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Tracing the history of deontic NCI patterns in Dutch: A case of polysemy copying¹

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Abstract

While the so-called “nominative-and-infinitive” (NCI) is no longer a productive construction in Dutch, the grammar of Present-day Dutch still contains a small set of lexically substantive NCI patterns, most notably *geacht worden te* and *verondersteld worden te*. Like their English formal equivalent *be supposed to*, these Dutch patterns can instantiate both evidential and deontic constructions, the latter being the most frequent one in Dutch. This paper focuses on the history of these deontic uses. We show that, with both patterns, the deontic use did not really take off until well into the second half of the 20th century and argue against an analysis in terms of grammaticalization along an (unlikely) ‘evidential to deontic’ path. Instead we present a language-contact hypothesis which attributes the development of the deontic uses of Dutch *geacht worden te* and *verondersteld worden te* to polysemy copying or distributional assimilation, English *be supposed to* providing the model. Additional evidence for the influence of English on this domain of Dutch grammar comes from the newly emerging lexically substantive NCI pattern *verwacht worden te* ‘be expected to’.

1. Introduction

As is well documented in a number of diachronic contrastive studies, the so-called “accusative-and-infinitive” (ACI) and “nominative-and-infinitive” (NCI) patterns have met with a dramatically different fate in Dutch compared to English (cf. Fischer 1994; Noël & Colleman 2009, 2010; Colleman & Noël 2012). Whereas both patterns were shared by the grammars of both languages a couple of centuries ago, they have remained productive only in English. In Dutch, the ACI has virtually disappeared from the grammar, and the NCI is no longer productive but is limited to a handful of verbs, most notably *achten* ‘consider, suppose’ and *veronderstellen* ‘suppose’. Examples of these verb-specific NCI patterns are given in (1) and (2).

- (1) *Chefs van afdelingen worden geacht excessief of nutteloos surfen te voorkomen.* (ConDiv-NRC)
‘Heads of departments are supposed to prevent excessive and useless surfing.’
- (2) *Een abt wordt verondersteld in zijn abdij te vertoeven.* (ConDiv-GVA)
‘An abbot is supposed to reside in his abbey.’

Note that the NCI patterns in these examples express a *deontic* meaning, just as the formally cognate English pattern *be supposed to* can do (cf. the English glosses), a pattern which is sometimes called a “semi-modal”, “quasi-modal” or “periphrastic modal” in the English grammatical literature (e.g. Depraetere & Reed 2006; Huddleston & Pullum 2002). Recently,

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the development of the deontic use of *be supposed to* has drawn a fair amount of attention, also for reason that it has been taken to present a counterexample to the purportedly (quasi-)universal grammaticalization path from deontic to epistemic meanings (cf. Ziegeler 2003; Mair 2004; Visconti 2004; Berkenfield 2006; Moore 2007; Noël & van der Auwera 2009). The questions addressed in the present paper are when and how the Dutch patterns illustrated in (1) and (2) developed their deontic functions, and whether, and if so how, this development is related to the history of the English deontic NCI construction, which subsumes not only *be supposed to* but also *be expected to*.

The paper is structured as follows. Section 2 presents a more elaborate introduction to the form and function of the ACI and NCI constructions, and their history in English and Dutch. Next, as a preliminary to the analysis of the Dutch patterns *geacht worden te* and *verondersteld worden te*, section 3 briefly reviews two alternative hypotheses on the development of English deontic *be supposed to* that were (re-)examined in the recent literature referred to in the previous paragraph. Section 4 charts the presence of deontic NCIs in a number of diachronic and present-day Dutch corpora, and section 5 presents our hypothesis on the origin of the Dutch deontic patterns, which crucially refers to the views on grammatical replication developed in Heine & Kuteva (2003, 2005) and Gast & van der Auwera (2012). Section 6 briefly comments on another emerging lexical NCI pattern in Dutch, viz. *verwacht worden te* ‘be expected to’ and section 7 presents our conclusions.

2. The ACI and NCI constructions of English and Dutch: form, function, and diachrony²

The accusative-and-infinitive, or “accusativus cum infinitivo” (whence the abbreviation “ACI”), is a pattern that consists of an active perception, cognition or utterance verb (which Givón 1990 has grouped as “P-C-U verbs”) complemented by a *to/te*-infinitive that has its own explicit subject, as illustrated by the underlined bits in (3) and (4). Both in Chomskyan and post-Chomskyan linguistics this pattern is usually referred to as “raising to object”, also outside formalist paradigms (see, e.g., Givón 1993).³ However, we have used the term borrowed from Latin grammar in previous work (Noël 2003, 2008; Noël & Coleman 2009, 2010) and will continue to do so here for reasons that will become clear below, having to do with the origin of the pattern.

- (3) *The former Lord Chancellor, Lord Hailsham, said he believed the scientific community to be a responsible one.* (BNC A96 259)
- (4) *Elk meent zijn uil een valk te zijn.* (Dutch proverb)
‘Everyone considers his owl to be a falcon.’

Our description, and the two examples, should make clear that what we are referring to is the pattern which is sometimes called the “genuine”, “learned” or “Latin-type” ACI (e.g., see

² This section incorporates parts of Noël & Coleman (2010).

³ Another term used in work that links up with formalist linguistics is the Government and Binding expression “Exceptional Case Marking”, or its abbreviation, “ECM”.

Fischer 1989, 1992, 1994). The term “ACI” has also been used to refer to perception verbs and causative verbs (*make*, *let*) followed by “accusatives” and bare infinitives, and mandative verbs (e.g. *order*) followed by accusatives and *to*-infinitives, but these patterns fall out of the scope of this paper.

The nominative-and-infinitive, or “nominativus cum infinitivo” (whence “NCI”), consists of a passive P-C-U verb complemented by a *to/te*-infinitive, as in (5) and (6), and is often referred to as “raising to subject”.

- (5) *BOMB DISPOSAL specialists were yesterday called out to beaches on the south-west coast of Scotland after Second World War phosphorus canisters believed to be from an undersea dump were washed ashore.* (BNC K5D 9706)
- (6) *De boten worden geacht over een dag of vier Kaap Hoorn te ronden.* (ConDiv-Telegraaf)
 ‘The boats are predicted to round Cape Horn in about four days.’

The functionality of the ACI has received a considerable amount of attention in the linguistics of English, where it is usually contrasted with that of a matrix + *that*-clause construction, both in a synchronic (see Noël 1997, 2003; and the references there) and a diachronic perspective (see Fischer 1989, 1992; Los 2005; and the references there). However, while the terms “accusative and infinitive” and “ACI” are not unusual, especially in historical English linguistics, “nominative and infinitive” and “NCI” are not commonly used in Anglophone linguistics, since the NCI pattern is usually perceived as merely the passive counterpart of the ACI and consequently is not given independent attention. Largely the same is true of Dutch linguistics, where the ACI has mainly been treated in historical accounts (e.g. Duinhoven 1991; Fischer 1994), Zajicek (1970) being the only dedicated study of the ACI in Present-day Dutch. Since our focus is on the NCI, we will not elaborate on the functionality of the ACI here. As to the functionality of the NCI, we have proposed in Noël (2008) and Noël and Coleman (2009, 2010) that, both in English and in Dutch, NCI patterns usually have a symbolic value which is quite different from that of the passive and that therefore the NCI cannot in most cases be reduced to a combination of an ACI construction and the general passive construction. In construction grammar terms, the NCI is not merely the passive version of the ACI, but qualifies as a construction—or rather, a cluster of constructions—in its own right.

In English, both the ACI and the NCI patterns are productive morphosyntactic configurations that allow a great variety of P-C-U verbs. However, not only is the variety greater in the case of the NCI, the NCI is also generally more frequent than the ACI. In the 100-million-word British National Corpus (BNC), the overall ratio is almost three to one, but for some representatives of the P-C-U class figures are much more dramatic, to the point that some verbs do not display the active pattern at all (e.g. *say*, *rumour*, *repute*; see Noël 2001 for details). This is the observation that led us to suspect that the NCI is not just a passive, because passives are not normally more frequent than actives (see, e.g., Biber et al. 1999). We have proposed in Noël (2008) that most NCI patterns have at least three uses and that a distinction should be made between a plain passive NCI (as in 7), an evidential NCI (8) and a descriptive NCI (9). Only the first of these constitutes a mere combination of an ACI

construction and the general passive construction. The other two are constructions in their own right, with specific semantic properties. The discussion of the examples will help to make clear this distinction.

- (7) *In this book authorities are said to be limited also by the kinds of reasons on which they may or may not rely in making decisions and issuing directives, and by the kind of reasons their decisions can pre-empt.* (BNC ANH 148)
- (8) *AMERICAN ring doughnuts from The Delicious Donut Co are made from a flour which is said to give them a light, fluffy, and non-greasy consistency.* (BNC A0C 1141)
- (9) *A market can be said to be a place where buyers and sellers meet to make an exchange of goods (or services).* (BNC K8W 508)

We call the NCI in (7) a “plain passive” (even though no active “equivalent”, i.e. an ACI, with *say* is possible in Present-day English) because the meaning of the matrix verb (*said*) is very much part of the propositional meaning of the sentence, which refers to a spatiotemporally locatable utterance act: a statement made “in this book”. In this example the meaning of *are said to* is very much “on-stage” (cf. Langacker 1987): if you remove it, the sentence becomes nonsensical, or at the very least conveys an altogether different meaning (*?In this book authorities are limited also by...*). The NCI is used here for the same information packaging reasons that motivate the use of the passive generally (compare: *The authors of this book say that authorities...*). In (8) and (9), on the other hand, the meaning of the *be said to* pattern is “qualificational” (cf. Aijmer 1972: 39; Nuyts 2001: 113). These sentences do not report on a specific utterance act. The meaning of *be said to* is “off-stage” here and you can safely remove the pattern, so that *said* can be argued to no longer be a matrix verb, but to be part of an auxiliary-like construction that modifies the meaning of the infinitive. (8) and (9) have in common that the NCI is not used for information structural reasons (since it can be left out: *...a flour which gives them...*, *A market is a place...*), but they differ in that they illustrate two different form-meaning pairings. In (8) the modifying construction has an evidential function, i.e. its writer uses the pattern to indicate that s/he has a *source* for the information s/he is conveying, so that s/he is not the (sole) judge of the factuality of the statement that American ring doughnuts are light, fluffy, and non-greasy (see Noël 2008 for further elaboration). In (9) the modifying construction connects a description with a descriptum (see Goossens 1991).

Other frequent instantiations of the “evidential NCI construction” in Present-day English are *be alleged to*, *be assumed to*, *be believed to*, *be claimed to*, *be considered to*, *be deemed to*, *be estimated to*, *be expected to*, *be felt to*, *be found to*, *be held to*, *be known to*, *be reported to*, *be seen to*, *be shown to*, *be supposed to*, *be taken to*, *be thought to* and *be understood to* (Noël 2008). Whether these can all realize the “descriptive NCI construction” as well remains to be seen. Highly relevant to our present purpose, however, is that two of these patterns can carry the additional meaning illustrated in (10) and (11).

- (10) *Pupils are expected to use their Maths to solve problems.* (BNC K9X 434)
- (11) *You were supposed to do six and you only did four!* (BNC KST 788)

In these examples *be expected to* and *be supposed to* instantiate a “deontic NCI construction”. They can be paraphrased with “Pupils should use their Maths to solve problems” and “You should have done six and you only did four” (see Collins 2009: 80 on the semantic affinity between *be supposed to* and the modal *should*, as well as the much less frequent modal *ought to*). The following examples illustrate that the same patterns can also be the realization of a plain passive (12-13) and the evidential NCI construction (14-15).

- (12) *Standards for exposure to benzene are expected by the UK government to be set in 1993: a level of 3 ppb is under consideration, although according to the World Health Organization there is “no known safe threshold dose”. (BNC JC3 608)*
- (13) *The mechanism supposed by Miller (1948) to underlie acquired equivalence is that introduced by Hull (1939) with his notion of secondary generalization. (BNC APH 1337)*
- (14) *The Japanese economy is expected to grow by only 3.8% during fiscal 1991 compared with this year’s 5.2%. (BNC ABD 953)*
- (15) *Napoleon is supposed to have said “An army marches on its stomach.” (BNC A77 422)*

Be supposed to has yet another use, illustrated in (16) and (17).

- (16) *The race was supposed to be taking place in blazing sunshine, but the sun refused to come out and there was even some rain. (BNC HRF 1117)*
- (17) *I didn’t think much of the first time really. It wasn’t how I imagined it. I thought you were supposed to enjoy it, and it was half and half really. (BNC FU1 147)*

Visconti (2004: 185) terms this the “epistemic” use of *be supposed to*, because it “evokes a possible world, a state of affairs which would be expected to occur but does not”, often in contexts containing “counterfactual signals” like *but, in fact, in reality, ...* To our mind, however, “counterfactual” is the operative word here, rather than “epistemic”, because no judgement of the (un)certainly or probability of a proposition (cf. van der Auwera & Plungian 1998: 81) is involved.

In Dutch the ACI and NCI are much less “part of the grammar” than in English. To illustrate the ACI construction in Present-day Dutch we resorted to presenting an archaism in (4), obviously a relic from a time when the pattern was more common in Dutch than it is now, because modern examples of the pattern are very hard to come by. In historical accounts the ACI is said to have had two usage peaks (see, e.g., Duinhoven 1991). It occurred more than sporadically at the start of the Middle Dutch period (generally taken to span the time from 1200 to 1500), but rapidly grew out of fashion again during that period. Later it enjoyed a brief moment of popularity in the early stages of Modern Dutch (late 16th and 17th century), mainly in the formal writings of authors who had had a classical training (Van Leuvensteijn 1997). Subsequently it disappeared from the language, barring a few relics (e.g., Duinhoven 1991; Fischer 1994). Zajicek (1970: 203) claims that the ACI still occurs with a limited set of P-C-U verbs in very formal administrative and didactic texts, but Duinhoven (1991: 425) questions the grammaticality of most of the examples he offers, though he recognizes that the

ACI is not altogether impossible in relative clauses. The Dutch NCI, on the other hand, has survived better than the ACI, but it is a far less prolific pattern there than in Present-day English. Corpus research of our own (Noël & Coleman 2009) revealed that the only patterns occurring today with any frequency are *geacht worden te* ('be considered/supposed to'), *verondersteld worden te* ('be supposed to') and, to a lesser extent, *verwacht worden te* ('be expected to'). While the 20 most frequent NCI patterns in Present-day English occur with a frequency of 340.47 tokens per million words in the entire BNC, and with a frequency of 433.45 and 710.53 tokens per million words respectively in a newspaper and a natural sciences sub-corpus of it, these three Dutch patterns together only occur with a frequency of 4.4 tokens per million words in a fragment of about 12.5 million words of the newspaper component of the Dutch ConDiv corpus. This is just about the frequency the Dutch NCI had overall in the second half of the 17th century (4.21 tokens per million words). What happened in between then and the end of the 20th century was first a relatively steep overall frequency rise till some point in the 18th century (to 17.8 tokens per million words), followed by a more gentle overall drop in frequency. The currently most frequent NCI pattern, *geacht worden te*, did not follow this pattern, however, and has seen a steady but very mild increase in its frequency since the 17th century, while *(ver)ondersteld worden te* was first in line with the overall drop after an 18th-century high, but then picked up again (for details, see Noël & Coleman 2009). As we will discuss further below, *verwacht worden te* is a later introduction.

Like the English NCI, the Dutch NCI is not simply a passive. Arguably, the examples in (18-19) are plain passives relevantly similar to the English plain passive NCI in (7) above, in that the meanings of *achten* and *veronderstellen* are on-stage: these instances report on someone—the organisers of the election in (18), the 19th century practitioners of phrenology in (19)—considering or supposing something to be the case. However, like in English, such examples account for a small minority of NCI examples only. Nowadays, Dutch NCI examples most often instantiate a deontic NCI construction (20-21), less often an evidential NCI construction (22-23) and occasionally also a descriptive NCI construction (24-25). We are exemplifying all of these uses here for *geacht worden te* and *verondersteld worden te* only (for examples of *verwacht worden te*, see section 5).

- (18) *En dus werd er een truc bedacht. Iedereen die grond had in een te verkavelen gebied, mocht meestemmen over het doorgaan van de verkaveling ... Kwamen ze niet dan werden ze geacht voor te zijn.* (ConDiv-De Limburger)
 'So a trick was thought up. Everyone who possessed land in an area designated for allocation was allowed to participate in a vote on whether the scheme should go ahead. If they did not show up, they were considered to be in favour of it.'
- (19) *Zijn hoofdstukje over de frenologie - een ... negentiende-eeuwse tak van de medische wetenschap, waarbij uitwendige schedelkenmerken verondersteld werden hoedanigheden van de hersenen te weerspiegelen - is zelfs ronduit hilarisch.* (INL-De Standaard)
 'His chapter on phrenology – a 19th-century branch of medical science according to which the shape of the skull was supposed to reflect properties of the brain – is positively hilarious even.'

- (20) *Chefs van afdelingen worden geacht excessief of nutteloos surfen te voorkomen.* (ConDiv-NRC)
 ‘Heads of departments are supposed to prevent excessive and useless surfing.’
- (21) *Iedereen wordt dan verondersteld met het Klein Gevaarlijk Afval naar de containerparken te gaan.* (ConDiv-Laatste Nieuws)
 ‘Everyone is then supposed to take the Small Toxic Waste to the recycling centre.’
- (22) *Ze werden populair bij atleten en wielrenners omdat meer rode bloedlichaampjes worden geacht een “zuurstofvoorsprong” te geven.* (ConDiv-NRC)
 ‘They [EPO hormones] became popular with athletes and cyclists because more red blood cells are thought to give an “oxygen advantage”.’
- (23) *De belangen van personages blijken uit hun handelingen en die roepen bij het publiek bepaalde affectieve disposities op jegens hen: positief (met empathie als gevolg) of negatief (onverschilligheid of anti-empathie als reactie). Ook het uiterlijk van personages wordt verondersteld een rol te spelen in die dispositie, hetgeen nadrukkelijk bevestigd is in experimenteel onderzoek.* (web example: www.ethesis.net/dramafilms/dramafilms_inhoud.htm; last accessed on 17 March 2012)
 ‘The interests of characters are obvious from their actions, which evoke certain affective dispositions towards them in the audience: positive ones (resulting in empathy) or negative ones (indifference or anti-empathy as a reaction). Also the outward appearance of characters is assumed to play a part in this disposition, which has been confirmed by experimental research.’
- (24) *Kan de rechterlijke macht, nu in ons constitutioneel staatsbestel alle machten van de natie uitgaan, geacht worden de natie te vertegenwoordigen?* (ConDiv-Standaard)
 ‘Since in our constitutional system all powers are vested in the nation, can the judicial power be supposed to represent the nation?’
- (25) *[...] ook de programmering van de radio- en televisieprogramma’s mag verondersteld worden een breed publiek aan te spreken.* (ConDiv-NRC)
 ‘... also the scheduling of the radio and television broadcasts may be supposed to appeal to a large audience.’

Geacht worden te and *verondersteld worden te* can be used counterfactually as well, as in (26) and (27).

- (26) *[Het tv-programma bestaat uit] studiogesprekken met ‘Prominenten’ van het vierde garnituur op de bank, die geacht worden interessante dingen over hun seksleven te vertellen aan een zekere Verona Feldbusch.* (ConDiv-Telegraaf)
 ‘The television show consists of studio talks with fourth-class ‘celebrities’, who are supposed to tell interesting things about their sex lives to one Verona Feldbusch.’ (but it is clear from the context that the writer finds these sex live stories uninteresting)

- (27) *De aanklager werd verondersteld de kinderen te verdedigen.* (ConDiv-Standaard)
'The prosecutor was supposed to defend the children.' (but it is clear from the context that he did not)

Though there is no complete consensus on the origin of the ACI and the NCI in English and Dutch, the two late-20th-century authorities on these structures in English historical linguistics, Warner (1982) and Fischer (1989, 1992, 1994), agree that these patterns are calques from Latin which became thoroughly entrenched in the grammar of English in the 15th century.⁴ In Dutch historical linguistics the debate on whether they are native or of Latin origin seems not to have been settled yet (for a summary and references, see Noël & Coleman 2009: 166), but there is agreement at least that when these patterns (again) acquired a certain popularity in Early Modern Dutch (between 1500 and 1650) this was due to the influence of Latin. We have established in previous work (Noël 2008; Noël & Coleman 2009) that what was calqued was not just a plain passive NCI, but that an evidential NCI already existed in Latin, though the evidential function of the Dutch NCI surfaced later than that of the English NCI and was never exploited to the same extent (Noël & Coleman 2010; Coleman & Noël 2012). Latin did not have a deontic NCI, however, so that the origin of both the English and the Dutch NCI constructions needs to be sought elsewhere.

3. The development of the deontic NCI in English

The majority view in the recent work on English *be supposed to* referred to in section 1 is that its deontic use only gained momentum towards the end of the 19th century, to become firmly entrenched in the course of the 20th century, and that it is a continued grammaticalization of its evidential use (Ziegeler 2003, Visconti 2004, Moore 2007). Much earlier, however, Traugott (1989: 46, n. 11) had suggested, in a footnote to a paper on the rise of epistemic meanings in English, that what she termed “epistemic” (while intending “evidential”) *be supposed to* and the deontic use of the pattern were the results of two separate developments, positing that when the verb *suppose* entered the English language as a borrowing from Middle French, it had two meanings, ‘expect [to happen]’ and ‘hypothesize [that something is the case]’. *Suppose* ‘expect’ first “developed a deontic of intention” and “ultimately [...] a stronger deontic of obligation” meaning, while *suppose* ‘hypothesize’ led to the evidential pattern. Noël & van der Auwera (2009) went looking for, and found, evidence for this in the online *Middle English Dictionary* and the online *Oxford English Dictionary*, connecting data on *suppose* with data on *expect*. They established that *suppose* and *expect* covered a shared meaning spectrum for at least two centuries (the 17th and the 18th), from ‘to believe that something will happen’ over ‘to intend to do something’ to ‘to want somebody to do something/obligation’. Active *suppose* lost these meanings, maybe because *expect*, which entered the English language much later than *suppose*, had taken over this semantic niche,

⁴ The Latin origin of the ACI/NCI does not constitute the crux of either Warner’s (1982) or Fischer’s (1989, 1992, 1994) contributions to the history of these patterns in English (and Dutch in the case of Fischer 1994), but it is the bit that is relevant to our general point in this paper about the importance of language contact in this grammatical area.

while deontic *be supposed to*, which started to appear in the 17th century, had probably got sufficiently entrenched to survive next to deontic *be expected to*.

Important for the argumentation we will present below (in section 5) on the origin of the Dutch deontic NCI are the two main reasons offered by Noël & van der Auwera (2009: 616-617) for the unlikelihood of evidential *be supposed to* having developed into the deontic pattern. The first reason is that the evidential NCI has a qualificational, off-stage, meaning, whereas the meaning of the deontic NCI is propositional, on-stage—note that leaving out *be supposed to* from example (11) above would result in a description of an entirely different state of affairs. What happens in grammaticalization, however, is that propositional patterns “turn into” qualificational constructions, not the other way round (cf. Sweetser 1990, Chapter 3, on the historical relation between content and non-content modals). The second reason is the empirical fact that *be supposed to* and *be expected to* are the only two deontic NCI patterns in English. The evidential NCI, on the other hand, is a highly productive construction and towards the end of the Early Modern English period (late 17th century) *be thought to* was a pattern with a frequency of occurrence very close to that of *be supposed to* (Noël 2008; Noël & Coleman 2009). The difference in meaning between evidential *be thought to* and evidential *be supposed to* is minimal, however, so that if the evidential were the source construction for the deontic construction in the case of *be supposed to*, one would expect there also to be a deontic *be thought to* construction. If there is a difference in meaning between evidential *be supposed to* and evidential *be thought to*, it should be one that predisposes *be supposed to* to develop into a deontic construction, but it is difficult to see what this could be. The absence of deontic *be thought to* therefore makes evidential *be supposed to* a doubtful source of the deontic construction.

4. Deontic NCIs in Dutch corpora

We can now turn to the Dutch deontic NCI and its history. In order to plot the presence, past and present, of deontic examples of *geacht worden te* and *verondersteld worden te* in Dutch, we queried the corpora listed below, representing several substages of Modern Dutch, from the mid-17th century onwards, for all occurrences of the past participle forms *geacht* and *verondersteld* combined with the infinitival particle *te* within a 10-word span:⁵

- a self-compiled corpus of literary Dutch which consists of extracts from texts available online from the *Digitale Bibliotheek voor de Nederlandse Letteren* (Digital Library of Dutch Literature) and the *Project Gutenberg* (mainly prose) and which spans the period 1640-1920; the corpus is divided into four seventy-year subperiods, with a size ranging from 1.2 to 3.5 million words of running text;
- four five-year snapshots from the corpus *De Gids*, which contains the first 100 volumes of the Dutch literary and cultural periodical *De Gids* (‘The Guide’), viz. 1850-54 (3 million words), 1870-74 (4.3 million words), 1900-04 (4 million words) and 1930-34 (2.9 million words);

⁵ For *veronderstellen*, we also included the past participle of the now-obsolete morphological variant *onderstellen* in the queries, i.e. *ondersteld*.

- the diachronic part of the ConDiv corpus, which contains material from Dutch and Belgian newspapers dating from the years 1958 and 1978, adding up to about 3 million words of running text for both years;
- the newspaper component of the present-day ConDiv-corpus, with material from Dutch and Belgian newspapers dating from 1998 and immediately surrounding volumes, which adds up to 17 million words of running text (Grondelaers et al. 2000);
- the 38-million-word corpus of written Dutch compiled at the Institute for Dutch Lexicology, which is a bit more heterogeneous in terms of register, including news reporting articles as well as fictional and non-fictional prose, popular magazines, academic prose, etc., the large majority of texts dating from the early 1990s (Kruyt & Dutilh 1997).

Across all the above corpora, we found 378 NCI instances for *achten* and 74 NCI instances for *(ver)onderstellen*. The distribution of these instances over the semantic categories distinguished in section 2 is presented in Tables 1 and 2.

@@ Insert Table 1 about here

@@ Insert Table 2 about here

The general picture emerging from these tables is that, with both verbs, pre-1978 deontic instances are rare—even though for *veronderstellen*, we have to be cautious, given the overall infrequency of the NCI pattern. Moreover, the sporadic pre-1978 deontic instances we detected might just be the result of our present-day cognitive perspective, i.e. the earlier instances may have been open to alternative interpretations, even though interpretations other than a deontic one are less obvious to present-day Dutch speakers. The figures presented in Tables 1 and 2 are based on functional analyses of the attested NCI patterns that were first done independently by both authors and then compared to determine inter-analyst agreement, but, as everyone with research experience in diachronic semantics and/or pragmatics will be painfully aware, the functional interpretation of instances from older language stages is a tricky task, especially when fine-grained distinctions of modality are concerned, since it is almost impossible for the researcher to avoid bringing to bear present-day functional categories in the analysis of older data. We classified instances as deontic as soon as a deontic interpretation appeared to be the most likely one to us, fully aware, however, that, in case of the earliest examples, at a time when the deontic construction was much less entrenched as it is now, this may not have been the intended interpretation. A pertinent illustration is provided by the example in (28), from the 1930 volume of *De Gids*.

- (28) *Soeur Padua schuift rinkelend de gordijnen open. Je wordt geacht uit bed te zijn en je kousen aan te hebben. Nu komt er een nerveuze haast over je. Het zou beschamend zijn, als het open gordijn je te zien gaf, terwijl je nog in bed lag. (De Gids, 1930)*
 ‘Soeur Padua draws open the curtains, making a jingling sound. You are supposed to be out of bed and wearing your stockings. You’re in a nervous hurry now: it would be shameful if the open curtain were to reveal you still lying in bed.’

We counted this as an early example of deontic *geacht worden te*, since a deontic interpretation appeared to us to be the most likely one (i.e., ‘By convent rule, you have to be out of bed and wearing your stockings before a given hour’). However, a plain passive interpretation may at the time have been more likely (i.e., ‘It is assumed by the sisters that everyone will be out of bed and wearing their stockings by a given hour’, which is why Soeur Padua thinks nothing wrong of drawing open the curtains without prior warning). Similarly, (29) is the earliest example in the database of *verondersteld worden te* classified as deontic, but an evidential interpretation cannot be ruled out either (i.e., ‘it is imperative for a serious researcher to be aware of the major laws of language’ vs. ‘serious researchers are thought to be aware of the major laws of language’).

- (29) *Zulk spelen met woorden is den ernstigen onderzoeker, die verondersteld wordt de opperste wetten te kennen, die in eene taal heerschen, onwaardig.* (*De Gids*, 1853)
 ‘This kind of word play is unworthy of a serious researcher, who is supposed to be aware of the supreme laws operating in a language.’

However, given that we only discerned a few isolated pre-1978 deontic instances, we thought there was little point in working with mixed (‘either... or...’) categories, or with a single ‘undecided’ category. We can indeed be more confident about our identification of deontic instances appearing in later stages, like the ones in the present-day examples in (30) and (31), in which the infinitival clause clearly denotes some kind of external obligation resting upon the subject referent, other interpretations being extremely unlikely.⁶ In the present-day data, deontic uses constitute by far the largest category, accounting for about half of all attested NCI instances with both verbs.

- (30) *De Indiaanse, Afrikaanse, Latijns-Amerikaanse en Creoolse invloeden klinken volop door op deze eilanden, waar de mannen geacht worden volop macho te zijn.* (ConDiv-NRC)
 ‘The Indian, African, Latin American and Creole influences are evident on these islands, where men are supposed to be firmly macho.’
- (31) *Jullie mannen in het bezit van een voorhuid moeten weten dat JA!, jullie worden verondersteld om hem ‘daaronder’ ook te wassen.* (INL38-Playboy)
 ‘You men in the possession of a foreskin need to know that YES!, you are supposed to wash it “underneath” as well.’

All in all, therefore, the results from the corpus investigation suggest that the deontic use of the NCI in Dutch did not become prevalent until well into the second half of the 20th century.

⁶ Also note the addition of *om* ‘for’ before the *to*-infinitive in (31), a recent phenomenon that appears to be limited to deontic (and perhaps counterfactual) uses, as the addition of *om* to evidential and descriptive uses of the kind illustrated in (22) to (25) is impossible, at least in our idiolects. Both authors are native speakers of Belgian Dutch, but the intuition is shared by Olga Fischer (p.c.), a speaker of Netherlandic Dutch. We leave it to future research to look into the semantic relation between NCIs with and without *om* in more detail.

5. The source of the Dutch deontic NCI

Consequently, the firm establishment (or conventionalization) of *geacht worden te* and *verondersteld worden te* as deontic constructions seems to postdate the entrenchment of the corresponding English pattern *be supposed to*. As for the source of the deontic use of the Dutch patterns, the first explanation that might come to mind is that they have undergone the same ‘volitive to deontic’ grammaticalization path first hypothesized by Traugott (1989) for *be supposed to*, and extended to *be expected to* by Noël & van der Auwera (2009) (see section 3). However, there is no support for this hypothesis to be gleaned from the semantic history of the active verbs *achten* and *veronderstellen*. First, the lengthy lexical descriptions of these verbs in the diachronic *Woordenboek der Nederlandsche Taal* (WNT) [Dictionary of the Dutch Language] do not contain any sense or sub-sense that is even remotely like the ‘intend to do’ senses of *suppose* (now-obsolete) and *expect*, explicitly identified for the former verb in the *Oxford English Dictionary*, but also found to exist in the case of the latter by Noël & van der Auwera (2009). Second, we conducted an extra check on the compatibility of such a sense with the Dutch verbs by manually inspecting the results of queries for all forms of *achten* and *veronderstellen*—so not just the past participle form this time—combined with the infinitival particle *te* within a 10-word span in the entire 10-million-word diachronic corpus of literary modern Dutch (1640-1920). The results of this test are unequivocal. *Achten* does not combine with an infinitival equi-clause at all; *(ver)onderstellen* does, but only in a ‘suppose, imagine, hypothesize’ sense, as in (32). This makes it very unlikely that either of the two verbs has ever displayed a ‘deontic of intention’ sense.

- (32) *Wanneer de jongeling ten slotte te bed lag, schrikte hij meer dan eens op en veronderstelde de doodsklok gehoord te hebben.* (Stijns, *Hard Labeur*, 1904)
‘When the young man was finally in bed, he startled more than once and supposed to have heard the death bell.’

An alternative hypothesis is that, unlike in English, the deontic NCI did develop from the evidential NCI in Dutch. This, however, is most unlikely, too, for the very same reasons as the ones adduced by Noël & van der Auwera (2009) against the ‘evidential to deontic’ path for *be supposed to* (see section 3). In Dutch deontic constructions are no less propositional, and evidential constructions no less qualificational, than they are in English. Plus, supposing for the sake of argument that deontic *geacht worden te* and *verondersteld worden te* could have developed out of the respective evidential constructions, it remains unexplained why these were the *only* two substantive NCI patterns to evolve in this way. There used to be several other substantive NCI patterns in the grammar of Dutch, with verbs of cognition which encoded evidential meanings very similar to *geacht worden te* and *verondersteld worden te*, including *gerekend worden te* ‘be reckoned to’, *geloofd worden te* ‘be believed to’, *beschouwd worden te* ‘be considered to’: the corpus frequencies reported in Noël & Coleman (2010) show that such patterns were part of Dutch grammar for three centuries or longer, from the earliest stages of Modern Dutch until well into the 19th century, and in some cases even the 20th century. If there were such a thing as a natural ‘evidential to deontic’

grammaticalization path, it would have been very strange indeed for only two of the many potential source patterns to have evolved in this way.

Instead, the explanation we would like to put forward is that the development of the deontic function in *geacht worden te* and *verondersteld worden te* in Dutch is a contact-induced phenomenon, viz. a specific sub-type of grammatical replication. A particular contact phenomenon discussed at some length by Heine & Kuteva (2003: 555-561, 2005: 100-103) is “polysemy copying”, which roughly proceeds along the following steps:

1. in a first stage, a marker of one language and a marker of some contact language have overlapping functions, or one of the markers is more specific than the other;
2. as a consequence of language contact, the functional range of the two markers may be aligned, so that the marker of the target language comes to express more or less the same range of meanings/functions as the marker of the model language.

Gast & van der Auwera (2012) speak of “semantic map assimilation” in this respect: typically, the model language marker is the more polysemous one of the pair, and the target language marker extends its territory so that it comes to cover largely the same region in functional-semantic space. An important prerequisite for this kind of assimilation to take place is of course that the target language speakers identify the markers from the two languages as relevantly similar in one way or another.⁷

The development of the deontic functions of the substantive NCI patterns *verondersteld worden te* and *geacht worden te* could very well be due to this kind of assimilation. To begin with, if the results of the corpus investigation reported on in the previous section are anything to go by, this development took place in (the second half of) the 20th century, a period of unprecedented potential for contact influence of English on Dutch because of the enormous increase in the “consumption” of English by speakers of Dutch. And second, the interlingual identification of Dutch *geacht worden te* and *verondersteld worden te* with English *be supposed to* is unproblematic: not only did these patterns match syntactically and did they share a number of specialized semantic functions (viz. the evidential and the descriptive functions), the active Dutch verbs *achten/veronderstellen* and English *suppose* also display an important overlap in lexical meaning. However, the English NCI pattern was more polyvalent in that, in addition to the evidential and descriptive functions, it was also associated with a deontic function. Hence, the development of this particular function in the corresponding Dutch pattern has all the hallmarks of a case of polysemy copying, or, in Gast and van der Auwera’s terminology, of semantic map assimilation.

⁷ Olga Fischer (p.c.) has suggested that there might be little difference between polysemy copying/semantic map assimilation and the much older concept of “semantic loans”, which is referred to by Weinreich (1968 [1953]: 48) and Haugen (1950: 220). To Weinreich (1968 [1953]: 48) this is a kind of “interference” between languages which “involves the extension of the use of an indigenous word of the influenced language in conformity with a foreign model”. More specifically, “[i]f two languages have semantemes, or units of content, which are partly similar, the interference consists in the identification and adjustment of the semantemes to fuller congruence.” For Haugen (1950: 215), semantic loans are a kind of “loanshift”, which, unlike “loanwords”, “appear in the borrowing language only as functional shifts of native morphemes”. In our opinion, both Heine & Kuteva (2003, 2005) and Gast & van der Auwera (2012) have added precision to the characterization of the phenomenon. We judge the former’s term “polysemy copying” to be the most graphic one available to refer to it.

It is interesting to dwell on this concept of polysemy copying a bit longer. Heine & Kuteva (2003, 2005) contrast polysemy copying with a much more common kind of grammatical convergence, viz. “contact-induced grammaticalization” (CIG), in which case, in order to replicate a grammatical category of the model language, the target language speakers grammaticalize an existing target language category, drawing on universal strategies of grammaticalization. This is *not* what we claim to have taken place with the Dutch NCI patterns *geacht worden te* and *verondersteld worden te*, however, for such a view in terms of CIG would, again, imply the unlikely existence of an ‘evidential to deontic’ grammaticalization path. Hence, while we do not wish to dispute Heine & Kuteva’s argument that many cases that are seemingly instances of polysemy copying are in fact better thought of as CIG, the development of deontic meanings in the Dutch NCI patterns does seem to represent a straightforward case of polysemy copying without grammaticalization. According to Heine & Kuteva (2005: 102), what distinguishes such sporadic cases of plain polysemy copying from grammaticalization “is that the former does not appear to involve intermediate stages of evolution”, but this does not mean of course that polysemy copying happens overnight. Gast & van der Auwera’s (2012: 392-93) discussion of semantic map assimilation makes a useful distinction between “uses” and “routines”. As speakers interlingually identify a more polysemous model language marker with a target language marker, they will start using the target language marker in functions outside of its initial semantic range (but inside of the model language marker’s range). At this early stage, such uses are creative and *ad hoc*, but as they spread across the community, they conventionalize into new routines. In this view, the pre-1978 instances of deontic *geacht/verondersteld worden te* found sporadically in the diachronic corpora qualify as novel uses, while the relatively large frequencies in the INL and ConDiv data testify to the existence of a new conventionalized routine in present-day Dutch.

It is hard, if not impossible, to find solid empirical proof for such a polysemy copying hypothesis: we will never be able to tell with any certainty whether the Dutch speakers who first, innovatively, extended the use of *geacht/verondersteld worden te* into the deontic domain did so under the influence of English *be supposed to* or not. However, the story is plausible enough, and there is some circumstantial evidence in the form of other recent evolutions in the syntax and productivity of the Dutch NCI which point towards English influence. First, consider the example from the Dutch broadsheet *NRC Handelsblad* in (33), from an article which reports on the sentiments of members of an audience after a film premiere.

- (33) *Er klonken kwalificaties als ‘tragi-komisch’ en het veelgehoorde: „Wat ben ik verondersteld hiervan te denken?”*. (ConDiv-NRC)

‘There were labellings like “tragicomical” and the often-heard “What am I supposed to think of this?”’

According to the “normal” rules of Dutch grammar, the auxiliary should be *word* here (the 1st-person singular form of the verb *worden* ‘become’), not *ben* (the 1st-person singular form of *zijn* ‘be’), since the Dutch passive uses the auxiliary *worden* in imperfect tenses and *zijn* in perfect tenses (see, e.g., Zwart 2011: 14). Probably, *wat ben ik verondersteld te Vinf* is a direct calque of English *what am I supposed to Vinf*. The example in (33) is direct speech, but

similar examples from written registers are easily found on the Internet: (34) is from a document from the website of the Dutch national government.

- (34) *De lessen (voor zover die er zijn) worden gegeven aan het eind van de dag, en je bent geacht om om 09.00 uur op school te zijn.* < www.rijksoverheid.nl/bestanden/documenten-en.../22144e.pdf> (last accessed on 14 March 2012)
'Classes (as far as there are any) are taught at the end of the day, and you are supposed to be in school at 9 p.m.'

Another innovation that is most probably due to English influence, is the introduction of the substantive NCI pattern *verwacht worden te* 'be expected to'. This is the topic of the next section.

6. *Verwacht worden te*: further evidence of English influence

In Noël & Coleman (2009), we pointed out that there are *three* substantive NCI patterns which occur with any frequency in corpora representing (non-casual registers of) present-day written Dutch: in addition to *geacht worden te* and *verondersteld worden te*, there is also *verwacht worden te* 'be expected to'. This latter pattern is substantially less frequent than the other two, and is probably not universally accepted, but it does occur now and then. (35) and (36) present a deontic and an evidential example, respectively; both are from newspaper articles.

- (35) *Het steekt bij ons dat we worden verwacht om dingen te doen waarvoor we gewoon geen tijd hebben. Vooral de individuele aandacht voor kinderen die moeite hebben de lessen bij te houden, gaat al snel verloren.* (INL38-Meppeler Courant)
'It galls us that we are expected to do things for which we simply have not got the time. Giving individual attention to kids who are experiencing difficulties in keeping up is something which is often left over.'
- (36) *De labresultaten worden verwacht klaar te zijn eind oktober.* (ConDiv-Laatste Nieuws)
'The lab results are expected to be ready by the end of October.'

Interestingly, *verwachten* 'expect'—though it is of course a P-C-U verb—seems not to have occurred in the ACI or NCI constructions in earlier stages of Dutch: queries for all forms of the verb followed by *te* within a span of 10 words in our 10-million-word diachronic corpus of literary Dutch (1640-1920) did not produce a single instance. Hence, *verwacht worden te* is a *new* pattern, and one that cannot be attributed to a general increase in the productivity of the Dutch NCI, given that we have observed exactly the opposite development to have been taking place for over two centuries (Noël & Coleman 2009, 2010). Considering the level of contact between English and Dutch speakers in the post-World War II era and the position of *be expected to* in the frequency ranking of English NCI patterns (Noël 2008), it becomes highly plausible that Dutch *verwacht worden te* is a grammatical calque of the cognate

English pattern. Note that this is a different development from the one we have documented in the previous section: whereas *geacht worden te* and *verondersteld worden te* were existing lexical NCI patterns which extended their functional-semantic range, the *verwacht worden te* pattern is a *formal* extension of the Dutch NCI. However, as a different-natured development, it reinforces the evidence for the influence of English in this domain of Dutch grammar.

7. Conclusion

Noël & van der Auwera (2009) have argued against a view of the deontic “quasi-modal” *be supposed to* in English as a grammaticalization of the evidential pattern *be supposed to*, one of the many specific instantiations of the schematic evidential NCI construction. Instead, they adduced evidence that the deontic use has developed from a now-obsolete ‘volitive’ use of the active verb *suppose*. Similarly, deontic *be expected to* has its roots in the volitive sense of active *expect*, not in the homomorphic evidential pattern. This explains why the grammar of English contains two lexically substantive deontic NCI patterns only, next to a very productive, schematic, evidential NCI construction. In Dutch, the deontic uses of *geacht worden te* and *verondersteld worden te* cannot be traced back to volitive senses of the corresponding active verbs, as it is very unlikely that *achten* and *veronderstellen* ever conveyed such a meaning. This does not entail that the Dutch deontic patterns *did* develop from their evidential equivalents. Instead, we have proposed an analysis in terms of polysemy copying which attributes the deontic function of the Dutch NCI patterns to an extension in their functional-semantic range resulting from interlingual identification with the more polysemous English pattern *be supposed to*. The recent emergence of (deontic and evidential) *verwacht worden te* as a grammatical calque of *be expected to* is further proof of the influence of English on this domain of Dutch grammar.

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	passive	evident.	descript.	deontic	counterf.	unclass.	TOTAL
<i>Corpus of literary Dutch</i>							
1640-1710	-	-	-	-	-	-	-
1710-1780	1	-	-	-	-	-	1
1780-1850	1	2	2	-	-	-	5
1850-1920	-	4	5	-	-	-	9
<i>De Gids</i>							
1850-1854	7	6	28	1	-	1	43
1870-1874	59	4	55	1	-	-	119
1900-1904	6	3	20	-	-	3	32
1930-1934	10	-	4	1	-	2	17
<i>Diachronic ConDiv</i>							
1958	10	-	4	-	5	-	19
1978	2	5	1	8	1	-	17
<i>Present-day corpora</i>	10	10	16	57	15	3	116

Table 1 **Distribution of NCI *achten* instances**

	passive	evident.	descript.	deontic	counterf.	unclass.	TOTAL
<i>Corpus of literary Dutch</i>							
1640-1710	1	-	-	-	-	-	1
1710-1780	4	2	3	-	-	-	9
1780-1850	-	1	-	-	-	-	1
1850-1920	2	3	-	-	-	-	5
<i>De Gids</i>							
1850-1854	2	-	1	1	1	1	6
1870-1874	4	-	1	1	-	-	6
1900-1904	2	-	1	-	-	-	3
1930-1934	-	-	1	-	1	-	2
<i>Diachronic ConDiv</i>							
1958	1	1	-	1	1	-	4
1978	2	-	-	2	1	-	5
<i>Present-day corpora</i>	5	5	3	13	6	-	32

Table 2 **Distribution of NCI *(ver)onderstellen* instances**