The changing functions of competing forms

Attraction and differentiation

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Abstract: The relation between functionally similar forms is often described in terms of competition. This leads to the expectation that over time only one form can survive (substitution) or each form must find its unique niche in functional space (differentiation). However, competition cannot easily explain what causes functional overlap or how form-function mappings will be reorganized. It is argued here that the changes which competing forms undergo are steered by various analogical forces. As a result of analogy, competing forms often show attraction, becoming functionally more (instead of less) alike. Attraction can maintain and increase functional overlap in language. At the same time, competing forms are analogically anchored to a broader constructional network. Cases of differentiation typically follow from the relations in that network. Evidence is drawn from the literature and from three corpus-based case studies, addressing attraction and differentiation in English aspectual constructions, English secondary predicate constructions, and in a pair of Dutch degree modifiers. Evidence is provided of a phenomenon competition-based accounts could not predict (attraction), and a solution is offered for one they could not very well explain (differentiation). More generally it is shown that the development of competing forms must be understood against their broader grammatical context.

1 Introduction

Functionally similar expressions are distinct forms that can be used more or less interchangeably in the same discourse contexts because their semantic extensions cover overlapping areas of conceptual space. Often, the relation between such expressions is described in terms of competition. In language production, functionally similar forms can be said to compete for selection as the speaker plans his/her utterance. Because only repeated selection can ensure a form's transmission to a following generation of speakers, functionally-similar forms can also be said to compete for long-term survival in language history. This way of thinking has undoubtedly produced theoretical successes (Berg 2014). But it should also be clear that competition is a metaphor and that, like all metaphors, it may obscure aspects of the phenomena it is meant to enlighten.

In this paper we address the long-term development of functionally similar expressions, asking what kinds of changes such expressions are likely to undergo over time. When the relation between functionally similar expressions is construed only in terms of competition, this tends to narrow down expectations to just two long-term outcomes. Those outcomes are analogous to the outcomes of competition in other domains, e.g. species competing over resources, political opponents competing over voters, rivalling firms competing over customers, etc. Either there will be an eventual winner, or between onetime competitors some new mode of coexistence will emerge. The former outcome can be referred to as substitution, the latter as differentiation. In language change, this translates to the following two scenarios, represented schematically in Figure 1. In 'substitution', the functional domain over which expressions compete comes to be occupied by a single expression at the expense of all others. In 'differentiation', the functional domain competed over ends up being divided, with each expression filling a unique functional niche. In one respect the two scenarios are much alike. In both substitution and differentiation, form-function pairings are reorganized in such a way that functional overlap is reduced. Substitution and differentiation differ, however, in that substitution merely requires the loss of a particular form-meaning pairing, whereas differentiation requires the assignment of new functions to existing forms.
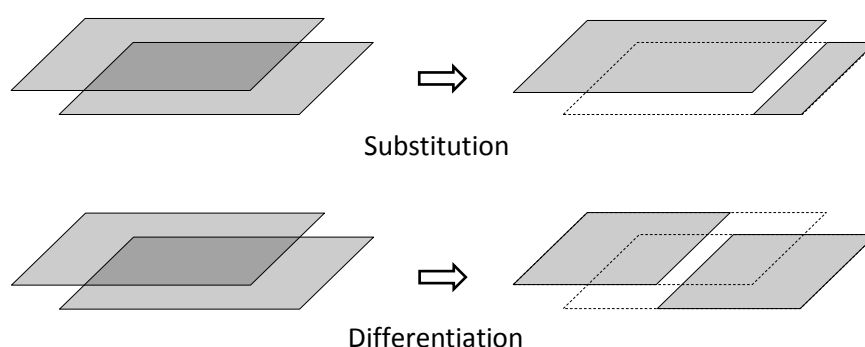

Substitution

Differentiation

Figure 1. In substitution, functionally similar expressions develop towards a situation in which only one expression can realize the function that was previously shared. In differentiation, functionally similar expressions continue to occupy part of the previously shared functional space, but develop towards a new division of labour without functional overlap.

This mode of thinking is pervasive in discussions of language change. It is taken to be natural that functionally similar expressions will eventually end up showing less functional overlap. The quotations in (1)-(4) illustrate this. In each quotation there is a more or less explicit assumption that, in the long term, competition leads to a reduction of functional similarity. Textual elements marking the assumed causal relation have been highlighted.

(1)   [*Alba-Salas (2007) describes the changing relation between the Spanish verbs* haber *and* tener, *both meaning 'have' and both, at one time, used as possessive verbs as well as being perfect auxiliaries.*]

[T]he 1500s also witnessed the resolution of the competition between *haber* and *tener* 'have' in perfect tenses and possessive environments. **By virtue of** this process, *tener* took over all possessive uses and lost its ability to appear with transitive verbs, further **contributing** to the specialization of *haber* as the sole perfect auxiliary. (Alba Salas 2007: 234, emphases added)

(2)   [*Mondorf (2010) analyses the relation between the English* way-construction *(*she would laugh her way through tough times*) and the reflexive construction (*she laughed herself into a fit*), both of which have resultative meanings.*]

[T]he long-standing rivalry between these structures has **resulted** in an increased use of the *way*-construction at the expense of reflexive structures. In addition, the coexistence of *way*-constructions with semantically overlapping reflexive structures eventually **culminated** in a reorganization of the system of English resultatives involving a diversification of the functions performed by each variant **resulting** in a semantically motivated division of labour. (Mondorf 2010: 397, emphases added)

(3)   [*Degand & Fagard (2012) discuss the changing relation between the French causal connectives* car *and* parce que, *both of which can be translated by 'because'.*]

[T]he use of the French causal connectives *car* and *parce que* (both meaning 'because') diverges strongly in written and spoken language. Most native speakers will agree that *car* has nearly disappeared from spontaneous Spoken French, while *parce que* seems to fulfill [sic] a role of default causal connective […]. Our proposal here is to put this observation in a diachronic perspective of competition between two markers with similar semantics, which could **lead** eventually to the demise of one of the markers. (Degand & Fagard 2012: 154, emphasis added)

(4)   [*Nuyts & Byloo (2015) investigate semantic change in three Dutch modal verbs,* mogen *'may',* kunnen *'can' and* moeten *'must'. They propose that there is an interaction between semantic change – specifically, (inter)subjectification – and competition, driven by a 'no synonymy' principle. Their argument runs as follows:*]

Mogen and *kunnen* do, but *moeten* does not, show an evolution in terms of (inter)subjectification. […] [D]evelopments in *mogen* and *kunnen* also show an effect of the fact that historically they have been competing for the same semantic ground. There is no comparable competition for semantic ground in *moeten*. This strongly suggests an **in-**

teraction between the 'no synonymy' principle and (inter)subjectification, whereby the former may actually *trigger* the latter. (Nuyts & Byloo 2015: 34, emphases added)

Although this is often left implicit, the idea that functional similarity is likely to eventually result in a reduction of functional overlap is rooted in Structuralist and Functionalist thinking. Languages are believed to strive towards isomorphism (Bolinger 1977; Haiman 1980; Wierzbicka 1988) – the 'no synonymy' rule invoked by Nuyts & Byloo (2015) in (4) above is a variant on this principle. Isomorphism means that, ideally, a single function should be expressed by a single form. It follows that the only way forms can survive side-by-side is by having different functions. Dik formulates the link between isomorphism and language change as follows:

No one is perfectly happy. Yet 'human happiness' is an important explanatory principle for human behaviour, because much behaviour can be interpreted in terms of the pursuit of happiness. 'Happiness', seen in this way, is a guiding principle, a driving force of human behaviour. In a similar way, no language is perfectly isomorphic. Nevertheless, isomorphism is an important explanatory principle, because many language changes can be interpreted in terms of the 'pursuit' of a state of isomorphism. In this respect, isomorphism could be thought of as one of the guiding principles or driving forces of language change. (Dik 1988: 98-99; our translation)

The belief that isomorphic pressure steers language change has its basis in the Functionalist idea that language is a system of functional choices (Halliday 1994). It also echoes Structuralism, which holds that an expression's function is defined negatively by the functions of other expressions (Saussure 1916/1995; Jacobson 1932; see also the more recent diachronic application in Bybee 1994 or [OTHER & AUTHOR1] subm.). In other words, functional dissimilarity between expressions must be the norm.

If isomorphism were the only force shaping communicative codes, synonymy would be exceptional in synchrony and should be consistently rooted out in diachrony. However, we want to argue here that isomorphism is neither the only nor even the main force at work in organizing communicative codes, and this is apparent in the development of functionally similar expressions over time – only, the rivalling forces at work are obscured by the competition metaphor that is so commonly resorted to in discussions of language change. A different perspective on the relation between functionally similar expressions can be developed by shifting away from the direct rivalry between such expressions and homing in, instead, on the broader constructional networks of which they form part. We believe this can solve some of the problems that accounts of language change run into when they interpret the changes affecting functionally similar expressions only in terms of competition and the isomorphic principle. We will speak of the 'simple competition model' to refer to explanations of

language change that draw primarily on the isomorphic principle, as illustrated in (1)-(4) above. As the term implies, there are also more elaborate approaches to competition that fall under an 'extended competition model', yet this extended model, too, is not fully satisfactory, as is also to be discussed below.

There are a number of well-known problems with the simple competition model and its isomorphic inspiration. First, functional overlap does not seem to be that uncommon and some situations of functional overlap appear to be diachronically more or less stable (see e.g. Torres Cacoullos & Walker 2009). It is therefore reasonable to assume that languages tolerate a certain degree of functional redundancy. In fact, Van de Velde (2014) argues that form-function relations are rarely structured one-to-one. Instead, they are typically organized many-to-many. Any specific form realizes many functions and any specific function is realized by many forms. Such many-to-many mappings need not even be a-functional. As Van de Velde argues, a complex adaptive system like language may be better off with multiple solutions to the same problem.

Second, the simple competition model cannot explain how functional overlap arises (Croft 2000: 68). If isomorphic pressure is strong enough to reorganize form-function mappings so as to reduce functional overlap, then why is it unable to prevent functional overlap from developing in the first place? Violations of isomorphism could be nipped in the bud if any semantic extensions threatening to give rise to functional overlap simply would not take off, but often that seems not to happen.

Third, the simple competition model tends to fall short of explaining the outcome of change (Petré 2014: 158). Isomorphism states that form-function mappings should be optimized as one-to-one relations, but it is indifferent as to how this optimal situation should come about. It does not predict whether substitution or differentiation will occur. Where substitution occurs, it does not predict which form will replace which. Where differentiation occurs, it does not predict which new function should be assigned to which form.

More elaborate competition-inspired approaches to language change formulate solutions to some of these problems. We will subsume these approaches under the label of the 'extended competition model' because they typically avoid isomorphism and look for some independent criterion to account for the outcome of competition. In substitution processes, this can be relatively straightforward. For example, one expression picks up some form of social prestige (Labov 1972, 2001; Keller 1990; Croft 2000) or it is in some other respect better adapted to its function (García 1999; Haspelmath 1999; [AUTHOR1] 2009; Petré 2014) and is therefore consistently selected at the expense of another. Under such circumstances, substitution is indeed the natural outcome.[1] A classic example is the renewal of intensifiers: speakers continually recruit new expressions in the same functional do-

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[1] A rarely considered alternative is that one variant may gain the upper hand over another simply as a result of random fluctuation (Kauhanen 2017).

main because the expressiveness of older forms has been compromised by overuse (e.g. Hoeksema 2005; Foolen 2012).

Differentiation processes, however, present the extended competition model with a thornier problem. Faced with competition between functionally similar expressions, the extended competition model can explain synchronic divisions of labour. It does so by appealing to multiple language-internal motivations (e.g. Rohdenburg 1996; Hawkins 2001). Because this move situates competition (also) at the level of functional motivations, the term 'competing motivation models' is sometimes used (MacWhinney 2014). The motivations must each favour a different expression and they must vary in force depending on circumstances. Then, one expression is better adapted to some circumstances, whereas another is better suited to others, so that (other things being equal) both can survive. The motivations typically invoked are potentially conflicting principles of syntactic organization, such as transparency vs economy, or end weight vs adjacency, but the list is in principle open-ended (MacWhinney 2014: 367). For example, Rohdenburg (1996) shows that English *that* and zero complementizers have a motivated division of labour. *That* marks syntactic relations more explicitly and is therefore preferred where the syntax is especially complex, as in (5a). Zero is more economic and therefore preferred where syntactic relations can be easily inferred, as in (5b) (where zero is marked by 'Ø').

(5) a. any man who will look plain facts in the face will see in a moment ***that*** ministerial liability to the censure not in fact by Parliament, nor even by the House of Commons, but by the party majority who keep the Government in office, is a very feeble guarantee indeed against action which evades the authority of the law courts. (BNC)

b. Ranald was scarlet, but Luch could see **Ø** he was pleased. (BNC)

The language-internal motivations the extended competition model relies on are general pragmatic or processing constraints, which can be expected to be more or less independent of any specific set of variants and to be constant over time.[2] As a result, they only work well to explain stable divisions of labour.[3] Not accounted for are cases in which a principled division of labour newly emerges. In

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[2] This point is nuanced by the findings of Wolk et al. (2013), who show that the effect of different constraining factors, such as end-weight or animacy, may increase or decrease over time. Another exception is when one of the motivating principles is *also* a cause of change. For instance, economy may lead to progressive formal reduction. This may gradually shift the balance between conflicting motivations and result in an unstable system (MacWhinney 2014). It seems, however, that many cases of differentiation – including the ones discussed below – could not be accounted for by resorting to such mechanisms.

[3] Also, the nature of these principles is such that they are best suited to explain the division of labour between expressions that are functionally similar but structurally different. It may be difficult to apply the model to cases involving structurally equivalent expressions. For example, the division of labour between lexemes, such

other words, cases of diachronic differentiation are not predicted, and if they occur, they cannot be explained.

In sum, the most urgent problems competition models face are their failure to explain emerging or sustained functional overlap (the simple competition model) and their failure to predict or explain differentiation (both the simple and extended competition model). To suggest a solution to these two problems, we propose a new way of looking at the development of functionally similar expressions that departs from the competition metaphor. As a first step, we argue that when two expressions show functional overlap, they are in fact likely to become more similar, as if being attracted to each other. This process we will call 'attraction'. Attraction (which is of course also a metaphor) is schematically represented in Figure 2. As we argue in more detail below, attraction may be a natural consequence of analogy, which is especially likely to operate between variant expressions, causing the expressions to exchange features and become more alike.
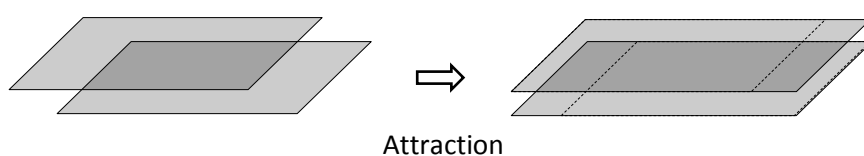

Attraction

Figure 2. In attraction, functionally similar expressions develop towards functional identity.

If we accept that attraction is a normal response to situations of functional overlap, and we understand why it happens, then the emergence and relative stability of functional overlap becomes less theoretically problematic – at least, it is clear that some forces in language run counter to isomorphism. To show that this is a realistic avenue of thought, Section 2 below describes a number of cases of attraction. The first involves the variation between *-ing*-clauses and infinitives following *begin*, illustrated in (6). The second involves the variation between secondary predicates marked by *as* and zero following *consider*, as in (7). We demonstrate that over time these constructions have become functionally more alike, despite the fact that they started out with what would appear to be a motivated division of labour. To further strengthen our case, some other examples are drawn from the existing literature, showing that attraction is probably common. From the point of view of competition models, this is unexpected.

(6)   a.   I began **looking** in my bag for a piece of paper and a biro (BNC)

        b.   The rector began **to look** quite shy. (BNC)

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as Spanish *tener* and *haber* 'have' (see (1) above) or Dutch *kunnen* 'can' and *mogen* 'may' (see (4) above) would be much harder to account for.

(7) a.   I considered Gareth **as** a murderer. (BNC)

b.   You consider it **Ø** a success, then? (BNC)

Once it is recognized that attraction is a possible outcome of functional overlap, it also becomes clear that differentiation cannot be a default reaction to functional overlap but must arise under specific circumstances. This is the topic of Section 3 below, which develops the next step of our argument. Given the evidence of attraction, it is unlikely that differentiation is only driven by the functional pressures of code-optimization, as in the simple competition model. By abandoning that line of explanation, the problems discussed above can be avoided. Instead, we look for conditions under which attraction does not take place. We propose that what keeps functionally similar expressions from becoming complete synonyms is their adherence to different networks of formally similar and semantically related expressions – what we will call their respective constructional families (in the spirit of Traugott & Trousdale 2013). If this is correct, this offers a way of explaining functional differentiation. Cases in which functional overlap between expressions is reorganized over time result from changing relations within the bigger constructional families involved. Again, two main case studies are presented to support the argumentation, each showing a reduction of functional overlap over time. The first contrasts with the developments in *begin*, involving the near-synonymous verb *start* and its two complement types, illustrated in (8). The second involves the variation between Dutch *ver van* and *verre van*, both meaning 'far from', as in (9).

(8) a.   I'm glad they haven't started **planting** conifers up here (BNC)

b.   They came to a pub which was low and dark and already starting **to get** crowded. (BNC)

(9) a.   want 'k ben te **ver van** de microfoon (CGN)

'because I'm too far from the microphone'

b.   een nijver maar **verre van** vrolijk volkje (CGN)

'a diligent but far from cheerful people'

Both cases show how constructional families influence the organization and re-organization of form-meaning relations between functionally similar expressions.

Before we set out on the case studies, some remarks are in order. First, attraction and differentiation are the two processes we will focus on here, because they are particularly problematic to competition models. However, they do not exhaust the possible long-term developments in situations of functional overlap. Substitution, as briefly discussed above, is an option, too, and there is of course also the possibility of no change happening – i.e. stability. How substitution and stability relate to attraction and differentiation is an issue we return to in the concluding remarks in Section 4

below. Further, the case studies are meant to demonstrate attraction and differentiation, and to reveal the causes of these processes – in none of the cases discussed do we mean to offer an exhaustive treatment of the variation at hand.

Second, while the topic matter of this paper has clear affinities with Variationist Linguistics, the discussion that follows is couched in Construction Grammar terms. On the one hand, it should be clear by now that we subscribe to the Variationist premise that variation exists (e.g. Labov 1972: 188; Tagliamonte 2012: 9-10; Poplack 2015). That is, speakers often have several ways of saying approximately the same thing. The expressions involved need not have identical meanings, but the meanings are sufficiently similar to allow interchangeability in practice. On the other hand, within such pockets of variation, we believe the long-term dynamics of language change can only be fully understood by seeing each expression in relation to other formally and functionally similar expressions in the language system as it evolves over time (Fischer 2007). This is where we depart from the Variationist approach, which tends to focus exclusively on the expressions in variation, and which typically explains change as driven by social factors. There is no point denying that changes must spread through communities and that a form's chances of survival are co-determined by its association to specific groups and situations. However, not all changes are socially indexed (Labov 2001: 28-9; Nevalainen et al. 2011: 2) and, regarding those that are, the relevant social associations may still not tell the full story of why change happens the way it does. Construction Grammar is well-suited to addressing the language-internal determinants of change. Specifically, the grammatical subsystems in which change happens can be described as constructional networks. Networks capture exactly the possibility of an expression maintaining multiple and even potentially conflicting relations to other expressions, each potentially influencing its use (Langacker 1987; Goldberg 2006; [AUTHOR1] 2012; [AUTHOR1 & OTHER] 2013; Traugott & Trousdale 2013; Pijpops & Van de Velde forthc.). When it comes to how any pair of functionally similar expressions develops over time, one decisive factor is the major constructional ties the expressions maintain and how these play out against each other.

2 Attraction

The following sections provide more detailed analyses of a number of developments involving functionally overlapping expressions. In none of the cases analysed can simple substitution or differentiation offer an entirely accurate description of the changes taking place. More precisely, while the changes involve ongoing substitution, they simultaneously show attraction, with functionally overlapping expressions becoming more alike over time. As this goes against the direction of form-function change predicted by the simple competition model, it indicates that there is a counterforce to isomorphism at work. As for the extended competition model, while attraction is not logically in-

compatible with it, the model does not predict attraction either. An explanation of attraction is offered, proposing that it results from analogy.

2.1 -Ing-*clauses and infinitives following* begin

The English aspectual verb *begin* has always combined with *to*-infinitives. Especially since the nineteenth century, however, it has been increasingly attested with -*ing*-clauses.[4] The rise of -*ing*-clauses appears to go at the expense of the older *to*-infinitives, especially in American English (Mair 2002, 2003). This is a case of substitution in progress, then. At the same time, the choice between the two variants is not entirely free, and once that is taken into account the picture of ongoing change becomes more complex.

One observation made by several authors is that -*ing*-clauses are preferred with *begin* when the matrix clause subject is an agent. Jespersen (1940: 196) observes that "*Begin -ing* is probably used only when some kind of activity is meant". Visser (1963-73: 1373) states that "the -*ing* form is nowadays preferred when the action is intentional [...], whereas the infinitive is used for unintentional actions". The effect of this 'agent constraint' in Present-day English is most easily illustrated by polysemous verbs like *feel*, *gather* and *see*, when used with *begin*. Typically, when these verbs are used in the construction [*begin* + -*ing*-clause] they select an agentive subject, as in (10), but when the same verbs do not select an agentive subject, they are used in [*begin* + *to*-infinitive], as in (11).

(10) a. They went right up to the gray mule, and Bulkin began ***feeling*** it. (1993, COHA)

     b. She ignores him and begins ***gathering*** her stuff. (2005, COHA)

     c. He began ***seeing*** a chiropractor to end his back pain. (2007, COHA)

(11) a. I began ***to feel*** dizzy, probably from the heat. (2003, COHA)

     b. the gloom had begun ***to gather*** under the tangled branches. (2004, COHA)

     c. [...] especially as coastal areas like the Mississippi Delta begin ***to see*** the effects of sea-level rise. (2009, COHA)

The agent-constraint is in line with descriptions of [*begin* + *to*-infinitive] as a subject-raising construction (Huddleston & Pullum 2002: 1197). This means that *begin*, when patterning with a *to*-infinitive, imposes no selectional restrictions on its subject and can combine with any verb, including passive and existential *be* or medial uses of lexical verbs, as in (12a-c) respectively.

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[4] The term '-*ing*-clause' is preferred here over the labels 'gerund' or 'participle' because the syntactic difference between gerunds and participles is effectively neutralized following most aspectual verbs ([AUTHOR1] 2010, 2013).

(12)   a.   Veterans began **_to be asked_** to speak in classrooms and at public events. (2001, COHA)

   b.   For a long time, sitting there, watching and listening, we heard nothing at all, either, but by and by there began **_to be_** some sounds. (1974, COHA)

   c.   When the baseball strike finally was over, his book began **_to sell_** well (1981, COHA)

Other semantic constraints have been proposed in the literature. Duffley (1999) argues that the *to*-infinitive profiles the incipient stage of the embedded process whereas the *-ing*-clause simply profiles an entire event. Therefore, the *to*-infinitive tends to be used when the incipient stage of the embedded event is for some reason more salient, for instance because it is aborted after its incipient stage (see also Quirk et al. 1985: 1192). The proposal is well-argued but hard to operationalize in corpus data, which is why we do not develop it further here. Also plausible but equally difficult to operationalize, Quirk et al. (1985: 1192) and Declerck (1991: 507) suggest subtle aspectual differences between the two clause types, with *-ing*-clauses being sometimes used for iterative situations, and *to*-infinitives for habits. Another proposal, coming from Mair (2002: 333) and Huddleston & Pullum (2002: 1241), is that stative embedded verbs such as *believe* or *fear* must be realized as *to*-infinitives. This is borne out by corpus data but since nearly all stative verbs select non-agentive subjects the proposal is in fact a weaker reformulation of the agent constraint (as also pointed out by Declerck 1991: 506).

While it is in all likelihood not the only determinant of variation, the agent constraint is well supported by corpus evidence. Corpus data reveal that the constraint existed from the time when *-ing*-clauses first began to appear with *begin*. This is shown in Figure 3, which is based on data from the Corpus of Historical American English (COHA) (Davies 2011). The data were collected using the query "[begin]", run through the online corpus interface. This was repeated for the different decades represented in COHA from the 1830s to the 2000s, extracting 500 randomly selected hits per decade, which were then collapsed into nine 1000-hit samples each covering a twenty-year period.[5] Next, instances of *begin* followed by an *-ing*-clause or a *to*-infinitive were coded as having either an agentive or a non-agentive subject. Agentive subjects were defined as those subjects that exert willful control over the action denoted by the *-ing*-clause or *to*-infinitive.[6] Throughout the period ana-

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[5] So-called *horror æqui* contexts (cf. Rohdenburg 1995) have been excluded as they are likely to overrule any semantic constraint. That is, *to begin* is typically followed by an *-ing*-clause, whereas *beginning* is typically followed by a *to*-infinitive, avoiding immediate consecution of two *to*-infinitives or two *-ing*-forms, regardless of the kind of subject role selected for by the embedded verb.

[6] There is a group of instances that are hard to classify as having either an agentive or a non-agentive subject. For example, in *as they began passing places that were connected with interesting scenes of his childhood, he roused himself* (1902, COHA) the movement is deliberate but the passage by particular places is not the agents' goal. Or in *the collies began barking in the yard* (1980, COHA) the collies may bark by impulse or intentionally.

lysed, *-ing*-clauses are significantly favoured when the subject is an agent (for each of the twenty-year periods p < 0.001, using a Fisher's Exact Test, with ф ranging between 0.22 and 0.36). In practice, this means that [*begin* + *-ing*-clause] is strongly associated with situations involving an agentive subject. [*Begin* + *to*-infinitive] occurs with both agentive and non-agentive subjects, but when the subject is non-agentive, the *to*-infinitive is the expected form. Particularly in the early decades of the nineteenth century, variation between *-ing*-clauses and *to*-infinitives following *begin* was confined to agentive contexts.
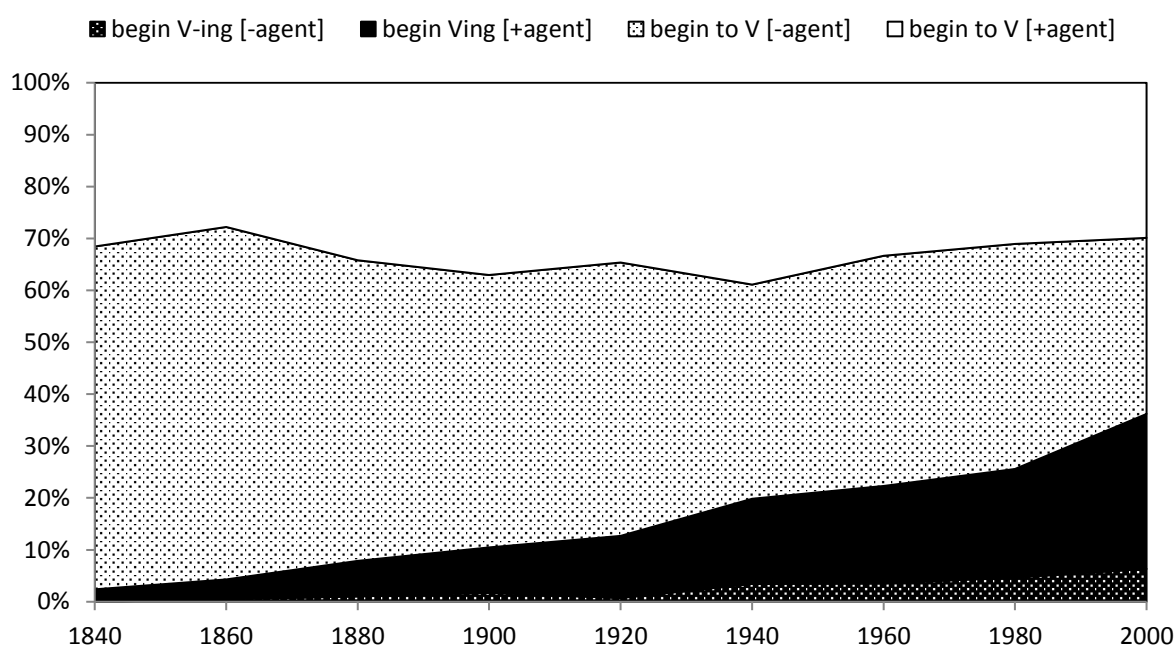

Figure 3. The use of *-ing*-clause (V-*ing*) and *to*-infinitive (*to* V) following *begin* with agentive and non-agentive subjects (COHA).

In light of this early division of labour, the simple competition model would predict that if substitution takes place, with *-ing*-clauses replacing *to*-infinitives, this should primarily be in the contexts with agentive subject, because that is where the functional overlap was at first situated. That way, isomorphism could be restored, with a neat division of labour as a result. Over time, *-ing*-clauses certainly seem to have been replacing *to*-infinitives in the agentive contexts. They took up 15.1% of all agentive instances in 1830-1889 but rose to 49.1% in 1950-2009 (p < 0.001, using a Fisher's Exact Test, ф = 0.32).

In other respects, however, developments go against what the simple competition model would predict. First, the share of *-ing*-clauses used in non-agentive contexts also increased, rising

Rather than force an arbitrary decision, such contexts were left out of consideration. They account for just under 9% of the observations.

from under 0.01% in 1830-1889 to 10.6% in 1950-2009 (p < 0.001, using a Fisher's Exact Test, φ = 0.23). The result is that, on the whole, the semantic profile of [*begin* + *-ing*-clause] became less restrictive: the construction became more permissive of non-agentive subjects. In the period 1830-1889, 9.7% of all *-ing*-clauses were in non-agentive contexts. This rises to 17.1% in 1950-2009. While the trend is not pronounced enough to reach statistical significance (p = 0.25, using a Fisher's Exact Test), it is supported by closer qualitative analysis of the data, which shows that in the second half of the twentieth century, *-ing*-clauses began to occur in raising constructions, allowing passive auxiliaries, as in (13a-b), and medial verbs, as in (13c).

(13) a. Electricity began ***being*** scientifically investigated in the eighteenth century (2001, COHA)

b. The Uncle Oscar dream has begun ***getting*** interspersed with one featuring her cousin Raul (2003, COHA)

c. Kirk Haugaard [...] called Ford's customer-assistance number several years ago after two-inch patches of paint began ***peeling*** off the roof of his 1988 Ford Ranger. (1999, COHA)

Second, the opposite development is seen in *to*-infinitives. *To*-infinitives did not retract from agentive contexts, as the simple competition model would predict. On the contrary, they became more strongly associated with agentive contexts, as can be seen from Figure 3 above. In the period 1830-1889, 32.6% of all *to*-infinitives were in agentive contexts, compared to 43.6% in 1950-2009 (p < 0.001, using a Fisher's Exact Test, φ = 0.11).

In sum, then, it is true that the share of *-ing*-clauses following *begin* has increased, but the change has not been progressing in a way that led to more isomorphism. The functional extension of both constructions has changed, such that [*begin* + *-ing*-clause] and [*begin* + *to*-infinitive] have become more alike. The former increasingly opened up to non-agentive contexts, and the latter increasingly associated with agentive contexts. When only the two forms' frequencies are compared, the relation between [*begin* + *-ing*-clause] and [*begin* + *to*-infinitive] is one of substitution. But when we take into account how each form is used, the development is found to also involve attraction: the area of functional overlap between the two constructions grew bigger.

2.2 *Secondary predicate constructions marked by zero and* as *following* consider

Functional overlap is also found between two types of secondary predicate construction in English. In one construction, secondary predicates are marked by *as* (henceforth the *as*-SPC), while in another

they are not marked by a dedicated element (henceforth the zero-SPC).[7] The respective types are illustrated in (14).

(14) a. The morning is gray and close, the humidity so thick that Father Tim perceives it ***as a ringing in his skull***. (2002, COHA)

b. Grace closed her eyes, even though she did not think herself ***sleepy***. (2008, COHA)

To some extent, the two types of secondary predicate have distinct distributions, in that they mostly favour different lexical verbs. In (14a-b), for instance, the *as*-SPC and zero-SPC are not interchangeable. However, [AUTHOR2] (2017) shows that while both constructions patterned with distinct sets of lexical verbs in Middle English, they eventually both extended to mental verbs and perception verbs. As a result, with some verbs both construction types became possible, giving rise to situations of functional overlap and direct competition. Among the verbs selecting both *as*-SPCs and zero-SPCs, the most frequent one is *consider*, illustrated in (15).

(15) a. There was a time when lesbians considered her ***as a woman with internalized sexism of outstanding proportion*** (1994, Wordbanks Online)

b. Hollywood directors and producers considered him ***difficult to work with***. (2004, Wordbanks Online)

Looking more closely at the variation between [*consider* + *as*-SPC] and [*consider* + zero-SPC], it is found that over time [*consider* + zero-SPC] has been on the increase, whereas [*consider* + *as*-SPC] has declined. This is apparent from an analysis of data drawn from The Corpus of Late Modern English Texts (CLMET3.1). The corpus, which covers the Late Modern English period (1710-1920) and is divided over three 70-year sub-periods, was queried for any forms of *consider*. Results were randomized and examples were analysed until 200 instances had been found for each variant construction and for each sub-period in the corpus.[8] Over the whole period studied, the share of [*consider* + *as*-SPC] to [*consider* + zero-SPC] drops from 96.4 % in 1710-1780, to 70.4 % in 1780-1850 and eventually to 24.9 % in 1850-1920.[9] So, from being virtually the only secondary predicate construction with *consider* in the early eighteenth century, *as*-SPCs had become the marked option by the beginning of the

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[7] That these patterns constitute constructions has been first argued by Gonzálvez-García (2009).

[8] For the period 1710-1780, zero-SPCs following *consider* are so rare that no 200 instances were found. In this case, manual selection of examples has been carried on until a total of 4,000 concordance lines had been checked.

[9] These proportions are based on the estimated absolute frequency of each construction in each sub-period. Estimates were made based on the total number of concordance lines per sub-period and the number of concordance lines needed to collect the 200-hit samples.

twentieth century (and most present-day speakers would not use it altogether). As their position was taken over by zero-SPCs, the overall development is one of substitution.

Again, however, substitution is accompanied by functional changes that complicate the picture. Note, first, that the secondary predicates following *consider* show a division of labour based on syntactic predicate type. Both [*consider* + *as*-SPC] and [*consider* + zero-SPC] can have different phrase types filling the predicate slot, including NPs such as *a sacred obligation* and *a masterpiece* in (16), and non-NPs such as *too dreadful to talk about* and *freest from superstitious fancies* in (17). But the constructions have different preferences. [*Consider* + *as*-SPC] favours NP-predicates over non-NP predicates, whereas [*consider* + zero-SPC] favours non-NP predicates over NP-predicates.

(16)   a.   This pipe [of peace …] is considered even among the fiercest tribes **as a sacred obligation**. (1856, CLMET3.1)

       b.   I consider the "Rose of Sharon" **a masterpiece** (1890, CLMET3.1)

(17)   a.   Again, the educated classes have adopted a hideous and heathen custom of considering death **as too dreadful to talk about** (…). (1912, CLMET3.1)

       b.   those who considered themselves **freest from superstitious fancies** were the most intolerant. (1881, CLMET3.1)

If substitution is driven by isomorphism, one would ideally expect existing usage preferences to be exploited so as to minimize functional overlap during the variation stage. As Figure 4 shows, however, while they were in variation, the constructions became more alike over time. In [*consider* + *as*-SPC] the incidence of non-NP predicates increased, whereas in [*consider* + zero-SPC] the incidence of NP-predicates increased. The developments are most pronounced between the first two sub-periods of the corpus (for [*consider* + *as*-SPC], the changing preference in predicate type is significant between the first and second sub-period at $p < 0.05$, using a Fisher's Exact Test, $\phi = 0.16$). They level out between the second and third sub-periods.
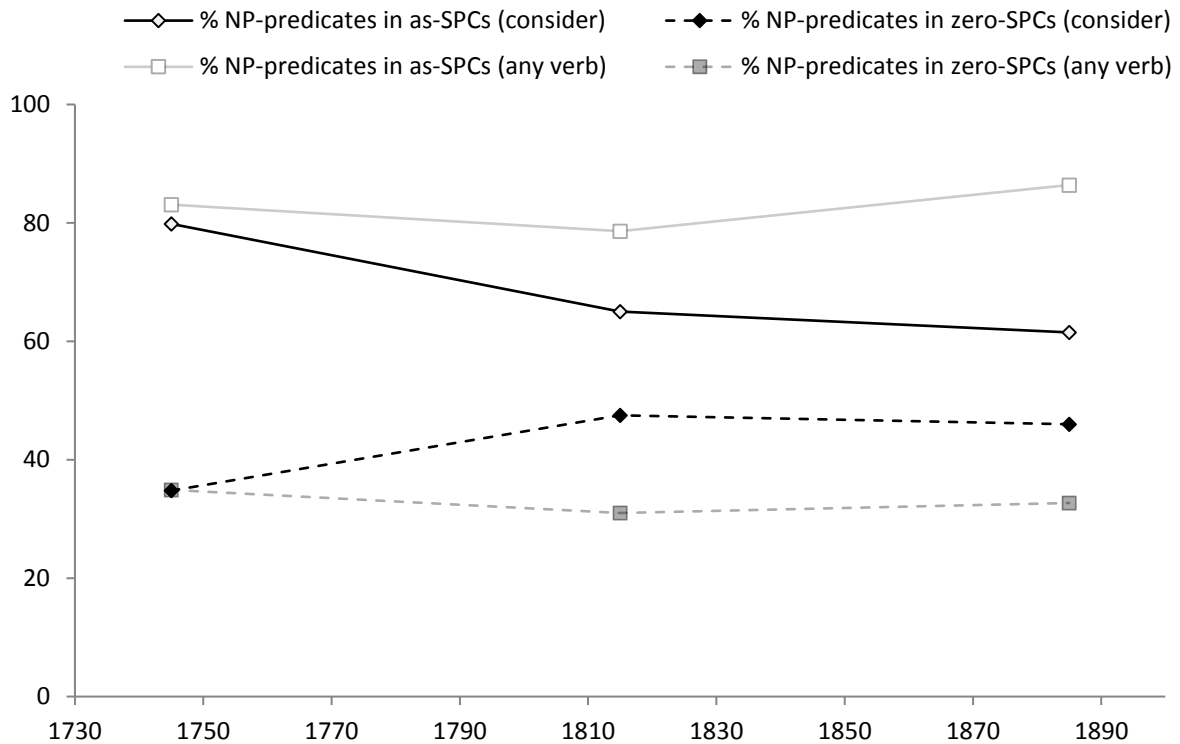
Figure 4. Proportion of NP-predicates (as opposed to other predicate types) in [*consider* + *as*-SPC] and [*consider* + zero-SPC] (CLMET3.1), compared to the proportion of NP-predicates in *as*-SPCs and zero-SPCs following any verb (PPCMBE).

The trends observed in Figure 4 are the more remarkable when set against the overall syntactic preferences of the more schematic 'mother' constructions [V + *as*-SPC] and [V + zero-SPC]. Drawing on the data in [AUTHOR2] (2017), the syntactic behaviour of *as*-SPCs and zero-SPCs was analysed following any verb (excluding *consider*).[10] It is found that [V + *as*-SPC] also favours NPs in its predicate slot, whereas [V + zero-SPC] favours non-NPs, as shown in Figure 4. For the earliest period in the data, the share of NP predicates in the more specific 'daughter' constructions, [*consider* + *as*-SPC] and [*consider* + zero-SPC], is very close to their share in the corresponding 'mother' constructions. From there onwards, however, the behaviour of [*consider* + *as*-SPC] and [*consider* + zero-SPC] came to increasingly deviate from that of their mother constructions. Attraction between [*consider* + *as*-SPC] and [*consider* + zero-SPC] is therefore not the result of a more general change in the mother constructions (whose behaviour is on the whole stable). Instead, attraction occurred precisely in the context where the two schematic construction-types entered into competition, i.e. following *consid-*

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[10] The data in [AUTHOR2] (2017) come from the PPCMBE and cover almost exactly the same sub-periods as the data from CLMET3.1. The data were obtained by searching the corpus for secondary predicate constructions as exhaustively as possible. Specifically, the corpus was queried for the form *as* to find all *as*-SPCs. The syntactically parsed version of the corpus was queried for the tag IP-SMC (standing for 'small clause') to find zero-SPCs. The output of the searches was manually analysed.

er. In that light, it is plausible that the situation of functional overlap is exactly what caused the attraction.

2.3 *Discussion*

The two cases discussed in some detail above are probably not exceptional. The existing literature contains other examples of attraction, even though they are not discussed under that label.[11] For instance, Rosenbach (2007) describes the emergence of Present-Day English pairs as in (18)-(19), where genitives can alternate with noun modifiers.

(18) a.   and then you have to pay two pounds **student's** fee (BNC)

    b.   they receive only the **student** fee (BNC)

(19) a.   Urben […] was fined £60 by the **city's** magistrates. (BNC)

    b.   His passenger […] will appear before **city** magistrates next week. (BNC)

She shows that up to the seventeenth century, there was "barely any semantic overlap between genitives and noun modifiers" (Rosenbach 2007: 168). Genitives were more or less confined to human nouns (*the father's sins*, *a fool's face*), whereas noun modifiers were typically inanimate nouns (*a seaport town*, *a desert island*). In the eighteenth century, genitives and noun modifiers began to show some overlap, particularly with collective nouns (*the court / court's favourite*). From then on, the area of functional overlap continued to grow, with genitives increasingly spreading to inanimate nouns and noun modifiers to animates.

      Another example is found in Hilpert's (2013: Ch.5) analysis of what he calls 'concessive parentheticals' with *though* and *although*. The constructions at issue are illustrated in (20). As the examples show, concessive parentheticals vary in syntactic form. They can be constructed with various types of predicate and can take different positions with respect to their main clause. Using data from COHA, Hilpert shows that in nineteenth-century English, parentheticals with *though* and *although* each had slightly different syntactic preferences.[12] Over the last century and a half, however, those

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[11] In our own previous research, too, we have – in retrospect – come across several more clear cases of attraction, see [AUTHOR1] (2010) on the phrasal verb particles *out* and *forth* and [AUTHOR1] (2014) on the complements of *prevent*.

[12] For example, *although* was somewhat more common with past and present participles than *though* (Hilpert 2013: 194)*.

preferences gradually converged. Again, then, functional overlap increased, with *though* and *although* becoming increasingly free alternates. The development presents another case of attraction.[13]

(20) a. ***Though*** unsophisticated, many of his patriotic songs have a stirring lilt (BNC)

b. His clothes, ***although*** dry, felt stiff and unpleasant. (BNC)

c. Lady Irwin, ***though*** a Viscountess, sees similarities between the wasted potential of women and that of the poor. (BNC)

d. ***Although*** a servant, Warner dined with the earl and his friends (BNC)

As a final example, consider Aaron's (2016) discussion of the grammaticalization of Spanish manner adverbs into degree modifiers. Analysing the history of four such items, *altamente* 'highly', *enormemente* 'enormously', *extraordinariamente* 'extraordinarily' and *extremadamente* 'extremely', she finds that the first adverb to grammaticalize into a degree modifier, *altamente*, did so gradually, with a step-by-step extension into new lexical and grammatical contexts. For example, *altamente* spread from verbal heads, as in (21a), to participial heads, as in (21b), and finally adjectival heads, as in (21c).

(21) a. & cantaron ay missa muy ***altamente*** (15th c., quoted from Aaron 2016: 30)

'and they sang mass very highly'

b. pues merescieron ser tan ***altamente*** alumbrados del Espíritu Sancto. (1537, quoted from Aaron 2016 : 30)

'because they deserved to be so highly illuminated by the Holy Spirit.'

c. la balanza comercial de los tres países del TN ha sido ***altamente*** deficitaria con México (1998, quoted from Aaron 2016: 44)

'the trade balance of the three TN countries has been highly deficient with Mexico'

In contrast, items that grammaticalized later, particularly *extraordinariamente* and *extremadamente*, developed into degree modifiers more abruptly, suggesting that they were analogically modelled on *altamente*. Aaron suggests that forms grammaticalizing into similar functions, despite the competition between them, "may lean on each other, perhaps even "borrowing" the path another has taken"

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[13] Interestingly, the same does not happen to *while* and *if*, which can also introduce concessive parentheticals. Hilpert (2013) finds that, contrary to *though* and *although*, *while* and *if* retained relatively distinct syntactic profiles. This need not be problematic to our account. If attraction is driven by analogy, as suggested below, it is to be expected that attraction is strongest between the forms that are most similar to begin with – in this case, it is of course *though* and *although* that, from the start, showed the greatest functional (and formal!) overlap.

(2016: 53). This interpretation is in line with attraction, which can be expected to facilitate parallel grammaticalizations. The quick adoption of raising verb behaviour seen in [*begin* + *-ing*-clause] (see Section 2.1 above) illustrates the same phenomenon, and the history of Dutch *kunnen* and *mogen* (see example (4) in Section 1 above) may well be another example.

While attraction is unexpected from the perspective of the simple competition model, it actually has a straightforward explanation. Situations of functional overlap invite analogy. In analogy, the behaviour of one expression is modelled after the behaviour of another which it resembles (Anttila 2003; Fischer 2007; [AUTHOR1] 2013). For example, the past tense of English *weep* may be remodelled to *weeped* (instead of *wept*) after the past tense form of *beep* and any other regular weak verbs. Analogy is most easily recognizable when the feature that is extended is a formal one, but functional alignment to an analogical model is equally conceivable (cf. Aaron 2016). The result would be attraction. In fact, since functionally similar expressions are similar by definition, it would be surprising if they did not trigger analogical change. Cases of attraction, even though they violate isomorphism, are not at all unexpected, then, and may well be a normal response to functional similarity. That this is so is supported by the existence of a parallel type of change. Formally similar expressions also tend to become more alike, even when they are semantically unrelated, as argued by Pijpops & Van de Velde (2016).

As pointed out above, attraction does not fit easily with the simple competition model, which predicts that functional overlap should reduce over time rather than increase. If attraction is common, as we suggest, that challenges the simple competition model, indicating that form-function change in functionally similar expressions is not or not only driven by isomorphic code-optimization. Further, attraction adds a dimension to the extended competition model. After all, in cases of substitution, the extended competition model is essentially agnostic about any accompanying functional changes.

That said, functionally similar expressions do not always become more alike and such cases present a challenge to our argument. It is to these that we turn in the following section, where we try to argue that even differentiation is not necessarily driven (only) by isomorphism. Like attraction, differentiation can be argued to result from analogical forces that work their influence on competing constructions.

3 Differentiation

To approach the issue of differentiation, it is instructive to first revisit the main case studies on attraction in Section 2.1 and 2.2 above. In both cases, variants start out with a clear division of labour, which subsequently becomes less pronounced, though without ever completely disappearing. The

question now is how these divisions of labour came about. The answer we suggest is that functionally similar expressions not only align their behaviour to each other through attraction, but also to their bigger constructional families. More technically, in a constructional network, they influence each other horizontally (i.e. attraction), but they also 'inherit' their characteristic behaviour vertically from their respective mother nodes in the network (cf. Traugott & Trousdale 2013). Thus, *as*-SPCs with *consider* tend to favour NP-predicates because *as*-SPCs do so more generally. In the same way, zero-SPCs with *consider* favour non-NP-predicates because that is what zero-SPCs also do outside contexts with *consider* (see Section 2.2 above, and Figure 4 in particular). In constructional terms, [*consider* + *as*-SPC] inherits from [V + *as*-SPC], just as [*consider* + zero-SPC] inherits from [V + zero-SPC].

A similar, albeit more complex, explanation can be given to the agent constraint that organizes the choice between *-ing*-clause and *to*-infinitive with *begin* (see Section 2.1 above). First, the agent constraint has been linked to underlying syntactic differences. Duffley (1999) claims that when an *-ing*-clause is used, *begin* is effectively treated as a transitive verb, with the *-ing*-clause functioning as direct object (see also [AUTHOR1] 2010). Given that transitive *begin* usually selects an agentive subject, as in (22), this predicts that [*begin* + *-ing*-clause] should take an agentive subject, too. In contrast, since [*begin* + *to*-infinitive] has already grammaticalized into a raising construction by the Late Modern period (Brinton 1988, also see Section 2.1 above), it is not constrained by any argument selection rules. In fact, [*begin* + *to*-infinitive] is just one of a whole range of raising verbs and semi-modals, nearly all of which pattern with *to*-infinitives (e.g. *appear to*, *be about to*, *be bound to*, *be going to*, *be supposed to*, *have to*, *seem to*, *happen to*, etc.) (cf. [OTHER] et al. 2017: 114-5).

(22) a.   She arranged her board and began ***a pen-and-ink drawing*** to illustrate a magazine story. (1907, COHA)

b.   The signal was given and Elnora began ***the slow march across the vestry and down the aisle***. (1909, COHA)

Second, constructions with *-ing*-clauses more generally seem to favour verbs associated with agentive subjects. Figure 5 ranks 40 verbs in terms of how frequently they are used as an *-ing*-form as opposed to being used as a *to*-infinitive. This has been done on the basis of the percentage of V-*ing* as opposed to *to* V, calculated for each verb, based on the COHA n-gram files. The measure in Figure 5 does not take into account grammatical context (i.e. it aggregates over all *-ing*-forms and all *to*-infinitives attested for the verb in the corpus), but for the sake of the argument the verbs selected are the 40 verbs that most frequently occur following *begin*. The measure is provided for four 50-year sub-periods, showing that for most verbs the relative preference for *-ing*-forms is stable. Inter-estingly, verbs that are comparatively common as *-ing*-forms are mostly verbs that have agents as

subjects (e.g. *talk*, *sing*, *play*), whereas the verbs that favour *-ing*-forms least do not have agentive subjects (e.g. *be*, *have*, *see*, *appear*, *believe*). In other words, the agent constraint on the use of *-ing*-clauses and *to*-infinitives following *begin* also reflects a much more general tendency in English.[14]
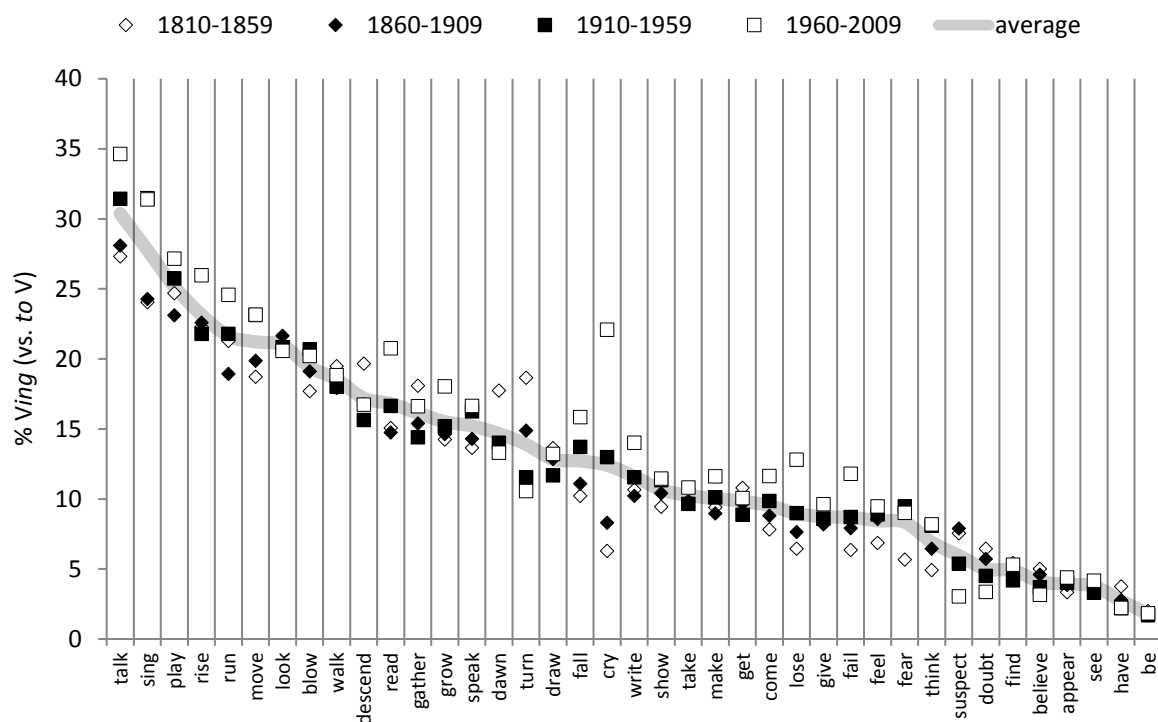

Figure 5. Percentage of use as *-ing*-form vs use as *to*-infinitive for forty verbs in COHA.

By now it should be clear that whatever (partial) division of labour exists between functionally similar expressions does not necessarily reflect isomorphic code-optimization. It can be just a by-product of constructional inheritance. Functionally similar expressions each display the behaviour that is characteristic of the distinct constructional families they belong to. Others, too, have observed that constructions tend to be anchored to their bigger constructional families, which often exert a conservative influence. Petré (2012: 42) speaks of 'backward pull'; Traugott & Trousdale (2013: 227-8) speak of 'pull-back effects'; Van de Velde (2015) speaks of 'analogical pull'; Vartiainen (2016), following Breban (2009), speaks of 'structural persistence' – and both reference Hopper's (1991) more general concept of 'persistence'. Goldberg's (2006) 'anchoring principle' captures a similar phenomenon in synchrony. Further, [AUTHOR2] (2017: 197-8) distinguishes between 'synchronic anchoring forces' (reflecting constructional ties that continue to be recognized by speakers) and 'diachronic anchoring

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[14] The general preference that verbs show for occurrence as an *-ing*-form vs *to*-infinitive correlates with their preference for occurrence as an *-ing*-form vs *to*-infinitive following *begin*. Between the average scores shown in Figure 5 and corresponding scores for the same 40 verbs over the same time period when used following *begin* the correlation is significant ($R^2 = 0.34$, with $0.10 < R^2 < 0.57$ as 95% confidence interval).

forces' (reflecting synchronically unmotivated but historically inherited usage tendencies). Finally, Reinöhl & Himmelmann (forthc.) develop the notion of 'source determination' to describe the relationship between functionally similar expressions, arguing that the degree of functional overlap between expressions depends on the similarity between the sources they grammaticalized from.[15] Interpretations undoubtedly differ in the details, but all these authors would probably agree that synchronic usage preferences are related to an expression's current or historical position in the broader grammatical system of the language. Rather than resulting from the operation of the isomorphic principle, any subtle differences between competing expressions may reflect these anchoring forces.

From this, it is a small step to reinterpreting cases of differentiation – that is, cases in which a division of labour newly emerges or becomes more pronounced over time. If synchronic divisions of labour reflect the influence of anchoring forces, then diachronic differentiation may also happen because of those anchoring forces. The following two sections each discuss such a case.

3.1 -Ing-*clauses and infinitives following* start

Just like *begin*, the aspectual verb *start* can combine with *-ing*-clauses and *to*-infinitives. The aspectual sense of the verb is only of recent origin, however. Before it became an aspectual verb, *start* was typically used as an intransitive verb broadly meaning 'make a sudden movement'. Its transitive uses were in origin causative, meaning 'make someone / something move suddenly', as illustrated in (23) (for detailed discussion, see OED s.v. *start*, v. and [AUTHOR1] 2013: 240-2).

(23) a.   He ***started*** with a sudden pang, and walked along rapidly (1824, COHA)

      b.   It is extremely doubtful whether we shall ***start*** a fox (1835, COHA)

When *-ing*-clauses and *to*-infinitives first appeared with *start* in the nineteenth century, they typically occurred in constructions with an agentive subject, as in (24). For [*start* + *-ing*-clause], the explanation is analogous to that for *begin*. The *-ing*-clauses entered a transitive construction that typically had an agentive subject, and *-ing*-clauses favoured constructions with agentive subjects anyway. For [*start* + *to*-infinitive], the reason is probably that the construction arose from a combination of intransitive *start* with a *to*-infinitival purpose adjunct. That at once explains why the earliest examples all express goal-directed motion in the *to*-infinitive, including example (24b).

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[15] Reinöhl & Himmelmann (forthc.) present their 'source determination hypothesis' as an argument against functional transfer from an older to a newer construction (which is what we would regard as attraction). On this point, our own position differs, as we do not believe one effect necessarily rules out the other (see further Section 4 below).

(24) a. I buckled up the straps and started **_sliding_** the grip along (1905, COHA)

      b. She left the place, and started **_to walk_** back to the ferry. (1870, COHA)

Figure 6 shows how [*start* + *-ing*-clause] and [*start* + *to*-infinitive] subsequently developed, with respect to the kinds of subject arguments that entered into the two constructions. The figure is based on COHA, which was queried for "[start]", with four 500-hit samples covering the 1900s, 1930s, 1960s and 1990s. The samples were manually analysed in the same way as was done for *begin* (see section 2.1 above). In terms of absolute frequencies, both [*start* + *to*-infinitive] and [*start* + *-ing*-clause] are on the increase (cf. Davies 2012), but because the increase started a little earlier for [*start* + *to*-infinitive] and proceeds somewhat faster for [*start* + *-ing*-clause], the picture in Figure 6 looks like one of substitution.

Closer analysis again reveals a more complex development. As expected, non-agentive subjects were a minority option for both constructions in the 1900s, accounting for 2% to 5% of observations.[16] For both constructions, the share of non-agentive subjects increased, but by the 1990s it is [*start* + *to*-infinitive] that is most strongly associated with non-agentive subjects. At this point, the semantic role of the subject has in fact become a predictor of the choice between *to*-infinitive and -*ing*-clause following *start* (the effect of the agent constraint is significant for the 1990s, at $p < 0.05$, using a Fisher's Exact test, $\phi = 0.16$; no significant effect is found for the earlier periods). In other words, both constructions opened up to non-agentive subjects, but the trend has been most pronounced for [*start* + *to*-infinitive]. The result is that the two constructions became less alike over time. In other words, they underwent differentiation.

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[16] For *start* with *to*-infinitive, the data analysed for the 1900s contain 36 examples with agentive subject and one with non-agentive subject. For *start* with *-ing*-clause the 1900s sample contained only two examples, neither of which had an agentive subject. An additional search, with the more specific query "[start] *ing", produced 39 felicitous hits, of which two had a clear non-agentive subject.
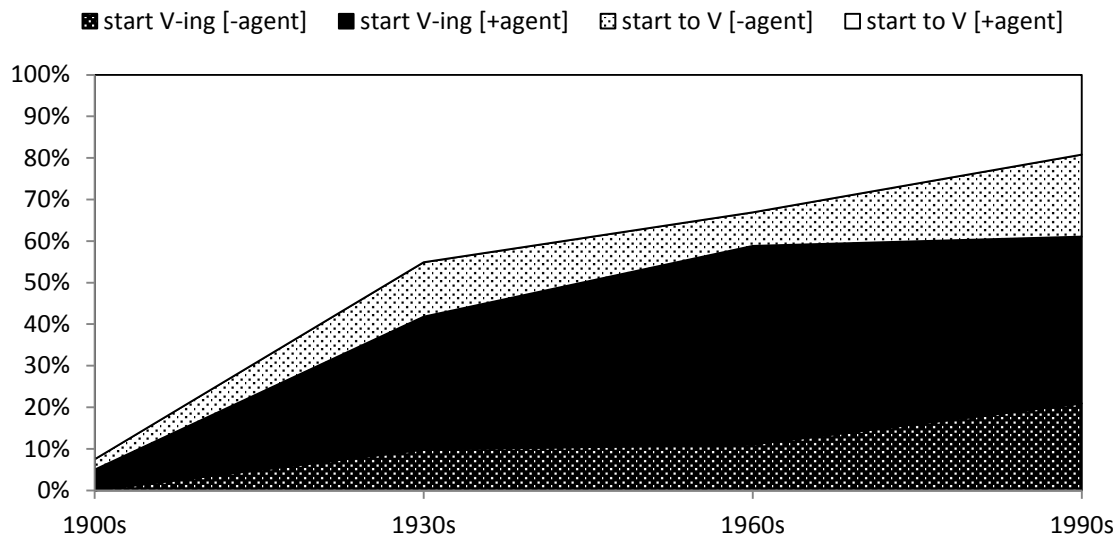
Figure 6. The use of *-ing*-clause (V-*ing*) and *to*-infinitive (*to* V) following *start* with agentive and non-agentive subjects (COHA).

The changes in the complements of *start* thus contrast with those in the complements of *begin*, with the former showing attraction, the latter differentiation. While this may seem paradoxical, the forces at work are probably the same. [*Begin* + *to*-infinitive] had already grammaticalized into a raising construction by the time the other aspectual constructions appeared. In contrast, [*begin* + *-ing*-clause], [*start* + *-ing*-clause] and [*start* + *to*-infinitive] all entered the set of aspectual constructions around the same time. Between the three newcomers functional profiles overlapped heavily, but their functional overlap with [*begin* + *to*-infinitive] was only partial. If all four constructions were attracted to each other, the result would only be visible as a tendency for [*begin* + *to*-infinitive] to take more agentive subjects, and another tendency for the other three to adopt raising-verb behaviour. This is in fact what happened. We can further expect, however, that the adoption of raising-verb behaviour proceeded most quickly for [*start* + *to*-infinitive], because it was not hampered down by the preference of *-ing*-forms and transitive constructions for agentive subjects, and because it more closely resembled other well-established raising constructions and semi-modals with *to*-infinitive. The faster attraction between [*begin* + *to*-infinitive] and [*start* + *to*-infinitive] is what shows up in Figure 6 as differentiation between [*start* + *to*-infinitive] and [*start* + *-ing*-clause].

On this account, differentiation is epiphenomenal. It arises as a more or less accidental by-product of the relations in a bigger constructional network. There is no need to posit a drive for isomorphic code-optimization. Moreover, the account not only explains why differentiation occurs, but also why it proceeds the way it does, explaining why *start* is affected but not *begin* and why it is *to*-infinitives that specialize for the non-agentive contexts more so than *-ing*-clauses and not the other way around.

3.2 Ver van *and* verre van *as spatial distance markers and as degree modifiers*

The development of Dutch *ver van* and *verre van* presents us with a second example of differentia-tion. Originally, *ver van* and *verre van* were combinations of the adjective/adverb *ver(re)* 'far' and the preposition *van* 'from'. Both variant forms marked a relation of spatial distance between two entities, as in (25). But, as described by [AUTHOR4 et al.] (forthc.), the spatial meaning gave rise to degree modifier uses, especially in contexts like (26), where *ver(re) van* introduces an infinitive clause and functions as a minimizer, meaning 'not in the least' (cf. Quirk et al. 1985: 598-9). Semantic change was accompanied by syntactic change, with *ver(re) van* beginning to pattern with non-nominal com-plements, notably participles and adjectives, as in (27).

(25) a. Het slot zijns vaders was niet **ver van** den burgt van Landhorst verwijderd (1846, CHKlite)
'His father's castle was not far removed from Landhorst's fortress'

b. de stier, na een zestal personen meer of minder zwaar gekwetst te hebben, had in de ribben van een zevenden tegenpartijder zijne horens ingestooten, hem vervolgens bo-ven zijn hoofd doen ronddraaijen, en hem eindelijk **verre van** zich henen geworpen. (1845, CHKlite)
'The bull, after having more or less severely hurt six men, had plunged its horns into the ribs of a seventh opponent, had him spin around over his head, and had eventually thrown him far from him.'

(26) a. In de oogen van den Heer Polk, versterkt de Unie zich, naar mate zij zich uitbreidt, en wel **ver van** hare banden losser te maken, vermeerdert elke aanwinst hare kracht en grootheid. (1849, CHKlite)
'In the eyes of the Lord Polk, the Union strengthens itself, as it expands, and though far from loosening her ties, every acquisition increases its strength and greatness.'

b. Het blijkt dus, dat, wel **verre van** aan de afschaffing der graanwet te denken, men deze wenscht te behouden (1845, CHKlite)
'It thus appears that, far from thinking of the abolition of the corn law, people desire to keep it'

(27) a. Ook te Sheffield en in de nabuurschap is het nog **ver van** rustig. (1840, CHKlite)
'Also in Sheffield and in the neighbourhood it is still far from quiet.'

b. De zaak der gemeente-administratie te Sliedrecht schijnt nog **verre van** opgehelderd, steeds gaat de justitie voort met getuigen te hooren. (1895, CHKlite)

'The case of the municipal administration in Sliedrecht seems still far from clarified, the judiciary still continues to hear witnesses.'

[AUTHOR4 et al.] (forthc.) also find that degree modifier uses initially developed both in *ver van* and in *verre van*, but in the end it was *verre van* that specialized as a degree modifier and largely lost its spatial use. In contrast, *ver van* retracted again, losing its use as a degree modifier. This is clear from Figure 7. The Figure is based on the data set used by [AUTHOR4 et al.] (forthc.), which has been drawn from the lite version of the Corpus Historische Kranten (CHKlite)[17] and the online COW corpus, more precisely NLCOW2012-00X (Schäfer & Bildhauer 2012; Schäfer 2015). The graph charts the share of degree modifier uses for both *ver van* and *verre van* over time, taking combination with non-nominal complements (as in (27)) as a diagnostic of 'degree-modifierhood'. In other words, between *ver van* and *verre van* differentiation took place.
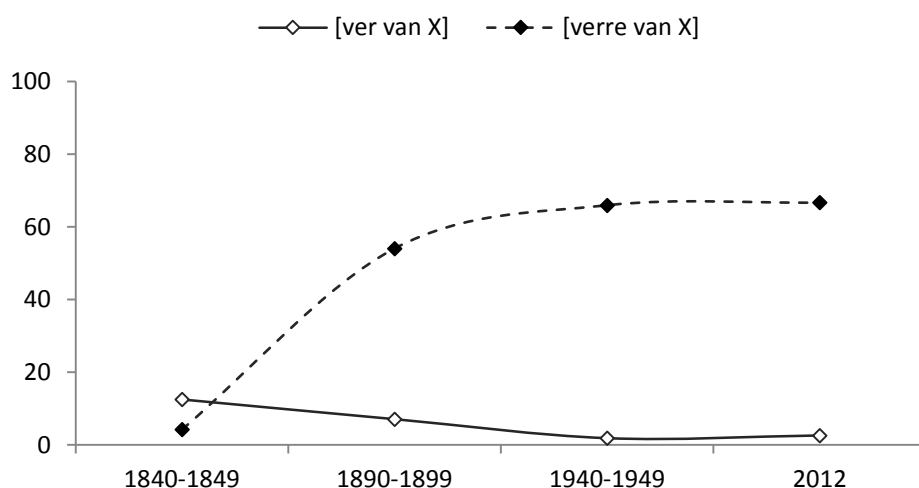

Figure 7. The percentage of degree modifier uses for *ver van* and *verre van* in CHKlite and NLCOW2012-00X.

Again, we would like to propose that differentiation is at least in part the fall-out of develop-ments in the bigger constructional network to which *ver van* and *verre van* belong. Two more general developments are particularly significant. First, Dutch saw an overall loss of its *-e*-marked adverbs, explaining a continuous decline in the use of *verre*. Second, *verre* survived longer in the sequence

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[17] The Corpus Historische Kranten has been compiled from the online newspaper archive of the *Koninklijke Bibliotheek*. The full corpus has slightly over 800 million words of text covering the period from 1750 to 1950, but with very little data to represent the earliest decades. The corpus has poor text quality with many scanning errors. Therefore, a lite version of the corpus has been created containing the 25% best-quality texts of the full corpus. It is this version that has been used by [AUTHOR4] et al. (forthc.) and that was used again for the collec-tion of additional evidence here. Remaining scanning errors in the examples reported here have been tacitly corrected.

verre van. The combined result of these developments is that *verre van* increasingly became a para-digmatically isolated form that lost its internal compositionality, so that grammaticalization had free rein. No such effect was at play in *ver van*, which on the contrary remained more firmly 'anchored' to the adverb *ver*.

In early nineteenth-century Dutch, the adverbs *ver* and *verre* were still variant forms in most contexts. Both occurred with (literal or metaphorical) spatial meanings, as illustrated in (28) (see also WNT s.v. *ver* II).

(28)   a.   Op wat grond en te wiens voordeel men zich zoo ***ver*** gewaagd heeft, is nog niet duidelijk (1836, CHK)

'On what grounds and in whose interest they have ventured so far is not yet clear.'

       b.   Even als in zoo vele andere dingen overvleugelen ons echter de Amerikanen ook hierin ***verre***. (1842, CHK)

'However, just as in so many other things, in this respect, too, the Americans outper-form us by far.'

The variation had arisen as a result of a more general ongoing process of deflection, whereby Dutch adverbs lost the old adverbial marker *-e* and took the form of the corresponding uninflected adjec-tive. This produced a series of adverbial pairs consisting of an inflected and an uninflected form, in-cluding *ver(re)* but also *lang(e)* 'long', *ze(e)r(e)* 'painfully, very', *stil(le)* 'silently', etc. – invariably with the inflected form eventually disappearing in favour of the uninflected form (van der Horst 2008: 1533, 1894). The pair *ver(re)* was comparatively conservative in this respect, probably because *ver(re)* was highly frequent and its corresponding adjective, whose uninflected form provided the uninflect-ed adverb, was relatively uncommon, having been derived from the adverb through backformation only in Middle Dutch. In any case, by the early nineteenth century the inflectional *-e* in *verre* was thoroughly opaque and unmotivated by the grammar. In itself, morphological opacity would have facilitated semantic change in *verre*, but not in *ver*.

Subsequent developments only contributed further to differential treatment of *ver* and *verre*. Figure 8 shows the comparative frequency of the two forms *ver* and *verre* in the 1840s and 1940s (the periods corresponding to the first and third data points in Figure 7 above). The figure is based on two 10% samples from all occurrences of the forms *ver* and *verre* in CHKlite (280 attestations in total). It shows the relative rise of *ver* and the decline of *verre*, but it also shows that *verre* does not decline in the specific sequence *verre van* (the shift in the relative frequencies of *verre van* vs *verre* between the 1840s and 1940s is significant at p < 0.001, using a Fisher's Exact Test, φ = 0.46). Complex expres-sions lose compositionality especially when their frequency surpasses that of their component parts

(cf. Hay 2003 on derivational morphology) and this may be exactly what happened to *verre van*. In the 1840s, the spatial adverbs *ver* and *verre* would have been clearly recognizable as component parts of the sequences *ver van* and *verre van*, and as such they would have exerted a conservative pull on the (potential) grammaticalization of *ver van* and *verre van.* By the 1940s, any such effect had weakened dramatically for *verre van* but remained in force for *ver van*, explaining why they developed differently in the course of the nineteenth and twentieth centuries.[18]
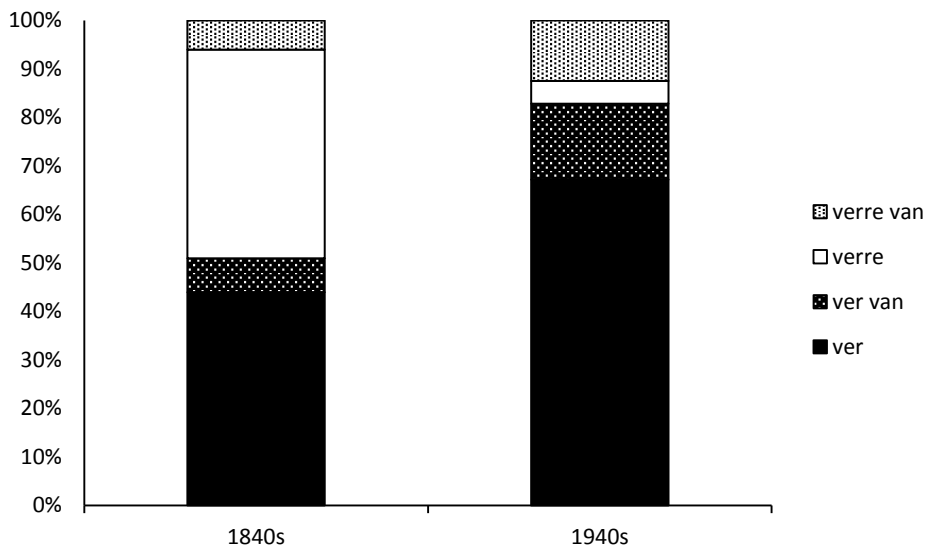

Figure 8. The use of *ver*, *ver van*, *verre* and *verre van* in the 1840s and 1940s (CHKlite).

While it may be fair to say that form-function mapping between *ver van* and *verre van* became more isomorphic and hence more optimal, this development need not have resulted from a drive for code-optimization. An alternative account is available, based on the place of the two expressions within their bigger constructional networks. In the case of *verre van*, these constructional family ties crumbled due to ongoing deflection and the dropping frequency of *verre*. Increasing semantic and syntactic opacity gave leeway to further semantic and syntactic change, which in turn would have fed back into increased opacity. *Ver van*, in contrast, always remained more fully transparent and was as a result less likely to grammaticalize. While it is impossible to rule out completely any effect of isomorphism, the alternative account at least has the advantage that it can explain why it was *verre van* that grammaticalized into a degree modifier and *ver van* that stuck to the original spatial use.

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[18] Increasing opacity in *verre van* is reflected in coalesced spellings in Present-day Dutch, as in *Het is aangenaam om te lezen maar heel erg kort en* **verrevan** *zo interessant als de echte Harry Potter boeken* (Google, 10 March 2016) ('It is pleasant to read but very short and not at all as interesting as the real Harry Potter books.').

4 Conclusions

The preceding case studies support a view of language as a network of expressions whose properties align to those of similar expressions. In functionally overlapping forms this leads to a paradoxical situation. By virtue of their mutual similarity, functionally overlapping forms tend to be treated similarly and therefore may become more similar over time. But at the same time, they also each align to distinct subnetworks of formally related expressions – their constructional families – potentially causing them to become less similar over time, especially if the relations within these subnetworks are themselves subject to change. These opposing forces have been seen at work in the English system of aspectual verbs, in the different secondary predicate constructions in English, and in the Dutch pair of expressions *ver van* and *verre van*. More generally, it can be expected that the tug-of-war between the forces that cause attraction and differentiation will have some role to play in the long-term development of any pair of functionally similar forms.

Both the simple and the extended competition models miss this component of similarity-based organization, and as a result they run the risk of treating competition as though it takes place in isolation from the rest of the grammar. In general, they fail to predict attraction and, often, they also fail to properly explain differentiation. Stepping out of the competition metaphor helps to account for phenomena that are otherwise counterintuitive or puzzling. If a new metaphor is needed, the situation functionally similar expressions find themselves in may be compared to that of literature's 'star-crossed lovers', fatally attracted to each other but torn apart by their families.

Ultimately, it is of course no good replacing one metaphor by another. A proper model of the dynamics of competition will have to be more comprehensive. First, it should be obvious that the above is not a dismissal of the various factors that earlier work has revealed to affect variation and change, such as social stratification, processing effects, pragmatic constraints and so on. Importantly, this open-ended list may well include isomorphism. Although the above has shown that isomorphism-inspired accounts of language change fall short in several respects, this need not amount to a complete rejection of isomorphism. Other research areas have produced persuasive evidence of the workings of an isomorphic principle, for instance historical dialectology (e.g. De Vogelaer & Coussé 2010), language acquisition (e.g. Markman & Wachtel 1988; Abbot-Smith & Behrens 2006) or animal communication (e.g. Carstairs-McCarthy 2000: 216; Pilley & Reed 2011: 192-4). On more principled grounds, the conflict between isomorphism and the similarity-based organization we have highlighted here is by no means irreconcilable. Both have been seen in the past as manifestations of iconicity (Haiman 1980; Givón 1995: 49; Fischer 2007). As such, both represent ways in which language users make sense of and assign motivation to linguistic structure. That there are conflicting ways of doing

so simply lies in the nature of a system as complex as language. What general role isomorphism plays in language change, then, remains an open question – and a sensible one to pursue.

Second, the preceding discussion has focused on the diachronic processes of attraction and differentiation. In reality, however, there is more diversity in the scenarios of change that a situation of functional overlap can give rise to. It is therefore worth considering which scenarios are likely under which circumstances. For a start, attraction should be possible wherever there is functional overlap, because functional overlap entails the similarity that motivates analogical alignment. However, there are some likely constraints. Analogy can operate only if the analogical model is accessible, which (among other things) depends on its degree of entrenchment ([AUTHOR1] 2016). Therefore, constructions with low entrenchment can be expected to be poor attractors. Attraction will also be curtailed by structural differences (Lehmann 2002: 19; Reinöhl & Himmelmann forthc.). If functionally similar expressions are structurally very different, they may be processed differently or they may map differently onto preferred ways of organizing information. Taking the form of universal tendencies, such effects are probably so fundamental that they will manifest themselves regardless of any analogical pressure, countering attraction. This can be thought of as a variant formulation of Kroch's (1989) 'Constant Rate Hypothesis', according to which certain changes – particularly structural changes – will spread at the same rate in all linguistic environments, meaning that initial differences between environments will remain constant throughout, again countering attraction.

In contrast to attraction, differentiation is probably accidental and exceptional, as it depends on special circumstances. The two cases we have described in detail both involve functionally similar expressions that are anchored to the same more schematic construction but with different force. In the case of *start* and its complements, [*start + to*-infinitive] shifted more quickly to raising verb behaviour, because it was more strongly anchored to other raising constructions (including [*begin + to*-infinitive]). In the case of *ver(re) van*, the two variants came to differ in how firmly they were anchored to the adverb/adjective *ver*, which made *ver van* more resilient to grammaticalization and *verre van* less so. Contrary to attraction, differentiation is caused by analogical relations that stretch beyond the pair of functionally similar expressions. As a consequence, differentiation is probably much less an automatic and predictable outcome of situations of functional overlap.

In addition to attraction and differentiation, there is also substitution and stability, which brings us back to the extended competition model (e.g. Haspelmath 1999; Hawkins 2001; McWhinney 2014; see Section 1 above). Substitution and stability can both be explained in terms of competing motivations operating over linguistic choices. In cases of stability, the motivations that favour either variant are sufficiently balanced out to ensure continued selection of both. In cases of substitution, one variant is consistently better motivated than another, leading to a selectional bias in favour of one variant. To this general picture, two elements can be added from the above discussion.

The first is that substitution probably presupposes some degree of attraction, because variant expressions must develop sufficient functional overlap to allow one to fully substitute for the other. The second is that an expression's chances of survival are in part determined by its constructional network (Petré 2014). The relations that tie an expression to a broader family of constructions not only promote or prevent functional change, as they do in cases of differentiation. They also motivate the expression's very existence, licensing its use as a grammatically adequate means of coding a particular meaning. This is what Langacker (1987: 66) calls 'sanction'. The better an expression fits the conventionalized patterns of grammar, the more sanction it receives, and the more likely it is to be used when the opportunity or need arises. On the one hand, expressions that receive less sanction will be more prone to substitution. On the other hand, if expressions with similar functions receive approximately equal sanction, they can continue to exist side by side without competition ever being resolved.

This, finally, also suggests an answer to the question what gives rise to functional overlap in the first place. It is the broader grammatical system that generates competition, as different expressions each offer grammatically sanctioned solutions to the same coding problem. Put simply, functional overlap arises because it can.

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