Hypercorrection as a By-product of Education

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Prescriptive grammar rules are taught in education, generally to ban the use of certain frequently encountered constructions in everyday language. This may lead to hypercorrection, meaning that the prescribed form in one construction is extended to another one in which it is in fact prohibited by prescriptive grammar. We discuss two such cases in Dutch: the hypercorrect use of the comparative particle *dan* 'than' in equative constructions, and the hypercorrect use of the accusative pronoun *hen* 'them' for a dative object. In two experiments, high school students of three educational levels were tested on their use of these hypercorrect forms ($n_{exp1} = 162$, $n_{exp2} = 159$). Our results indicate an overall large amount of hypercorrection across all levels of education, including pre-university level students who otherwise perform better in constructions targeted by prescriptive grammar rules. We conclude that while teaching prescriptive grammar rules to high school students seems to increase their use of correct forms in certain constructions, this comes at a cost of hypercorrection in others.

INTRODUCTION

Prescriptive grammar rules generally prohibit the use of certain constructions that are (already) part of the language and as such frequently encountered. In Milroy and Milroy's (2012) terms, they are aimed at suppressing *optional variability*, granting one variant 'correct' status whilst attempting to eliminate others. A prominent case in English is the suppression of an object pronoun in favour of a subject pronoun in sentences like *My wife and me went to town yesterday* (Denison 1996). Speakers of English receive explicit instruction in secondary school to write *My wife and I*. However, this explicit emphasis on 'correct' forms may lead to *hypercorrection*. Hypercorrection can be defined as the overuse of prestigious forms in constructions in which they did not originally occur, and in fact should not occur according to prescriptive rules. Hypercorrection presents a clear signal that the prescriptive rule is not completely or not adequately mastered (Kloeke 1924; Sassen 1963; Decamp 1972). For instance, language users may replace *me* by *I* in sentences where this is actually incorrect: *It is difficult for my wife and I to find time;* a construction which

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is now 'arguably widespread enough among educated speakers to be called standard' (Denison 1996: 293).

If prescriptive rules should lead to hypercorrection, and hypercorrection is more prevalent amongst educated speakers, then this points to a possible role of education. Depending on the type of education (see, for instance, Cameron 2012), this is the environment in which language users encounter an explicit emphasis on prescriptively correct forms. Certain types of education might very well increase performance in the target constructions, in terms of causing students to avoid less prestigious forms, but lead to decreased performance elsewhere by students' overgeneralization of this avoidance rule. Thus, hypercorrection can be an unwarranted by-product of education: explicit instruction in the prescriptive rule may lead to overgeneralization of the rule, thereby introducing a more prestigious 'variant' into constructions in which the student's grammar did not previously allow for variation.

The aim of the current study is to investigate whether prescription in education does indeed trigger hypercorrection, by testing the performance of third-year students from three different levels of secondary education in the Netherlands on two instances of hypercorrection in Dutch. First, we discuss hypercorrection and the attitude towards language variants, in education in general and more specifically in the Dutch educational system. Second, we present the two cases of hypercorrection under investigation. Third, we describe the two experiments, and finally, we discuss our results in relation to educational theories.

HYPERCORRECTION AND L1 EDUCATION

The type of hypercorrection at issue in the present study is dubbed qualitative hypercorrection, as opposed to quantitative hypercorrection (Janda and Auger 1992: 212). In quantitative hypercorrection (as first introduced and described by Labov 1963, 1966) hypercorrection is just a matter of increased frequency of a more prestigious alternative form, but the utterances containing these forms are not ungrammatical. In qualitative hypercorrection, the hypercorrect forms *are* ungrammatical or incorrect according to prescriptive grammar rules. That is to say, they are used in constructions in which they should not occur, being conceived of as more prestigious. Denison (1996)'s It is difficult for my wife and I to find time is one example; Janda and Auger (1992) present the hypercorrect English sentence Whom did you say is calling? as another example of qualitative hypercorrection (see also Lasnik and Sobin 2000). Here the question word whom is prestigious yet ungrammatical because it is the subject of the embedded clause, which should be who. DeCamp (1972: 87) tentatively defines hypercorrection 'as an incorrect analogy with a form in a prestige dialect which the speaker has imperfectly mastered'.¹ Janda and Auger (1992: 201) link qualitative hypercorrection to a strategy of avoiding a certain linguistic

element that speakers would normally use in that environment, but that they 'nevertheless feel to be relatively less prestigious'. The more prestigious element is then substituted for the less prestigious one in a construction in which speakers would normally not use it, thereby producing an ungrammatical utterance.

Prescription is the seventh and final stage in Milroy and Milroy's language standardization model, and it comes with what is called the 'complaint tradition' (Milroy and Milroy 2012: 31), that is public complaints about the misuse of language and linguistic decline (cf. Lukač 2018: 103). Hence, prescriptivism is not just a matter of institutionalized education, there are also prescriptive efforts from society. Lay people nowadays express their concerns about incorrect language use on social media (Lukač 2018). Although, as Lukač (2018: 172) notes, 'more than ever before prescriptivists are lending their ears to linguists', the attempts to incorporate sociolinguistic views on prescriptivism and on the relevance of language context in education remain limited.

L1 education in the Netherlands increasingly acknowledges the existence of language variation (Bonset et al. 2015: 319). However, prescriptive grammar plays a central role regardless of this acknowledgement and irrespective of educational style. Prescriptive grammar of Dutch is taught either as the truly 'correct' form of Dutch in more traditional approaches or as an important register of the language to be mastered. This is codified in one of the ten 'core aims' around which Dutch L1 education is built, which states the following: 'The student learns to adhere to conventions (spelling, grammatically correct sentences, word use) and learns to understand the importance of these conventions' (SLO 2016). This is implemented in Dutch L1 textbooks in a surprisingly uniform way: across different methods the correct variants according to the prescriptive rules are listed, often with an explicit mention of incorrect variants to be avoided. None of the textbooks we examined raised awareness of the risk of hypercorrection. Moreover, hypercorrect forms do not seem to be disapproved of strongly in school nor in society in general (even though they are in language advice guides, cf. van der Meulen 2018).

The attested emphasis on the avoidance of a certain form in one construction, we argue, encourages students to adopt a simple avoidance rule. This avoidance rule, in turn, is easily overgeneralized in the absence of any counterexamples from 'hypercorrect' constructions. Next, we will discuss how this process plays out in two specific cases of hypercorrection in Dutch.

TWO CASES OF HYPERCORRECTION IN DUTCH

Hypercorrect dan 'than' in equatives

The choice for either the particle *dan* 'than' or *als* 'als' depends on the type of construction in Dutch. In comparatives such as (1a) and (1b), *dan* 'than' is the prescribed form, but *als* 'as' is also widely attested. In equatives such as (1c) *als* 'as' is used.

(1) a.	Jane	is	niet	sterker	dan	Jackie			(comparative)
	Jane	is	not	stronger	than	Jackie			
	'Jane	isn	't stro	nger than	Jackie.'				
b.	Jane	is	twee	keer	sterker	dan		Jackie	(double comparative)
	Jane	is	two	times	stronger	than		Jackie	
	'Jane	is t	wo ti	mes strong	ger than J	ackie.′			
с.	Jane	is	twee	keer	<i>20</i>	sterk	als	Jackie	(equative)
	Jane	is	two	times	SO	strong	as	Jackie	
	'Jane	is t	wice	as strong a	as Jackie.'				

Textbooks used at schools quite often explain these prescriptive rules in terms of 'equality' and 'inequality'. However, Jane may be equally strong as Jackie in (1a), which is a standard comparative in which *dan* 'than' should be used. Also, Jane is definitely stronger than Jackie in (1c), which is an equative in which *als* 'as' should be used. When speakers do not completely master the underlying prescriptive rule distinguishing between comparatives and equatives, but instead rely on a conceptual distinction between inequality and equality, the hypercorrect use of the more prestigious form *dan* 'than' in equatives is to be expected, as exemplified in (2).

(2)	Het	gevolg	is	dat	de	vrouwen	in	het	jaar
	the	consequence	is	that	the	women	in	the	year
;	па	hun	hartaanval	in	Zweden	een	drie	keer	<i>Z0</i>
i	after	their	heart.attack	in	Sweden	а	three	times	as
2	grote	kans	hebben	от	te	overlijden	dan	mannen	
1	big	chance	have	for	to	die	than	men	
	'The o	consequence is	s that women	n in S	weden ha	we three t	imes as	s high a	risk as
	men 1	to die in the y	ear after thei	r heai	t attack.'				

[de Volkskrant, 09–01–2018]

The prescriptive rule concerning the use of *dan* 'than' in comparatives is well-known in Dutch society.² In a corpus study of spoken Dutch, Hubers and de Hoop (2013) found that the use of *dan* 'than' or *als* 'as' in comparatives strongly correlates with level of education. That is, highly educated speakers almost exclusively use *dan* 'than' in comparatives, whereas low-educated speakers use *als* 'as' more than *dan* 'than'. Hubers *et al.* (2016) found that only 5% of the high-educated speakers in the corpus used *als* 'as' in a comparative, whereas 25% of the low-educated individual speakers did. Additionally, Hubers *et al.* (2016) conducted an online pretest among over 400 readers of the popular science journal *Onze Taal* 'Our Language'. They found that only 3% of the mostly high-educated respondents erroneously judged an incorrect comparative sentence as correct, whereas more partici-

pants, *viz.* 11%, erroneously judged a correct equative, such as in (1c) as incorrect. This suggests that some respondents might not have adequately mastered the rule that distinguishes between comparatives and equatives, but may have replaced it by a general strategy to use *dan* 'than' instead of *als* 'as' in constructions that involve a comparison.

Hypercorrect hen 'them' as indirect object

The choice of a third-person plural pronoun in (written) Dutch depends on its grammatical function. If it is the subject, as in (3a), *zij* 'they' is used. If it is a direct object or the object of a preposition, as in (3b), *hen* 'them' is the prescribed form, and if it is an indirect object as in (3c), *hun* 'them' is to be used.

(3) a.	Zij	gaan	weg					(subject)
	they	go	away					
	'They	are lea	ving.′					
b.	We	spelen	morgen	tegen	hen			(object of a preposition)
	we	play	tomorrow	against	them			
	'We w	vill play	v against the	em tomor	row.'			
c.	Hij	kan	hun	vragen	weg	te	gaan	(indirect object)
	he	can	them	ask	away	to	go	
	'He c	an ask t	them to leav	/e./				

The third-person plural pronoun is the only personal pronoun in Dutch with a three-way case distinction in prescriptive grammar, and a lot of variation is attested. The pronoun *hun* 'them' is used in spoken Dutch in all grammatical functions; even as a subject (cf. van Bergen *et al.* 2011; van Bree 2012; de Hoop 2013), which is strongly disapproved of in Dutch society.³ Bennis and Hinskens (2014), in their survey among over 1500 Dutch respondents, find that a decrease in self-reported use of *hun* as a subject correlates with an increase in level of education. Indeed, only 0.5% of the participants in Hubers *et al.*'s (2016) pretest erroneously judged the sentence containing *hun* 'them' as a subject as correct. This shows that, although the (reported) use of *hun* 'them' as a subject is widespread in the Netherlands (cf. Bennis and Hinskens 2014), speakers are generally aware of the prescriptive rule prohibiting it. We assume this to be the result of education.

In addition to avoiding *hun* 'them' as a subject, *hun* 'them' should also be avoided when it is a direct object or the object of a preposition. The personal pronoun *hun* 'them' is only considered correct in written Dutch when it is an indirect object. Even highly educated speakers have often not fully mastered the prescriptive rules underlying the choice between the object pronouns *hen* 'them' and *hun* 'them', which explains why the online language advisory council *Taaladviesdienst* not only states these rules, but also provides a list of

hundreds of verbs and verbal expressions and whether they take *hun* 'them' or *hen* 'them' as an object. The advice when to use *hen* 'them' and *hun* 'them' is the most frequently consulted advice on the *Taaladviesdienst* website.⁴

People who do not master the distinction between the two object pronouns may avoid the use of *hun* 'them' altogether and use *hen* 'them' instead, to be on the safe side. This is illustrated by the hypercorrect use of *hen* 'them' as an indirect object in (4), taken from the Dutch newspaper *de Volkskrant*:

(4)	De	coalitiegenoten	geloven	Zijlstra	mede	omdat		
	the	coalition.members	believe	Zijlstra	also	because		
	hij	hen	vertelt	dat	de	voormalige	Shell-topman	hem
	he	them.acc	tells	that	the	former	Shell-CEO	him
	steun	t						
	supp	orts						
	'The	members of the coa	alition be	lieve Zijl	stra, ir	ı part becau	se he tells the	em the
	form	er Shell CEO suppo	rts him.'	[0	le Volks	skrant. 17 Fe	bruary 20181	

Incomplete mastery of the predictive rules underlying the distinction between the two object pronouns may thus lead to the hypercorrect use of the more prestigious one, that is *hen* 'them', as in (4). The aforementioned pretest conducted by Hubers *et al.* (2016) showed that the incorrect use of *hun* 'them' instead of *hen* 'them' in a sentence with *hun* 'them' as the object of a preposition was erroneously judged as correct by 17% of the participants. However, as in the case of the comparatives discussed above, the participants performed worse in the hypercorrect construction, that is when the pronoun was used as an indirect object. No less than 32% of the participants in the pretest erroneously judged a correct sentence containing *hun* 'them' as an indirect object as incorrect.

This shows that for many speakers the use of *hen* 'them' for all objects may (have) become the current standard for written language.⁵ Speakers may even be convinced that *hen* 'them' should be used for objects across the board, and that people who use *hun* 'them' for an indirect object violate the prescriptive rule. This is flagrantly illustrated by the library book in Figure 1, where some-one crossed out the correct indirect object form *hun* 'them' in the sentence *Je kunt hun nooit te veel liefde geven* 'You can never give them too much love', and wrote *hen* 'them' instead. Although hypercorrection is often claimed to reveal linguistic insecurity, as in Labov's (1966: 93) 'linguistic insecurity of the lower middle class', the hypercorrect use of *hen* 'them' as an indirect object may rather indicate an inappropriate (i.e. unauthorized) degree of 'linguistic security' amongst highly educated speakers.

Hypotheses on the emergence of hypercorrection

Does teaching prescriptive grammar rules lead to hypercorrection? To answer this question, we will have to demonstrate two trends.

Mijn cerste babyfoto haalt meteen u ling. Politie belooft af te zien van stratvervolging. Vaughn knipt het artikel uit en plakt het op zijn koelkast. Hij schaamt zich voor een van zijn uitspraken – 'volgens mij is het een wanhoops daad' – en de tranen staan hem in de ogen als hij een citaat van Vincentius a Paulo leest dat door een van de verpleegkundigen van het kinderziekenhuis is aangehaald: 'Deze kinderen behovan het kinderziekenhuis is aangehaald: 'Deze kinderen behovader en moeder in de steek zijn gelaten. Je kunt hom nooit te veel liefde geven.'

Volgens mij is het een wanhoopsdaad.' Vaughn ademt in. Zijn uitspraak doet hem ineenkrimpen en hij zou willen dat hij niets had gezegd.

Hij gaat aan het voeteneind van zijn bed zitten en verwacht lat de telefoon elk moment kan gaan rinkelen. De politie zal e moeder onderhand wel hebben gevonden. Het is en blijf islotte een eiland. Ze kan geen kant op. Als ze haar eenmaa

Figure 1: Hypercorrection in a Dutch library book

The first trend is an effect of the prescriptive rule in the construction targeted by the prescriptive rule. The effect of teaching would be reflected in higher performance on these constructions. We expect exposure to the prescriptive rule, as well as willingness to adhere to it, to increase with level of education. For this reason, we hypothesize performance in the constructions that require the avoidance of the less prestigious forms *als* 'as' and *hun* 'them' to be correlated with level of education.

- H1a: Students of higher levels of secondary education will show increased performance in comparatives and double comparatives, compared to students of lower educational levels.
 - b: Students of higher levels of secondary education will show increased performance in the avoidance of *hun* as a subject and object of a preposition, compared to students of lower educational levels.

An increase in performance may be the result of one of two things: the correct application of the prescriptive rule per se or general avoidance of the less prestigious form instead. Crucially, the outcome of the two strategies is indistinguishable in this condition. Therefore, we will have to demonstrate a second trend: a decrease in performance in the constructions not targeted by the prescriptive rule.

- H2a: Speakers will show decreased performance in equative constructions, avoiding the less prestigious *als* 'as' and replacing it with the more prestigious *dan* 'than'.
 - b: Speakers will show decreased performance in indirect objects, avoiding the less prestigious *hun* 'them' and replacing it with the more prestigious *hen* 'them'.

Confirmation of these hypotheses would provide evidence for the existence of overgeneralized avoidance rules in our population, that is hypercorrection. Above we have hypothesized that adherence to a prescriptive rule will increase with level of education (H1). The emergence of hypercorrection would indicate that students have not fully mastered the prescriptive rule, but that they have adopted a general avoidance rule of the less prestigious form (H2). Here, we envisage a second effect of education: the highly educated population will generally show greater mastery of the prescriptive rule than the lower educated population, meaning that highly educated popule will show less hypercorrection.

Mastery of a prescriptive rule is also influenced by its transparency, which seems to differ between the two prescriptive rules under consideration in the present study. Retaining the particle dan 'than' in comparatives is in accordance with the historical pattern in Dutch, in which *dan* 'than' was the only particle used in comparatives (Reinarz et al. 2016). This prescriptive rule is thus conservative, as opposed to the rule distinguishing between the two object forms hun 'them' and hen 'them', which is notoriously artificial (cf. Bennis and Hinskens 2014: 133). The latter rule is less transparent, and as such may be more difficult to master, leading to hypercorrection. Two hypotheses for the performance in the different hypercorrect constructions follow from the interaction of transparency and level of education. Students of higher levels of education will be more inclined to follow prescriptive rules, which will help them when the rule is transparent (i.e. in equative constructions). However, when the rule is opaque, it will work against them. Not having mastered the prescriptive rule, this will result in a much larger relative prevalence of the avoidance strategy (i.e. in indirect objects).

- H3: Students of higher levels of secondary education will show increased performance in equative constructions, compared to students of lower levels of education.
- H4: Students of higher levels of secondary education will show decreased performance in indirect objects, compared to students of lower levels of education.

The effects of teaching prescriptive grammar rules on the emergence of hypercorrection were tested in two experiments.

METHODS

Experiment 1 investigated the occurrence of the hypercorrect particle *dan* 'than' in equative constructions. Experiment 2 investigated the occurrence of the hypercorrect pronoun *hen* 'them' in indirect objects. In these experiments, high school students were asked to fill the gap in experimental sentences by choosing between prescriptively correct and hyper- or incorrect alternatives.

Participants

A total of 162 high school students from five different high schools participated in Experiment 1 (88 female, 74 male). Participants were on average 14.5 years old (SD = 0.87) native speakers of Dutch and were enrolled in one of three educational levels: vwo 'Pre-university education', which is the highest educational level within high schools in the Netherlands, havo 'Higher General Secondary Education' (intermediate level of education in high schools), and vmbo-t 'Lower Secondary Professional Education' (lower level of education in high schools). Thirty-four percent of the students were enrolled in vwo, 28% of students were enrolled in havo, and 38% of students were enrolled in vmbo-t. In Experiment 2, 159 different high school students were tested (73 female, 86 male) from the same five high schools and educational levels as in Experiment 1. The average age of this participant group was comparable to the group of students that participated in Experiment 1 (mean age = 14.43; SD = 0.62). All students were native speakers of Dutch. Thirty-three percent of students were enrolled in vwo, 30% of students was enrolled in havo, and 37% were enrolled in *vmbo-t*. In the remainder of this article, we will refer to *vwo*, *havo*, and *vmbo-t* with higher, intermediate, and lower secondary education respectively (see de Graaf et al. 2000; Nuffic 2018 for a description of the Dutch educational system).

The study was ethically assessed and approved by the Ethics Assessment Committee (EAC) of the Faculty of Arts and the Faculty of Philosophy, Theology and Religious Studies of Radboud University Nijmegen (number 5434), in line with the Declaration of Helsinki.

Materials

For Experiment 1, we selected 48 experimental sentences from newspapers and online articles. The experimental sentences were divided in four sets of 12 sentences that respectively contained a comparative (condition 1), a 'double comparative' (condition 2), an equative (condition 3), or a conjunction outside of comparative and equative constructions (condition 4). Condition 4 was included as a control, since outside of comparative and equative constructions the use of *dan* 'than' as a conjunction is equivocally ungrammatical (cf. Hubers and de Hoop 2013). We adapted the sentences if they were too complex. Table 1 presents an overview of conditions with example sentences.

Condition	Example sentence
1. Comparative <i>Prescriptive</i>	Apple verkoopt dit kwartaal mogelijk meer iPhones dan marktkenners verwachten, schrijft Business Insider.
	Apple will be selling more iPhones this quarter than market insiders predict, Business Insider writes.
2. Double comparative <i>Prescriptive</i>	In Nederland is de kans op een dodelijk ongeval met de fiets ongeveer vijf keer kleiner dan in de Verenigde Staten.
	In the Netherlands the chances of a lethal bike accident are about five times smaller than in the United States.
3. Equative <i>Hypercorrection</i>	Chimpansees zijn vier tot vijf keer zo sterk als de sterkste atleet.
	Chimpanzees are four to five times as strong as the strongest athlete.
4. Conjunction <i>Control</i>	Al enige jaren worden de pensioenen niet meer geïndexeerd en de achteruitgang van de pensioenen zal stijgen als de inflatie toeneemt.
	Pensions haven't been indexed for several years now and the backlog will rise as inflation increases.

Table 1: Overview of materials used in Experiment 1. The correct alternatives are given in bold

The sentences were presented with a gap at the position of the target word (in bold, see Table 1). Participants were asked to fill the gap by selecting the correct alternative (*als* 'as' or *dan* 'than' in all four conditions).

For Experiment 2, we also selected 48 experimental sentences from newspapers and online news articles and adapted them if the sentences were too complex. These sentences contained a third-person plural pronoun as the subject (condition 1), as the object of a preposition (condition 2), and as an indirect object (condition 3). Sentences containing third-person plural possessive pronouns served as control sentences (condition 4). The Dutch third-person plural possessive pronoun *hun* 'their' exhibits case syncretism with the dative *hun* 'them', but here the variant *hen* 'them' is equivocally ungrammatical. Again, each condition consisted of 12 sentences. Table 2 presents an overview of conditions and example sentences.

These sentences were presented with a gap at the position of the target word (in bold, see Table 2). In the first condition participants had to choose between *zij* 'they' and *hun* 'them'; in conditions 2, 3, and 4, between *hun* 'them/their' and *hen* 'them'.

The same 12 filler sentences were included in both experiments. These were unrelated to the experimental sentences in either experiment and tested the participants' knowledge of spelling rules in relation to verb forms in Dutch. These rules are taught early in primary education, yet they give rise to persistent spelling errors (Verhaert *et al.* 2016), which makes them a major target

Condition	Example sentence
1. Subject Prescriptive	Mensen hebben minder geld in hun portemonnee en zij vullen die leegte op met pasjes.
	People carry less cash in their wallets and they fill that void with cards.
2. Object of preposition <i>Prescriptive</i>	Deense onderzoekers beginnen dinsdag een expeditie om te bewijzen dat de Noordpool officieel van hen is.
	Danish researchers will launch an expedition on Tuesday to prove the North Pole is officially theirs (lit: 'of them').
3. Indirect object <i>Hypercorrection</i>	De spreektijd is beperkt en personen krijgen pas het woord nadat hun een vraag wordt gesteld door een commissielid.
	Time to speak is limited and people will only be given the floor after a committee member has asked them a question.
4. Possessive pronoun	Rijken geven massaal geld aan hun kinderen.
Control	The rich massively give money to their kids.

Table 2: Overview of materials used in Experiment 2. The correct alternatives are given in bold

of prescriptive rule teaching in high school. The filler sentences were presented with a gap at the position of the verb. Participants had to choose between two homophonous verb forms ending in either a 't' or a 'd'.

- (5) a. Wat gebeurt er met het landschap als het boerenbedrijf verdwijnt? 'What happens to the landscape when farming disappears?'
 - b. De reactor in Petten is volgens Zijlstra 'outdated' en moet worden vernieuwd.

'The reactor at Petten is outdated and must be restored, according to Zijlstra.'

Design and procedure

The experiments were conducted in a classroom with computers. One class of high school students was tested at a time. The classes participated in either Experiments 1 or 2. Each trial consisted of a sentence in which one word was left out. Participants were asked to fill this gap by choosing one of two words presented below the sentence. A slider was present in between the two words. The participants could choose an alternative by dragging the slider towards the preferred alternative. The gradient nature of the slider allowed participants to indicate not only their preference for a given alternative but also their degree of certainty. The more certain they were, the closer they could move the slider towards one of the extremes. Participants could continue to the next trial by pressing the 'next' button. The experiment lasted about 15 min.

For each experiment, two lists were created consisting of 60 sentences (48 experimental and 12 filler sentences). The sentences in these lists were put in a pseudo-randomized order based on the constraint that no more than two sentences from the same condition occurred in a row. In addition, the lists all started and ended with a filler sentence. These lists were also presented in their reversed order, which resulted in four lists in total per experiment. The two alternatives were randomly presented to the left or the right of the slider, in order to prevent people from adopting a strategy.

For each trial, the response was a number between 0 and 100. This indicated (i) accuracy, that is whether or not the participant had selected the correct alternative according to prescriptive grammar (scores above 50) and (ii) certainty, that is the distance the slider was moved from the centre towards either extreme. A score of 15, for example, indicated that the participant had chosen the incorrect alternative according to prescriptive grammar, and that they were quite certain about the answer.

After the experiment, participants were asked to fill in a background questionnaire concerning their gender, age, educational level, and the name of the high school. In addition, we asked them whether they used additional languages or dialects on a regular basis.

Data preprocessing

Participants were excluded from the data set if they had failed to move the slider in over 35% of cases (missing values), or if they displayed a high level of insecurity with respect to the control conditions. These are assumed to be well-known among participants, and we took a score of under 70 to indicate they did not take the task seriously. Individual items were excluded if the mean response to these items was 2.5 standard deviations from the mean response of the item's condition.

In Experiment 1, out of 162 participants, two participants were excluded based on their number of missing values, and another seven participants based on their accuracy in the control condition. No individual items had to be removed.

In Experiment 2, out of 159 participants, no participants had to be removed based on their number of missing values. However, we excluded 18 participants based on their performance on the control condition. Based on the outlier analysis, we removed one item in condition 1, and one item in condition 4 (control condition). In Tables 3 and 4, the distribution of students across different high schools and educational levels is presented after data cleaning for Experiment 1 and 2, respectively.

As 80% of the data were clustered at the extremes, we conclude that the certainty measure was utilized insufficiently by the participants to warrant using a continuous scale in the analyses. Therefore, participant responses were dichotomized arriving at scores indicating whether or not the chosen alternative was correct according to prescriptive grammar.

School	Educational	Total		
	Lower	Intermediate	Higher	
School 1	14	0	0	14
School 2	5	0	0	5
School 3	28	24	22	74
School 4	0	0	11	11
School 5	12	16	21	49
Total	59	40	54	153

Table 3: Distribution of number of students across schools and educational levels in Experiment 1

Table 4: Distribution of number of students across schools and educational levels in Experiment 2

School	Educational		Total	
	Lower	Intermediate	Higher	
School 1	14	0	0	14
School 2	4	0	0	4
School 3	20	27	21	68
School 4	0	0	11	11
School 5	9	16	19	44
Total	47	43	51	141

Data analysis

The data were analysed using generalized linear mixed effect models with a binomial link function. The analyses were carried out in R (R Core Team 2017) using the lme4 package for modelling (Bates *et al.* 2015a). Following Barr *et al.* (2013), we used maximal random effect structures whenever possible, meaning we modelled correlating random intercepts and random slopes if supported by our data. In case of model fitting issues such as non-convergence or signs of overparameterization, we reduced the complexity of random effect structures by taking the following steps: (i) disabling random correlations, (ii) suppressing random intercepts, (iii) reverting to random intercepts only, and (iv) by removing a random component altogether. Models were checked for

overparameterization by applying Principal Component Analysis on the covariance matrices of random effect estimates using the RePsychLing package (Baayen *et al.* 2015; see also Bates *et al.* 2015b).

Likelihood-ratio tests based on type III sum of squares and sum contrastcoding schemes were used to determine *p*-values for main (interaction) effects. Follow-up analyses on significant predictors were done using the package lsmeans (van Lenth 2016). To control for the inflation of family-wise error rates, *p*-values were adjusted with Tukey's HSD correction.

The coefficients reported in the results sections are based on the response scale (i.e. indicating proportions rather than the logarithmically transformed values).

RESULTS

Experiment 1

We performed a generalized linear mixed effects regression analysis with Prescriptive Correctness (binary) as the dependent variable. The final model contained Sentence Type and Educational Level and its interaction as fixed effects. We included random effects of Participant (random intercepts and random slopes for effects of Sentence Type), Class (random intercepts only), and Item (random slopes for effects of Educational Level, no random correlation).

Likelihood-ratio tests showed a significant overall effect of Sentence Type, $\chi(3) = 169.42$, p < .0001, and a significant overall effect of Educational Level, $\chi(2) = 11.69$, p = .003. No significant interaction effect was found between Sentence Type and Educational Level, $\chi(6) = 9.24$, p = .16. Follow-up analysis on the effects of Sentence Type revealed that participants scored better on sentences with the conjunction as compared to sentences with comparatives $(\beta = 0.12, p < .0001)$, double comparatives $(\beta = 0.16, p < .0001)$ and equatives $(\beta = 0.36, p < .0001)$. Compared to sentences with equatives, participants also scored better on sentences with comparatives ($\beta = 0.24$, p < .0001) and sentences with double comparatives ($\beta = 0.19$, p < .0001). No differences were found between comparatives and double comparatives ($\beta = 0.04$, p = .08). Follow-up analysis on the effects of Educational Level showed that participants enrolled in higher secondary education scored better than participants enrolled in lower secondary education ($\beta = 0.06$, p < .001). No differences were found between participants enrolled in higher and intermediate secondary education $(\beta = 0.04, p = .43)$ and intermediate and lower secondary education $(\beta = 0.02, \beta = 0.02)$ p = .70). Although a significant interaction effect between Sentence Type and Educational Level was absent, post hoc analyses revealed a significant effect of Educational Level in sentences containing conjunctions, comparatives, and double comparatives. However, in sentences containing equatives this effect of Educational Level was absent. In equatives, participants enrolled in lower secondary education did not score significantly worse than participants



Figure 2: Percentage correct in Experiment 1 by Sentence Type and Educational Level

enrolled in intermediate ($\beta = -0.04$, p = .82), and higher secondary education ($\beta = -0.04$, p = .86), and participants enrolled in higher secondary education did not differ in their scores from participants enrolled in intermediate secondary education ($\beta = -0.01$, p = .99). Figure 2 shows the mean performance per Sentence Type and Educational Level.

Experiment 2

An overview of the results of Experiment 2 is presented in Figure 3. We performed a generalized linear mixed effects regression analysis with Prescriptive Correctness as the dependent variable. The final model contained Sentence Type and Educational Level and its interaction as fixed effects. We included random effects of Participant (random slopes for effects of Sentence Type), Class (random intercepts only), and Item (random intercepts only). Likelihood-ratio tests showed a significant overall effect of Sentence Type, $\chi(3) = 113.40$, p < .0001, and a significant interaction effect between Sentence Type and Educational Level, $\chi(6) = 21.06$, p = .002. No main effect



Figure 3: Percentage correct in Experiment 2 by Sentence Type and Educational Level

of Educational Level was found, $\chi(2) = 4.05$, p = .13. Follow-up analysis on the effects of Sentence Type revealed that participants scored better on sentences with a possessive pronoun, compared to sentences with a subject pronoun ($\beta = 0.07$, p = .0001), a prepositional phrase ($\beta = 0.39$, p < .0001) and sentences with an indirect object ($\beta = 0.55$, p < .0001). Participants also scored better on sentences with a subject pronoun compared to sentences with a prepositional phrase ($\beta = 0.32$, p < .0001) and an indirect object ($\beta = 0.48$, p < .0001). Compared to sentences with an indirect object, participants also scored better on sentences with a prepositional phrase ($\beta = 0.16$, p < .01). Follow-up analyses on the interaction effects between Sentence Type and Educational Level showed that the effect of Educational Level was not significant in the control condition (sentences with possessive pronous). Lower secondary education did not significantly differ from intermediate ($\beta = -0.01$, p = .47), higher ($\beta = 0.00$, p = .96), and intermediate secondary education did not differ from higher secondary education ($\beta = -0.01$, p = .61). However, in the other

Sentence Types an effect of Educational Level was present. In sentences with subject pronouns and prepositional phrases, the effect of Educational Level was in the expected direction: Participants enrolled in higher secondary education performed better than participants enrolled in lower secondary education ($\beta = -0.08$, p < .05, and $\beta = -0.17$, p < .01, respectively). No significant differences were found between lower and intermediate ($\beta = -0.02$, p = .92, and $\beta = -0.01$, p = .21, respectively) and intermediate and higher secondary education ($\beta = -0.07$, p = .09, and $\beta = -0.06$, p = .48, respectively). For sentences with an indirect object, however, a significant effect of Educational Level was observed going in the opposite direction. Participants enrolled in lower secondary education ($\beta = 0.19$, p < .05). No differences were found between lower and intermediate and higher secondary education ($\beta = 0.19$, p < .05). No differences were found between lower and intermediate ($\beta = 0.1$, p = .40), and intermediate and higher secondary education ($\beta = -0.09$, p = 0.39).

DISCUSSION

The aim of the experiments was to investigate the relation between education and hypercorrection in order to find out whether teaching prescriptive grammar rules can be shown to lead to hypercorrection.

Experiment 1 investigated the use of particles in comparatives and double comparatives (prescriptive constructions), and equatives (hypercorrect construction), and Experiment 2 examined the use of third-person plural pronouns as a subject and object of a preposition (prescriptive constructions), and as an indirect object (hypercorrect construction). Both experiments included a control condition, and performance was highest on the control condition. With regard to the experimental conditions, participants performed better on the prescriptive conditions than on the hypercorrection condition. Experiment 1 found a general effect of Educational Level, indicating that students of higher levels of education performed better than students of lower levels, irrespective of Sentence Type. However, in post hoc analyses no differences in Educational Level were found in equatives, that is the hypercorrect construction. Experiment 2 found a significant interaction effect between Sentence Type and Educational Level. This interaction is mainly driven by the effect of Educational Level being different in the prescriptive construction targeting the more prestigious object pronoun hen 'them' as compared to the hypercorrect construction targeting the less prestigious pronoun hun 'them'. Students of higher levels of education performed better than students of lower levels in the prescriptive construction, whereas in the hypercorrect construction this is the other way around.

Our first hypothesis (H1) was that students of higher levels of education would perform better than students of lower levels in prescriptive constructions. This was confirmed in both experiments. However, in the prescriptive construction targeting the use of the accusative pronoun *hen* 'them', overall performance was notably worse than in the other prescriptive constructions.

Even students of the highest level of education only chose the correct alternative in 64% of cases, with students of the lowest level showing no preference for either variant. We take this to indicate that this particular prescriptive rule is not mastered very well, probably due to its low transparency combined with strong competition from ordinary speech.

Our second hypothesis on the emergence of hypercorrection (H2) was also confirmed. Our data show a large amount of hypercorrection in both experiments. Moreover, the hypercorrect conditions in both experiments show the lowest performance out of all respective conditions. We further hypothesized an interaction between the transparency of the prescriptive rules (Experiment 1: transparent rule; Experiment 2: opaque rule) and educational level (H3 and H4). H3 was not confirmed, since the effect of Educational Level was not significant in the case of equatives (the hypercorrect construction in Experiment 1). In contrast, performance decreased with level of education for the hypercorrect construction in Experiment 2, thus confirming H4. We take this to indicate that the participants have adopted a general avoidance rule of the less prestigious forms. The extent to which a general avoidance rule is used might vary, but participants who use it to a greater extent are expected to exhibit more hypercorrection than participants who use it to a lesser extent. In the case of a transparent prescriptive rule, the avoidance rule may be applied by students from all educational levels to the same extent. In the case of an opaque prescriptive rule the higher educated students may apply the avoidance rule to a larger extent than the lower educated students: neither group has mastered the prescriptive rule, but higher educated students are probably aware of its existence and more afraid to use the less prestigious form.

To explore the idea that participants might vary in the extent to which they use an avoidance rule, we attempted post hoc analyses for both experiments. We divided our participants in two groups based on their performance in the comparative condition in Experiment 1, and the prepositional condition in Experiment 2. This yielded highly unbalanced groups with only 7 participants scoring less than 50% correct on the comparative condition in Experiment 1, as opposed to 146 participants who score more than 50% correct. No further analyses were conducted. By contrast, the size of the groups was sufficiently comparable for Experiment 2 (n = 53, 88). Participants that used the prescriptively correct variant hen 'them' in the prepositional condition more than 50% of the time (participants with a preference for *hen*) exhibited hypercorrection to a large extent, as demonstrated by their poor performance on the hypercorrect condition presented in the left panel of Figure 4. These participants seem to generally avoid hun 'them', independently of its grammatical function. Participants who used the prescriptively incorrect hun 'them' in the prepositional condition in more than 50% of the items (participants with a preference for *hun*) showed less hypercorrection, as demonstrated by their relatively high performance in the hypercorrect condition (see the right panel of Figure 4).

The results of Experiment 1, and especially those of Experiment 2, indicate that the prescriptive grammar rules are not fully mastered by high school



Figure 4: The mean percentage correct of participants with a preference for hen in the prescriptive context by Sentence Type and Educational Level (left), and the mean percentage correct of participants with a preference for hun in the prescriptive context by Sentence Type and Educational Level (right)

students. Whereas students of the highest level of education perform better than other students in the correct use of *dan* 'than' in comparatives, they perform as poorly as the other students in the correct use of *als* 'as' in equatives. Also, whereas they perform better in the correct use of accusative *hen* 'them', they perform worse in the correct use of dative *hun* 'them'. Education thus seems to increase the use of correct forms in target constructions because they are known to be problematic, but the side-effect is a massive use of hypercorrect forms in other constructions.

van Rijt and Coppen (2017) note that the current Dutch mainstream view on grammar education is an instrumental one: grammar education is judged by its usefulness in prescriptive matters (cf. Cameron 2012). Our findings indicate that prescriptive grammar education is not accomplishing this aim, not even in the formal, prescriptive, school context in which our participants were tested. Apparently, these students have not learned to use the appropriate forms depending on the context, as advocated in the sociolinguistic perspective on language education (Cameron 2012; Milroy and Milroy 2012). Our results are relevant for the current debate regarding the effectiveness of grammar education more broadly (Myhill 2016). Whilst sociolinguistic insights are increasingly applied to raise awareness of language *variation*, also in Dutch L1 education (e.g. attention to dialects, registers, and multilingualism, Bonset *et al.* 2015), the attitude to language *variability* still holds to a prescriptive tradition that seeks to distinguish between 'correct' and 'incorrect' forms (Lukač 2018). In teaching practice, we find that the instrumental aim leads to the application of prescriptive rules of thumb for specific situations. These rules do not necessarily contribute to grammatical knowledge or linguistic insight but explicitly target the avoidance of certain variants in general (Berry 2015). Hypercorrection can be taken as evidence for the application of such a rule of thumb, to simply avoid the less prestigious variant in a construction where it would have been, in fact, correct. The existence of hypercorrection demonstrates that the instrumental function is currently not achieving its desired effect: avoidance rules of thumb decrease undesired variability in some linguistic constructions at the cost of novel undesired variability in other constructions. The result is not an increased adherence to prescriptive norms *across* constructions.

Increased insight into the grammatical system could attenuate the detrimental effects of the prescriptive rule, especially in cases where the prescriptive rule is not transparent. When students are aware of the distinction between prescriptive and hypercorrect constructions, and master the rules applying to each, this would lead to fewer errors. To increase adherence to prescriptive grammar overall and accomplish the instrumental aim of the Dutch L1 educational system, we need a type of grammar education that makes the grammatical system transparent. In the cases under consideration, our results show that the student's grammatical insight is clearly lagging behind.

If students do not apply the prescriptive rules correctly even in school, this raises the question what their language use outside school will be like. If nothing changes in the educational system, we predict that it is only a matter of time before hypercorrection will have resulted in language change in the two constructions, and these hypercorrect forms will be accepted as correct in standard Dutch.

CONCLUSION

Our aim was to investigate whether hypercorrection may emerge as a byproduct of education. We have discussed two instances of hypercorrection in Dutch: the use of the comparative particle *dan* 'than' in equatives, and the use of accusative *hen* 'them' as a dative object. We found that performance of high school students in the constructions focused on by prescriptive grammar correlates with level of education, indicating a beneficial effect of teaching prescriptive rules. However, this comes at a cost: hypercorrection. Performance in hypercorrect constructions was in fact worse than in any of the prescriptive constructions. Here, students of higher educational levels did not perform any better than their peers from lower educational levels; in one construction even worse. We argue that the application of prescriptive grammar in education leads students to adopt a general avoidance strategy of less prestigious forms, which is detrimental to their performance in constructions where the less prestigious form is actually the 'correct' one. Thus, explicit instruction of the prescriptive grammar rule does not internalize said prescriptive rule in the grammar. Rather, it enforces a general avoidance rule, leading to hypercorrection as a result. The aim of Dutch L1 grammar education, as stated by its core aims, is for students to 'learn to adhere to grammatical conventions'. If this is taken to mean an *overall* reduction of 'errors' according to prescriptive grammar, this is currently not having its desired effect.

NOTES

1 As noted for instance by Grondelaers and van Hout (2010: 221), '[s]tandard Dutch is used as the everyday language in a wide range of usage contexts by all the Dutch.' That is to say, many people in the Netherlands do not speak a dialect at home, and standard Dutch is their mother tongue. Hence, when they learn prescriptive grammar rules in high school, they are trained to adapt their native language to the prestigious standard, which is not the same thing as learning another, non-native (variant of the) language. Once speakers have successfully mastered the prescriptive rules of their mother tongue, they have indeed changed their language use and their internal grammar accordingly. For example, they will no longer use *als* 'as' in comparatives, but only (and automatically) *dan* 'than' (cf. Hubers and de Hoop 2013). This is different when they speak a dialect at home in which *als* 'as' is the particle used in comparatives.

- 2 See for example the advice of the online language advisory council *Taaladviesdienst* at http://www.onzetaal. nl/taaladvies/advies/groter-als-groter-dan.
- 3 http://www.onzetaal.nl/taaladvies/hunhebben-zij-hebben.
- 4 http://www.onzetaal.nl/taaladvies/ advies/hun-hen.
- 5 http://www.onzetaal.nl/taaladvies/ advies/hun-hen.

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