On multiple paths and change in the language network

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Abstract: Recent work in Diachronic Construction Grammar (DCxG) has foregrounded the importance of multiple sources of a particular construction, as well as promoting the idea that constructions are organised as a network of knowledge. The research presented in this article explores the ways in which multiple sources play a role at various stages in constructional change, and the effects of this on the structure of the language network. We aim to show how an account of language structure that focuses on links between constructions may be useful in tracking the various stages in the development of a new construction.

Keywords: diachronic construction grammar, *hell*-construction, multiple paths, network

1 Introduction

Recent work in Diachronic Construction Grammar (DCxG) has foregrounded the importance of multiple sources of a particular construction. A standard example is that of the *way*-construction. As a number of authors have observed, the *way*-construction involves the coming together of a number of different lexical and syntactic constructions (e.g. Goldberg 1995; Israel 1996; Mondorf 2010; Traugott and Trousdale 2013). First, there is the range of verb types that appear in the construction: manner verbs (e.g. those that code the shape of the path), means verbs (e.g. those that code the creation of the path) and – much later in the history of the construction – incidental activity verbs (e.g. verbs of sound emission which accompany path creation). Second, there are the argument structure constructions which work as pre-cursors to the *way*-construction in the Old and early Middle English periods. These include both the Intransitive Construction and

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the Transitive Construction. Finally, there are the various NPs headed by *way* (including but not restricted to those which contain a possessive determiner, which becomes a hallmark of the *way*-construction in later periods). It is therefore justifiable to suggest that the contemporary *way*-construction emerges from a set of connections that speakers of English established over successive generations. In other words, there are several paths to constructionhood through the language network.

Our goal in this article is to make more explicit connections between research on multiple sources and the structure of the language network. We are interested in the early stages of a construction's development, and in how (re)connections in the language network might be shown to be relevant for tracking this and later stages of change. In particular, we wish to explore the ways in which multiple sources play a role at various stages in constructional change. In order to achieve this, we look at some traditional kinds of changes that have been shown to occur in language, and reconceptualise these in terms of change to the language network. The kinds of changes we have in mind are frequently attested in the grammaticalization literature, changes such as bleaching and substitution by analogy. We aim to show how an account of language structure that focuses on links between constructions may be useful in tracking the various stages in the development of a new construction.

In this article, we explore the development of various constructions which have led to examples such as those in (1) being considered well-formed in certain English lects.

(1) I got to beat the Devil out of you, child (2015, COCA)
It scared the daylights out of me at the time (2012, COCA)
I respect the hell out of those guys (2019, COCA)

Following Perek (2016), we refer to this as the *hell*-construction.[1] The article is structured as follows. In Section 2, we provide a summary of some key research on multiple sources, and how this relates to the creation of new paths in the language network. Section 3 summarises previous work on the *hell*-construction, especially Hoeksema and Napoli (2008), Perek (2016), and Iwata (2020). Section 4 provides some additional corpus data relevant to our analysis, which is presented in Section 5. Section 6 concludes.

1 Due to the fact that various lexical items may appear in place of *hell*, the construction has also been referred to as the 'V *the* $N_{taboo\text{-}word}$ *out of*-construction' in Hoffmann (2020, 2021).

2 Multiple Sources and the Language Network

In this section, we summarise some of the main findings of work on multiple sources in language change, and how these relate to the idea that language is a network of constructions. The extensive study of grammatical change in the grammaticalization tradition forms much of the foundation of work in DCxG, in which the notion of the construction as a conventionalised unit of form and meaning is central (Barðdal et al. 2015; Coussé, Olofsson, and Andersson 2018; Hilpert 2013); more recently, attention has focussed on the connections between constructions, with the foregrounding of the network metaphor (Diessel 2019; Sommerer and Smirnova 2020; see also Gisborne 2010; Hudson 2007 for studies of the language network in a related framework). In a network model of language, the nodes represent points at which multiple links often meet – as a result, there has been increased interest in the multiple potential sources of new constructions. In particular, the network model provides support for the claim that "grammatical patterns develop out of multiple sources under the influence of a multiplicity of factors" (Breban and De Smet 2019, 879).

As Van de Velde, De Smet and Ghesquière (2015, 1) observe, this marks a change from some earlier work, in which the focus tended to be on tracing "a single historical ancestor" for a given construction. They recognise that multiple lineages in change have often been part of the study of phonology in diachrony (e.g. in the development of phonological mergers) and in morphology (e.g. in the study of suppletion) but this is not always the case in other areas of grammatical change. Trousdale (2015), in an account of the development of expressions such as *he gave him a kicking* meaning 'he attacked him', argues that multiple source constructions help to explain why such examples appear to occupy a middle position on the lexical-grammatical continuum. They in part align with other light verb constructions that mark grammatical aspect (e.g. *he had a bath* 'he bathed'), while also displaying lexical idiosyncracies associated with the *-ing* form that forms a constituent with the indefinite article (such that *he gave her a talking to* means not simply 'he talked to her', but rather 'he berated her').

Work on multiple sources has also focussed on directionality in language change as well as potential explanations for change. Joseph (2015) recognises that positing multiple sources underscores the messiness of language change, while Fischer (2015) identifies multiple sources as a possible motivation for the repeated pathways along which grammatical forms develop. Fanego (2015, 199), in discussing the development of a particular kind of gerundive construction in English, suggests that language users may draw on "their knowledge or experience of a number of related constructions existing at the time." Such an analysis is

consistent with a network model of language which foregrounds the connections that exist within and between related constructions. Finally, Joseph (2015) and Breban and De Smet (2019) draw attention to related changes elsewhere in the system which may have a knock-on effect for the development of particular constructions.

In our discussion of the *hell*-construction, we intend to add to the debate on multiple sources of language change. In particular, we consider:

a. the range of possible influences on the development of the construction (i.e. the likelihood of a unilinear vs. multilinear development)
b. the interaction between specific lexical constructions (both verbal and nominal) and the more general syntactic constructions in which they are embedded
c. how to connect a multiple path account to other kinds of grammatical changes, such as those regularly found in grammaticalization studies.

We turn now to a summary of previous accounts of the construction under investigation.

3 The *Hell*-Construction: Previous Accounts

Here we provide a brief summary of some previous accounts of (the development of) the *hell*-construction. This provides the context for our research, and allows us to make connections to later developments in the construction's history.

3.1 Synchronic Patterns

On taboo terms more generally, Hoeksema and Napoli (2008) observe that one of their functions is to intensify. Interestingly, this intensification function is achieved in a variety of ways. For instance, taboo terms may be used as pre-modifiers of adjectives, as is the case with other degree adverbs:

(2) That's {bloody/really} amazing

But they may also be used in [*as* A *as* N(P)] patterns to indicate high degree:

(3) He's dumb as hell

Furthermore, many other construction types involving taboo terms tend to have a subjective function, marking incredulity or some other heightened emotion on the part of the speaker:

(4) The hell I will (cf. I won't)
Who the hell was that? (cf. Who was that?)
Hell no! (cf. No!)

Hoeksema and Napoli (2008, 351) observe that these "emotionally charged" constructions have little in common in terms of their syntax. But in a network model of language like CxG, where connections operate across both form and meaning, the links between taboo terms and the expression of extreme emotion constitute part of what it means to know a language.

In terms of the specific construction under investigation in the present article, Hoeksema and Napoli (2008) compare it with another construction (which they call the 'G-construction') which also contains the form *the hell*, exemplified by the following:

(5) Get the hell out!

A number of distinctions between (5) and the *hell*-construction (called the 'B-construction' by Hoeksema and Napoli) may be observed. For instance, as Hoeksema and Napoli (2008, 352) note, in (5) *the hell* is not a direct object since it can be omitted:

(6) Get (the hell) out
cf. I respect *(the hell) out of those guys

The taboo term cannot appear before the verb or after the particle:

(7) He got the hell out
cf. He (*the hell) got out (*the hell)

This makes *the hell* unlike other verbal modifiers which do appear before the verb or after the particle, and not in between the verb and particle:

(8) He (quickly) got (*quickly) out (quickly)

That the taboo term favours this medial position can be demonstrated further by looking at more complex phrasal verb patterns (i.e. those which combine with prepositions):

(9) No way am I (*the hell) putting (the hell) up (*the hell) with (*the hell) this
You just have to (*the hell) get (*the hell) it (the hell) over (*the hell) with (*the hell)

The *hell*-construction has rather different properties. First, as Hoeksema and Napoli (2008, 353) observe, intransitive verbs may appear in this construction:

(10) I sat in the waiting area, shaking my foot, fixing my shoelaces, basically fidgeting the hell out of myself (= Hoeksema and Napoli 2008, example (27d))

They suggest that there is a parallel between this form of the *hell*-construction and other constructions with cognate objects or fake objects in resultatives (such as those in *smile a sweet smile* or *drink oneself under the table*). Perek (2016, 165) points out that in cases where the lexical verb denotes some sort of performance (e.g. *play* in *he played the hell out of that Beethoven sonata*) the meaning of the construction shifts slightly: what is intensified is "the quality of this performance" or action. Perek goes on to demonstrate that with other verbs (e.g. *google* in *I kept Googling the hell out of 'stress fracture' and 'femoral neck'* (Perek 2016, 166, example 12), what is intensified is the effort made by the referent of the agent. In addition, Hoeksema and Napoli (2008, 354) make the observation that fake object resultatives often have a degree function. Thus *drink oneself under the table* means 'drink alcohol to excess'.[2] We return to these issues in Section 5.

A second distinction, which is very important as far as the historical development of the construction is concerned, relates to the kinds of verb that participate in the *hell*-construction. In the sample of examples collected by Hoeksema and Napoli (2008), verbs of physical force or abuse (e.g. *knock, kick*) are particularly common, with *beat* the most frequent. However, verbs denoting processes which affect mental states (*frighten, irritate*) are also frequent (with *scare* almost as frequent as *beat*), and other verbs appear which have a more positive semantic prosody (*impress*), or are at face-value neutral (*crayon, advertise, market*). Similarly, using a frame semantic approach to analyse data from GloWbE,[3] Hoffmann (2021, 43) showed that across all types of varieties of English around the world today, about 40% of instances of the *hell*-construction exhibited a verb from the Stimulate_emotion frame (e.g. *annoy*, *hate*, *scare*), and about 25–30% had verbs from the Cause_harm frame (e.g. *beat*, *flog*, *hammer*).

Hoeksema and Napoli (2008) also note that the *hell*-construction is diverse in terms of the range of taboo terms it sanctions, especially in contrast to the type of construction illustrated by *get out*:

(11) He scared the hell/bejeesus/daylights/dickens out of me
Get the hell/*bejeesus/*daylights/*dickens out!

2 This expression is idiomatic beyond the non-compositional meaning of the construction itself. (It is not possible to drink oneself under the table by consuming too much tea, for instance).

3 www.english-corpora.org/glowbe/.

Finally, Hoeksema and Napoli (2008, 364–70) consider the final element in the constructions, noting that the *hell*-construction is restricted to the expression *out of* NP. This contrasts with the other constructional type:

(12) Back the hell off!
Go the hell away!
Leave me the hell alone!

Iwata (2020) presents an analysis of the *hell*-construction in which it is treated as an instance of the Resultative Construction. Iwata is particularly concerned with the nature of constructional relatedness (i.e. how connected the *hell*-construction is with similar constructions, and where differences in meaning lie). As part of his discussion of force-recipients in the Resultative Construction, he considers connections with a more general construction which he refers to as the 'beat __ out of' construction, and investigates whether indeed the force-recipient is not coded as the direct object (cf. *he beat him senseless*), but rather as the complement of the complex preposition *out of* (e.g. *[The cops] beat a confession out of him*, Iwata 2020, 102, example 12a). Specifically, he suggests a network of relations between various sub-instances of the construction, in which the variation is dependent on the effect of the force: whether it moves content out of a container (e.g. *beat the dust out of the rug*), or eradicates content (e.g. *beat the humanity out of someone*), or induces some physiological or emotional effect (e.g. the *hell*-construction). The second and third subinstances are said to profile the two subevents involved in the first (Iwata 2020, 109). A second important aspect of Iwata's account concerns the analysis of *hell*. He suggests, following Meinard (2015), that *hell* is a secondary interjection. Primary interjections (e.g. *Ouch!*) have only this function and do not appear to derive from existing lexical items, while secondary interjections (e.g. *Damn!*) develop from major categories like verbs and nouns, and undergo semantic bleaching. The important connection to the lexical source lies in its illocutionary force (Iwata 2020, 111). Combining these two insights allows Iwata to propose a polysemy network for the *hell*-construction, in which the intensifying sense connects either to physical or psychological force.[4]

Taking these accounts together, we can therefore propose that the *hell*-construction (an instance of which is *I respect the hell out of those guys*) constitutes what we will call a strict construction (i.e. a construction which conforms to the characterisation in Goldberg (1995), rather than the looser definitions of a

4 Further, more fine-grained distinctions are proposed by Iwata (2020). For example, psychological force may be directed externally to the referent of the complement of the preposition (*Bob scared the hell out of Dave*) or internally to the referent of the subject (*Bob envied the hell out of Dave*).

construction which is typical of more recent work in Cognitive Construction Grammar), whereby there are certain formal or functional idiosyncracies unique to this construction. In the case of the *hell*-construction, these are as follows:

a. the construction contains a string (e.g. *the hell*) which is formally the direct object of the verb but which is not an argument of the verb;
b. the theme argument of the verb is coded as the complement of the complex preposition *out of*;
c. unlike the *way*-construction, the *hell*-construction admits a number of related expressions in place of its defining element (i.e. *hell* may be replaced by a number of different taboo terms, not all of which are taken from the semantic field of religion).

3.2 Diachronic Patterns

We turn now to the brief diachronic hypotheses presented in Hoeksema and Napoli (2008) and Iwata (2020), and the substantial diachronic analysis in Perek (2016).

Based on their corpus from Google Books, LexisNexis and Project Gutenberg, Hoeksema and Napoli (2008, 370–1) suggest the *hell*-construction arose in the late part of the nineteenth century. The noun that forms part of the direct object was drawn from the semantic field of religion, and they propose that discourses around exorcism may be useful in tracing source constructions, such as *beat the devil out of someone*. They treat the later development of the construction as a combination of the following:

a. Bleaching. The literal sense of the religious term (e.g. *the devil, Satan*) is "'bleached' to the extent that it became solely an intensifier" (Hoeksema and Napoli 2008, 371).
b. Substitution. The phrase *the hell* is substituted in place of *the devil*. It is suggested that this is under the influence of substitutions in related phrases (*what the devil* > *what the hell*) in the earlier nineteenth century. However, some early twentieth century variants of the *hell*-construction lack a determiner (e.g. *beat hell out of*), and addition of the article is said to be connected to the established patterns in the kind of *wh*-questions noted immediately above (Hoeksema and Napoli 2008, 371–2).
c. Analogy. Similar expressions involving e.g. *life*, *daylights* cooccur with verbs like *scare* from the second half of the nineteenth century on (Hoeksema and Napoli 2008, 373).

As noted in Section 3.1, Iwata (2020) focuses on connections with force dynamic structures in Resultative Constructions, especially the more substantive

construction he refers to as 'beat __ out of'. He suggests that *beat the devil out of someone* is an instance of the subconstruction where content is eradicated, but may be interpreted either figuratively or literally (Iwata 2020, 122). However, since the focus of Iwata (2020) is on a synchronic analysis of the constructions, there is no exploration of historical corpora to track particular changes.

Perek (2016) is a more substantial corpus-based study using COHA. His data suggest that the construction was present (but perhaps infrequent) by at least the 1930s, and that it has grown in productivity over the past hundred years. Psych verbs (*amuse*, *irritate*) and verbs of hitting (*beat*, *whack*) are the two semantic sets around which the predicates of the construction have been and continue to be centered. Perek's multidimensional scaling analysis reveals that in the earliest period under consideration (1930s–1940s) the verbs of physical force form a more tightly knit cluster, while the distribution of the psych verbs is more dispersed. Both sets attract more members over time, but the psych verbs appear to become more productive as a set than the physical force verbs. This is perhaps in part to do with the more varied nature of human psychological experience compared to ways of expressing striking actions (as noted by Perek 2016, 174–179), but the more crucial point is that "semantic variability promotes productivity" (Perek 2016, 179).

In terms of emancipation from the Removal Construction, there are specific idiosyncracies which characterise the *hell*-construction, as follows (see also Haïk 2012; Perek 2016). First, certain elements of the *hell*-construction are fixed and fully phonologically specified, unlike the Removal Construction:

(13) He scared the hell out of/*from me

(14) He took the bell out of/from my hand

Second, intransitive verbs can be used in the *hell*-construction (Perek 2016, 167, example 17, modified):

(15) I've been listening the hell out of your tape
I've been listening *(to) your tape

We return to these issues in Section 5.

4 Additional Corpus Data and Analysis of the Development of the *Hell*-Construction

In this section, we revisit the COHA corpus which provided the data for the analysis in Perek (2016). We also supplement the COHA data with data from the OED. We

make connections with frame semantics, and provide a statistical analysis of some of the data which is different to Perek (2016). Recall that the modern *hell*-construction (e.g. *Bob beat the hell out of him*) has a meaning that is similar to the Transitive Construction with an additional "intensifying function" (Perek 2016, 165; cf. *Bob severely beat him*). Recall further that since various taboo words can be used in the construction, the expression 'the *hell*-construction' may be something of a misnomer. We give the following template for the construction:

(16) $[[NP_i\ V_j\ [\textit{the}\ N_{TABOO}\ \textit{out of}]_k\ NP_l] \leftrightarrow [SEM_i\ \text{excessively}_k\ PRED_j\ SEM_l]]$
(adapted from Hoeksema and Napoli 2008; Hoffmann 2020; Perek 2016)

where PRED denotes the semantics of the verb and SEM the semantics of the nouns (This is deliberately underspecified given the semantic range of verbs and nouns that can appear in the construction). For convenience's sake, however, we will continue to refer to this as the *hell*-construction. In the following, we will outline which constructions acted as the input to (16), making connections with related intransitive constructions (e.g. the B-construction of Hoeksema and Napoli 2008; see Section 3.1 above), the development of the excessiveness meaning, and the characteristics of the taboo slot.

We present our analysis in two parts. The first part (Section 4.1) is concerned with the interplay between the verbal and frame semantics, and the choice of item in the taboo slot in COHA, with a particular focus on the nineteenth century data, with some cross-reference to OED data. The second part (Section 4.2) focuses on the distinction made by Hoeksema and Napoli (2008) between examples like *Get the hell out* (their G-constructions) and *He beat the hell out of me* (their B-constructions), and examines this relation from a historical perspective.

4.1 Connections Within the *Hell*-Construction

As mentioned earlier, Perek (2016) used the Corpus of Historical American English (COHA; Davies 2010) to investigate the development of the construction after 1930. The focus in that article is on tokens of the construction with *hell* in the taboo word slot. In order to explore the evolution of the construction further, taking into account some of the arguments proposed by Iwata (2020), we searched the whole COHA (which contains texts from 1810 to 2009) for all potential taboo words. For this study, we used an off-line version of the corpus that had been transferred into a CQP database. In order to detect all potential slot fillers, we looked for all verbs that were followed by "*the* noun *out of*" (CQP query "[pos = "v.*"] [word = "the"] [pos = "n.*"] [word = "out"] [word = "of"]"). This returned 9213 hits, 1077 of which we identified as potentially relevant. Following Hoffmann (2021, 41), we then

proceeded to annotate all verbs for the semantic frame that they instantiate, using a FrameNet dataset (https://framenet.icsi.berkeley.edu/fndrupal/7) that contained 10,466 lexical units which are associated with 1075 frames.

Our initial findings for the whole corpus largely corroborate those from earlier studies, as follows:

a. in terms of the taboo slot, the most frequent noun is *hell* (327/1077 = 30%), followed by *life* (294/1077 = 27%), *shit* (169/1077 = 16%), *daylight*(*s*) (73/1077 = 7%), and *crap* (49/1077 = 5%).
b. in terms of the predicate, the majority of verbs in the construction come from either the Stimulate_emotion frame (385/1077 = 36%) or the Cause_harm frame (302/1077 = 28%).

Note that our list of nouns includes non-taboo words such as *life* and *daylight*(*s*). The reason for this is that we believe that tokens with these nouns played a crucial role in the constructionalization of the *hell*-construction, despite the fact that there may be specialisation of some subconstructional types in later stages of the language (cf. Iwata 2020 on *beat the life out of* patterns). Recall also that while Hoeksema and Napoli speculate that a major source of the construction are religious contexts involving exorcisms, they also mention "another source of the construction, not involving expletives such as *the devil* but, instead, *the life*: *beat the life out of* X, *scare the life out of* Y, *strangle the life out of* Z, etc." (Hoeksema and Napoli 2008, 373). In the nineteenth century COHA data, 87 out of the 103 tokens have *life* in their noun slot. (17) and (18) give the two earliest instances of the pattern. The corpus search also revealed that the 27 oldest tokens, ranging from 1832 to 1863, all contain *life* (25 tokens) or *life-blood* (2 tokens).

(17) "What's the use," said Mike, in a gentle persuasive tone, "of keeping a man here all night, tearing the life out of him by inches?" (1832, COHA)

(18) "Wat dare not play us a trick, major," replied the sergeant. "He knows I would shake the life out of his carcass if I saw him take one step of a traitor." (1835, COHA)

(17) is an excerpt from the book *Swallow Barn, Or A Sojourn in the Old Dominion*, and in the scene the protagonist is stuck in a situation where he is standing on a muddy surface with his feet slowly stretching apart, without him being able to bring them together again. He fears that he will slowly be torn apart and therefore asks another character (the devil) to help him. Here, the meaning of *tearing the life out of* is one that the OED (s.v. *life*, P11. *to —— the life out of*. Cf. *to death* at DEATH n. Phrases 1.)[5]

5 https://www.oed.com/view/Entry/108093.

paraphrases as "To —— a person, resulting in death. Also figurative." In (18), we then see evidence of the excessive reading being implied, as the sergeant threatens to shake the life out of a carcass (which is already a dead body). Note also that by the 1830s *carcass* could be interpreted as a term of contempt when used in reference to human bodies; cf. OED s.v. *carcass*, n.[6]

Focussing in just on the nineteenth century COHA data, the two most frequent semantic frames are again Cause_harm (25/103 = 24%; e.g. *beat*, *crush*, *knock*) and Stimulate_emotion (15/103 = 15%; *frighten, scare, worry*), which corresponds to the semantic clusters that also dominate the present-day construction, though the proportion of verbs from the Stimulate_emotion frame is lower in the nineteenth century data (15%) than it is for the corpus as a whole (28%), which is consistent with Perek (2016). A nineteenth century instance from the Stimulate_emotion frame is (19):

(19) Till Mr. Phton drove his Darby dilly, Across our quarters, with a bolting filly; Fright'ning the lives out of the beholders, And playing the devil with my 10 freeholders! (1840, COHA)

A potentially important property of the nineteenth century data is that the Cause_to_move_in_place frame accounts for 12% (=12/103) of all tokens, all of which contain the verb *shake*, as in (18). Interestingly, the first noun other than *life(-blood)* in the corpus also cooccurs with *shake*:

(20) Elsa wished in her heart that they had Sarah between their teeth, and shaking the devil out of her. (1865, COHA)

(20) predates the earliest instance of the construction identified by Hoeksema and Napoli (2008: 371) by 20 years. The wider discourse context of (20) reveals that *they* refers to two dogs and is clearly not about an exorcism (but a wish that Sarah be violently shaken by the dogs). Again, evidence from the OED of changing lexical semantics is revealing here: by the start of the nineteenth century, *the devil* had already been in use as "an expression of annoyance, irritation, dismay, or strong surprise." (OED s.v. *devil*, n., P1 d.).[7] This is exemplified by (21), from 1832.[8]

6 https://www.oed.com/view/Entry/27806.

7 https://www.oed.com/view/Entry/51468.

8 In addition to providing evidence for the specific use of the lexical construction *devil*, the example in (21) illustrates another more schematic and subjective (taboo) construction, as discussed in Section 3.1 – see especially example (4) above, and Hoeksema and Napoli (2008).

(21) 'The Pacha has put 12 ambassadors to death already.' 'The devil he has! and I'm sent here to make up the baker's dozen!' (OED s.v. *devil*, n., P1 d (b).)

The next new nouns then appear in 1867 and 1869, as illustrated by (22) and (23) respectively.

(22) The charge came too late. They beat it off easy. They took the starch out of that Twelfth Maine, sir (COHA)

(23) "you nearly frightened the wits out of me. You didn't meet anybody on the bridge?" (COHA)

(22) and (23) again look like instances of the Removal Construction with an agent (*they*/*you*) carrying out an activity that causes the patient (*the starch*/*the wits*) to move out of a source (*that Twelfth Maine*/*me*). As before, however, both constructs also invite a reading along the lines of 'they beat that Twelfth Maine soundly' (cf. OED s.v. *starch*, n.: "*to take the starch out of* … to beat soundly"[9]) and 'you frightened me very much', which have the excessive component of the present-day *hell*-construction.

In addition to the already mentioned nouns, *spots* and *daylight(s)* are the only other nouns that surface in the pre-1900s dataset, as attested in examples (24) and (25):

(24) for Dick had given him a hint of the horse's history, and told him "he could knock the spots out of thirty" (1889, COHA)

(25) The principal amusement the boys have is to scare the daylights out of visitors from the States by telling big stories about cyclones. (1882, COHA)

In (24), *knock the spots off* is again an idiomatic version of the Removal Construction, meaning to "beat thoroughly; to outdo easily" (OED s.v. *spot*, n.[1] and adv. P2 c.).[10] So (24) means 'he (= the horse) could thoroughly/easily beat thirty (other horses)'. Again we find an idiomatic Removal Construction that could have acted as another input construction for the *hell*-construction. The example with *daylights* is similarly open to such an interpretation. The OED provides examples with *beat* and *scare* (the two most prototypical Cause_harm and

9 https://www.oed.com/view/Entry/189091.
10 https://www.oed.com/view/Entry/187518.

Stimulate_emotion verbs of the modern *hell*-construction) as parts of an idiomatic *to beat* (also *scare*, etc.) *the (living) daylights* (also *daylight*) *out of* construction that has a meaning of "to beat, scare, etc., with great severity or intensity." (OED s.v. *daylight*, n. P2 b.)[11]. Again, therefore, we find an idiomatic Removal Construction with a transitive (*the boys scare the visitors*) and excessive meaning ('with great severity or intensity').

4.2 Connections Within and Between Taboo Constructions

Next, we want to explore what our data tell us about the relationship between the *hell*-construction (Hoeksema and Napoli's B-construction) and Hoeksema and Napoli's G-construction (cf. *Get* (*the hell*) *out!*). Above, we already mentioned the formal and semantic differences between the two constructions. Hoeksema and Napoli speculate

> that the B- and G-constructions are about equally old. There is no strong evidence that one gave rise to the other, but the similarities between the two constructions, and the fact that they both at some point substituted *the fuck* for *the hell*, suggest that they are closely related and developed in tandem. If one construction derived from the other, we surmise that the G-construction was derived from the B-construction. This might explain why the oldest attestations of the G-construction involve the preposition *out of* and why *out of*-PPs are still by far the most common type of coda. The precise mechanisms and manner of such a derivation, if correct, remain murky, however (Hoeksema and Napoli 2008: 374)

In the COHA data, the first instances of the G-construction do not appear until the twentieth century (though note that Hoeksema and Napoli (2008: 374) provide an attestation from 1885).

(26) If I ever dreamt you thought that, I'd get the hell out of this barge so quick you couldn't see me for dust. (1920, COHA)

In order to assess the overlap and differences between the two constructions, we submitted them to various tests using the Coll.analysis 3.2a for R script (Gries 2007), which employs a Fisher-Yates Exact test to detect significant association patterns and is therefore fairly robust even in cases of low frequency tokens and often considered the most precise collocational test (Evert 2009, 1235; Gries 2015a, 2015b). The script outputs collostructional.strength as a measure of significance (with values > 1.30103 = $p < 0.05$; >2 = $p < 0.01$; >3 = $p < 0.001$; see Stefanowitsch and Gries 2005, 7 for details). In addition to this, it also provides Δp values which are a

11 https://www.oed.com/view/Entry/47546.

directional measure of association that ranges from –1 (strong repulsion) to +1 (strong attraction; Gries 2015a, 2015b).

Table 1 presents the results of a Coll.analysis of the noun slot and the construction type (B-cxn vs. G-cxn) for all positively-associated combinations that have an expected frequency of at least ≥5 (an assumption often required for goodness-of-fit tests such as the chi-square test; cf. Gries 2008, 152). In line with Hoeksema and Napoli (2008, 360–1), Table 1 shows that while the taboo terms *hell* and *fuck* appear in both constructions, they are positively associated with the G-construction. All other nouns (*life*, *shit*, *daylight*(*s*), *crap*, *bejeesus*, *wits*, *tar* and *heck*) are significantly associated with the B-construction.

As expected by the different types of verbs the two constructions attract (Hoeksema and Napoli 2008, 357–8), it is not surprising that each also exhibits different significant V-N combinations. Table 2 shows that only *GET the hell out of* is significant for the G-construction.

The B-construction, on the other hand, has numerous significant V and N pairs, many of which contain Cause_harm verbs (e.g. *CRUSH the life out of*, *BEAT the shit out of*, *BEAT the crap out of*) or Stimulate_emotion verbs (e.g., *SCARE the wits out of*, *WORRY the life out of*, *SCARE the bejeesus out of*), as we see in Table 3.

The statistical analysis thus supports the view that the constructions remain fairly distinct, not only with respect to their morphosyntactic features (cf. Section 3), but also with respect their usage profiles. The COHA data also give no indication that one of the two constructions directly emerged from the other. Instead, we will argue that their evolution can be accounted for by a multiple source construction analysis.

5 A Multiple Path Analysis

In Section 2, we highlighted the following as potentially relevant for an analysis of the *hell*-construction. In this section, we deal with each of these in turn.

a. the range of possible influences on the development of the construction (i.e. the likelihood of a unilinear vs. multilinear development)
b. the interaction between specific lexical constructions (both verbal and nominal) and the more general syntactic constructions in which they are embedded
c. how to connect a multiple path account to other kinds of grammatical changes, such as those regularly found in grammaticalization studies.

Table 1: Positive associations of N slot and construction type.

N	CXN	Freq N	Freq CXN	Observed N & CXN	Expected N & CXN	Relation	Δ*p* (CXN|N)	Δ*p* (N|CXN)	Collostructional. strength
hell	G-cxn	663	377	336	171.91	Attraction	0.45	0.59	92.86***
life	B-cxn	294	1077	294	217.77	Attraction	0.32	0.27	43.7***
shit	B-cxn	169	1077	169	125.18	Attraction	0.29	0.16	23.66***
fuck	G-cxn	42	377	38	10.89	Attraction	0.66	0.1	18.32***
daylight_s	B-cxn	73	1077	73	54.07	Attraction	0.27	0.07	9.8***
crap	B-cxn	50	1077	49	37.04	Attraction	0.25	0.04	5.36***
bejeesus	B-cxn	36	1077	36	26.67	Attraction	0.27	0.03	4.76***
wits	B-cxn	24	1077	24	17.78	Attraction	0.26	0.02	3.16***
tar	B-cxn	18	1077	18	13.33	Attraction	0.26	0.02	2.36**
heck	B-cxn	17	1077	17	12.59	Attraction	0.26	0.02	2.23**

Table 2: Positive associations of V LEMMA and N slot in the G-construction.

V	N	Freq V	Freq N	Observed V& N	Expected V & N	Relation	Δ*p* (N|V)	Δ*p* (V|N)	Collostructional. strength
get	*hell*	363	336	327	323.52	Attraction	0.26	0.1	1.94*

Table 3: Positive associations of V LEMMA and N slot in the B-construction.

V	N	Freq V	Freq N	Observed V& N	Expected V & N	Relation	Δ*p* (N|V)	Δ*p* (V|N)	Collostructional. strength
crush	*life*	30	294	30	8.19	Attraction	0.75	0.1	17.4***
choke	*life*	27	294	25	7.37	Attraction	0.67	0.08	12.13***
beat	*shit*	156	169	57	24.48	Attraction	0.24	0.23	11.71***
kick	*shit*	48	169	25	7.53	Attraction	0.38	0.12	8.73***
squeeze	*life*	25	294	21	6.82	Attraction	0.58	0.07	8.46***
scare	*wits*	245	24	18	5.46	Attraction	0.07	0.53	7.25***
worry	*life*	22	294	16	6.01	Attraction	0.46	0.05	5.02***
beat	*crap*	156	49	19	7.1	Attraction	0.09	0.25	4.82***
take	*life*	25	294	16	6.82	Attraction	0.38	0.04	3.95***
scare	*bejeesus*	245	36	18	8.19	Attraction	0.05	0.28	3.61***
scare	*daylight_s*	245	73	26	16.61	Attraction	0.05	0.14	2.17**
frighten	*life*	25	294	13	6.82	Attraction	0.25	0.03	2.16**

5.1 Unilinear and Multilinear Developments

The first issue concerns the argument structure constructions which have a role to play in the development of the *hell*-construction. Perek (2016, 166) suggests that a potential origin is the Removal Construction, from which the modern construction, with its intensifying meaning, has been emancipated. Iwata (2020) instead suggests that the modern *hell*-construction is an instance of the Resultative Construction, albeit one which is used in a particular figurative (specifically, hyperbolic) way. Both authors, along with Hoeksema and Napoli (2008), agree that there is an intensifying function associated with the modern construction. We believe our corpus data allows us to present an account which unifies some of these apparently disparate positions.

Our first suggestion concerns potential links in the language network between Removal and Resultative Constructions – or rather, between subconstructional variants of these constructions. Perek (2016, 166), drawing on Goldberg (2011), characterises the meaning of the Removal Construction as 'X CAUSES Y to MOVE from Z'. This is a specific instance of the Caused Motion Construction where the locative element (Z) denotes the Source. Goldberg and Jackendoff (2004, 540) classify Caused Motion Constructions as a subtype of Resultative Construction (specifically, a causative path resultative). We therefore suggest that Perek's and Iwata's accounts are not incompatible: each has focused on a different dimension of the path that leads to the *hell*-construction. Specifically, there are a number of lineages that come together to form the *hell*-construction. For instance, the Removal Construction combines the general Caused Motion Construction with a more specific Path element (where the complement of the preposition denotes the Source, rather than, say the Goal). Similarly, the kind of Resultative Construction that Iwata (2020) discusses involves not just the general schema, but rather a specific subvariant (i.e. one which involves a PP not an AP as the Resultative Phrase, and which has a specific meaning of causative path). We treat the *hell*-construction as therefore most directly linked to an idiomatic interpretation of the Removal Construction, one which is the product of multiple lineages from multiple argument structure constructions.

Our second suggestion concerns the later development in which *the hell* is interpreted not as an argument of the verb (or the construction), but rather as a type of degree modifier, with an intensifying function. Here we see other argument structure constructions playing a role: in an example like *I respect the hell out of him*, the most pertinent argument structure construction in terms of the contribution of semantic roles is the Transitive Construction, whose syntax is overriden by the specific structural properties of the *hell*-construction, which as we

said immediately above has the syntax of the Removal Construction. This is a further facet of the multiple paths approach that novel constructions may inherit the semantics from one lineage, and the syntax from another.

We illustrate this development beginning with our example (17), repeated below as (27), which we interpret as an instance of the Removal Construction.

(27) "What's the use," said Mike, in a gentle persuasive tone, "of keeping a man here all night, tearing the life out of him by inches?" (1832, COHA)

Here, an unspecified agent (but potentially Mike and/or his addressee) suggests the futility of carrying out an activity that causes life to move out of a source (coded by *him*). Since life leaving someone entails their death, we suggest that over time V *the life out off* is reinterpreted as denoting CAUSE-BECOME-DEAD, with the means coded by the verbal subevent. This is the literal sense of 'V the life out of' in Iwata (2020). But within three years of the example in (27) we have a potential instance of the non-literal use in (28), which is our earlier example (18):

(28) "Wat dare not play us a trick, major," replied the sergeant. "He knows I would shake the life out of his carcass if I saw him take one step of a traitor." (1835, COHA)

Even if *carcass* is interpreted metonymically (i.e. DEAD BODY for BODY) to dehumanise Wat, the construct sets up a meaning space in which *the life* could also be interpreted figuratively, and the construction as a whole could be interpreted as one which involves marking a process denoted by the verb as one which happens to an excessive degree. Thus, as the modern *hell*-construction develops, the noun phrase *the life* (and other related variants) consequently lost its syntactic status as an object. Further, any verbal action that causes someone's death could be considered excessive by nature. (28), therefore, already carries the seeds (in terms of the loss of object status of the NP, and the pragmatics of implying an excessive event) that characterize the modern construction.

5.2 Interactions Within the Construction

A further way in which multiple paths are of relevance to the development of the modern *hell*-construction concerns interactions between the predicate and what we have described as the 'taboo' term (though we recognise that nouns like *life* and *daylights* are not themselves taboo). By searching COHA for items other than *hell* which might fit the slot of the construction, we were able to see how various lexical constructions interact with argument structure over time.

The results of our corpus search, detailed in Section 4.1, showed that while *hell* comes to be used most frequently over the period as a whole, instances with *life* are also frequent, and early. Using a frame semantics approach, we found that the Cause_to_move_in_place frame accounts for 12% (=12/103) of all tokens, and that all of these tokens also have the predicate *shake* (see example (28) above). The next noun that appears in this frame with *shake* is *devil*, which connects with Hoeksema and Napoli's analysis regarding early uses that may be connected with discourses on exorcism. A multiple paths analysis, which looks not just at individual verbs and individual nouns, but also their varying combinations and crystallisations, helps to contextualise some of these earlier findings, and the broader corpus analysis involving frame semantics captures further generalisations.

The same holds for our analysis of the relationship between the *hell*-construction and a variant of Hoeksema and Napoli's G-construction. Formally, the variants of the G-construction and B-construction appear very similar, since both exhibit taboo nouns after the verb and contain the string *out of*. Yet a closer look reveals that they also crucially differ in various important aspects. We represent the G-construction as in (29):

(29) G-construction (e.g. *She got the hell out of Dodge*)
$[[NP_i\ V_j\ [\textit{the}\ N_{TABOO}]_k$ out $([\text{of}\ XP_l])]] \leftrightarrow [[SEM_i\ PRED_j\ (SEM_l)]$ | subjective function: [speaker's heightened emotion]$_j$]]
i = Subject/Theme
l = Oblique/Source

The G-construction is closely related to the Intransitive Motion Construction (cf. Hoffmann 2022, 186), as can be seen when the taboo-NP is omitted (*She got out of Dodge*); but notice too that the PP containing the Source NP can also be omitted (*She got out*). What separates the G-construction from the regular Intransitive is thus not just the taboo-NP, which speakers use to express a subjective function of heightened emotion, but also the structure and function of the prepositional structures which follow the taboo term.

The *hell*/B-construction, on the other hand, expresses a meaning similar to the Transitive Construction, and is represented as (30). This is similar to our version in (16) above, but we have now added the important dimension of subjective function (see also Hoffmann 2022, 183):

(30) The *hell*/B-construction (e.g. *She beat the hell out of George*)
$[[NP_i\ V_j\ [\textit{the}\ N_{TABOO}]_k\ [\textit{out of}\ [NP]_l]] \leftrightarrow [[SEM_i$ excessively$_k$ $PRED_j\ SEM_l]$ | subjective function: [speaker's heightened emotion]$_k$]]
i = Subject/Agent
k = Oblique/Theme

As (30) shows, the *hell*/B-construction also exhibits the heightened emotion function, which in the constructional network means that it is connected to the G-construction. This heightened emotion property is also linked to the taboo items that are associated with the subjective function. At the same time, in contrast to the G-construction, the taboo-NP in the *hell*/B-construction also carries the additional meaning of excessiveness, which accounts for the different morphosyntactic properties of the taboo-NPs in the two constructions. How did the *hell*/B-construction acquire this extra semantic function? Following Perek (2016), we believe that the Removal Construction was another input for the evolution of the *hell*/B-construction. Yet, our COHA data imply that the input was not the more abstract, schematic Removal Construction, but rather idiomatic Removal Constructions in which a former object NP was reinterpreted as a type of degree marker that signaled that an action had been carried out completely, utterly and excessively (cf. the nineteenth century examples above involving *tearing the life out of*, *knocking the spots out of*, or *frightening the wits out*, etc.). Moreover, these idiomatic Removal Constructions also lent themselves to construals with Cause-harm (e.g., *beat the life out of*) as well as Stimulate_emotion (e.g., *scare the life out of*) interpretations, both of which remain the most prototypical frames associated with the V slot of the modern *hell*-construction. Note that sentences with *the devil* in the object NP slot that Hoeksema and Napoli (2008) mention (e.g., *beat/scare the devil out of*) work similarly and might, therefore, have been another source that contributed to the rise of the construction.

5.3 Connecting Changes

The final part of our analysis is concerned with connecting our multiple paths account with other types of grammatical changes. In Section 3.2 above, we listed three types of change which Hoeksema and Napoli (2008) suggested were characteristic of the development of the *hell*-construction: bleaching, substitution and analogy. We look at each of these now from the perspective of multiple paths.

Hoeksema and Napoli (2008) argue that as the *hell*-construction comes into being, the taboo term bleaches, since the construction develops a more grammatical function of intensification. It is certainly the case that the literal meaning of the lexical item in that slot is backgrounded, as the subjective function of the construction increases. We suggest that the bleaching is a combination of two related processes: the metaphorical use of some of the non-taboo terms (like *life*, see Iwata 2020), along with the creation of a slot as the product of interaction with the verb. We argued above that one of the ways in which the construction may develop is that different combinations of verbs and taboo terms occur: what used to

be particular collocations (e.g. *tear-life*) may become weaker by the introduction of a new item in the verb slot (e.g. *shake-life*) which then in turn might be followed by the introduction of a new item in the taboo slot (e.g. *shake-devil*). As the number of items in the 'taboo' slot increases, and the construction becomes increasingly subjective, so the literal meaning of items in the taboo slot is backgrounded as the intensifying function grows.

This connects to the issue of substitution too, except here we are dealing with cross-constructional borrowing. Thus if *the devil* has a subjective ('heightened emotion') interpretation as part of a formally idiosyncratic negation construction (e.g. *The devil I will* = 'I will not' + marking of speaker's heightened emotion), we suggest it becomes available to fulfil a similar function in another formally idiosyncratic pattern (e.g. *he beat the devil out of him* = 'he beat him excessively' + marker of speaker's heightened emotion). We suggest that further constructions – where the taboo term has an overtly intensifying function (e.g. *Hell yes!*) – facilitate the development.

This brings us to the final point, about analogy. The analogical issue that Hoeksema and Napoli (2008) raise is actually related to the substitutions we see as part of the multiple paths account. We suggest that our capacity to engage in analogical thinking is precisely what allows us to make connections between constructions in particular discourse contexts, and to establish new links in the language network. Indeed, analogical thinking is at the heart of the creation of the taboo slot in the *hell*-construction, and enables speakers to see connections between the *hell*-construction and the G-construction. The collostructional analysis we carried out in Section 4.2 is one way of attempting to show how the creation of these connections plays out in a corpus of historical texts. Some taboo terms are more strongly associated with one construction over another; some verbs are more likely to pair with particular taboo terms than others in different constructions. These fine-grained connections are to be expected in a theory of language which privileges not only the idea that language should be understood as a network, but that the nodes of that network are connected to multiple other nodes, often as a product of changes in use of the language network over time.

6 Conclusion

In this article we have focussed on a small part of the language network of a population of English speakers for whom expressions like *he scared the bejeesus out of me* and *Get the hell out!* are well-formed expressions (even if they may be highly informal and potentially taboo). We drew on existing research, supplemented by our own corpus analysis, to present a unified account of the

development of these patterns in which we drew attention to the multiple paths involved in the creation of the constructions. We suggested that the existing accounts have more in common than might have been previously imagined, especially if we think in terms of multiple sources. We reconceptualised some kinds of grammatical changes in terms of changes to network structure. Thinking about language change in this way (i.e. in terms of reconfiguration of links in a network) is particularly appropriate for usage-based approaches like DCxG.

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