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9 Making interpretation redundant

The grammaticalization of *that*-clauses after verbs of deception

Abstract: This paper explores the changing relationship between two types of construction shared by several verbs of deceiving (e.g. *delude, deceive, fool*), as in (a) *He deceived the public into the belief/into thinking that he would step down* versus (b) *He deceived the public that he would step down*. In the course of the last few centuries, 1) nominal "interpretators" like *into the belief* have largely been replaced by verbal types like *into thinking*, and 2) the interpretive phrases have increasingly been omitted in favor of type (b): directly linked content clauses functioning as arguments of the main clause verbs. We argue that this ongoing replacement process exhibits characteristics of a reductive kind of grammaticalization. As to Present-Day English, our findings indicate that the structural simplification of *deceive*-type sentences is more advanced in British than in American English, in particular in informal registers (spoken language and fiction). Moreover, the contexts facilitating the appearance of the incoming directly linked content clause include the use of negation and reflexive objects. Not unexpectedly, these represent a mirror-image of those conditions that have been shown to mitigate the decline of directly-linked content clauses with other verb types (e.g. *congratulate* and *reproach*).

Keywords: grammaticalization, evolutionary pathways, verb complementation, verbs of deceiving, *deceive*, *delude*, *fool*, varieties, register, interpretators, shell nouns, negation, transitivity degrees, reflexivity, individuation, complexity, complementizer *that*

1 Introduction

Inspired by work on so-called "shell nouns" (e.g. Schmid 2012) and "Interpretatoren" ('interpretators'; Lüdtke 1984), this paper explores the changing relationship between two types of construction shared by several transitive verbs of deception (*bamboozle*, *beguile*, *con*, *delude*, *deceive*, *dupe*, *fool*, *hoodwink*, *lull*, *lure*, *mislead* etc.), as illustrated in (1) to (3).[1]

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(1) a. He **deceived** the public **into the belief/into thinking** that he would step down.
b. He **deceived** the public **Ø** that he would step down

(2) a. They are **deluded by the idea/to think** that a copy will convey the same sensation as the original.
b. They are **deluded Ø** that a copy will convey the same sensation as the original.

(3) a. Don't **fool** yourself **into the notion/by believing** that this goal has been met.
b. Don't **fool** yourself **Ø** that this goal has been met.

The two constructions are closely related, with the more explicit type (a) entailing type (b). In the (a)-examples, the content clauses introduced by *that* function as complements of a variety of prepositional phrases containing abstract nouns or verbs specifying (or "interpreting") the mental phenomena in question. Thus, we will henceforth employ the convenient, if novel, term "interpretator" to designate such interpretive phrases. Denoting cognitive processes or states of the experiencers referred to by the object expressions, interpretators represent arguments or adjuncts of the verbs of deception.

In this paper, our analyses are confined to *deceive*, *delude* and *fool*. In the current online version of the OED (s.v. *deceive*, v.; *delude*, v.; *fool*, v.), their senses relevant to our concerns are defined as follows:

deceive 2. a. To cause to believe what is false; to mislead as to a matter of fact, lead into error, impose upon, delude, 'take in'.

delude 3. a. To befool the mind or judgement of, so as to cause what is false to be accepted as true; to bring by deceit into a false opinion or belief; to cheat, deceive, beguile; to impose upon with false impressions or notions.
3. b. with complement (*on*, *to*, *into*).

fool 3. a. *transitive*. . . . (in later use usually) *spec*. to trick or deceive (someone). See also sense 3d.
3. d. *transitive*. . . . to dupe or lure (a person) into something unpleasant or undesirable (with the result or aim of the deception indicated by a prepositional phrase following the verb). Now usually with *into* See also sense 3a.

This means that, basically, the object referents are made to undergo a change of their beliefs. Drawing on these definitions, we will be able, in later sections, to adequately circumscribe and select the nominal and verbal interpretators involved. Thus, it is important that the choice of the interpretator should normally be limited by two considerations: The lexical item in question should be compatible with the semantic range of *belief* itself and the relevant state of mind must unambiguously relate to the experiencer rather than the agent.

Discounting their basic transitive uses (S-V-O), both *deceive* and *delude* were for several centuries found only in the construction type illustrated in the (a)-examples above. Data collected from various historical corpora and databases spanning the Modern English period suggest that the relevant interpretators have increasingly been omitted in favor of the (b)-type: directly linked content clauses functioning as arguments of the main clause verbs. Incidentally, we will find that – in the course of the last two centuries – nominal interpretators (like *idea*, *belief* or *notion*) have been increasingly replaced by verbal ones (like *think*, *believe* or *imagine*). The analysis of Present-Day English corpora indicates that the proportion of "uninterpreted" (i.e. directly linked) *that*-clauses has currently reached the mid-point of the S-curve, other factors being kept constant. Compared to *deceive* and *delude*, the verb *fool* – although well-established since Early Modern English as a denominal transitive or reflexive verb followed by a prepositional phrase (cf. OED s.v. *fool*, v., senses 2.b. and 3.a.) – was only recently integrated into the group of verbs taking an additional content clause. As will be shown, the variable use of interpretators after *fool* is subject to the same constraints as with the more longstanding exponents of this semantic and syntactic type, though the omission is somewhat delayed.

Regarding Present-Day English, stratified large-scale corpora permit deeper insights into factors impinging on the choice of the competing construction types as well as a number of constructional variants. The findings to be reported in the following sections will make reference to relevant language-external (variety- and situation-dependent) and language-internal (context-dependent) factors. Comparisons between (sub)corpora representing the two major standard varieties indicate that the structural simplification of *deceive*-type sentences is more advanced in British English, while American English follows with a delay, thus providing a counterexample to the more ample cases of American leadership (cf. Rohdenburg and Schlüter 2009: 420–423). In addition, it will be suggested that – in line with other kinds of simplification of complementation patterns – the directly linked *that*-clause is promoted in informal registers (such as spoken language and narrative text types). Parallel reductions have been described by Denison (2018) in terms of the omission of shell nouns like *fact* heading content clauses with monotransitive verbs (*contradict*, *depict*, *highlight* etc.). As to language-internal factors, contexts facilitating the appearance of the incoming directly linked content clause

will be isolated (reflexive objects and negation). Not unexpectedly, these present a mirror-image of those conditions that have been shown to mitigate the decline of directly-linked content clauses with other verb types (e.g. *congratulate* and *reproach*; Rohdenburg 2014).

We will argue that this ongoing replacement process exhibits characteristics of a reductive kind of grammaticalization, endowing the superordinate verbs with a novel "ditransitive" argument structure and integrating them into the more general pattern of factual and suasive communication verbs (e.g. *advise* in its factual use, *convince*, *inform*, *let X know*, *notify*, *promise*, *remind*, *reassure*, *tell*, *warn* in its factual use). A concept that will take center stage in this analysis is that of transitivity, which was analyzed most prominently by Hopper and Thompson (1980) as a continuum determined by an interrelated set of parameters. Our line of argument holds that transitivity exerts an influence on the permeability of a construction to reductive grammaticalization. More specifically, reduced transitivity of the superordinate clause will be suggested as a facilitator of the omission of interpretators after verbs of deception.

2 Transitivity and the grammaticalization of clausal complementation patterns

The analysis of the competition between interpreted and directly linked *that*-clauses leans heavily on the semantic concept of transitivity developed by Hopper and Thompson (1980; see also Givón 2001: 91–95). Adopting this framework, Rohdenburg (2014: 57; 2020: 562) describes the prototypical transitive clause as an asserted, punctual event, in which a human agent willfully and forcefully impinges on a patient other than himself. However, transitivity is a matter of degree, and detransitivization results from contextual factors such as the following (see also Givón 2001: 93; Mondorf and Schneider 2016).

a) reflexive uses
b) negation
c) passivization
d) inanimate subjects
e) non-individuated objects
f) non-finite constructions (e.g. *-ing* clauses) lacking an explicit subject
g) modality

Previous research has shown that in the case of unstable and weakly entrenched verb-dependent constructions – typically outgoing and incoming ones – low transitivity contexts are likely to enhance acceptability. Following Hopper and Thompson (1980: 280–284), this may be accounted for by the different degrees of prominence in discourse typically expressed by clauses at different transitivity levels:

> In languages like English, foregrounding is not marked absolutely, but is instead indicated and interpreted on a probabilistic basis; and the likelihood that a clause will receive a foregrounded interpretation is proportional to the height of that clause on the scale of Transitivity. (Hopper and Thompson 1980: 284)

High transitivity is thus associated with discourse prominence, and low transitivity with pragmatic backgrounding. We propose that, by the same token, the backgrounding that a clause receives through transitivity reduction safeguards its constituent structures from the forces that impinge on more exposed discourse positions, thereby providing a niche in which marginal constructions can persist or emerge.

Several examples can be adduced to support this assumption: Mondorf and Schneider (2016; see also Schneider 2021) demonstrate that, in addition to several other features, reflexive objects and negation are capable of supporting the recessive causative construction of the verb *bring*, as in (4). In the case of so-called expressive verbs like *blame, reproach* and *congratulate* as in (5), Rohdenburg (2014) has shown that it is in particular the use of reflexive objects that has for a long time delayed the demise of *that*-clauses. By contrast, the ongoing advance of prepositional objects at the expense of the direct ones after *shirk* and *lack* has been found to be promoted by negated clauses as in (6) (Rohdenburg 2020).

(4) I just can't **bring** myself to do it. (COCA, quoted from Mondorf and Schneider 2016: 441)

(5) But I **blame** myself that my openness to another person was reckless. (*The Guardian*, 1996)

(6) "We do not **lack** for laws. We **lack** enforcement of laws," . . . President Charlton Heston said when told of the study. (*Los Angeles Times*, 1999)

(7) "You cannot **rule out** that she could have inhaled or ingested this material," . . . (*Los Angeles Times*, 1999)

(8) . . . any Person who might endeavour to employ all the good Offices in their Power to **incline** him to forgive his Lady, . . . (ECF, 1759)

(9) 'You have **demonstrated** yourself in the court to be thoroughly arrogant, and . . .' (*Daily Telegraph*, 1992)

Moreover, with the verb *rule out*, we have found in preliminary analyses[2] that negated contexts as in (7) attract a clearly higher share of (presumably more recent) directly linked *that*-clauses than of (presumably older) variants containing shell nouns like *possibility*. In other words, the omission of shell nouns correlates with the use of negation. The supportive effect of non-finite constructions has been observed with the verb *incline* governing object + infinitive or prepositional phrases. In such uses, the verb has typically been confined for centuries to inanimate subject expressions. Crucially, however, we have – in rare cases – also come across non-finite uses such as (8) referring implicitly to animate subjects. A final observation in this context concerns so-called subject-to-object raising constructions. As stated by e.g. Bolinger (1967), in the active – in particular with the basic word order S-V-O – this type of raising represents a receding phenomenon. However, with many verbs including *demonstrate,* the construction survives to this day in specific detransitivizing environments. Among them is the use of reflexive objects as in (9). At this point it should also be mentioned that, with most of such cases, passivization constitutes a further detransitivizing device rescuing the use of outgoing or otherwise less well established constructions.

Given these and related findings on low-transitivity environments supporting individual unstable constructions, our expectation is that the incoming *that*-clause after *deceive, delude* and *fool* should also be supported by manifestations of reduced transitivity. As to the transitivity features (a)-(g), the central regression analyses in Section 4 will focus on the effects of reflexivization, negation and passivization. Beyond that, Section 5 will provide preliminary observations on the rise of reflexive objects (5.1), the role of objects referring to non-individuated entities (5.2), effects of argument complexity (5.3), and the role of direct speech further illustrating an informal aspect of contemporary journalistic style (5.4).

2 In an analysis of four years of the *Los Angeles Times*, 76% of 111 hits containing interpretator shell nouns (*possibility* and others) were found to be negated, but as much as 95% of 39 hits that occurred without an interpretator.

3 Data and methods

Given our focus on low-frequency constructions, the verbs *deceive*, *delude* and *fool* were chosen as representatives of verbs of deception due to their relatively high occurrence rate in British and American English, in both interpreted and uninterpreted uses.[3]

3.1 Databases, varieties and genres

Relevant instances of *deceive*, *delude* and *fool* were gleaned from various British and American corpora and text collections spanning the entire Modern English period. Details of the texts and numbers of examples are given in Table 1; full bibliographic details are given in the online appendix at https://osf.io/h8325.

Depending on the format of the respective database, some searches targeting forms of the three verbs had to be carried out manually, others were supported by Part-of-Speech tagging and search expressions restricting hits to cases followed by a verb within the same sentence. All in all, we are reasonably certain of having caught all instances of the verbs followed by complement clauses with an expressed or deleted *that*-complementizer and with or without an intervening interpretator.

For COCA and COHA, the downloadable raw data editions were used, not including texts from Blogs, the Web, or the TV/Movie collection; the overlap between both corpora was cleared. Since a fine-grained distinction of genres would have produced many empty cells in the subsequent analysis, only two macro-genres were distinguished: 'fiction' (more informal, including narrative fiction, drama and a few spoken examples), and 'non-fiction' (more formal, including newspapers, magazines, academic writing and other kinds of non-fictional prose). For the MNC, LNC and ETC collections, the genre distinction was coded manually upon inspection of the text.

3 Regarding the two contrasting uses under investigation, the verb *con* is clearly found less frequently in American newspapers of the 1990s and early 2000s than in their British counterparts. In a selection of British newspapers dating from 1993–2004 (totalling 196,416,964 words) we find 29 relevant examples whereas a comparable selection of American newspapers dating from 1993–2001 (totalling 173,606,202 words) yields only 3 relevant examples.

Table 1: Composition of the database and counts of relevant hits.

database	date range	size (million)	macro-genres (specific genres)	*deceive*		*delude*		*fool*		total
				hits	pmw	hits	pmw	hits	pmw	pmw
British										
EPD	1540–1940	26.4	fiction (drama)	8	0.30	1	0.04	1	0.04	0.38
ECF	1705–1780	9.7	fiction	14	1.44	1	0.10	0	0.00	1.55
NCF	1782–1903	37.6	fiction	39	1.04	23	0.61	0	0.00	1.65
MNC.B	1834–1897	10.1	fiction, non-fiction	4	0.40	8	0.79	0	0.00	1.19
LNC.B	1866–1935	20.8	fiction, non-fiction	10	0.48	6	0.29	0	0.00	0.77
ETC.B	1896–1924	4.8	fiction, non-fiction	5	1.04	7	1.46	0	0.00	2.50
BNC	1960–1993	98.3	fiction (incl. spoken), non-fiction	33	0.34	37	0.38	39	0.40	1.11
BNC2014	2012–2016	11.4	fiction (spoken)	0	0.00	0	0.00	3	0.26	0.26
ChT	1785–1992	11.7	non-fiction (news)	7	0.60	16	1.37	0	0.00	1.97
Br News*	1990–2005	657.8	non-fiction (news)	172	0.26	334	0.51	559	0.85	1.62
American										
AD	1722–1936	17.2	fiction (drama)	7	0.41	3	0.17	0	0.00	0.58
EAF	1789–1850	34.6	fiction	37	1.07	17	0.49	1	0.03	1.59
MNC.A	1812–1905	7.2	fiction, non-fiction	6	0.83	0	0.00	0	0.00	0.83
LNC.A	1854–1922	26.9	fiction, non-fiction	14	0.52	11	0.41	1	0.04	0.97
ETC.A	1895–1927	11.6	fiction, non-fiction	8	0.69	5	0.43	1	0.09	1.21
COHA	1810–2009	444.7	fiction, non-fiction	172	0.39	174	0.39	92	0.21	0.98
COCA	1990–2019	557.1	fiction (incl. spoken), non-fiction	114	0.20	125	0.22	277	0.50	0.93
TAL	1989–1994	12.1	non-fiction (magazine)	1	0.08	12	0.99	6	0.50	1.57
Am News**	1990–2001	844.5	non-fiction (news)	142	0.17	187	0.22	392	0.46	0.85
total				793		967		1372		

*_The Daily Telegraph_ 1991, 1992, 2004, 2005; _The Guardian_ 1990, 1991, 2004, 2005; _The Independent_ 1993, 1994, 2004, 2005, _The Times_ 1990, 1991, 2003, 2004.

**_Detroit Free Press_ 1992, 1993, 1994, 1995; _Los Angeles Times_ 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999; _New York Times_ 2001; _Washington Times_ 1990, 1991, 1992.

3.2 Manual annotation

Besides the extralinguistic factors 'variety' and 'genre', two intralinguistic variables ('transitivity' and 'negation') and the dependent variables ('interpretator' and 'complementizer') had to be coded manually. To exemplify these categories, consider the following set of examples.

(10) It seemed to him at times that the most delightful thing in the world to do would be to shut his eyes to her defects and to let her **deceive** him **into the belief** that she was good, as she had deceived her husband. (COHA, fiction, 1875)

(11) Nobody, apparently, thinks they can **fool** anybody **into believing** that a photograph of Mr Pitt in armour is an authentic portrait of Achilles – . . . (*The Independent*, 2004)

(12) Such schemes, so far from "elevating the masses," only estrange and offend them with no end of unfair conditions, and **delude** the benevolent **with the notion** that they are doing their best to effect what they are really doing their best to prevent. (COHA, magazine/non-fiction, 1888)

(13) That is one of the merits of the Trinity, that it does not **fool** us **in the confidence** that we can perfectly know and comprehend God by our first thought. (COHA, magazine/non-fiction, 1854)

(14) . . . in words of kindness which I can never forget, and recall with a kind of pride that so great and noble a heart should **deceive** himself **into imagining** that I possessed those great qualities which he ascribed to me. (NCF, fiction, 1884)

(15) Obsessed with dreams of city life, impressed with Gabriel's fame, naïve while **deluding** herself **Ø** Ø she was experienced, Michelle would have leapt at the excitement of it. (BNC, fiction, 1989)

(16) I could stop **deluding** myself **Ø** that by sheer accident I had acquired a vast number of raffish friends. (*The Independent*, 1993)

(17) So these people are actually . . . They're being **deceived** by very stupid thinking **to think** that they can make this leap into outerspace. (COCA, spoken/fiction, 1997)

(18) But men, always less aware of prayers than of blows, recognize him chiefly when he is in arms, and so are **deluded into thinking** that love depends on fear to prove his force. (ETC.B, fiction, 1921)

(19) I wasn't completely heart-free during those years; sometimes I allowed myself to be **fooled Ø** that I loved someone, but when it came to the point of saying yes to anything final . . . (BNC, fiction, 1987)

The factor 'transitivity' was coded with three levels: The label 'transitive' was applied to cases where a direct object expression was not co-referential with the subject, i.e. not reflexive, thus all of examples (10) to (13). The two other levels represent exponents of the "de-transitive voice" (in the sense of Givón 2001: 94). Examples such as (14) to (16) were coded as 'reflexive', examples such as (17) to (19) were coded as 'passive'. While reflexivity and passivization can also be considered as degrees of transitivity, the label 'transitive' is for present purposes reserved for instances that come closest to 'cardinal transitivity' in the sense of Hopper and Thompson (1980: 253). On the semantic side, however, several degrees of transitivity can be distinguished within this level, based on a gradient of individuation of the object referent (see our supplementary observations in Section 5.2). With reference to the OED definitions quoted above, occasional intransitive uses (e.g. ". . . the focus of that for the next five weeks should not delude into thinking that there is not something beyond that for the next five years . . .", COCA, spoken/fiction, 1991) were excluded from the study.

The factor 'negation' was applied in a rather broad sense, covering *never-* and *not*-negation as in (13) and *no*-negation as in *have no intention of* V*ing* or *can no longer* V. In addition, to capture other types of semantic negation, more distant negative items that have scope over the relevant clause as in (11) were included, as were sentences with negative approximators like *almost* and *hardly* or negative implicative verbs like *stop* in (16). Negation was not extended to other non-assertive contexts, such as questions, sentences with modal verbs, sentences with *any* etc.

The outcome variable 'interpretator' was coded with three different levels: 'nominal', as in (10), (12) and (13), 'verbal', as in (11), (14), (17) and (18), and absent ('none'), as in (15), (16) and (19). For the analyses in Sections 4.2 to 4.4, the levels were conflated to code just the presence or absence of an interpretator. Finally, for the analysis in Section 4.5, the use or omission of *that* introducing the directly linked complement clause was coded as an additional outcome variable ('complementizer'). The absence of *that* is illustrated by (15).

During the process of data preparation, various exclusions were made of related or borderline constructions that did not qualify for the analysis as the full range of interpreted and uninterpreted variants was not available. Details on

such cases as well as a subset of corpus hits with manual annotations can be found in the online appendix at https://osf.io/h8325.

3.3 Statistical modelling

Since the outcomes of interest are binary (verbal vs. nominal interpretator, interpretator present vs. absent, complementizer present vs. absent) we use logistic regression models to uncover the sensitivity of these choices to external and internal factors. Analyses were done in R (R Development Core Team 2021) with the help of the following packages: *car* (Fox and Weisberg 2019) for model diagnostics, *effects* (Fox and Weisberg 2018) for extracting predictor effects and *lattice* (Sarkar 2008) for data visualization. We ran separate regressions for verbs (Sections 4.1–4.4) and interpretator types (Section 4.5). Please refer to the (print) Appendix for the selection of data (Table 5), model specifications (Table 6), coding of predictors (Table 7) and model coefficients (Tables 8–12). For the presentation and interpretation of the results, we rely on visual means, i.e. partial effects plots. The R code can be accessed in the online appendix at https://osf.io/h8325.

4 Results

We now turn to the main part of our study. To begin with, Section 4.1 introduces the different types of interpreting expressions heading the complement clauses against the backdrop of a set of seemingly unrelated constructions discussed in the literature. Subsequently, we delineate the change undergone by the complementation patterns. Due to the low frequency of the target structures and the limited amount of data for earlier subperiods, we proceed in three steps, from a long-term, through a mid-term, and on to a short-term perspective, at the same time zooming into an increasingly detailed analysis of extra- and intralinguistic factors. We focus in turn on the long-term change involving *deceive* and *delude* and their associated constructions in British and American English, then on the mid-term development for the same two verbs since 1810 including the factors 'genre', 'negation' and 'transitivity', and finally on a short-term perspective also including the verb *fool* since the year 1990, isolating the effects of 'year', 'variety', 'genre', 'negation' and 'transitivity' (Sections 4.2, 4.3 and 4.4, respectively). Finally, Section 4.5 points to a further reduction process affecting the complementizer *that*.

4.1 A first look at interpretators: Nominal and verbal types

Our study brings together a set of co-existing constructional types that – we argue – enter into a competition since they can fulfil the same communicative function: They all connect a content clause expressing a deceptive, counterfactual assumption with a basically transitive act of deception described by the superordinate clause. The link between these clauses can be made explicit by a nominal or verbal interpreting expression, or it can be left implicit and the interpretators made redundant. In this section, we start out by providing some background on the two types of interpretators.

The defining characteristic of interpretators (our translation of Lüdtke's *Interpretatoren*, a term used in his 1984 book-length study of a range of syntactico-semantic phenomena in French) consists in their not only mentioning a proposition, but perspectivizing it,[4] i.e. speakers or writers put a distance between themselves and the propositional content, which is marked by the classificatory semantics of the interpretator (cf. Lüdtke 1984: 162). Interpreting expressions can be realized as nouns or verbs; they may be optional or obligatory, depending on the matrix verb, and importantly, one of their functions is to allow for an additional subordinate content clause to be integrated into a matrix clause (Lüdtke 1984: 67, 131–132, 157).

The nominal interpreting expressions function as "shell nouns" in the sense of Schmid (2012: 4): They are "an open-ended, functionally defined class of abstract nouns that have, to varying degrees, the potential for being used as conceptual shells for complex, proposition-like pieces of information". According to Schmid's (2012: 187–208) classification of mental shell nouns, the interpretators we found following *delude*, *deceive* and *fool* include types with conceptual uses from the "Idea" family (*idea*, *thought*, *notion* etc.), which serve to highlight the propositional content of ideas, and nouns designating psychological states of their experiencers in "Creditive" uses (*belief*, *hope*, *feeling*, *impression*, *conviction*, *view*, *opinion*, *thinking*, *realization*, *discovery*, *illusion*, *fantasy*, *delusion* etc.).

The verbal constructions considered as interpretators in the present study can be seen as a prototypical subcategory of causative *into* V*ing* constructions. These constructions have been described as following the pattern NP_{Subj} V NP_{Obj} *into* V*ing*, where a causer (the subject) acts upon a patient (the object) so that the patient performs a resulting event, which often has an adverse effect on the patient-performer (cf. Stempel 2019: 147–148). The origins of the construction, its semantics, rapid spread across various main varieties of English since the mid-nineteenth century,

4 The original wording is: ". . . es macht einen Unterschied aus, ob ich einen Sachverhalt nenne . . . oder ob ich einen Sachverhalt dadurch anführe, daß ich ihn in Perspektive setze . . ." (Lüdtke 1984: 221).

productivity and versatility and its negative semantic prosody have been amply discussed in recent corpus-based literature (see, e.g., Rudanko 2000, 2015; Duffley 2018; Rickman and Kaunisto 2018; Davies and Kim 2018; Stempel 2019; Flach 2021 and references in these sources). Davies and Kim (2018), for instance, list the verbs *fool*, *deceive* and *delude* in fifth, sixth and tenth place, respectively, among the top frequency instantiations of the construction in COHA. Furthermore, Stempel's (2019: 150–152) collexeme analysis based on COCA identifies a strongly entrenched sub-construction consisting of the three verbs of deception under discussion here (plus the verb *mislead*) and following "psych verbs", most prominently *think* and *believe*. Semantically, this sub-construction differs from others in that the second verb refers to a change in the convictions held by the patient (who is therefore better referred to as an 'experiencer') and that reflexive uses describing acts of self-delusion are possible, while other actions triggered by the causer typically happen against the patient-performer's will (Stempel 2019: 153–154). Syntactically, the sub-construction stands out by virtue of taking finite complement clauses, which form a part of the syntactic pattern that has so far escaped linguists' attention.

Interestingly, the syntactic need for a verb of cognition as an intervening interpretator not infrequently crosses the animate-inanimate divide: Even inanimate 'experiencers' can be connected with a complement clause by gerundial expressions like *into thinking*, as in (20) and (21), thus violating the expectation that the experiencer should be a sentient being capable of cognizance and volition.

(20) So we dug ditches to **fool** the plants **into thinking** they were at high altitude," . . . (*The Guardian*, 1990)

(21) An official admission that tin foil can be used illegally to **fool** vending machines **into thinking** a 10p piece is worth 50p seems likely to hasten changes in Britain's coinage. (*Daily Telegraph*, 1991)

Cases like these provide clear evidence of the desemanticization or bleaching of gerundial interpretators.[5] If we had access to more examples of this type, it would be instructive to see whether the semantic mismatch between inanimate 'experiencers' and verbs of cognition can promote the loss of interpretators, or whether interpretators are less dispensable with inanimate objects because the personification inherent in the construction is more acceptable in their presence.

5 Similar cases may also be found with other verbs of deception. For instance:
(i) . . ., where the bacterial chemicals are trying to **con** the human cells **into thinking** they're hormones, . . ., (*The Times* 2004)

Tables 2, 3 and 4 list the three most frequent interpretator types (grouped by nominal and verbal types) found to co-occur with each verb, broken down by verb and (major) period. In addition, they indicate the number of different types and tokens per category.[6] Based on these tables, a number of descriptive observations can be made. Thus, we notice that the verb *deceive* was the earliest of the three to be established in the construction with complement clauses. In the mid-twentieth century, *delude* overtakes its forerunner in terms of frequency. The construction with *fool* is a latecomer to this construction and starts out with a much more limited range of interpretator options than *deceive* and *delude* boasted in their early days.

Table 2: The three most frequent nominal and verbal interpretators combining with *deceive*, type and token counts per time period.

	deceive					
	<1850		**1850–1950**		**1950–2020**	
nominal	*into the belief*	15	*into the belief*	27	*by the idea*	1
	into a belief	11	*with the idea*	8	*by the impression*	1
	into an opinion	6	*into a belief*	4	*into the belief*	1
	types	27	types	23	types	4
	tokens	71	tokens	61	tokens	5
verbal	*in supposing*	8	*into thinking*	45	*into thinking*	202
	in thinking	5	*into believing*	24	*into believing*	131
	in believing	5	*in thinking*	9	*to think*	5
	types	10	types	21	types	11
	tokens	29	tokens	115	tokens	350
total	tokens	100	tokens	176	tokens	355

In addition, over the last few centuries, the interpretators introducing *that*-clauses have undergone a number of reductions and standardizations. These include the following:

a) The use of the indefinite article with shell nouns like *belief* or *opinion*, still common in the period before 1850, has been increasingly abandoned.
b) The incidence and variety of shell nouns and their associated prepositions has experienced a sharp decline, both in terms of types and tokens.

6 A full list of interpreting expressions for each timeframe is provided in the online appendix at https://osf.io/h8325.

Table 3: The three most frequent nominal and verbal interpretators combining with *delude*, type and token counts per time period.

	delude					
	<1850		**1850–1950**		**1950–2020**	
nominal	*into the belief*	10	*into the belief*	32	*into the belief*	5
	with the idea	6	*with the idea*	18	*by the idea*	1
	into a belief	6	*with the notion*	11	*with the hope*	1
	types	16	types	21	types	14
	tokens	43	tokens	95	tokens	18
verbal	*into believing*	2	*into believing*	25	*into thinking*	243
	to believe	1	*into thinking*	16	*into believing*	123
	by imagining	1	*into supposing*	3	*to think*	8
	types	3	types	13	types	14
	tokens	4	tokens	56	tokens	400
total	tokens	47	tokens	151	tokens	418

Table 4: The three most frequent nominal and verbal interpretators combining with *fool*, type and token counts per time period.

	fool					
	<1850		**1850–1950**		**1950–2020**	
nominal	*to the fancy*	1	*into the belief*	2	*into the belief*	1
	–		*by the belief*	1	*with the idea*	1
			in the confidence	1	*by the notion*	1
	types	1	types	3	types	7
	tokens	1	tokens	4	tokens	7
verbal	–		*into thinking*	15	*into thinking*	792
			into believing	10	*into believing*	304
			with thinking	3	*to think*	9
	types	0	types	5	types	14
	tokens	0	tokens	30	tokens	1131
total	tokens	1	tokens	34	tokens	1138

c) The option of premodified shell nouns (e.g. *into the sincere belief*, *with the pleasant idea*, *into the unfortunate opinion*, *into the fond hope*, *by a common male-fantasy*) has become more and more restricted.

d) A similar reduction has affected the class of verbal interpretators. Gerundial *thinking* and *believing* have virtually ousted other verbs of cognition. Associated prepositions have by and large become limited to *into*. Infinitival *to think* is a minority variant of rather recent origin.
e) As the frequencies of verbal interpretators rise, the corresponding type-token-ratios drop markedly as their numerical increase does not coincide with an increase in variability.
f) Moreover, in a separate analysis (Section 4.5), we will follow up on our hunch that the complementizer of the *that*-clause is increasingly omitted in the course of time.

Most prominently, we observe that the nominal interpretator types, dominant in the first major corpus period, have given way to the verbal types. This development appears to have affected *deceive* earlier than *delude*, while *fool* largely skipped the nominal interpretator phase as it came up too late in this construction to partake in the major changeover.

To analyze the momentum of this replacement process and isolate potential differences between the British and American varieties, we ran two binomial logistic regression models, one for *deceive* and one for *delude*. To be able to include as much of the early data as possible while at the same time avoiding a distorting influence of the factor 'genre', the data were restricted to the macro-genre we labelled 'fiction' (as 'non-fiction' is heavily underrepresented among the older data). Figure 1 visualizes the partial effects of 'verb', 'year' and 'variety' on the outcome variable 'interpretator type'. The y-axis shows the estimated percentage of verbal interpretators as compared to nominal ones.

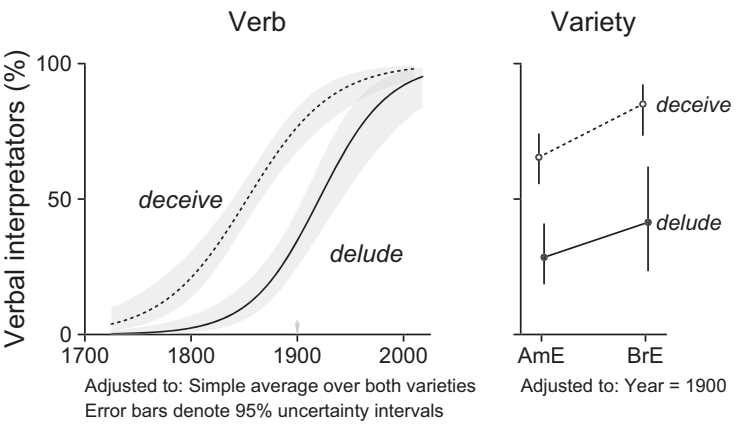

Figure 1: Partial effects of the factors 'verb', 'year' and 'variety' on the choice of verbal interpretators in the genre 'fiction'. Model specifications and coefficients can be found in the Appendix (Table 7).

Both models show that the eighteenth to twentieth centuries frame the almost complete changeover from nominal interpretator types to verbal ones after *deceive* and *delude* in the less formal genres subsumed here under 'fiction'. The development begins earlier for *deceive*, quite possibly on account of its earlier entrenchment with the construction. Thus, Figure 1 suggests that *deceive* crosses the 50% mark (with half the tokens having verbal interpretators) around 1850, while *delude* still hovers at 10 to 20%. There is some indication that the changeover to verbal forms proceeds at a slightly quicker pace for *delude*, which exhibits a somewhat steeper trend line. Moreover, we can establish a variety difference that consistently shows British English in the lead for both verbs, with a larger American delay for the verb *deceive*.

The results confirm the assumed replacement of nominal by verbal interpretators; they pinpoint informal British English as the likely source of the innovation and suggest different rates of change dependent on the verb in question and the point in time when it joined the trend. However, this is only the first shift in the use of interpreting expressions. The decline of the nominal types and the expansion of the verbal ones is followed by the onset of directly linked (uninterpreted) *that*-clauses. It remains unclear if and to what extent the first change can be taken to forebode the second, and postulating causal connections would remain purely speculative here: While the transition from nominal to verbal interpretators is moderated by extralinguistic factors such as time and variety, we have found no indications as to a functional difference between the two.

In the absence of such evidence, the next analyses will conflate nominal and verbal interpretators into the superordinate category of interpreted uses and dig deeper into the language-internal and external factors affecting the use or omission of interpreting expressions in general.

4.2 Long-term diachronic perspective: Loss of interpretators

As a first step in our diachronic analysis of the demise of interpreting expressions, we exploit the entire date range for which the constructions are attested. In our dataset, the first instances of both *deceive* and *delude* connected with complement clauses date from the year 1725, from two different novels by Eliza F. Haywood, whereas *fool* is first used in this construction in a novel by Henry W. Herbert dating from 1843. On account of the distribution of available hits, this long-term perspective is once more restricted to the fictional macro-genre and to the two historically better-established verbs *deceive* and *delude*. In addition, it includes 'variety' as a further predictor. Figure 2 shows the partial effects of these predictors on the estimates for the presence of interpretators (both nominal and verbal totted up).

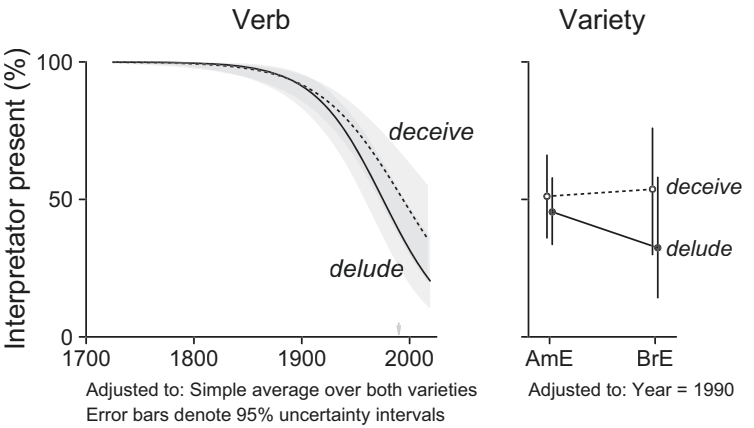

Figure 2: Partial effects of the factors 'verb', 'year' and 'variety' on the presence of interpretators in the genre 'fiction'. Model specifications and coefficients can be found in the Appendix (Table 8).

For fiction, we observe a virtually parallel demise of interpretators after *deceive* and *delude*. Indeed, the first uninterpreted uses of complement clauses after *deceive* and *delude* occur in an American novel and an American play both dating from the year 1833. By the year 1990, the loss has affected over half of the occurrences of the structure. At a closer look (afforded by the right-hand panel, which takes a snapshot of the situation around 1990), the estimates suggest that differences between the varieties only emerge for *delude*, where the change has gained ground a little earlier than for *deceive*, though these comparisons are subject to considerable uncertainty. These minimal divergences will be checked against the larger dataset including other genres in Section 4.4.

Thus, regarding this aspect of the syntactic development of verbs of deception, it once more seems to be British English that is spearheading the change, this time towards more economic linguistic means. Interestingly, in British English, the verb *delude*, which was shown in Section 4.1 to adopt complement clauses later than *deceive* and to lag behind in the replacement of nominal by verbal interpretators, tends to accommodate uninterpreted clauses earlier than the longer-established verb in this construction. Note that the British data in Table 1 indicate that in the twentieth century *delude* has also overtaken *deceive* in terms of its total incidence in the relevant construction: In the newspapers (1990–2005) it ends up being twice as frequent (0.51 pmw) as *deceive* (0.26 pmw) in combination with complement clauses. Even at these extremely low levels of incidence, there may thus be a connection between the frequency and the formal reduction of a construction, as is known from

grammaticalization phenomena. It will be instructive to compare the integration of the latecomer *fool* into this pattern (see Section 4.4).

4.3 Mid-term diachronic perspective: Factors driving the loss of interpretators

Narrowing down the scope of our analysis to a mid-term perspective (from 1810 onwards) and focusing on the more ample American English data allows us to gauge the effects of additional language-internal factors. As already mentioned, the reductive nature of the change, resembling the loss of shell nouns noted by Denison (2018), leads us to surmise that the loss of interpretators has taken its impetus from informal registers. Furthermore, previous corpus findings adduced in Section 2 suggest that the negation of a clause and the reduction in transitivity that comes with reflexivization and passivization can support poorly established syntactic constructions. The effects of these predictors on the use or omission of interpreting expressions (both nominal and verbal) are visualized, for each verb, in Figure 3.

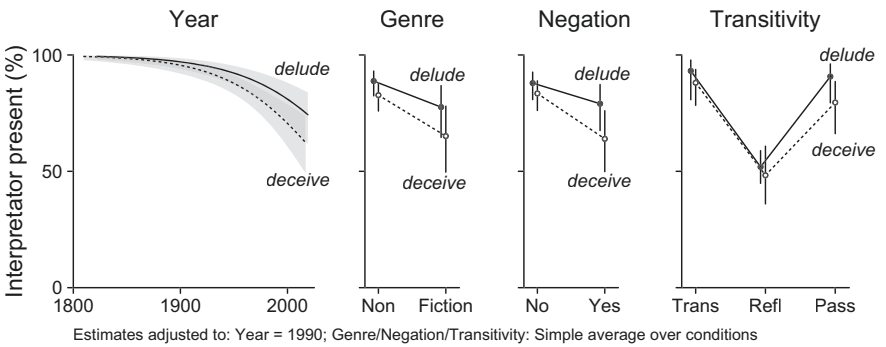

Figure 3: Partial effects of the factors 'verb', 'year', 'genre', 'negation' and 'transitivity' on the presence of interpretators in American English from 1810 onwards. Error bars denote 95% uncertainty intervals. Model specifications and coefficients can be found in the Appendix (Table 9).

The model estimates again show the downward trend for interpretator use, but the slopes for both verbs turn out considerably less steep than in the long-term model. The diminished rate of change can at least partly be put down to the fact that the model now focuses on American English as the more conservative variety in the relevant respect, and includes data from the more formal corpus components: It is

obvious that the informal usage that we observed in the macro-genre 'fiction' (in Section 4.2) is the driving force in the change, while non-fiction turns out to be less progressive. This underscores our assumption to the effect that the loss of interpretators is a change from below, spreading from informal registers upwards.

After neutralizing the transitivity-reducing predictors, a comparison of the two verbs in American English suggests that *delude* is lagging behind *deceive* in the omission of interpretators. Recall that the estimates in Section 4.2 suggested the opposite order for British English and no clear difference for American English. A comparison will be made in Section 4.4.

As for the effects of contextual factors reducing the transitivity (and discourse prominence) of a clause, most of our expectations are met and the striking parallels between *deceive* and *delude* lend credence to the observed tendencies: The estimates for non-negated and (broadly defined) negated hits indicate that negation is compatible with the incoming reductive pattern, while absence of negation disfavors it. In other words, acts of deceiving and deluding that are merely conceived but not implemented seem to facilitate the omission of an interpretator.

Among the three constructional types distinguished in terms of valency, it turns out that reflexives (involving one and the same participant as subject and object, engaged in an act of self-deception) represent the strongest contextual factor promoting the omission of interpretators. While this was expected, the limited effect of passivization as a transitivity-reducing context came as a surprise. A potential account for this effect will be provided in the discussion (Section 6).

In sum, the model depicted in Figure 3 suggests that the loss of interpreting expressions can still be described as incipient in formal American English. In these disfavoring conditions, it is however promoted by the discourse-backgrounding factors of negation and reflexivity. Finally, the verbs investigated so far accommodate the trend at different rates.

4.4 Short-term diachronic perspective: Integrating a newcomer

Our analysis of factors promoting the loss of interpretators culminates in the third step, a short-term perspective spanning only thirty years, but sufficiently populated with data to allow all predictors to be played out. What is more, compared to *deceive* and *delude*, which remain at rather low levels of occurrence, the frequency of the verb *fool* skyrockets from a mere 86 occurrences in the relevant construction up to the year 1989 to as many as 1,284 occurrences from 1990 to 2019, thus outdistancing its long-established forerunners by far. We ran three regression models, examining to what extent the previously introduced extra- and intralinguistic predictors

carry over to the newcomer to the construction. As before, the outcome variable depicted in Figure 4 is the percentage of interpreted *that*-clauses.

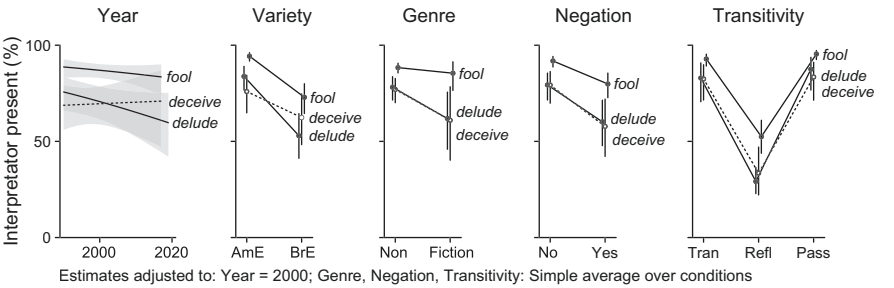

Figure 4: Partial effects of the factors 'verb', 'year', 'variety', 'genre', 'negation' and 'transitivity' on the presence of interpretators from 1990 onwards. Error bars denote 95% uncertainty intervals. Model specifications and coefficients can be found in the Appendix (Table 10).

First off, as all of the pre-1990 data have been cut off, the estimated diachronic trends are now surrounded by rather wide uncertainty bands. For *deceive*, the confidence interval easily accommodates the basic downward trend that has been established in the long-term picture. Thus, the opposite trend indicated in the leftmost panel presents no cogent reason to revise the assumption of a diachronic loss. In contrast, the verb *fool* provides sufficient evidence to warrant a slight downward slope across the thirty-year period, although it lags markedly behind the development for *deceive* and *delude*. We are thus witnessing the initiation of a change that has already gained ground with semantically related lexical verbs, extending to a novel member of the constructional class.

Intriguingly, all other model estimates provide strong support for the effects previously noted. British English is leading the change; the variety difference is consistent across all three verbs. At a closer look, we now see more evidence for what has been conjectured in Sections 4.2 and 4.3: In British English, the trend towards the abandonment of interpretators is more advanced for *delude*, while in American English it is more advanced for *deceive*. We also note that for *fool*, the dropping of interpretators is at present virtually restricted to British English. As shown above, informal usage, seen in the macro-genre 'fiction' here, is heading the change from below, even though *fool* does not exhibit a strong genre effect.

Intralinguistic factors fostering the reductive change are, as above, most prominently reflexive uses, and in the second place also various negated contexts. In contrast, passivization once again does not produce the expected effect. For *fool*, it even appears to increase the proportion of interpreted cases significantly above

the level of fully transitive uses, giving rise to a post-hoc consideration that we will discuss in Section 6.

All in all, not only the size, but also the consistency of effects of external and context-dependent factors across all three verbs under scrutiny, lend credence to the conclusion that the increasing omissibility of interpreting expressions is fostered by informal usage in British English as well as by the pragmatic backgrounding of propositional content through negation and reflexivization, but it may affect individual exponents of the lexical class at different rates.

4.5 Ensuing developments: Dropping of complementizers

The reductive changes undergone by the syntactic patterns associated with *deceive*, *delude* and *fool* have been viewed as concomitants of an underlying process of grammaticalization, taking place in syntactic niches that are shielded from speakers' attention and endowing the verbs with a novel argument structure. Further to these changes, the loss of phonological and morphological bulk in the form of the complementizer *that* might provide additional evidence in favor of grammaticalization.

The dropping of the complementizer *that* is first and foremost dependent on the presence of an interpretator. In the present context, interpretive nouns as well as verbs can serve as heads of *that*-clause complements, and the heads retain a major influence on the use or omission of *that*. In the case of nominal heads as in examples (10), (12) and (13) above, omission of *that* is liable to ambiguity with *that*-less relative clauses and almost categorically excluded (3% out of a total of 304 examples, see Table 11 in the Appendix).

In the case of verbal heads, however, *that*-omission is found in roughly half of our observations (52% out of 2119 examples). By far the most frequent verbal interpretator is *think*, which generally happens to be among the most common verbs taking complement clauses (along with *believe*) and one of the two most likely to omit the complementizer (Biber et al. 2021: 656, 661, 674–675). In our entire dataset, 57% of the 1397 tokens of interpretators involving *think* come without *that*,[7] 43% of the 655 interpretators involving *believe*,[8] and only 22% of the small minority of 67 cases of other verbal interpretators. In addition to the specific verb, the omission rate can be assumed to depend on well-known factors such as register (with informal language dropping optional function words more readily), variety (with American English

7 *into thinking, in thinking, by thinking, to thinking, with thinking, thinking, to think, so far as to think*
8 *into believing, in believing, by believing, believing, to believe, as to believe*

typically being more economic) and syntactic complexity (as in the case of negation, which can be compensated by the retention of function words).[9] The model estimates for verbal interpretators shown in Figure 5 confirm these expectations. Above all, the tendency to drop the interpretator grows stronger with time.

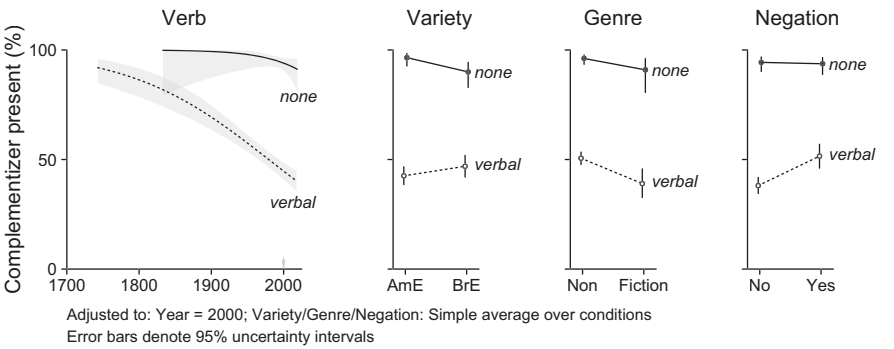

Figure 5: Partial effects of the factors 'year', 'variety', 'genre' and 'negation' on the presence of complementizer *that* with 'verbal' interpretators and without interpretators ('none'). Error bars denote 95% uncertainty intervals. Model specifications and coefficients can be found in the Appendix (Table 11).

While the conditional omission of the complementizer after mental verbs like *think* and *believe* comes as little surprise and would hardly deserve mention here, what is investigated in the last part of our analysis is the possibility to drop *that* in the novel uninterpreted construction type after *deceive*, *delude* and *fool*. Instances without *that*, illustrated in example (15) above, do occur, but are so far extremely infrequent (5% out of a total of 651 instances). Dropping *that* after *deceive*, *delude* and *fool* is thus on a completely different level than dropping *that* after *think*, *believe* and other common verbs of cognition. Figure 5 includes model estimates for the set of uninterpreted complement clauses (labelled 'none') for the same predictors as we have seen at work with the verbal interpretators.

In this model, effect sizes are small due to the infrequency of *that*-less constructions. The timeline however suggests that we may be witnessing the onset of a loss over the last few decades. In addition, the genre labelled 'fiction' shows a high concentration of these rare cases, pointing to the beginnings of the reductive

9 For the frequent omission of function words in informal language see, e.g., Rohdenburg (2008: 317–318) and Biber et al. (2021: 674); for variety differences see, e.g., Kövecses (2002: 203–217); for negation as a complexity factor see, e.g., Erdmann (1980: 125). For more data on the omission of complementizer *that* after verbs, see Biber et al. (2021: 673–676).

process in informal usage. Unlike with verbal interpretators, the first signs of the change appear in British English, where uninterpreted clauses are already more common. We observe no effect of negation.

After the reduction of interpreting expressions, the incipient tendency to drop the complementizer lends additional support to our view that complement clauses become increasingly grammaticalized in the valency patterns of the verbs *deceive*, *delude* and *fool*, to the point of following better-established matrix verbs (like *think*, *believe* and others) in the omission of the complementizer.[10] As far as we can judge, the predictors promoting this loss resemble those relevant for other matrix verbs. In the long run, a probabilistic complementizer use after transitive verbs of deception may come to characterize the ultimate stage in the current grammaticalization process.

5 Supplementary observations

This section lists preliminary results from a few spot-checks connected with our main topic, pointing to four additional effects. The factors investigated have not been fully annotated for all verbs or all text databases and have therefore not been included in the regression modelling of the main study. Many of the results are statistically insufficient and at best suggestive; yet we note that reflexive objects exhibit a special attraction to the construction under investigation (Section 5.1), that a more fine-grained categorization of object expressions in terms of transitivity degrees (Section 5.2) will prove worthwhile, that the use of interpretators might correlate with the length and complexity of sentence constituents (Section 5.3), and that the binary distinction of levels of formality employed in our analysis could be refined (Section 5.4).

5.1 The role of reflexive objects

For a start, further insights are afforded by a comparison of the relative frequencies of reflexive objects in the constructions under discussion, i.e. those with a *that*-clause complement, compared to other transitive uses of the same verb, here

10 It would be interesting, but outside the scope of this study, to compare the frequency of complementizer omission with other suasive verbs taking direct objects followed by complement clauses, such as *advise*, *convince*, *inform*, *let X know*, *notify*, *promise*, *remind*, *reassure*, *tell* and *warn*. The data in Biber et al. (2021: 673–676) offer little detail in this respect, beyond the observation that objects between the head verb and the complement clause render *that*-dropping less likely.

exemplified by *delude*. The analysis in Figure 6[11] indicates that beginning in the first half of the nineteenth century – and possibly owing to text type and stylistic changes – the reflexive object in sentences without *that*-clauses as complements steadily raises its share of the object category to reach more than two thirds of all instances by the late twentieth century. Crucially, however, the proportion of the reflexive object in combination with *that*-complement clauses turns out to be much higher in every subperiod. This is also true of the twentieth century reflexives, stemming from the narrative domain of the BNC, where nine out of ten *that*-clause complements involve the directly linked type.

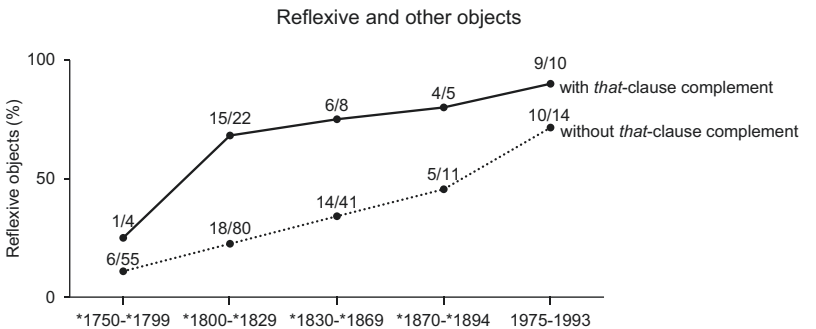

Figure 6: Reflexive and other objects associated with the verb *delude* in a series of (mostly narrative) British texts. Details on the database can be found in the online appendix at https://osf.io/h8325.

5.2 The role of object individuation

A further aspect of transitivity distinguished by Hopper and Thompson (1980: 253, see our Section 2) relates to the individuation of the class of non-reflexive objects. We draw on the Individuation Hierarchy proposed by Timberlake (1977: 162), which consists of the noun phrase parameters listed as (a)-(f).

a) proper
b) human
c) concrete
d) singular
e) count
f) definite (referential)

11 Coordinations of *delude* and some other verb are included in the count. The type *He has been easy to delude* is disregarded.

With a view to distinguishing clearly between two quantifiable categories of objects, we adopt the following classification: 'Individuated objects' possess all of the properties in (b) to (f) and may potentially bear a proper name. The remaining parameters and their combinations are then assigned to the class of 'non-individuated objects'. Thus, in the case of personal pronouns, it is only *me, you* (when referring to one person), *him* and *her* that may function as individuated objects. Furthermore, (superficially) definite noun phrases like *the reader* in (22), which do not single out one particular person, have been assigned to the class of non-individuated objects.

(22) These thinkers . . . abuse the terms and theories of modern science to **deceive** the reader **into thinking** that they are thinking when in fact they are doing no such thing. (*The Times*, 1998)

In line with our previous findings, we expected directly linked *that*-clauses to display a lower percentage of individuated objects than their interpreted counterparts. Figure 7 shows that this is indeed the case for both British and American newspapers, and also for the conflation of the two varieties. However, the contrast between the two types of clausal variants is far from significant. Notice that with both types of *that*-clauses, the vast majority of objects turn out to be non-individuated.

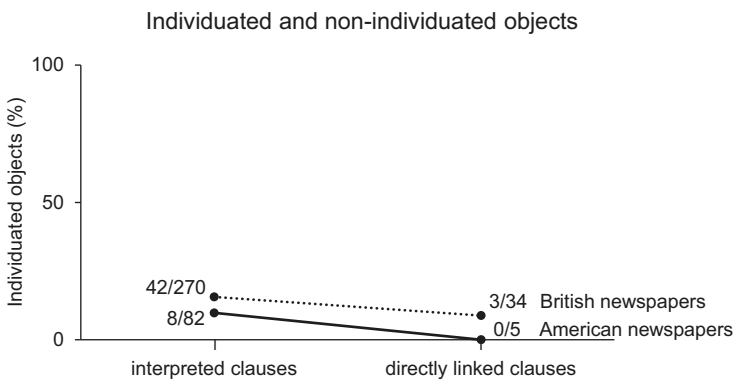

Figure 7: The role of the two *that*-clause variants in constraining the distribution of individuated and non-individuated objects after *deceive* in British and American newspapers. Details on the database can be found in the online appendix at https://osf.io/h8325.

5.3 The role of argument complexity

This section takes a brief look at potential effects of the phonological bulk and semantic precision contributed by the presence of interpreting expressions. An intriguing tendency involving the subject expressions in the two *that*-clause variants is illustrated in (23) and (24).

(23) . . . the naïve treasurers who **delude** themselves **into believing** that they are financial wizards, . . . (*Los Angeles Times*, 1994)

(24) . . . the young women in 19th century novels who **delude** themselves **Ø** that a glance from a man could only mean he intends marriage. (*Los Angeles Times*, 1994)

One basic difference between the two variants concerns the portion stretching from the object of the deception verb to the subject of the *that*-clause complement: The sequence is less complex in the directly linked variant as in (24) than that in the interpreted case as in (23). Consider now the data in Figure 8, which distinguishes between simple subject expressions (containing 1 to 2 words) and more complex ones. It is apparent that the increase in subject complexity correlates with a striking decline of the interpreted *that*-clause variant. In other words, the choice of the shorter sequence between the object of the deception verb and the subject of the *that*-clause as in (24) tends to coincide with the use of a longer subject expression. Interestingly, the increased inclination of the directly linked *that*-clause towards greater subject complexity and the lowered occurrence of the interpretator seem to accord with the theory of information density championed by, e.g., Jaeger (2011) and Crocker et al. (2016). Basically, the theory assumes that languages strive to distribute evenly across a given utterance the amount of information conveyed by comparable linguistic elements.

Incidentally, the ability of interpretators to function as explicit markers in the case of complex constructions deserves further scrutiny. For one, more explicit structures may be triggered by the processing complexity generated by passivization. For another, we have occasionally observed cases of complex object expressions where the interpretator seems to establish an explicit link with the superordinate verb, as in (25).

(25) "You can have a lot of fun by colouring white wine red and giving them to wine experts. It depends on the wine, but with many wines you can **fool** wine experts who are tasting a £ 20-£ 30 bottle of white wine that has been coloured red **into thinking** that it smells like a red wine." (*The Guardian*, 2005)

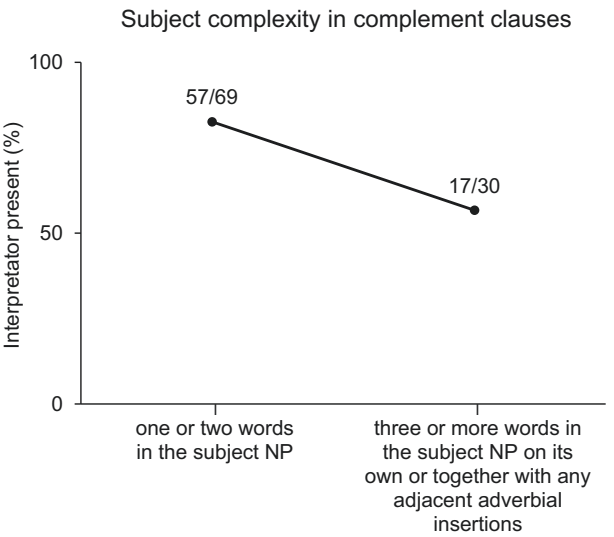

Figure 8: The role of subject complexity in directly linked and interpreted *that*-clauses after the verb *delude* in American newspapers. Details on the database can be found in the online appendix at https://osf.io/h8325.

5.4 The role of direct speech

In the models outlined in Section 4, a simplified binary genre division, for convenience labelled 'fiction' vs. 'non-fiction', has been used as a proxy for the distinction between informal and formal language, and the demise of interpretators has been identified as a change from below. Newspaper language, classified as 'non-fiction', however contains a sizeable number of quotations from direct speech (indicated mainly by the use of relevant punctuation marks), which allows us to implement a finer differentiation. For the American newspapers and the verb *delude*, we found the formality difference clearly reflected in the fact that the share of interpreted variants is much lower in quoted speech than elsewhere (see Figure 9).

6 Discussion

By way of summary, the study has investigated a (three-step) reductive change affecting three exemplary verbs: *deceive*, *delude* and *fool*. All of them seem to have progressed from a) unadorned/basic transitive verb constellations (S-V-O), via b)

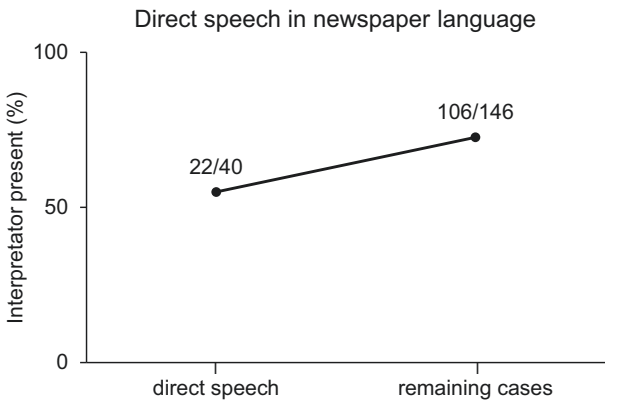

Figure 9: The role of direct speech in directly linked and interpreted *that*-clauses after the verb *delude* in American newspapers. Details on the database can be found in the online appendix at https://osf.io/h8325.

newly gained nominal or gerundial adjuncts specifying the content of the deceptive mindset phrased as a dependent *that*-clause, to reach c) the stage of directly linked *that*-clause complements. Two classes of expressions that arguably serve to endow subordinated propositions with semantic interpretations and syntactic integration have been shown to compete with each other (with the verbal class ousting the nominal class in the course of the nineteenth and twentieth centuries), only to be made redundant themselves and replaced by directly linked, uninterpreted complement clauses (a change that is currently ongoing). As a result, *deceive* and *delude* as matrix verbs increasingly accept a novel class of clausal complements. These, in turn, begin to shed the complementizer *that*, thus joining a large class of transitive verbs of communication, most of which have preserved a centuries-old *that*-clause pattern. Buttressing the relevance of the factors involved in the change, the newcomer *fool* integrates into this paradigm, yet demonstrating that its time of entry codetermines the options available as constructional patterns and leads to a delay in the loss of interpretators.

Reductive changes like these can be perspectivized with reference to a number of overarching considerations. As we have seen, gerundial linkers like *thinking* and *believing* have become desemanticized from their original sense of 'holding the respective ideas and beliefs'. To the extent that they now apply to inanimate experiencers, their function has contracted from a semantico-syntactic one to a primarily syntactic one, turning them into grammatical functors. This finding, their increasing absence from the constructions dependent on verbs of deception and the subsequent loss of complementizers can be accounted for by an

erosive grammaticalization process wearing away the morphophonological and syntactic bulk of the construction.

Unsurprisingly, the separation of our textual data into more or less formal genres has indicated that we are dealing with a change from below, with more speech-like registers in the lead and stylistically more elaborate ones following at a distance. This aligns well with a large number of observations supporting a general colloquialization tendency in the English language (e.g. Mair 2006: 181–199).

Perhaps surprisingly, however, the constructional innovation has clearly turned out to be driven by British English, which is often described as having more formal leanings – including in its grammar – than the American variety (cf. Kövecses 2002: 235–246, Rohdenburg and Schlüter 2009: 421) and as having been more conservative recently than the latter (cf. Algeo 2001; for a critical assessment see Rohdenburg and Schlüter 2009: 364–423 and several chapters in that edited volume). Conversely, it has been suggested that recently editorial policies have been stricter and that academic writing has been more subject to stylistic prescriptivism in the US than in Britain (Tottie 2005, Denison 2009: 163). This would agree with our finding that formal American English provides the stronghold of interpreted complement clauses. Reiterating a conclusion from the collection of analyses in Rohdenburg and Schlüter (2009: 421), we propose that each grammatical phenomenon deserves to be studied in its own right rather than in terms of preconceived generalizations.

On several occasions in our discussion, reference has been made to Denison's (2018) pioneering study, which focuses on the incidence of the patterns 'V + shell noun + *that*-clause' and 'V + *that*-clause' after a large set of verbs in the recent history of English, as exemplified in (26). Denison points out that writers less familiar with the diction of academic writing tend to introduce or favor simpler verb-dependent *that*-clauses over the established ones containing an additional shell noun.

(26) This observation **highlights (the fact)** that we are dealing here with a unique case.

Our data on the progressive expansion of uninterpreted *that*-clauses from informal to formal text types parallel and underscore Denison's conclusions. Going beyond the author's (necessarily) quantitative orientation, we would recommend including a qualitative aspect distinguishing between specific verbs and their associated *that*-clauses with or without a specific shell noun. Such an approach was sketched above in connection with *rule out* and *possibility* (see Section 2). Preliminary observations concerning a set of related negative implicative verbs (*exclude, overlook, ignore* and *preclude*) suggest that – with these items – the omission of a shell noun like *possibility* might, in particular, be subject to the

same detransitivization tendency as that found with *rule out*: the retreat of the shell noun in a clause involving its own (syntactic) negator. Assuming that this is the case, clause negation could be regarded as promoting two kinds of *that*-clauses: a) the derived pattern V + *that*-clause after certain negative implicative verbs, and b) the directly linked *that*-clause after transitive uses of *delude, deceive* and *fool*.

In a more theoretically-oriented perspective, we have thus found that negation as well as other detransitivizing strategies can be used to pragmatically background a clause, which helps innovative constructions to sneak in by the back door (cf. Hopper and Thompson 1980: 284, quoted in Section 2). Gauging the influence of a variety of transitivity-related factors, we found that matrix clauses involving highly transitive direct-object constructions ("cardinal transitivity" in the sense of Hopper and Thompson 1980: 253) are the most resistant to the demise of interpreting expressions, while reflexive objects (as exponents of "de-transitive voice" in the sense of Givón 2001: 91–94) accommodate them most readily. This much was expected and confirmed.

The other exponent of low transitivity, the passive, has turned out to be less easily reconciled with our assumptions about the mitigating effects of backgrounding, as the high share of interpreted subordinate clauses does not differ markedly from that of fully transitive clauses. Reconsidering examples like (18) and (19), a post-hoc explanation suggests itself: Since the experiencer NP appears in subject position, the passivized verb of deception is as a rule immediately followed by the questionable *that*-clause – except in the case of intervening elements as in (17), which can serve as buffers similar to the object expressions in the canonical word order. This constellation appears more objectionable than corresponding active constructions; a sense of incompatibility or repulsion between the verb and a directly linked complement clause seems to persist. We predict that this avoidance will disappear as *that*-clauses become more and more established, but perhaps no sooner than in cardinal transitive contexts.

To conclude, let us widen our perspective to changes in English complementation patterns more globally. There has recently been an increase in the number of cases involving the rivalry between finite complement clauses and other syntactic alternatives. The last few centuries have witnessed a general, though not exceptionless, decline of *that*-clause complements in favor of gerundial and infinitival constructions (see, e.g., Rudanko 2000, Vosberg 2006, Iyeiri 2010). The topic addressed in this paper concerns contrary and hitherto ignored developments undergone by (at least) three verbs of deception. Interestingly, the tendency to delete interpretators in the area treated in this article can be shown to be reversed in several other environments. Thus, in its recent history, English has evolved a number of constructions where a directly linked complement clause has increasingly

been replaced by one including an additional verbal interpretator (Rohdenburg 1998). To begin with, it has been noted that certain types of dependent interrogative clauses tend to be expanded by mental verbs like *see* or *know* as in (27). Furthermore, there is an increasing range of unstable *that*-clause complements – associated with a variety of superordinate verbs and nouns – which have been extended by the addition of basic verbs of communication like *say* as in (28). Again, such developments seem to be favored by informal registers.

(27) I was at a loss **to know** what you were feeling. (BNC, fiction, 1992)

(28) I got a letter **to say** Dad was in hospital . . . (BNC, spoken/scripted)

In addition, both the replacement of the nominal interpretator by the verbal one and the subsequent dropping of the interpretator itself could simply be interpreted as an extension of the (more) nominal to the (more) clausal domain. The history of English provides a number of further examples illustrating this type of change. For instance, the emergence of a prepositional gerundial complement on the basis of an existing prepositional phrase has been noted in several studies (see e.g. Kjellmer 1980, De Smet 2010, Rudanko 2015: 25).

In this larger context, future work will have to examine the question as to which environments are susceptible to the addition or the deletion of interpretators and to what extent these tendencies can be accounted for in terms of general evolutionary trends.

Appendix

Table 5: Overview of data selected and factors modelled in the regression analysis (see Section 4).

section	period	verbs	subset	factors	outcome variable
4.1	1725–2019	*deceive*, *delude*	fiction	year, variety	interpretator type (nominal/verbal)
4.2	1725–2019	*deceive*, *delude*	fiction	year, variety	presence/absence of interpretator
4.3	1810–2019	*deceive*, *delude*	AmE	year, genre, negation, transitivity	presence/absence of interpretator
4.4	1990–2019	*deceive*, *delude*, *fool*	all data	year, variety, genre, negation, transitivity	presence/absence of interpretator
4.5	1725–2019	*deceive*, *delude*, *fool*	all data	year, variety, genre, negation	presence/absence of complementizer

Table 6: Logistic regression models (R function glm, family = binomial).

section	model specification
4.1	interpretator verbal ~ year_c + variety
4.2	interpretator present ~ year_c + variety
4.3	interpretator present ~ year_c + genre_binary + transitivity + negation
4.4	interpretator present ~ year_c + genre_binary + transitivity + negation
4.5	interpretator present ~ year_c + variety + negation + genre_binary

Table 7: Predictor coding for the logistic regression analysis (see Section 4).

predictor	coding	meaning (on the logit scale) of:	
		coefficient	model intercept
year	(year − 2000)/50	difference between two time points 50 years apart	estimate for the year 2000
variety	BrE −1; AmE +1	half the difference between the varieties	simple average over varieties
genre	fiction −1; non-fiction +1	half the difference between the genres	simple average over genres
negation	yes −1 (= negated); no +1	half the difference between negated and non-negated cases	simple average over negation
transitivity	sum contrasts: (1) trans +1; refl 0; pass −1 (2) trans 0; refl +1; pass −1	difference between (1) transitive cases and the average over all three types; (2) reflexive cases and the average over all three types	simple average over transitivity types

Table 8: Logistic regression for interpretator types in fiction (see Section 4.1). Predicted outcome: verbal interpretator.

	deceive **(n = 233)**		***delude*** **(n = 146)**	
	estimate	**SE**	**estimate**	**SE**
(intercept)	3.71	0.56	2.44	0.59
year	1.26	0.19	1.54	0.26
variety	−0.55	0.18	−0.29	0.26
C score	0.79		0.85	
Condition number kappa	5.3		4.6	

Table 9: Logistic regression for long-term loss of interpretators in fiction (see Section 4.2). Predicted outcome: interpretator present.

	deceive **(n = 265)**		***delude*** **(n = 193)**	
	estimate	**SE**	**estimate**	**SE**
(intercept)	−0.16	0.36	−0.77	0.34
year	−1.28	0.21	−1.56	0.24
variety	−0.05	0.26	0.28	0.28
C score	0.87		0.88	
Condition number kappa	4.5		3.5	

Table 10: Logistic regression for mid-term loss of interpretators in American English from 1810 onwards (see Section 4.3). Predicted outcome: interpretator present.

	deceive **(n = 448)**		***delude*** **(n = 530)**	
	estimate	**SE**	**estimate**	**SE**
(intercept)	0.88	0.23	1.45	0.27
year	−1.10	0.20	−1.02	0.18
genre	0.47	0.18	0.41	0.13
negation	0.52	0.17	0.33	0.12
transitivity1	0.90	0.27	0.96	0.43
transitivity2	−1.16	0.22	−1.58	0.26
C score	0.83		0.80	
Condition number kappa	3.5		3.3	

Table 11: Logistic regression for short-term loss of interpretators from 1990 onwards (see Section 4.4). Predicted outcome: interpretator present.

	deceive **(n = 413)**		***delude*** **(n = 693)**		***fool*** **(n = 1284)**	
	estimate	**SE**	**estimate**	**SE**	**estimate**	**SE**
(intercept)	0.83	0.24	0.88	0.21	1.90	0.16
year	0.19	1.16	−1.28	0.73	−0.81	0.80
variety	0.32	0.15	0.76	0.10	0.91	0.12
genre	0.38	0.22	0.40	0.16	0.13	0.16
negation	0.51	0.16	0.47	0.10	0.52	0.11
transitivity1	0.72	0.20	0.70	0.25	0.66	0.15
transitivity2	−1.51	0.20	−1.77	0.18	−1.80	0.14
C score	0.82		0.83		0.84	
Condition number kappa	4.0		4.4		3.4	

Table 12: Logistic regression for long-term loss of complementizer *that* (see Section 4.5). Predicted outcome: complementizer present.

	nominal (n = 304)		verbal (n = 2118)		none (n = 651)	
	estimate	**SE**	**estimate**	**SE**	**estimate**	**SE**
(intercept)	4.28	0.94	−0.21	0.08	2.76	0.25
year	0.30	0.32	−0.51	0.08	−1.11	0.80
variety	0.71	0.37	−0.09	0.05	0.56	0.25
genre	−0.09	0.49	0.24	0.07	0.45	0.28
negation	−0.07	0.41	−0.27	0.05	0.06	0.18
C score	0.69		0.61		0.65	
Condition number kappa	6.3		3.4		2.8	

Databases

See the online appendix at https://osf.io/h8325.

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