

Anglo-Saxon and Latinate Synonyms: The Case of *Speed* vs. *Velocity*

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Abstract

The aim of this paper is to provide an initial analysis of the semantic relations holding between Anglo-Saxon and Latinate synonyms in present-day English. It is an acknowledged fact that the lexicon of English consists of a basic indigenous vocabulary of Germanic origin with many foreign borrowings especially from French, Latin and Greek. This has produced an etymologically diverse word-stock characterized by distinct features. Near-synonymous words with a different etymology can be a source of confusion and dictionaries often fail to clearly distinguish between them. Pairs of Anglo-Saxon vs. Latinate words, such as *speed/velocity*, *sweat/perspire*, *lunatic/insane*, etc., are often said to be equivalent in meaning, with differences only in terms of style and register. The scenario, however, is more subtle, complex and interesting than this. A finer-grained analysis of *speed* and *velocity*, for instance, shows, on the one hand, that there is a high degree of interchangeability between the two words. On the other hand, though, the semantics of *speed* is more generic, neutral and broader in scope, while *velocity* expresses specific and restricted meanings. In addition to this generic-specific relation between the two words, *velocity* appears to undergo metaphoric extension.

Keywords: English lexicon, Anglo-Saxon, Latinate, synonyms, etymology, *speed*, *velocity*

1. Introduction

The lexicon of English is rich in synonyms and near-synonyms due to the multiple origins of its words. After the Norman Conquest of 1066, English incorporated many words from French and later on, during the Renaissance period, it was heavily influenced by Latin and Greek. The result is that still today there are numerous words with different etymology that appear to have the same meaning, such as *sweat/perspire*, *kingly/royal/regal*, *answer/response*, *space/cosmos/universe*, etc. Speakers of English as a foreign and second language sometimes use them interchangeably without being fully aware of the lexical-syntactic, semantic and, above all, pragmatic differences between them. This is particularly true for those speakers whose L1s are Romance languages, in which words of Latinate origin are, for obvious reasons, more common and abundant. On the other hand, when average native speakers and sometimes also teachers of English are asked to explain the difference between two similar words, say *sweat* vs. *perspire*, they tend to say that Anglo-Saxon words are more common and informal, while their Latinate counterparts appear in written and formal/specialized/technical contexts. This is also often confirmed in dictionaries. According to the *Oxford English Dictionary (OED)*, *perspire* is sometimes regarded as more polite than *sweat* when referring to people (2000 M. BARROWCLIFFE *Girlfriend* 44 v.148 *Gentlemen perspire and horses sweat, these policemen oozed*). Similarly, the *Merriam-Webster Dictionary (MWD)* says that it is somewhat formal, even if the examples it provides do not show any particular formality (*I was nervous and could feel myself start to perspire; she ran two miles and was not even perspiring*). Although it is true that the alternation between an Anglo-Saxon and a Latinate word with the same core meaning may produce stylistic effects, variation occurs at other levels of linguistic analysis as well.

The present paper reports on an ongoing and wider study aimed at investigating the relationship between closely related and synonymous words of Anglo-Saxon vs. Latinate origin in order to examine whether/to what extent their alternation is possible and what changes it brings about. The project analyzes pairs of words that essentially express the same concept and intends to identify the specific distinguishing features of each, which favor or block their interchangeability. The idea is to eventually come up with a preliminary mapping of the meaning relations existing between synonymous words of different origin in present-day English. To exemplify how the analysis is undertaken, we will look here at the areas of overlap and contrast between *speed* and *velocity*. As in the case of other synonymous words, they appear to express the same 'basic' concept. However, there would not

be any point in having two distinct words in English if they had exactly the same meaning. There is in fact a very restricted range of contexts in which two lexical items can be complete synonyms. In most other cases, they differ in several, often subtle ways.

This paper is structured as follows. Section 2 briefly illustrates the evolution of the English lexicon with specific reference to the period after the Norman Conquest, which was the main historical event that put the vocabulary of English on a Latinate track. We know that approximately 10,000 new words were imported into Middle English from Anglo-Norman and continental French between 1066 and 1476 (Baugh & Cable, 1993, p. 174), seventy-five percent of which are still in use today (Minkova & Stockwell, 2006, p. 476). Section 3 presents and discusses the dictionary entries for *speed* and *velocity* in the *OED*, *MWD* and in a learner dictionary, i.e. the *Cambridge Advance Learner's Dictionary (CALD)*. Section 4 provides a more fine-grained analysis of these two nouns on the basis of their occurrence in the two main corpora of English, namely the *British National Corpus (BNC)* and the *Corpus of Contemporary American English (COCA)*. Observing the behavior of *speed* and *velocity* in context will allow us to have a clearer picture of both their formal and semantic-pragmatic characteristics. The results and discussion of the dictionary and corpus analysis is provided in Section 5, while Section 6 presents the key conclusions about the case study and discusses future research directions.

2. The Evolution of the English Lexicon

The earliest borrowings of Latinate words can be traced back to the Old English period as a result of the contacts between the Romans and the Germanic tribes on the continent who then settled in Britain. Although Britain had been a province of the Roman empire from 43 to 410 AD, the linguistic influence of the Romans on the indigenous Celts remained marginal. When instead the variety of West Germanic that developed into Old English became the superstrate language of Britain after the mid-fifth century, the number of words derived from Latin increased. This was even more the case with the introduction of Christianity at the end of the sixth century. It was through the translation of religious texts that the first significant number of learnt Latin words entered the English language. Scholarly words were also imported from specialized (medical, biological) and literary Latin texts.

Latin was not the only profound and lasting influence on English. The Viking incursions into eastern England between ca. 750 and 1050 AD were another cause of lexical diversification. It is estimated that in this period approximately one thousand words were imported into English from Old Norse. Several of these Scandinavian items contributed to the formation of many words that are still common today and also influenced their pronunciation. However, neither the early Latin borrowings nor the words adopted from Old Norse had a major impact on the development of the vocabulary of English. It was the Norman Conquest of 1066 AD that had the most significant effect on the composition of the English lexicon.

The occupation of Britain by speakers of Norman French relegated English to a spoken substrate. Latin and French became the two culturally dominant languages. At first, the Normans did not understand or use English and maintained strong links to France. Later on, the relationship between English and French became increasingly more systematic and extensive. English started borrowing words from the several fields in which the French-speaking nobility was involved, such as literature, art, religion, architecture, law, science, medicine and so on. However, the new terms that the Normans brought with them often paralleled already existing English words, which continued to be used alongside the more refined borrowings. If approximately 10,000 French words were imported into English by the mid-fifteenth century, it is during the Renaissance period that a larger number of these borrowings entered the English language. It is estimated that over 20,000 items from the Classical languages were brought into English, often via French, between 1500 and 1700 and that many are still in use today. These are words and phrases from the fields of medicine (e.g., *abdomen*, *cerebellum*, *halitosis*) mathematics and geometry (*ad infinitum*, *radius*), physics and biology (*evaporate*, *larva*, *species*), etc. Although they were originally used in specialized domains, they soon became part of the common vocabulary of English.

As a result of the borrowings from French and from the classical languages via Latin, English has an etymologically diverse word-stock characterized by distinct features. The *OED* describes the situation as follows: "The vast aggregate of words and phrases which constitutes the vocabulary of English-speaking people [...] presents the aspect of one of those nebulous masses familiar to the astronomer, in which a clear and unmistakable nucleus shades off on all sides, through zones of decreasing brightness. The English vocabulary contains a nucleus or central mass of many thousand words whose 'Anglicity' is unquestioned; [...] but they are linked on every side with other words which are less and less entitled to this appellation and which pertain even more distinctly to the domain of local dialect, of slang, [...] of the peculiar technicalities of trades and processes, of the scientific terminology common to all civilized nations, and of the actual languages of other lands and

peoples” (OED, 2nd ed., xxiv).

The core or ‘nucleus’ of the English lexicon is thus predominantly Germanic. It consists of morphologically simple and semantically indispensable words that describe common concepts and situations of everyday life. Most of these words are short and refer to concrete entities, such as body parts (*hand, foot, arm, eye*), animals (*horse, cow, sheep, dog*), elements of the natural landscape (*land, field, meadow, hedge*), and practical activities (*eat, drink, sit, go*). 83 percent of the 1,000 most frequent words appear to have Old English origins. As we move away from the core, this figure drops and the lexicon includes non-Anglo-Saxon words describing more complex and abstract notions, e.g., from the fields of science, technology, art and other areas of specialization. These lexemes are characterized by polysyllabicity and generally have a higher level of phonological complexity. Table 1 below shows the etymological composition of the English lexicon with the relative frequency of words, based on the spoken component of the *BNC* (Minkova & Stockwell, 2006, p. 466):

Table 1. The etymological composition of the English lexicon

Frequency	English %	French %	Latin %	Norse %	Other %
1,000	83	11	2	2	2
2,000	34	46	11	2	7
3,000	29	46	14	1	10
4,000	27	45	17	1	10
5,000	27	47	17	1	8
6,000	27	42	19	2	10
7,000	23	45	17	2	13
8,000	26	41	18	2	13
9,000	25	41	17	2	15
10,000	25	42	18	1	14

The sum of these partial frequencies allows us to average the percentage of etymologically different items considering the 10,000 most frequent words in English. In Table 2 (Minkova & Stockwell, 2006, p. 467) it can be observed that the distribution of Germanic words in present-day English is more limited than that of originally non-native lexical items, especially if we sum the French with the Latin elements imported into English in the post-Old English period.

Table 2. The origin of the 10,000 most frequent words in the English lexicon

Old English	31.8%
French	45%
Latin (post-OE)	16.7%
Other Germanic languages	4.2%
Other languages	2.3%

The progressive expansion of the English lexicon, in particular through the addition of Romance loanwords, has caused a duplication of meanings with a resulting set of semantically overlapping words, which are in fact only partial synonyms. These pairs of related words, e.g., *swine/pork, freedom/liberty, manly/virile*, etc., have often been considered as identical apart from stylistic differences primarily due to register variation. However, the scenario appears more complex and challenging than this, as the following sections will demonstrate through the analysis of the pair *speed/velocity*.

3. What Do Dictionaries Say?

In this section we will take a look at how the two main dictionaries of English, i.e. the *Oxford English Dictionary* (OED) and the *Merriam-Webster Dictionary* (MWD), as well as the *Cambridge Advance Learner’s Dictionary* (CALD), go about distinguishing between *speed* and *velocity* (Note 1). As with other lexical twins, the semantic differences between the Anglo-Saxon lexemes and their French or Latin counterparts tend to be disregarded and attention is primarily directed to the stylistic contrasts between them. Latinate forms are typically viewed as more formal, careful, bookish or polite. However, if the difference between pairs of related words, such as *speed* and *velocity*, were only one of style and register, it follows that they should always be interchangeable due to their supposedly identical semantic core. While this is true to a certain extent, it is not possible to treat the two

words as identical in that each of them carries distinct (shades of) meanings and is associated to different patterns of lexical behavior.

3.1 The Oxford English Dictionary (OED)

The first thing that one notices when using the *OED* is that it provides detailed information about the etymology of words, with many historical references from various sources. It also calculates how frequent a certain word is on the basis of Google Books Ngrams data and assigns each entry to a frequency band, running from 8 (very high frequency) to 1 (very low frequency). This scale is logarithmic, i.e. band 8 includes words that are ten times more frequent than those in band 7, which in turn groups words that are approximately ten times more frequent than words in band 6, and so forth. Both *speed* and *velocity* belong to frequency band 6, which contains words occurring between 10 and 100 times per million words in modern English usage.

3.1.1 Speed

Speed is said to originate in Old English with the meaning of ‘abundance’, ‘substance’, ‘means’, ‘wealth’ or ‘success’, which however is now obsolete. Similarly, the related sense of ‘power’ and ‘might’ seems to have died out. The last attestation of *speed* with this meaning dates back to ca. 1250 (*God...unspereð al ðe fendes sped, And halp ðor he sag mikel ned*). There are also several other senses related to abundance or success that have become archaic or completely disappeared in contemporary English.

The senses of *speed* that are still used today have to do only with ‘swiftness’ or ‘celerity’. There are three main sub-senses associated to this meaning. The first one is linked to the idea of ‘quickness in moving or making progress from one place to another, usually as the result of special exertion’ or to that of ‘power or rate of progress’. Although this use should still be attested in contemporary English, the *OED* provides no examples from the twentieth or twenty-first century; the most recent example sentence dates back to 1891 (F. W. Farrar, *Darkness & Dawn* I. xii. 97, *Pudens had seen him..run up the steps with a speed which a Roman regarded as very undignified*). The second sub-sense of *speed*, which is also illustrated without any exemplifications from present-day English, does not only have to do with ‘swiftness’/‘rapidity’ in general or with respect to direct movement, but is also associated to circular movement (1883, M. P. Bale, *Saw-mills* 209, *If a sawing or planing machine is driven at a very great rate of speed*) (Note 2). The third sub-sense of *speed* is that of ‘any of the possible gear ratios of a machine, esp. a bike or a motor vehicle; the equipment associated with this’ (1980, P. Lively, *Judgement Day* x. 129, *A shiny new bike with three speeds*). Finally, *speed* is also said to appear in specialized discourse, i.e. in the field of photography, with the meaning of ‘the relative rapidity with which a plate, film, etc., is acted upon by light or by a developer’ (1977, J. Hedgecoe *Photographer’s Handbk.* 162, *Speeds of 1/500–1/2000 sec allow you to freeze subject action beyond the perception of the eye*), and in that of shorthand or typing (1957, C. Smith, *Case of Torches* xi. 137, *He..said there wouldn’t be much shorthand or typing. So I thought—well, I don’t want to lose my speeds, then I heard about this job*). In American English, *speed* also refers to an amphetamine drug (1978, G. Vidal *Kalki* v. 109, *Dr Lowell produced a hypodermic needle. I let him shoot me up... I assumed that he had given me speed*).

3.1.2 Velocity

The lexical entry for *velocity* in the *OED* is shorter and simpler than the one for *speed*. *Velocity* entered the English language in the fourteenth century via French and it appears to be an exact synonym of *speed*, even though in one of its sub-senses it is said to refer specifically to ‘relative rapidity; rate of motion’ (1880, S. Haughton *Six Lect. Physical Geogr.* iii. 137, *It has..a velocity of upwards of three knots per hour*). What distinguishes it from *speed* is its use in scientific discourse, where it refers to ‘speed with the direction of travel, as a vector quantity’ (1883, *Encycl. Brit.* XV. 680/1, *We are concerned only with what we may call the ‘speed’ of the motion. (We purposely avoid the use of the term ‘velocity’ here, because it properly includes direction as well as speed)*). Finally, *velocity* is used in the specialized domain of economics to indicate the rate of spending (1982, *Chase Economic Observer* Jan.–Feb. 3/1, *Velocity, the rate of turnover of money, is typically measured as the ratio of GNP to the narrowly defined money stock*).

3.2 The Merriam-Webster Dictionary (MWD)

The *MWD* generally presents more concise definitions, if compared to the *OED*, with fewer example sentences and scarce information about the etymology of words. The number of entries correspond to the number of classes that a certain word appears in. Therefore, *speed* has two entries, because it can be both a noun and a verb, while *velocity* only consists of one entry.

3.2.1 Speed

The noun *speed* has seven distinct senses, one of which is considered as archaic (i.e. *speed* with the meaning of

‘prosperity’ or ‘success’ in a certain undertaking). There is no precise indication to the fact that this is the original sense of the word in Old English that has gone out of use. It is only mentioned, after listing all the meanings of *speed*, that the first known use of the word as a noun dates back to before the twelfth century.

What is interesting for our case study is that the first sub-sense of *speed* (i.e. ‘rate of motion’) is clearly indicated as corresponding to the main meaning of *velocity* and, in particular, to the ‘magnitude of a velocity irrespective of direction’ sense (Note 3). Differently from the *OED*, one meaning of the first sense of *speed* here would also be that of ‘impetus’. There are no examples, however, showing this use in context. The second sense of *speed*, i.e. ‘swiftness or rate of performance or action’, is also said to be analogous to one meaning of *velocity*, namely that of ‘rate of occurrence or action’ or ‘rapidity’. The third sense of *speed* is associated with photography and is described with more details compared to what the *OED* does, even though there are no example sentences: *speed* is the ‘sensitivity of a photographic film, plate, or paper expressed numerically’, but also the ‘time during which a camera shutter is open’ and ‘the light-gathering power of a lens or optical system’. The fourth sense of *speed* in the *MWD* is absent from the *OED*. It refers to ‘a transmission gear in automotive vehicles or bicycle—usually used in combination’ (e.g., *a ten-speed bicycle*). The fifth sense of *speed* does not appear in the *OED*, either. It would be that of ‘someone or something that appeals to one’s taste’ (e.g., *just my speed*). Finally, *speed* is also a stimulant drug, especially an amphetamine or methamphetamine.

3.2.2 Velocity

The definition of *velocity* in the *MWD* consists of just three entries. The first one shows that the main meaning, i.e. that of ‘quickness of motion’ (e.g., *the velocity of sound*), is the same as that of *speed*. This is quite confusing for dictionary users, especially if not native speakers of English, because they would not be able to distinguish between the two synonyms on the basis of this information. One can only infer from sense 3 that *velocity* is used specifically in the field of economics (although this is not explicitly mentioned) to refer to the ‘rate of turnover’ (e.g., *the velocity of money*). Sense 1 has two additional sub-senses: the first one says that *velocity* means ‘rapidity of movement’ as can be observed in a quotation by Mark Twain (*[My horse’s] strong suit is grace & personal comeliness, rather than velocity*), while the other one indicates that *velocity* is also the ‘speed imparted to something’ (e.g., *the power pitcher relies on velocity*—Tony Scherman). Sense 3 has an additional sub-sense, which sees *velocity* referring to the ‘rate of occurrence or action’ or ‘rapidity’ (e.g., *the velocity of historical change*—R.J. Lifton). Finally, *velocity* is associated to ‘the rate of position along a straight line with respect to time’ or to ‘the derivative of position with respect to time’. As for the etymology, according to the *MWD* *velocity* seems to have entered the English language via Anglo-French and Latin in the fifteenth century, contrary to what the *OED* says.

3.3 The Cambridge Advance Learner’s Dictionary (CALD)

We will specifically consider here how *CALD* distinguishes between *speed* and *velocity* and whether or not learners of English can easily understand the difference between them on the basis of how the dictionary entries for the two words are presented.

As in the case of the two mainstream dictionaries discussed above, the entry for *speed* in *CALD* is much more detailed than the one for *velocity*, with many examples showing its collocational behavior, its different uses on the basis of whether it is countable or uncountable, and several indications concerning register and usage domain. It is mentioned, for instance, that *speed* with the meaning of ‘amphetamine’ (e.g., *She was on speed at the time*), is a slang word; it also stated that *speed* is used in the field of physics to refer to the ‘rate at which something travels, expressed as the number of meters in a second’. This usage is mentioned neither in the *OED* nor in the *MWD*. As for *velocity*, the only thing that *CALD* says to indirectly distinguish it from *speed* is that it is formal; the meaning appears to be the same, i.e. ‘the speed at which something is traveling’ (e.g., *The wind velocity recorded at the airport was 78 miles per hour at 4 p.m.*) or ‘the speed at which something happens or moves’ (e.g., *Online payments have improved the velocity of trade*). The latter example, however, is taken from the *Cambridge Business English Dictionary*, thus suggesting that perhaps the term is preferably used in the context of business and economics. The sentences exemplifying the typical collocations of *velocity*, i.e. *angular velocity* (*Angular velocity is 0.5 rad/s, and thus the cycle time is 4 seconds*), *average velocity* (*In addition to their orbital motions, particles may also have an average velocity*) and *constant velocity* (*This region is moving downstream with a constant velocity*), also show that the word has a tendency to appear in specialized domains. However, if we perform a simple Google Books search to check whether the substitution of *velocity* with *speed* produces wrong collocational patterns, we will realize that in fact both words are acceptable in exactly the same contexts. In addition, *velocity* does not even appear more frequently than *speed* in certain collocations: *average speed* and *constant speed*, for instance, appear far more frequently than *average velocity* and *constant velocity*.

4. Corpus Analysis

The use of corpora allows us to have a more reliable and nuanced picture of the collocational behavior of *speed* and *velocity* and to better understand the differences between them.

The *British National Corpus* (BNC) was queried via Sketch Engine (Note 4), using the Word Sketch Difference function, which makes it possible to compare the two words by showing the common patterns that they appear in as well the combinations that are instead more typical of, or unique to, one word than the other. The *Corpus of Contemporary American English* (COCA) (Note 5) was also searched to examine the frequencies and the lexical behavior of *speed* and *velocity* in contrast. By comparing the collocates of the two words in large corpora we can move far beyond the analysis of the somewhat more simplistic entries found in dictionaries and ‘tease out’ more subtle differences between synonymous items.

4.1 The British National Corpus (BNC)

Information about frequency in dictionaries is either non-existent or coarse-grained. According to the *OED*, both *speed* and *velocity* belong to those items occurring between 10 and 100 times per million words in modern English usage. This piece of information, however, is not sufficiently accurate. One might be induced to think that there are no significant differences in frequency and distribution between the two words.

Speed occurs 9,516 times in the *BNC*, while *velocity* only 1,045 times, i.e. 84.83 and 9.32 times per million words, respectively (Note 6). In addition, the Word Sketch Difference function immediately shows us the existence of important differences in the collocational behavior of the two words. *Speed* appears to have a much richer lexical-semantic representation than *velocity*. While the former can be the object of 85 types of verbal predicates, the latter collocates with only 14 different verbs. The most common predicates associated to *speed* are ‘increase’ and ‘reduce’, while *velocity* is more frequently ‘measured’. There are two verbs, i.e. *divide* and *observe*, that only seem to appear in combination with *velocity*. Twelve predicates instead allow for the use of both words, even though they show a strong tendency to combine more frequently with *speed*. The only verb that is used with the same frequency is *determine*. Both *speed* and *velocity* preferably appear as objects. However, there are several instances of *speed* as subject (e.g., *Speed comes partly from good footwork anyway*), but only three with *velocity*, which are all very similar (*Velocity equals K T minus four*). In addition, both *speed* and *velocity* are typically accompanied by pre-modifying elements (e.g., *It reaches top speed*; *Impaired height velocity is the most sensitive index*), while only *speed* also occurs as a modifier with a certain degree of frequency (e.g., *speed limit*, *speed record*, *speed hump*, etc.). There are instead only a few cases of *velocity* in a pre-modifying position, often before the words ‘fluctuation’, ‘profile’, ‘component’ and ‘field’ (e.g., [...] *the Reynold stress at any point depends on the whole velocity profile*; [...] *the maximum amplitude of velocity fluctuations reached at the end of the unstable region* [...]).

A qualitative analysis of *speed* and *velocity* in the *BNC* indicates that the former is modified by elements with both a descriptive and an evaluative meaning (e.g., *top speed*, *full speed*, *engine speed*, but also *alarming speed*, *amazing speed*, *remarkable speed*, etc.), while the latter collocates only with descriptive words (e.g., *height velocity*, *escape velocity*, *fluid velocity*, etc.). Moreover, *speed* is also used in colloquial, everyday expressions, such as *(at) breakneck speed*, which is instead not the case with *velocity*.

4.2 The Corpus of Contemporary American English (COCA)

The overall higher frequency of *speed* is also confirmed in *COCA*. The word here occurs 39,633 times, whereas the number of occurrences of *velocity* only amounts to 3,761. These raw figures are particularly high due to the bigger size of *COCA* compared to the *BNC* (Note 7).

Let us examine the collocations that involve either *speed* or *velocity* in order to identify their exact semantic peculiarities and how these maps onto their lexical representations. Only three out of the one hundred most frequent collocates of the two words, easily retrievable via the website elaborated by Davies (2008) (Note 8), allow either for *speed* or *velocity*, which do not seem to be interchangeable. This is the case of *processing speed*, *velocity vector* and *muzzle velocity*.

Processing speed refers to a function of the brain. It is the pace at which we take in information and respond to it. In other words, it is our (cognitive) ability to make sense of the many auditory and visual stimuli that we receive and the rate at which we act upon them. If we have a sluggish cognitive tempo, for instance, we might be suffering from a ‘processing speed disorder’. The word *velocity* would be disallowed in this context, because the data shows that it is typically associated to non-human entities. *Velocity vector* and *muzzle velocity* are physics concepts that concern the direction and position of an object in space. A *velocity vector* represents the rate of change of the position of an object, which can move rightwards, backwards, downwards and so on. Therefore, it

would not seem possible to substitute the word *velocity* with *speed*, because the latter is a scalar quantity with no entailed sense of direction. Similarly, *muzzle velocity* indicates the ‘initial speed’ of an object, typically a projectile at the moment it leaves a firearm (the ‘muzzle’ is the end part of a firearm), in a certain direction; the use of *speed* thus appears to be disallowed as well.

Apart from this limited number of restricted collocations, corpus analysis shows that *speed* and *velocity* are in fact nearly always interchangeable. What changes is the frequency and likelihood with which they enter certain combinations rather than whether or not the latter are possible. *COCA* shows, for instance, that *speed limit* occurs 882 times and appears as the most frequent collocation involving the word *speed*. Interestingly, though, *velocity limit* is also present with 4 occurrences, even though it does not sound as natural as *speed limit*. The general trend that can be observed is that *velocity* is more likely to be substituted by *speed* than the other way around.

5. Results and Discussion

Although corpora constitute a highly valuable source of information about the behavior of lexical items in context, they do not always provide a complete picture of the many subtleties present in one language. In addition, corpus results are sometimes not confirmed by other types of searches.

If we use Google Books to examine the areas of overlap and contrast between *speed* and *velocity* we are presented with a somewhat different scenario. There do not appear to be real combinatory restrictions in the use of collocations involving the two words. It is not even true that *processing velocity* does not exist, as the *BNC* and *COCA* suggest. There are in fact over 1,300 occurrences of this pattern in Google Books, thus showing that this combination is not only possible, but also relatively frequent. Unlike *processing speed*, however, which concerns a human cognitive ability, *processing velocity* refers to the rate at which something is produced or analyzed (e.g., [...] *the realization of nanometric craters for plasmonic components [...] requires high focusing to get a spot size [...]. But this additional complexity limits the processing velocity*) (Note 9). Similarly, *speed vector* and *muzzle speed* appear neither in the *BNC* nor in *COCA*, but they do show up in Google Books. In these two cases, the alternation between *velocity* and *speed* only seems to modify the (perceived) level of technicality of the collocation. This is because *speed* is the most neutral and basic member of the pair. The concept of ‘speed’ is always entailed in the semantics of *velocity* (while the opposite is not true), which has a higher level of complexity.

The latter consideration brings us to some important conclusions regarding the relation between *speed* and *velocity*. Since *speed* appears with a significantly higher frequency and expresses a simpler concept than *velocity*, which is instead more specific, it may be regarded as the unmarked member of the pair. There is a lexical markedness relation (Note 10) between *speed* and *velocity*, whereby the former is semantically less elaborated than the latter. *Velocity* appears preferably in technical collocations in specialized discourse, such as physics, and typically refers to the rate at which inanimate entities change position. As a vector quantity it is ‘direction aware’. This feature is not part of the semantics of *speed*, which is instead a scalar quantity that does not involve direction and that only generically refers to how fast an object is moving (Note 11). It can be argued that the intrinsic meaning of *velocity* is characterized by, i.e. ‘marked’ for, a specific trait that is absent in the semantic make-up of *speed*. This feature of *velocity* constrains its frame of reference, which is considerably narrower in scope than that of *speed*, as its lower frequency of occurrence also shows.

The restricted semantics of *velocity* may be exploited to create figurative meanings. This happens when the word is used in an unmarked context, where it loses its technical flavour and takes on a metaphorical interpretation. It is the case of the expression *personal velocity*, for instance. The fact that *velocity* is a vector quantity does not make it the ideal or most natural collocate for the adjective *personal*. It is very unlikely for someone to move in a vector-like direction. The concept of ‘velocity’ is more appropriate to describe the movement of a speeding bullet and not so much of a person. Because we cannot literally have a ‘velocity’, the word in the context of this collocation obviously has an extended meaning. Your *personal velocity* is the sum of your energy patterns and drive, i.e. the pace at which you are at your best and the intensity at which you live. Each one of us has his or her own ‘personal pace’.

Although *speed* and *velocity* may nearly always enter the same combinatory patterns and be interchangeable, even though producing a different stylistic effect, there are cases where one cannot be substituted with the other, e.g., it does not seem possible to use *velocity* as a slang word to refer to an ‘amphetamine drug’. The collocation *personal speed*, instead, is not wrong per se, but it fails to communicate the same shade of meaning of *personal velocity*. In other cases, the substitution of *speed* with *velocity* and vice versa in a certain pattern simply produces a different meaning (e.g., *speed hump* vs. *velocity hump*).

6. Conclusions

The present case study has attempted to provide a finer-grained characterization of *speed* and *velocity* than what is currently available in the main dictionaries and corpora of English. The results obtained are preliminary and need to be complemented with the observation of other pairs of synonymous words in order to form a complete picture of the relations holding between Anglo-Saxon and Latinate vocabulary in English.

We have observed here that *speed* and *velocity* are linked in a generic-specific relation, according to which the former is more widespread and common and the latter generally restricted to specific domains. However, the use of *velocity* in ordinary language and with reference to people appears to produce metaphoric interpretations that are not to be obtained with *speed*.

The meaning relations holding between synonymous words with a different etymology are complex. It is not always true, for instance, that the Latinate member is the more specific one of the pair. It might even be the exact opposite. Consider, for instance, the words *cow/bull/bison* and *cattle*. The Latinate word *cattle*, which only entered the English language in the mid-thirteenth century to indicate ‘property’ of any kind and then in the early fourteenth century also ‘moveable property’ and ‘livestock’, is a hypernym of *cow*, *bull* and *bison* that instead refer to specific animals. The generic-specific relation holding between synonyms is also internally variegated. While *calf* (Anglo-Saxon) is an animal, *veal* (Latinate) is a part of that animal and not one specific type of *calf*. Therefore, there is a meronymic relation between the two words. Other pairs of synonyms may be related in different ways. Compare *sweat* (Anglo-Saxon) with *perspire* (Latinate), for instance. *Perspire* does not only tend to be more formal, e.g., when describing bodily functions in a medical text, but also has a more positive connotation than *sweat*, which is more likely to evoke a feeling of disgust. In other words, *sweat* and *perspire* share the same denotative content, but the latter has a more euphemistic ring to it. In addition, unlike *velocity*, which is more prone to metaphoric extension than *speed*, it is *sweat*, i.e. the Anglo-Saxon word, that may take on a figurative meaning (e.g., *Don't sweat over the bills*).

Future research should focus on the changing nature of the relations between synonymous words of Anglo-Saxon versus Latinate origin both diachronically and synchronically. In present-day English there are differences not just from one type of discourse to another, but also across varieties, i.e. British, American, Australian English, etc., as in the case of *lawyer* versus *attorney*. For these reasons, a more comprehensive analysis of Anglo-Saxon vis-à-vis Latinate words is called for in order to systematically map the meaning relations between near-synonyms within the English lexicon.

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Notes

Note 1. For the present study the online versions of these three dictionaries have been consulted. Readers can access them at <https://www.oed.com>, <https://www.merriam-webster.com> and <https://dictionary.cambridge.org> respectively.

Note 2. The word *velocity* is introduced here to explain this latter sense of *speed*. We can therefore assume that *velocity* refers to some particular features of *speed*.

Note 3. Interestingly, *velocity* here appears as a countable noun as well.

Note 4. <https://www.sketchengine.eu>

Note 5. <https://www.english-corpora.org/coca/>

Note 6. The *BNC* contains 100 million words of texts from a wide range of genres, both written and spoken.

Note 7. *COCA* is approximately five times bigger than the *BNC*. It consists of more than 560 million words of text from different written and spoken contexts.

Note 8. <https://www.english-corpora.org>

Note 9. Google Book search: Fillon, Khan-Malek & Dimov (Eds.) (2011), *Multi-material Micro Manufacture*, Research Publishing, p. 73.

Note 10. For reasons of space, it is not possible to provide a detailed description of the concept of 'lexical markedness' here. Cf. Battistella (1990, 1996).

Note 11. "Imagine a person moving rapidly - one step forward and one step back - always returning to the original starting position. While this might result in a frenzy of activity, it would result in a zero velocity. Because the person always returns to the original position, the motion would never result in a change in position. Since velocity is defined as the rate at which the position changes, this motion results in zero velocity. If a person in motion wishes to maximize their velocity, then that person must make every effort to maximize the amount that they are displaced from their original position. Every step must go into moving that person further from where he or she started. For certain, the person should never change directions and begin to return to the starting position" (<https://www.physicsclassroom.com/class/1DKin/Lesson-1/Speed-and-Velocity>).

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