all periods

For instance, one insight which can be inferred from the graph above as well as from the detailed analysis in the previous sections is that borrowings from the categories Agriculture & Horticulture and Crafts & Trades were among the most significant groups in early phases of contact between the two languages. This implies that English speaking countries could benefit from German agricultural techniques and that the exchange of crafting tools and techniques were crucial for the relationship between English and German. However, both categories suffered a visible decline starting in the 17th century, which neither of them could recover from. This may be caused by several phenomena, all of which were strongly linked to conolialisation: for instance, influential German merchant families like the Fuggers and Welsers, but also trading associations like the Hanseatic League, lost power when trading started to spread around the globe. This in turn had a negative impact on the transfer of new concepts within Crafts & Trades. Likewise, it could be argued that the importation of new crops, herbs, fruits and vegetables from the colonies shifted the focus of agri- and horticulture away from domestic plants and thereby impeded the borrowing of new German words from this area. Additionally, it could be said that farming lost significance in general due to the political and social changes which were set in motion by events like the Protestant Reformation and the Age of Discovery.

Similar tendencies, although not as distinguished, can be seen when looking at the category Transport. The majority of loans related to transportation, 29 of 43 items, go back to the subcategory Nautical; for this reason, it can be assumed that the decline of the category is also related to the disintegration of the Hanseatic League, which had boosted the role of German in shipbuilding and sailing (cf. Wubs-Mrozewicz 2013).

In contrast, one category which started with few contributions but visibly gained significance is Arts. It has already been noted above that two main factors have facilitated borrowings in this area from German: on the one hand, a large number of influential composers and writers had German or Austrian origins. A selection of famous musicians, like Beethoven and Mozart, have been mentioned in the section covering the 18th century; among the well-received writers were Goethe (1749-1832), Schiller (1759-1805) and Herder (1744-1803) (Fulbrook 1991: 93-94). According to Fulbrook (1991: 95), Germany had come to be known as the *Land der Dichter und Denker*, 'land of poets and thinkers' because of their literary and musical contributions. On the other hand, Germans were among the largest groups of immigrants in America; according to one survey by the United States Census Bureau (census.com), 13.9% of citizens claimed German ancestry in 2016, making persons of German heritage the largest group by origin. As music has been one of the core values of German culture, it seems only conclusive that a large number of musical terms were introduced by German settlers (cf. Fulbrook 1991).

The three categories with more stable contributions over almost all of the periods are Military, Manufacturing & Industry and Sciences. Firstly, the majority of loanwords from Military are from one of two categories: the first group are today used as historical terms referring to military positions or weapons used in past centuries exclusively. The other group goes back directly to World War 1 and 2. Fulbrook (1991: 3) describes that Germany has had a "politically and geographically insecure and contested central European location", which may explain why German loanwords from warfare and espionage have been borrowed throughout all periods. Secondly, Manufacturing & Industry has two peaks, one in the fifteenth century and one between 1650 and 1749. In both of these time spans, the category supplies roughly 10% of all German borrowings, as can be seen in the graph above. In sum, 70 loanwords are classified as belonging to Manufacturing & Industry; of these, 27 go back to Mining and 23 to the Metal Industry. That

two distinct periods with more than a century between them saw a relatively high contribution from this category might be due to innovations that were important for the extraction of raw materials during these periods.

Finally, let us look at the category within which most loanwords were borrowed from German: Sciences. As shown in the graph above, this conglomerate group of several academic branches dominates the borrowings of every single period covered. Evaluating the entirety of items borrowed in this category, the largest subcategory is Physical Sciences, which can be attributed in equal parts to Chemistry and Earth Sciences. Physical Sciences is followed by Life Sciences and Medicine. This is despite the fact that the history of scientific borrowings from German started with biological terms: contributions in the 13th and 14th century are largely names for animals or plants. Geological terms begin to trickle into English in the 15th century, but it is not before the 18th century that more loanwords are borrowed within the diverse Physical Sciences than the Life Sciences. The graph below shows an overview over the direct subcategories of the category Sciences.

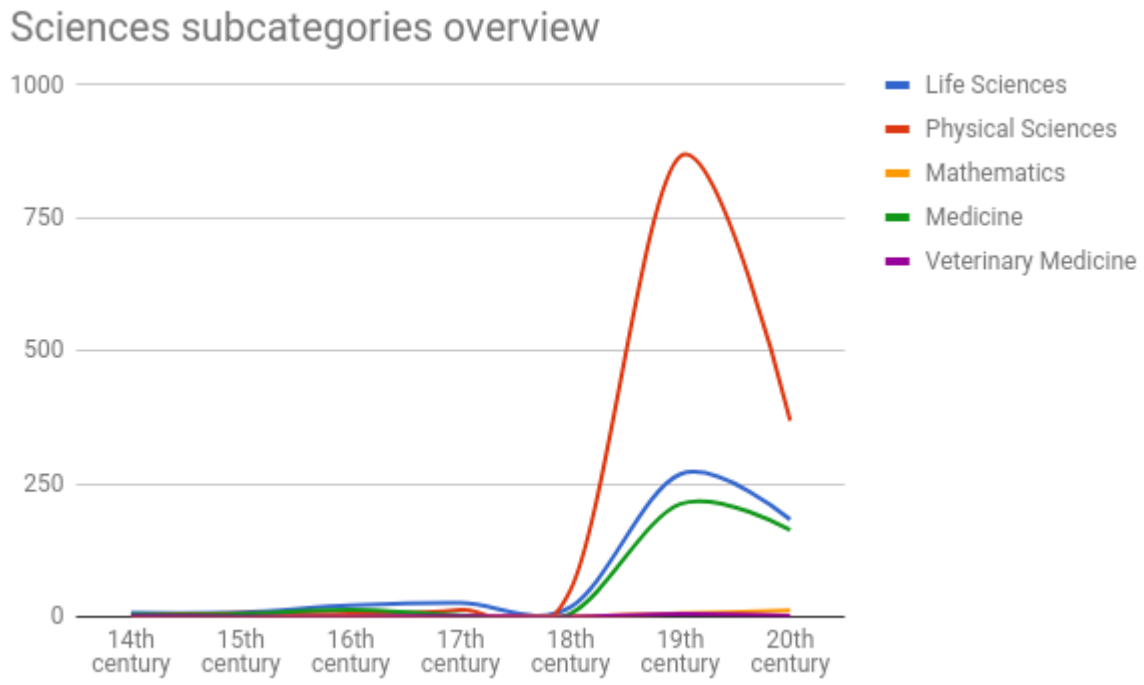


Figure 18: Contributions of the five direct subcategories of the category Sciences

As can be seen, the subcategories Mathematics and Veterinary Medicine play a subordinate role in the grand scheme of things. What cannot be seen is the development of the individual subcategories within the first four centuries due to the explosive growth of Physical Sciences in the 18th and 19th century; therefore, a separate graph was made to shed more light onto these progresses. It illustrates that Life Sciences is the largest contributor among these five groups until the end of the 17th century and shows that Medicine and Physical Sciences take turns competing for the second place until Physical Sciences eventually surpasses Life Sciences.

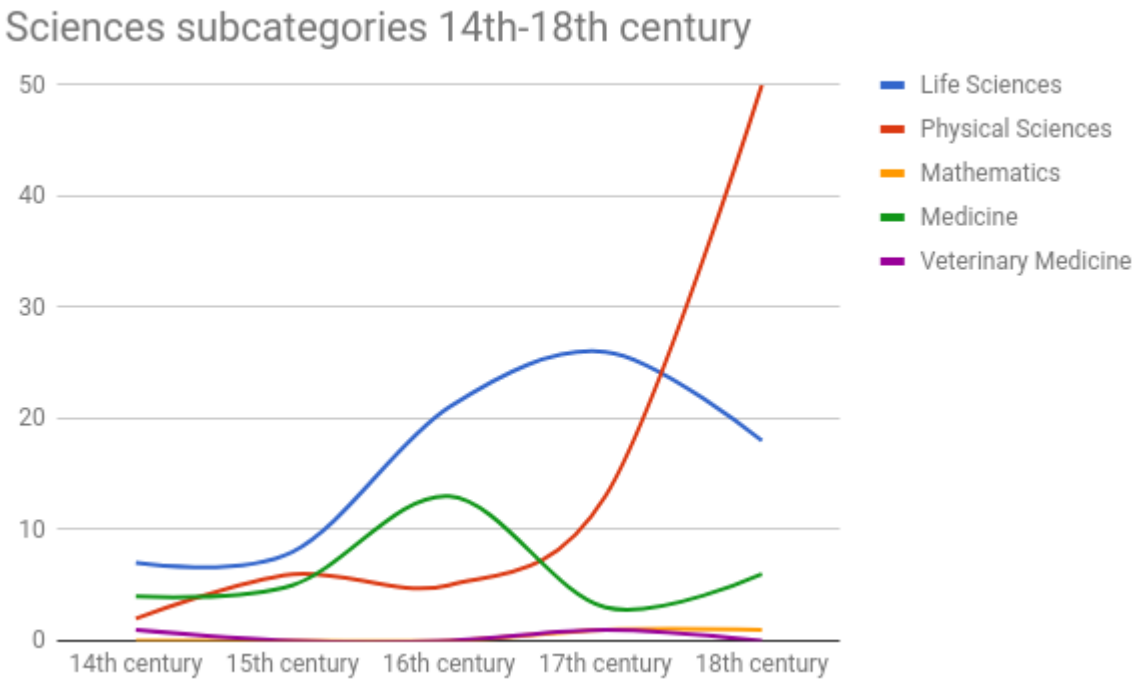


Figure 19: Contributions from the scientific subcategories between 1300 and 1800

The peak of Life Sciences in the 17th century seems to be due to the novel descriptions of animals; of the 44 scientific terms of the epoch, 22 are related to zoology. No clear explanation could be found for the increased import of German animal names in this period; one possibility might be that more species were discovered and described simply because more people had access to higher education. In addition, some of the animals are not native to English speaking countries, like *hamster*, *citril,* and *roller*. The high proportion of terms from Medicine in the 16th century is mostly due to the borrowing of names for illnesses, like *droppell, swindling, qualm,* and *duselig.* The category is however inflated by words that only have secondary meanings related to Medicine in some way, like *queer* and *scone*.

What is particularly interesting is the remarkable correlation of the subcategories Medicine and Plants between the 14th and 18th century, which is illustrated by the graph below. One possible interpretation of this parallel is that many of the plants first described in German were medicinal plants.

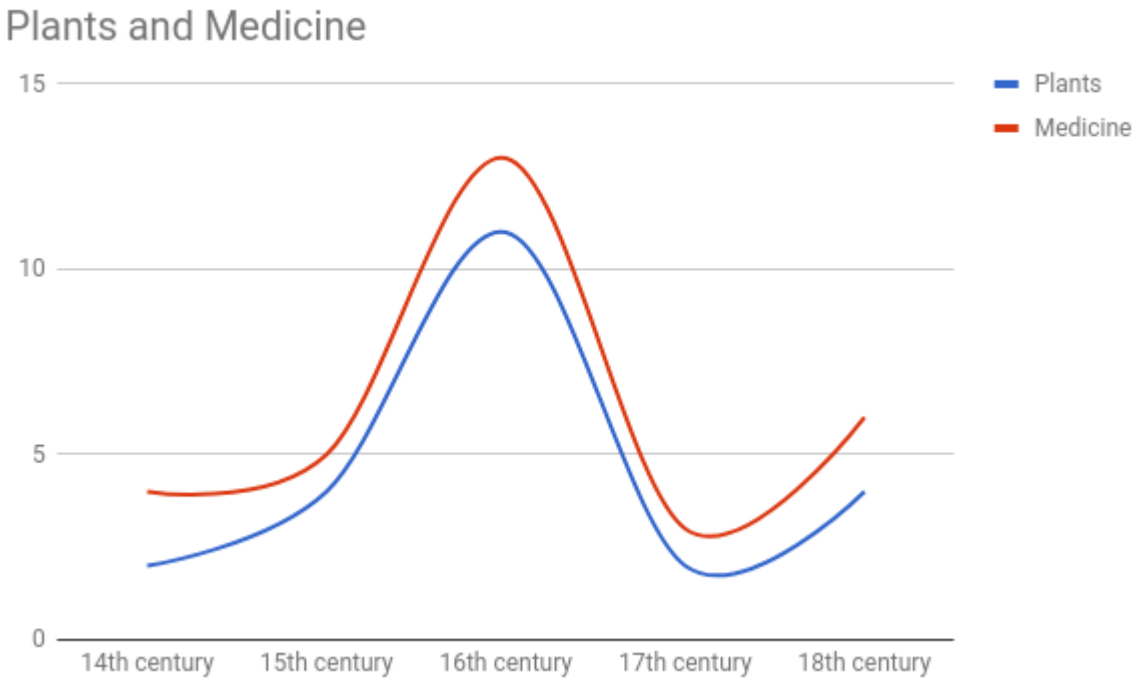


Figure 20: Contributions from the subcategories Plants and Medicine

However, correlation is not necessarily causation: an inspection of the early medical vocabulary imported from German shows that it contains only few plant names, and the similar numbers of loanwords in both semantic categories seems to be a coincidence.

Having covered the early development of scientific loans, let us now turn to academic borrowings from the 18th century onwards. As visible in Figure 18, contributions of the three largest categories experience a peak in the 18th century; however, Life Sciences and Medicine stay far behind Physical Sciences in size. The following paragraph is aimed at explaining the significant growth of the category Physical Sciences.

While the category increased considerably from supplying 13 loans in the 17th to 50 items in the 18th century, the most substantial growth happened in the following decades; 866 words were imported from Physical Sciences in the 19th century. The largest subcategory at the beginning of this trend, as described in the sections covering those timespans, are the Earth Sciences, first and foremost its subcategory Mineralogy. One cause for this development was the leading role of German speaking countries in mining, combined with increased demand for raw materials. Important researchers from Germany and Austria were Werner (1749-1817), Mohs (1771-1839), Zippe (1771-1863), and Suess (1831-1914) (Seidl 2017). Earth Sciences was eventually surpassed in number by lexical borrowings from Chemistry in the 20th century. Novel contributions were made by German speaking scientists in a wide range of areas, among them the chemical composition and synthetic production of dyes, the discovery of catalysts and terpenes, or the study of the chemical composition of chlorophyll. In addition to the many borrowings in this field, another strong indicator for the impact of German in Chemistry is the large number of Nobel Laureates who published in German. All in all, 73 of 178 Nobel Laureates for the Nobel Prize in Chemistry have been affiliated with either German or Austrian Universities when they were awarded, and in the time between 1901 and 1940 alone, 20 of the awarded physicists had published in German (nobelprize.org). According to Torp (2011:347), Germany gained its significance in chemistry due to the monopoly it had reached by the end of the 19th century in research on dyestuff, which soon spread to organic chemistry in general.

In conclusion, German influence on the English lexicon goes back to a variety of different developments. All in all, the leading role of German speaking countries in Mineralogy and Chemistry in the late 19th and early 20th century has left the largest impact on the history of borrowing from German. Further considerable contributions to the English vocabulary can be traced back to the study of animals and plants, and to advances in medicine at German-speaking institutions. In addition, especially in the 19th and early 20th century, loanwords from German and Austrian music and literature have been borrowed.

3.3 Part three: word class analysis

In the theoretical description of lexical factors in borrowing situations, the hierarchy of borrowability cited by a large number of scholars was briefly mentioned (cf. Winford 2003, Minkova & Stockwell 2009, Appel & Muysken 2005). According to this theory, items from some word classes are more likely to be borrowed than others. The exact progression may vary from author to author. Muysken (1981, cited in Winford 2003: 51) suggests the following succession:

> nouns > adjectives > verbs > prepositions > co-ordinating conjunctions > quantifiers > determiners > free pronouns > clitic pronouns > subordinating conjunctions

Haugen's scale (1950: 224) differs slightly:

> nouns > verbs > adjectives > adverbs, prepositions, interjections

Yet another variant is proposed by Pfeffer & Cannon (1994, cited in Ehlert 2012: 43):

> nouns > adjectives > verbs > interjections > adverbs > prepositions > conjunctions

The most straightforward explanation for these differing results is that each of them studied different settings of language contact; Haugen for instance investigated Norwegian loans in English, while Pfeffer & Cannon focussed on German loanwords. What they all agree on is that it is easier for items from open classes to be imported from other languages, and that closed classes inhibit borrowing. One notion added by Minkova & Stockwell (2009: 51) is that the intensity of contact affects which word classes are borrowed; according to them, closer contact allows for languages to mix more freely, whereas borrowing in distant contact is more likely to result in the import of nouns exclusively.

A quick analysis of the entirety of German loanwords in the OED is illustrated in the pie chart below.

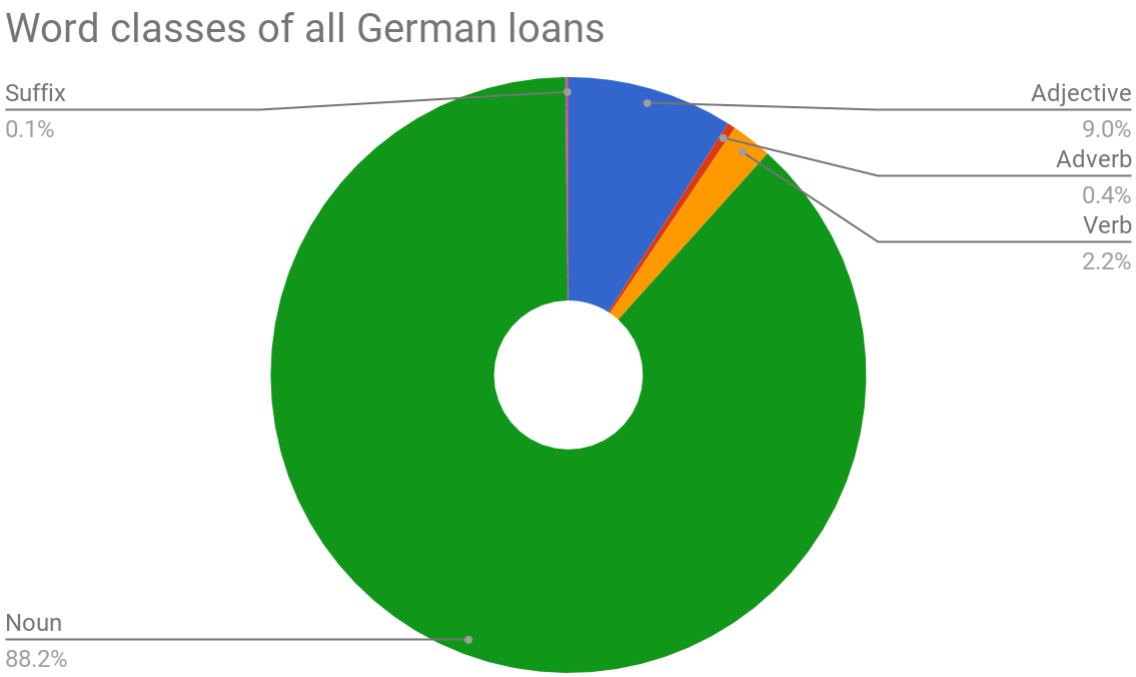


Figure 21: Entire German loanwords, broken up into word classes

More than 3100 of all borrowings, which equals 88.2%, are nouns, followed by 320, or 9%, adjectives and 79 verbs. 24 of the borrowed items are interjections, and 16 are adverbs. This result is closest to the scale suggested by Pfeffer & Cannon (1994), which could be expected considering their study was in German loans, too. However, a large proportion of the OED items have become obsolete in contemporary use of English. To find out whether the numbers differ for the German loans that have persisted, the 100 most frequently used loans were investigated separately. The findings are presented in a second pie chart, which follows below.

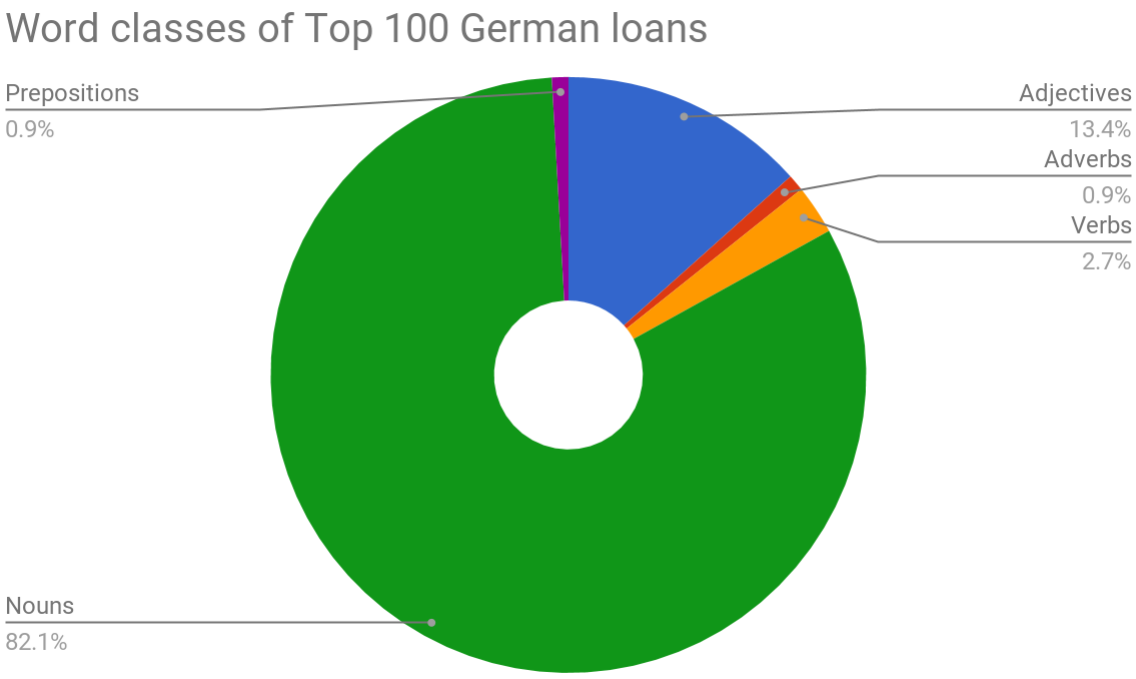


Figure 22: Top 100 high frequency loans, broken up into word classes

As can be seen, the differences between the two pie charts are subtle. The most significant change is visible in the section adjectives, whose relative proportion in the smaller sample size is 1.5 times larger, contributing 13.4% to the top 100 loans as opposed to the 9% of all loanwords. In exchange, fewer nouns are part of the higher frequency words; however, with 82.1%, this group still contributes the great majority of lexical borrowings. The slice for verbs is larger by 0.5% in the second chart, with 2.7% as opposed to 2.2% in the larger sample.

These two charts support the generally accepted view that nouns seem to be most readily borrowed from other languages. As we have seen, there is no overall consensus on whether adjectives or verbs are more likely to be borrowed; the results of this analysis of the OED corpus for German loanwords confirms Pfeffer & Cannon's (1994) hierarchy of borrowability more than any other.

Before concluding this section, I want to emphasize that these numbers need to be interpreted with scepticism. As pointed out by Appel and Muysken (2005: 171-172), such scales need to be seen critically in any case. Their main argument is that the number of loans per word class might

not be as indicative as suggested by previous scholars, as they typically neglect the relative sizes of these word classes in the donor languages. In other words, the fact that fewer verbs are imported does not necessarily mean that they are more difficult to borrow; there just likely are fewer verbs in the donor language to borrow from.

4 Conclusion

The two main goals of this paper were, on the one hand, to provide information on contact linguistics in general and lexical borrowing in particular and, on the other hand, to analyse the impact of German on the English lexis. For the second part, three approaches were adopted to gain insight from data retrieved from the OED online corpus: an investigation of semantic fields found within high frequency loanwords from German, a comparison of borrowing processes in the periods between the 13th and 20th century, and finally, an analysis of word classes of German loans. The purpose of the first approach was to find out whether borrowings of any semantic field are notably high in number in commonly used borrowings. The semantic fields of the 40 most frequently used German loanwords were researched and analysed, with the result that the vast majority of items stem from scientific backgrounds. The second examination extended the principles of the first by adding a historical linguistics component. The centuries between 1200 and 1999 were divided into periods of 50-year time spans, and loanwords of each period were evaluated by studying their areas and frequencies of use. This investigation found that German has contributed to English lexis in several fields over time, with a predominance of scientific terms in all periods. A brief sample of historical events and epochs traceable in the patterns of borrowings are the Protestant Reformation, the Thirty Years War, the consequential emigrations waves from central Europe, and both World Wars. Trades like shipbuilding lost their initial significance over time and were surpassed by borrowings from arts, mining, and chemistry, among others. The last approach was aimed at testing the hypothesis of a hierarchy of borrowability. Pfeffer & Cannon's (1994) hierarchy could largely be confirmed by the findings of this analysis.

One technical problem encountered repeatedly over the course of this study for which no easy solution could be found was concerned with the classification system used by the OED. Some of

the words encountered naturally saw shifts in meaning or gained additional definitions. Due to the organisation of the online corpus, items would show up in the wrong categories in some instances; for example, *muffin* was first borrowed in 1703 in the sense of the bakery product; however, it also occurred in the category Medicine in that period due to compounds from later decades. Such instances were pointed out when noticed, but had to be disregarded in the statistics.

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6 Appendix

6.1 Deutsche Kurzfassung

Die vorliegende Arbeit behandelt den Einfluss deutschen Lehnguts auf die englische Sprache. Der erste Teil beinhaltet eine theoretische Einführung in die generelle Sprachkontaktforschung einerseits und in Lehnprozesse andererseits. Im zweiten Teil der Arbeit werden die Daten des Online English Dictionary (OED) auf drei verschiedene Arten analysiert.

Zu Beginn werden die 40 meistverwendeten deutschen Lehnwörter in Hinblick auf ihre Zugehörigkeit zu semantischen Kategorien untersucht, um festzustellen, in welchen Bereichen Sprecher des Englischen besonders häufig auf deutsche Lexis zurückgreifen. Begriffe aus dem Bereich der Wissenschaft dominieren diesen ersten Eindruck stark. Darauf folgt eine sprachhistorische Analyse, worin die Daten in 50-Jahr-Perioden nach ihrer erstmaligen Verwendung betrachtet werden. Dieser Schritt zeigt, dass das Leihen aus dem Deutschen im 19. Jahrhundert seine höchste Produktivität hatte, besonders innerhalb der Forschung. Zuletzt werden die relativen Anteile der Wortklassen von den 100 am häufigsten verwendeten Lehnwörtern berechnet, um die Theorie einer Hierarchie der Lehnbarkeit zu überprüfen. Die viel zitierte These, laut der Nomen häufiger geliehen werden, trifft auch auf die hier untersuchten Daten zu.