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Small Data Set Alternative Process as Applied to the Semantics of "Deer" from Old English to Modern

Introduction

To explore a singular word is to delve into the nuances that create words. Traditionally, the forces of word creation are left to historical linguistics, where they can use statistics and old documents to track the changes that a word undergoes. However, this leaves out information that cognitive linguistics can provide, information that is perhaps less objective, but nonetheless important. These two subfields almost never make contact, and why would they? One examines how words turn into other words, and the other examines how thoughts become words and words become thoughts. What reason could they possibly have for working together? One of the main goals of this project is to see exactly how they can benefit from each other. They're both vital to linguistics as a whole because they provide different perspectives on the topic, but the most productive work is interdisciplinary.

To focus on a singular word with both historical and cognitive linguistics at your side is to push the boundaries of what is considered good practice in both subfields. Historical linguistics advocates for entirely objective data, which follows in the footsteps of the STEM fields and provides reliable, cross-comparable, and deep research. Cognitive linguistics, on the other hand, is more interested in thought, which is inherently subjective. If you're looking for entirely objective data in cognitive linguistics, you should be looking at neuroscience or psychology. The 'human experience' of language is as varied as there are people, which means that cognitive linguistics has the opportunity to use subjectivity to its advantage.

There will be two main methods of analysis in this paper. The first is diachronic prototype semantics. It combines prototype theory, a type of classification system for multiple factors influencing the whole, and lexical semantics, or the meaning of words, and puts it in the context of time. As Dirk Geeraerts puts it, "(α) Prototypical categories exhibit degrees of typicality; not every member is equally representative for a category. (β) Prototypical categories exhibit a family resemblance structure, or more generally, their semantic structure takes the form of a radial set of clustered and overlapping reading. (γ) Prototypical categories are blurred at the edges. (δ) Prototypical categories cannot be defined by means of a single set of criterial (necessary and sufficient) attributes" (Geeraerts, *Diachronic Prototype Semantics* 11). It will be used to gather information from context clues and categorize them in order to develop an understanding of the whole word. It also creates a chart that can be compared between different versions of a word from different time periods, essentially graphing the changes between them. There are some potential problems with this kind of analysis. As outlined by Geeraerts in "Prospects and Problems of Prototype Theory" and Lakoff in his series "Cognitive Semantics: The Basic Mechanisms of Thought," prototype theory has its faults. Geeraerts focuses on prototypicality — the quality of an example of a category — "prototype theory claims that there need not be a single set of defining attributes that conform to the necessity-cum-sufficiency requirement" (Geeraerts, *Prospects and Problems*). In other words, in prototype theory, you can't point to one set of characteristics and say those are the only ones needed to fall into that category. This point will be important for the section on Modern English, since most of the changes (at least as seen in epic poetry) are through metaphor, which creates its own kind of definition for the word in question. In this case, that's not a problem, but an advantage to exploring the significant semantic differences between

Middle and Modern English. If there are fewer examples of a word being drawn from (such as in this paper), the prototypicality of each example is worse overall because there aren't enough examples to counterbalance it. With only using three texts and a varying number of examples from each, the charts in the style of prototype theory might be incorrect. However, this use of diachronic prototype semantics is new in practice and should be treated as a proof of concept. While it would be beneficial to have more data to go off of, part of this project is about how cognitive linguistics can help historical linguistics when there isn't enough data to be satisfactorily objective. From that perspective, this should be treated as a test run of this method being used for other projects with a low data count.

Diachronic prototype semantics will be an invaluable tool in the arsenal, as it will provide a backbone for the second type of analysis, dialogic context speculation. The way that words are used in context determines how they're understood, and if those contexts change, then the words will change with them. Because this project is examining diachronic change (change over time), the context that the word in question is being used in will greatly affect how the word changes over time. Since time travel sadly does not exist, a good way to figure out dialogic context is through speculation from common sense and context. The diachronic prototype semantics charts will be used as scaffolding for this speculation, since textual context is indicative of possible dialogic context. The problems that might arise from this style of analysis are concerns that historical linguistics might have: if the speculation is based on a singular person's intuition, that might skew the data! This is true. My subjective experience as the writer of this paper and the one analyzing the dialogic contexts, my speculations will almost certainly be different from anyone else's. The reader should take into account that these speculations are subjective and therefore might be wrong. While I will attempt to provide as

much support for the speculations as possible, such as the diachronic prototype semantics charts and textual context.

Speaking of textual context, three texts were picked for their frequency of the word under analysis and formal similarities. Since Old English, Middle English, and Modern English will be analyzed, one text per language was chosen. *Beowulf* will be used for Old English, *Sir Gawain and the Green Knight* for Middle English, and *John Brown's Body* by Stephen Vincent Benét for Modern English. In order to reduce as many variables as possible, all three are epic poems, and all three depict some degree of fighting. The word to be analyzed can be found multiple times in each, with different contexts within each text. *Beowulf* was picked first as an easily accessible example of Old English, *Sir Gawain* came next for Middle English for the same reasons, and then *John Brown's Body* was chosen to match the other two, despite the number of epic poems being written decreasing over time for Modern English.

Finally, to introduce the word: "deer." While on the surface a humble word, the humble words have the most interesting histories. The meaning has morphed over time from simply meaning 'any game animal' to a specific kind of creature, which is what speakers of Modern English would recognize it as (Harper). It has the benefit of having already been researched by historical linguists through statistics, as can be seen in *Semantic Density Analysis: Comparing Word Meaning across Time and Phonetic Space* by Sagi, et al. However, cognitive linguistics hasn't attempted to analyze it yet, at least not in detail, and that is what this paper will be attempting to do through diachronic prototype semantics and dialogic context speculation.

Old English — *Beowulf*

The word "deer" in Old English, spelled *deor* at the time, did not mean what it means today. The Old English word for "deer" as it's known now was *heorot* (Harper, *Hart*), while *deor* was more similar to any animal that was hunted. An example of this dissonance is on lines 557-558, which reads: "heaþo ræs fornam / mihtig mere-deor þurh mine hand," translated as "Through my own hands, / the fury of battle had finished off the sea-beast" by Seamus Heaney. Heaney translated *deor* as "beast" because, in Old English, it was used as a more general term.

Heaney likely came to the term "sea-beast" because of the context that surrounded the mention of "mere-deor." The section that it comes from is when Beowulf is explaining to Unferth how he was always the best swimmer because he and his friend Breca swam out to sea with only swords for protection against the "whale-beasts" (Heaney). This translation of "whale-beasts" (line 541) is interesting because it doesn't correlate to any mention of *deor*. Instead, it seems to be a translation of "hron-fixas" (line 540), which is a combination of the words for 'whale' and 'river fish' (Barthram). This points to the idea that, at least in this use of *deor*, it covers similar bases to 'river fish' or *fixas*. This indicates that the definition for *deor* at this time was so broad that it could cover fish as well, not just mythical "sea-beast"s.

If this were the only instance of *deor* in Old English, it would require a lot more work to connect it to the Modern English *deer*. Thankfully, *Beowulf* can provide more answers. On line 1430, *deor* can be found again, in the phrase "wyrmas ond wil-deor." On line 1428, Heaney translates this as "serpents and wild things." In sharp contrast to the modern specificity of *deer*, *deor* can even be translated as simply a 'thing'! With context, it's clear that it means some sort of wild animal. By being

paired with “serpents,” it almost makes out to be some sort of general term for scaly creatures with both examples. However, “wild things” is extremely vague and could mean nearly any beast, game animal, or mythological creature. This vagueness makes it difficult to pin down exactly what *deor* means at this point in time.

Beowulf fails to provide an example for *deor* indicating a specific warm-blooded creature of any kind. This doesn’t mean it can’t refer to mammals or birds, it’s just that *Beowulf* doesn’t use it in that way. If this were the only text to go off of for this word, it would be a lot more difficult to piece together. More dialogic speculation — which will also come later — would have to be used to make up for the lack of direct textual information. When textual context fails to make any obvious connections, sometimes it’s best to look elsewhere. While there aren’t many sources out there looking specifically at *deor*, there are a few that address ways that its meaning could be determined.

For example, Carole Hough, in “Place-Name Evidence for an Anglo-Saxon Animal Name: OE *Pohha/*Pocca “Fallow Deer”,” uses different place names to figure out that the Old English word *pohha/pocca* is an animal name used in place names, and not just a place name. According to Hough, “Animal names in particular constitute an area of vocabulary which is under-represented in literary sources but common in place-names, and for which toponymic evidence often proves crucial” (Hough). When trying to decipher or deconstruct the meaning of a word and there aren’t many existing documents to provide context, it might be helpful to go looking for context elsewhere. Hough was able to get to ‘fallow deer’ as the meaning for *pohha/pocca* through various pieces of information, including its other definition as a ‘pouch or bag’, the frequency of the word in place names being similar to other animal names in toponyms, and the likelihood that it would have a meaning separate from its place names.

A lot of these are similar to *deor*'s situation. While it's clear that *deor* is a very general term and probably wouldn't show up place names very often (though others are welcome to research that point), the idea that it might have a different definition and that it would be a word outside of its hyphenated pair both hold water. Addressing that second point first, the fact that *deor* can be traced down Middle and Modern English as an individual word indicates that it was likely to be used in a similar way in Old English. It seems to have been common to attach modifiers to it, but that's not mutually exclusive with the idea that it could be used on its own. If anything, it only reinforces the vague use of the word since Heaney adds modifiers like "sea" and "wild" to it. However, just because something has a general meaning doesn't mean that it has no meaning at all.

Deor doesn't appear to have a secondary definition the way that *pohha/pocca* had, but these modifiers can do some of that work. It has a clear tie to creatures and is most likely an animal name (just taking it from textual context, and less from its lineage as 'deer'). Both "sea" and "wild" point to its untameable nature. "Sea-beast" and "whale-beast" being part of the same story as told by Beowulf, talking about the same creature or kind of creature, connects *deor* to a legendary or mythical being. The suffix *deor* as it's being used here seems to be something along the lines of 'beast' (as Heaney translates it), 'monster', or even just 'animal'. Paired once more with "wil-deor," all three of these would work: 'wild beast', 'wild monster', or 'wild animal'.

With this information in mind, a meaning map can be created. In order to do this, different terminology used to describe *deor*, either through my own observational analysis or words from the text itself, were taken. These terms were grouped into 'bubbles' of meaning according to semantic similarity and proximity within the text, if applicable. Each color is a different bubble, with the text matching the bubble that it's most similar to. For example,

"creature" and "beast" are next to each other, but "beast" is most connected to the ocean terms because of Heaney's translation, while "creature" is acting more as an umbrella term. The meanings that have the least connection to the other are "monster" and "mythological" because they're not as central to the meaning of *deor*. "Animal" is also working as an umbrella term in order to exclude those two. My understanding is that "monster" and "mythological" are most similar to metaphorical meanings, which will also be important later on in the section on Modern English.

Middle English — *Sir Gawain and the Green Knight*

The difference between "deer" in Old English and "deer" in Middle English is stark. The biggest change is its narrowing of meaning from 'any game animal' to a specific kind of animal. This can be seen in *Sir Gawain and the Green Knight*, which has a few scenes describing deer. Similar to using *Beowulf*, these are unfortunately few and far between, though there are enough

to make a meaning chart. On line 1151, the Middle English version says, “Der drof in þe dale, doted for drede” (Anon., *Sir Gawain*). You will notice that the Middle English “deer” can be spelled multiple different ways, in this case as “der.” In the translation by Tolkien, this line says, “deer dashed through the dale by dread bewildered” (*Sir Gawain*, trans. Tolkien). The conceptual link between “der” and “deer” is clear enough at this point in time that the connection can be made.

However, one example cannot rule out the possibility that *der* could still be as broad of a term as *deor*, so more comparisons are necessary. On lines 1321-1322, the translation states, “When the sun began to slope he had slain such a number / of does and other deer one might doubt it were true” (*Sir Gawain*, trans. Tolkien). And, lo and behold, the original: “Such a sowme he þer slowe bi þat þe sunne heldet, / Of dos and of oþer dere, to deme were wonder” (Anon., *Sir Gawain*). This is a particularly interesting example because of the distinction between does and deer in general. It shows that even though there are other terms for deer that could be used, *dere* is used here regardless. At least in this context, it appears that *dere* might have become a more popular term for the creature compared to “hert” (University of Michigan), the Middle English version of the Modern English “hart,” which can be traced back to the Old English “heorot” mentioned earlier. In fact, both “heorot” and “deor” have become more specific over time, since “hart” and “hert” both mean a male deer, while “heorot” refers to deer in general, the way that “deer” does now.

“Deer” is technically still an umbrella term in both Middle and Modern English because it encompasses “doe” and “hart.” In Old English, *deor* is a very broad term, but seemingly, as game animals as a category became more limited, the term specialized as well. This would explain the semantic shift for both terms, and why there are semantic duplicates for the more

specific terms: “buck” and “hart,” for example. The shift would have left fewer broad terms for game animals and more terms for the specific creatures, which is what seems to be the case here. The fact that I’m referring to “game animals” with a phrase instead of a single word is indicative of this. While Middle English did have a term for game animals, “venesŏun,” even that specialized into “venison” (University of Michigan), and Modern English is left with an adjective and noun in an attempt to backtrack.

This change also shows how hunting has changed over time, as well. Many things could have caused this change, whether that be the formalization of hunting as a ‘royal sport’ which would require more specific words to refer to what was being hunted, or even a subconscious grandeur associated with “deer” passed down from the Old English creatures like the “mere-deor” (Heaney) slowly being associated with an elegant and powerful hunting target.

This sort of speculation can be useful in determining how a word might have been used at the time, with its use inherently tied to its semantics. In comparison to Sagi, et. al’s approach through computational linguistics in their paper, *Semantic Density Analysis: Comparing Word Meaning across Time and Phonetic Space*, this approach through speculating about dialogic contexts comes from cognitive linguistics, and is reliant on the individual to interpret what could be causing the change. Both systems are equally useful, but in cases where there is less data to go off of, cognitive linguistics becomes the more practical solution.

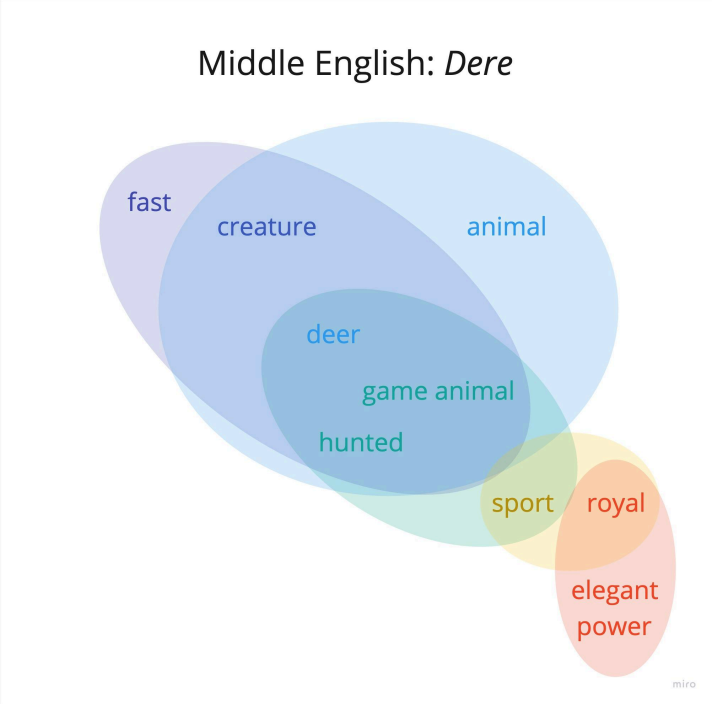
Computational linguistics uses data and formulas to test likely scenarios. Ideally, all of these subsets of linguistics would be working together in order to best understand the language or word in question. Historical linguistics could be connecting the dots in sound change, while cognitive linguistics speculates on possible scenarios that could have caused that sound change to speed up or slow down at certain points in time depending on dialogic contexts, and

computational linguistics could be providing data for both. Instead, what I've found in my research is that they barely communicate across their arbitrary boundaries, and I have no doubt that this unwillingness to work together wholeheartedly is holding back linguistics as a whole.

Tangent aside, Elizabeth Traugott's article, "Dialogic Contexts as Motivations for Syntactic Change" is useful for understanding how dialogic contexts affect the words used within them. Even though Traugott is focusing on syntax — like how "in fact" implies dialogic context even though there isn't any (Traugott, 4) — she can still serve as inspiration for this project. Being able to speculate about the original contexts that "deer" was being used in is important to understanding why it changed the way it did. Deer were a highly prized hunting item because of their speed and agility, which is how they can end up being a signal of extreme hunting prowess, like in this part quoted earlier, "Such a sowme he þer slowe bi þat þe sunne heldet, / Of dos and of oþer dere, to deme were wonder" (Anon., *Sir Gawain*). Deer might, then, have a secondary social meaning because of how important hunting is at this time.

The meaning map of *dere* shows the beginning of the metaphorical meanings that Modern English will be dealing with. The first thing of note is that the branch with "monster" and "mythological" is gone, and a new one has begun off of "sport." While *dere* is associated with "sport" in this period, what will be more important is what comes off of it: "elegant" and "power." These two terms will be influencing Modern English more than "sport" will, but why? Regardless of the history and popularity of hunting as a sport, what will make these two stick around after the other qualities that make *dere* unique are gone? The difference is in usage. It's likely that "deer" was associated with elegance and power more than royal sport hunting by the time that Modern English rolled in. Enough heraldic crests use the deer as a symbol in England that it might have been enough to keep its symbology alive. Also take note that "fast" has begun

a new branch on the opposite side of the map, growing from "creature." This will grow very rapidly in the next section on Modern English.



Modern English — *John Brown's Body*

The difference between Old English *deor* and Middle English *dere* is greater than the difference between Middle English and Modern English *deer*. This doesn't mean that there aren't differences, though. To begin, it might be best to describe *John Brown's Body*, because it's not as well-known as the other two epic poems being analyzed.

John Brown's Body was written in 1928 by Stephen Vincent Benét, and shares a title with an abolitionist marching song. It discusses the American Civil War, exposing the horrid conditions of slavery without compromise. Because the style of epic poems has changed by this point as well, Benét

plays with form a bit more, making some sections more similar to prose but with enough leeway to slip back into rhyme and a bouncier rhythm for descriptions and other impactful moments.

There are a surprising number of mentions of ungulates in general, not just deer, and most are used as part of a metaphor or vague imagery instead of concrete details. This differs from *Sir Gawain*, which is more interested in concrete details and what's happening in the moment, but harkens back to *Beowulf* in its use of creatures as representations of something greater than themselves. That usage and continuing trend is a notable contrast.

Deer used in imagery can be seen in Book Two: "They came like the young deer trooping to the ford by Eutaw Springs, / Their new horns fuzzy with velvet, their coats still rough with the frost" (Benét). The simile in there is indicating that the soldiers aren't actually deer, but this indicates what deer are meant to represent. Unlike the medieval deer in *Sir Gawain*, where killing lots of them was considered impressive, these deer are implied to be weak and easily shot at. It's very clear at this point what creature *deer* refers to because of the specificity of antlers. While this could also apply to moose or elk, both are much larger and aren't associated with weakness very often, usually strength or majesty.

This trend continues throughout *John Brown's Body*, from "The child slept in the robe like a reindeer-colt, / Nuzzled under the winter" to "When the blue-coated / Unprepared ranks of Howard saw that storm / Heralded by wild rabbits and frightened deer," both in Book Six (Benét). These examples show the frailty and fear associated with deer. As modern readers, these associations are already known, picked up from whenever we learned Modern English, but Middle and Old English speakers didn't seem to have that connotation for "deer," at least not in these contexts.

There are other connotations that this poem has with deer, though. Twice in Book Seven, people are referred to as "stepping like deer" (Benét), as in 'quickly and quietly,' which makes sense for how they would be described, but this is the only poem out of the three to refer to them this way. And, more similar to both *Beowulf* and *Sir Gawain*, deer are mysterious and wild: "It was my thought to lie beside a stream / Too secret for the very deer to find, / Too solitary for remembrance" in Book Eight, and in Book Three, "Then, if the lifted strain / Has the true color and substance of the wild, / you may perceive, if you have lucky eyes, / Something that ran away from being wise / And changed silk ribbons for a greener cloth, / Some budding-horned and deer-milk-suckled child" (Benét). The way that "deer" is used here, and in a lot of its instances in *John Brown's Body*, is by taking its connotations and making those its primary meaning in this context. It doesn't matter, in most of these quotes, that deer are a specific kind of creature, though it does acknowledge that. Instead, this epic poem is more interested in other meanings that come along with "deer." This would have been impossible for Old English because of how broad the definition of *deor* is. For *Sir Gawain*, the anonymous author simply isn't interested in a heavy use of metaphors and similes for "deer", which means this potential goes unused, if those connotations are there at all.

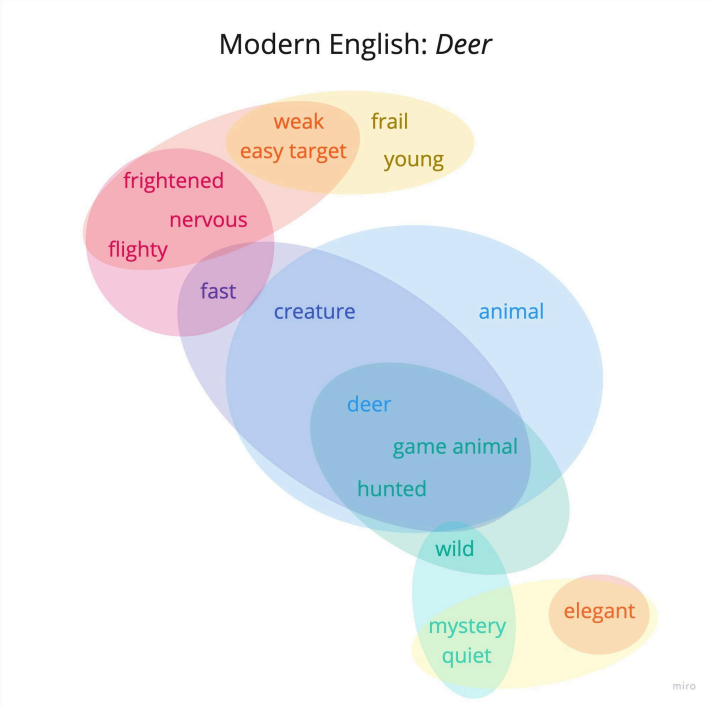
The power of looking at poetry for diachronic semantics comes from this dynamic. Poems, especially epic poems, are at the forefront of language usage because they are, by necessity, pushing the boundaries of language in order to elicit specific emotions, responses, and understandings. These core values of the poetry-reader dialogue are based in semantics. Syntactic semantics might be the most obvious, but those meanings stem from lexical semantics. So, when a poet uses a word in a way that

changes how that word is perceived, that is changing the meaning of that word. I would like to briefly argue that *John Brown's Body* is doing this for *deer*.

The connotations listed earlier are being used in those quotes as one of the main meanings of the word without usurping the meaning of the word entirely. The concrete image is probably more likely to stick around than an abstract meaning because it's more easily intelligible between multiple different people. What I mean is that two people can point to a deer and call it "deer," but it's much more difficult to point to a feeling like flightiness and call it "deer," even if that's what some of these metaphors are attempting to do. To some degree, that's what a metaphor does: it takes a noun or other concrete image and tacks it onto another, disparate concrete image in a way that abstracts it. They have to be significantly different from each other for the abstraction to happen. Just saying the simile 'a deer is like an elk' is technically true, and the metaphor 'a deer is an elk' in even confusing. Instead, Benét says in Book Six, "The child slept in the robe like a reindeer-colt." The difference between a child and a reindeer colt is great enough that the reader's mind has to do a couple backflips when it's told that these things are similar. The reader has to cross out what's similar between the two until they're left with a short list of differences, which make up the abstraction. Both a child in a robe and a baby deer are warm, fuzzy, vulnerable, and all these other things, and what's left of the baby deer is wildness and mystery. With the reader's mind doing this every time that "deer" is used in a metaphor or simile, what they're left with is a new meaning for the original word, an abstract synonym.

The meaning map for *deer* will look a bit different to accommodate the changes that *John Brown's Body* is doing through metaphor. As can be seen in the map below, the more abstract meanings are at the edges. They're still connected, but it takes more work to arrive at them than it is to find a

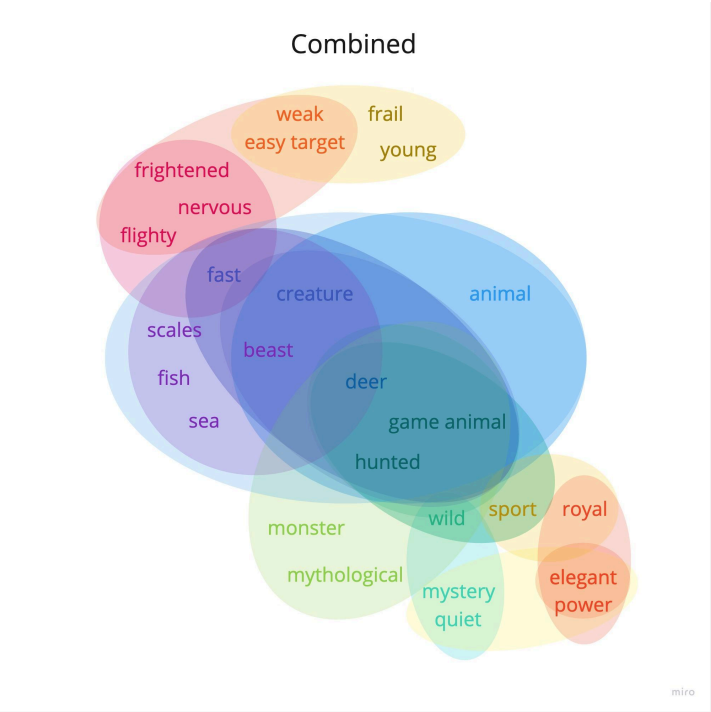
meaning that's more central. You will also notice that the "elegant" meaning has been cut off and reattached to the center in a different way than in Middle English. It's likely that because the original connecting meanings — sport, royal — are no longer in play as a result of a cultural shift as hunting (and royalty) became less popular, most of that branch was dropped. With the vestigial "elegant" left behind, other connecting meanings had to step up to support it. It was mentioned in the last section that "power" and "elegant" were in a similar position in terms of what might have been preserved over time, and now only "elegant" is left. It might be the case that "power" had some cultural shift changing how people talked about deer, or it was simply luck of the draw. In the meantime, another branch was forming off of "fast." I put its end-point, "young," relatively close to one of the most central, "animal," because it's not a difficult stretch to connect the two. Young animals are a relatively common discussion topic as well as poetic metaphor. I would guess that when this new branch gets cut off in the future, "young" has a high chance of becoming a vestigial metaphorical meaning similar to "elegant."



Conclusion

The meaning maps were very useful for being able to compare the differences in "deer" across time. When laid on top of each other, the consistent elements are the most clear: animal, creature, and a game or hunted animal. While the rest of the meanings are interesting and definitely worth looking into if this project were to be expanded, those main elements are what defines a "deer." This is against what Geeraerts listed as a problem earlier, that "prototype theory claims that there need not be a single set of defining attributes that conform to the necessity-cum-sufficiency requirement" (Geeraerts, *Prospects and Problems*). However, it's clear from the combined meaning map that defining "deer" by its outermost edges, like something that is frail and quiet and mythological, might create more confusion than using its centermost qualities. Geeraerts actually mentioned this in his definition of prototype theory, that the borders of categories are fuzzy (Geeraerts), which appears to be in conflict with the idea that nothing has a defining set of qualities. It might be better stated that a term doesn't have defining semantics, but that not all of the meanings associated with a term would be practically useful when trying to communicate its meaning.

It would be interesting to see how it develops in the future and if those elements are a requirement or if semantic changes can push it far enough that there's no overlap left with the one from Old English. It might also be productive to use these meaning maps for loanwords or creoles, since the jump across the map might show how far a word hopping from language to another is 'allowed' to change, per se.



Diachronic Prototype Semantics by Dirk Geeraerts was a lead contributing source for this project. Prototypicality is what inspired the meaning maps. The idea is that in order to find what is prototypical about a word, as many of its meanings as possible should be listed. And then those meanings are linked to each other by semantic proximity or other factors, and that creates the bubbles of meaning that make up the maps. When overlaid, the maps point to a diachronic prototype where all of them touch base: wherever they come in contact with each other is what makes "deer" mean "deer" across time. This is actually a bit backwards for Geeraerts, who uses prototype theory in the normal way, where examples are given that are closer or further from the prototype in order to define what the prototype is. The meaning maps in this paper are more interested in collecting meanings first and finding the prototype later. This is important because some meanings aren't more or less typical than others until they're compared to an external source. The diachronic element is what provides a lens in pursuit of a prototypical meaning for "deer," since it narrows down the core elements.

There are many different ways to approach linguistics, and there are different methods depending on what resources you have available. Historical linguistics (and computational linguistics) is designed for big piles of data to support it. As seen in Sagi, et. al's formulaic approach to deriving word meanings over time, this can be very productive. However, it leaves a blind spot in areas that don't have a lot of data to work with. Those blind spots are the focus of this project.

This was simulated — there is a surprising about of data about "deer" floating around — but it's meant as a test to see how cognitive linguistics might be able to help in situations where there isn't enough data to use computational or historical linguistics. It had to be simulated in order to double check if the method was working. Though it took a roundabout path in some cases, the use of meaning maps and textual analysis in combination with a cognitive understanding of why those words might be changing and speculation on dialogic contexts was productive. I would argue that it's much better to at least attempt this method than to set aside a project entirely that doesn't have enough data for the methods that one might be more comfortable with.

This also opens up new possibilities for words that might have been sidelined because of their lack of data. This method is ideal for extrapolating from a small amount of data because it requires more effort per instance of a word in a text than, say, computational linguistics. This amount of effort doesn't make it viable for projects that do have a lot of data because it's just not worth it, the same way that a project with very little data isn't worth it for computational linguistics to spend time on. The good news for historical linguistics is that this method (and other cognitive linguistics) and computational linguistics can cover each others' back, letting historical linguists spend more of their time on reconstruction and things that they're interested in instead of plumbing for data or

information that require more of their effort to get. That being said, this method is intentionally easy to use, so that if historical, cognitive, or even computational linguistics want to take a crack at it, they can. The meaning maps as visual aids were probably the most useful part of this process, since it preserves the results of intuition and textual analysis in an easily digestible manner.

To put it all together, semantics projects with a small amount of data are not a lost cause, and a new method has been developed and tested. The use of meaning maps was extremely helpful and encouraged in other projects as well. Additionally, cognitive and historical linguistics need to work together more in order to be the most productive. The different perspectives on the same material would be invaluable, and as more brainstorms and projects are developed together and push the field to be more interconnected, it will only make research in what anyone is interested in easier to obtain.

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