Persuasion by numbers: How does numeral marking of arguments in bad news letters influence persuasion?

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Abstract: To what extent does numbering the reasons for a negative decision influence the persuasive force of the text? That is the focus of this study, in which we report an experiment (with 265 participants) wherein the direct effects and the indirect effects of numeral markings are analyzed in two linguistic contexts: in the introduction of the upcoming enumeration of reasons (the so-called 'trigger') and in the lead-ins of the successive reasons of the enumeration itself. The experiment was conducted within the framework of the Elaboration Likelihood Model (Petty and Cacioppo, 1984) and the Schematic Text Structural Expectations Hypothesis (Sanders and Noordman, 2000; Mulder, 2008).

Adding numeral markers in both trigger and lead-ins turns out to enhance the persuasiveness of the text in several ways. It stimulates readers to elaborate more on the content of the reasons. It helps readers to scrutinize the reasons and stimulates recall, which contributes to a more balanced judgment. The markings also have a direct positive effect on persuasiveness, which points to an effect on low elaborating readers. Furthermore, inconsistent implementation of numeral markings (the combination of a numeral trigger with non-numeral lead-ins or a non-numeral trigger with numeral lead-ins) has a negative indirect effect on persuasiveness via text evaluation. This effect is explained by assuming that the Schematic Text Structural Expectations Hypothesis not only applies to text processing, but to text evaluation as well.

Keywords: numeral marker, enumeration, recall, persuasion

1. Introduction

Many writing researchers pursue the same goal: study writing and then apply that knowledge to helping people write better texts (cf. Flower and Hayes, 1977). Most of us are researchers *and* writing instructors. To help our students become better writers, we study writing processes, writing development and written texts and we try to figure out how these three relate. In this paper, we focus on the written product, more particular on the issue of how to effectively present compound argumentation in a text.

Most academic and organizational texts contain some form of argumentation and in most cases these argumentations are of a complex nature. Instead of presenting a single argument for a single conclusion, writers present for example two arguments or more to validate one conclusion. Consequently, many writers (and writing instructors) are faced with a simple and scarcely studied problem: how to effectively introduce and present a series of arguments or reasons for a standpoint. Do you present them out of the blue or do you introduce them with a so-called 'trigger' like '*I have three main reasons'* or '*I have a number of reasons*' (Lo-Dac et al., 2012)? And when enumerating the reasons themselves, do you mention them straight-forwardly one after the other, or do you lead in each reason with a phrase highlighting the ranking order of the successive reasons in the enumeration, like '*the second reason is'*? Finally, what is the best combination in both trigger and lead-ins: using numerals consistently or not?

These problems of writing choices affect writers in organizations, for instance writers of bad news letters in which we have developed a special interest. Bad news writers often cannot avoid giving more than one reason to justify a decision that has negative impact on their stakeholders (Jansen and Janssen, 2010). They need to present multiple reasons as arguments to make the decision more acceptable, or – at least – reasonable in the eye of the recipient.

When presenting multiple reasons writers have four options (exemplified in (1) – (4), which are simplified versions of the texts used in the experiment). In (1) the total number of reasons is presented in the trigger (*for two reasons*) and the number of the successive reasons in the lead-ins of the reasons themselves (*The first/second reason is that*). In (2) the trigger does not specify the number of reasons, but the lead-ins give the ranking order of the successive numbers. In (3) it is the other way around: a numeral trigger is combined without numeral lead-ins and in (4) no numeral information is given.

1. After careful examination of your claim, we regrettably have to inform you that we cannot reimburse the damage *for two reasons*. *The first reason is that* your insurance policy does not cover damage outside the E.U. *The second reason is that* our records indicate that you have paid no premium since December 1, 2009, even after repeated reminders. Your insurance policy was therefore automatically terminated on March 1, 2010.

2. After careful examination of your claim, we regrettably have to inform you that we cannot reimburse the damage *for the following reasons. The first reason is that* your insurance policy does not cover damage outside the E.U. *The second reason is that* our records indicate that you have paid no premium since December 1, 2009, even after repeated reminders. Your insurance policy was therefore automatically terminated on March 1, 2010.

3. After careful examination of your claim, we regrettably have to inform you that we cannot reimburse the damage *for two reasons*. Your insurance policy does not cover damage outside the E.U. *Furthermore,* our records indicate that you have paid no premium since December 1, 2009, even after repeated reminders. Your insurance policy was therefore automatically terminated on March 1, 2010.

4. After careful examination of your claim, we regrettably have to inform you that we cannot reimburse the damage *for the following reasons*. Your insurance policy does not cover damage outside the E.U. *Furthermore,* our records indicate that you have paid no premium since December 1, 2009, even after repeated reminders. Your insurance policy was therefore automatically terminated on March 1, 2010.

In this paper, we address the question whether the use of numeral triggers and numeral lead-ins of reasons affect persuasion: do readers consider a (negative) decision more justified if the number of the supporting reasons are marked with triggers and lead-ins or not? And if so, how does this effect come about? What are the underlying processes explaining it?

The paper is organized as follows. After a discussion of the functions of numeral markers in theories on persuasion and text processing, we will present our research questions and hypotheses, followed by an account of our methodology. After that, we present the results of an experiment in which the effects of numeral markers are analyzed in a full factorial design. The last section is reserved for a discussion.

2. Theoretical background

There is some theoretical evidence for the assumption that adding numerals and marking them in argumentation impacts the readers' perception of texts and their attitude towards the writer and - for instance - a decision in bad news letters. In this section, we will discuss the underlying processes. For this, we will use the influential Elaboration Likelihood Model (ELM) (Petty and Cacioppo, 1984; Petty and Briñol, 2012; Kitchen et al., 2014).

The central tenet of this model is that persuasion takes place in an "elaboration continuum", ranging low elaboration (= shallow processing of information, in this case about a decision) to high elaboration (= deep processing of information). The ELM

distinguishes between the "central" and the "peripheral" route of persuasion. The central route processes involve careful scrutiny of a message weighing the pros and cons of the presented arguments. Under these circumstances, a reader's own cognitive processes and evaluations determine the persuasive outcome. The outcome is thus the result of an interaction between a person's own cognitive belief system and the information in the text.

The peripheral route, on the other hand, does not involve much elaboration and evaluation of the argumentation in the message. Persuasion and attitude change in the peripheral route change is mainly a factor of context or superficial text characteristics, such as the attitude towards the writer and text features like text length or the mere number of arguments.

The crucial difference between the central and the peripheral route is that convincing by argumentation (the central route) implies that the reader is able and willing to connect textual elements in a specific, inherently causal way to a standpoint. In other words, processing and validating presented arguments leads to the acceptance of the standpoint they purposely support. Readers who follow the peripheral route, on the other hand, use general characteristics and principles that are not tailored to a specific standpoint to decide on their point of view. A classic example is "the more arguments the better heuristic", in which the reader infers that a conclusion is tenable from the fact that so many arguments are presented that supposedly support it.

In principle, readers are inclined to take the central route, because they know it offers a more solid path to a valid conclusion. According to ELM, readers take refuge to the peripheral route when they lack time, motivation or knowledge to scrutinize the reasoning. Although both high and low elaboration can lead to persuasion, high elaboration is regarded as superior as it leads to more stable attitude about the proposition. However, the idea of a continuum entails the option that readers tend to more or less elaboration during their text processing.

The Elaboration Likelihood Model postulates that readers can use the same text feature as an argument or as an incentive for invoking a heuristic. It is even possible that the same text feature functions as an incentive for the reader to elaborate more (or less) on the proposition (Petty and Wegener, 1999). How can we apply these insights from ELM to the function of numeral markers?

Evidently numeral markers cannot function as arguments by themselves in central processing. It is impossible to relate the meaning of, for example, *second* to the validity of a specific decision of an insurance company. However, it is perfectly possible for numeral markers to function as an incentive for invoking a heuristic as part of peripheral processing. To elaborate on that, let us compare the examples (1) - (4) again. Readers of (1) – (3) will be more aware of the fact that two reasons for the decision are given based on the (repeated) statement of that fact, than the readers of (4). Therefore, the readers of (1) – (3) are in a better position to realize that two reasons are more than one, and to apply the heuristic "the more reasons for the decision the more probable that the decision is correct" (Chaiken, 1980; Petty and Cacioppo, 1984; Marshall,

Chuan and WoonBong, 2002). If so, we may assume that numeral markers will have a positive effect on the *accuracy* by which readers estimate the number of reasons presented in the text, and that this may affect its persuasiveness.

Besides the application of a rule of thumb like the 'many arguments rule', readers may use *stylistic judgements* as an heuristic to evaluate the decision. If so, they appreciate the phrases expressing the numeral markers as a sign that the text is written well and/or the writer is competent. This evaluation is then transferred to their perception of the persuasive quality of the text. If this is the case, we could expect numeral markers to have a positive effect on the attitudes toward the text and/or the writer, which in turn has its influence on the persuasive power (Burgoon and Miller, 1985).

Although numeral markers cannot function as arguments, they can play a role in systematic central processing. They may influence the extent to which readers are inclined to elaborate on the text. Numeral markers can help readers in constructing situation model of the decision and the reasons for it, in which they integrate inter alia the propositions in the text (Kintsch, 1998). To succeed in this, they need to establish how new text segments relate to the previous ones (Sanders, Spooren and Noordman, 1993). This process of postulating the correct textual relationship is facilitated when writers insert verbal expressions that help readers to unequivocally mark the type of coherence relation. In other words, numeral markers facilitate readers to elaborate on argumentation.

In the case of a decision and an enumeration of arguments or reasons for it, there are two types of coherence relations in play: internal and external. The internal relations comprise the relation between the listed items in the enumeration, which is *additive*. To help readers to process the additive relationship, writers signal the serial position of each reason against the others by an ordinal in the lead-in: e.g. 'the *first* reason is that (…), the *second* reason is that (…)'. A plausible effect of adding numerals to the lead-ins is that it helps the reader construct an adequate situation model in a *bottom-up* reading process. Reading '*the second reason is*' stimulates and helps the reader to relate the content of that reason to the previous reason and the decision.

Under the *external* relations of the enumeration we understand the relationship of the entire enumeration to the decision. According to Mann and Thompson's (1988) typology of coherence relations, the relationship between the decision and reasons falls into the *evidence* category: the purport of the reasons/arguments is to make the decision/conclusion more acceptable. Adding the trigger '*for two reasons*' to an enumeration with numeral lead-ins helps the readers' *top down* processing. When readers read the trigger, they expect that the following text segment will contain two reasons. This anticipation facilitates them to check the successive reasons as they follow, a cognitive task that is less exigent than processing each successive reason without any verbal guidance. This process of affording readers to create expectations about the forthcoming text structure was stipulated by Sanders and Noordman (2000) and coined the "Schematic Text Structural Expectations Hypothesis" by Mulder (2008).

Facilitating readers with these kind of 'advance organizers' (Ausubel, 1960) has a proven effect comprehension (e.g. Meyer et al., 1985) and recall (e.g. Spiridakis, 1989).

This line of reasoning brings us to the hypothesis that numeral lead-ins, whether or not in combination with a numeral trigger, lead to better recall of individual reasons and consequently to higher persuasiveness. Furthermore, we expect that the greater processing efficiency that texts with numeral markers offer, enables readers to elaborate more on the content of the reasons. This assumption is based on the idea that readers of an enumeration without numeral markers, may consider it too cumbersome to scrutinize the text and therefore fall back on peripheral cues. When the enumeration contains numeral markers, the text is easier to comprehend and this may stimulate deeper processing. By consequence, the readers will have a sharper eye for the quality of the presented argumentation.

If this is correct, numeral markers in texts with *strong* reasons will result in higher persuasiveness, because the extra scrutiny will lead to a higher acceptance of the reasons and the decision. Numeral markers in a context of *weak* reasons, however, will result in lower persuasiveness, because weak reasons are not resistant to critical reading as a result of deep processing. In other words, we expect an interaction effect of reason or argument quality and numeral marking on the persuasiveness of a text (see Petty and Caccioppo, 1984 and Petty and Wegener, 1989).

Until now, we have discussed the effects of adding numeral lead-ins alone (see example (2)) or in combination with a numeral trigger (1) on primarily the recollection of the number of reasons and of the reasons' content. But numerals may also have an effect on text evaluation if they are applied *inconsistently*. This is the case in texts with the combination of a numeral trigger and non-numeral lead-ins (see example (2)) or when a non-numeral trigger is combined with numeral lead-ins (see (3)). Numerals in one context may lead readers to expect that the number of reasons is important. This expectation is thwarted when they read the enumeration and find no numeral lead-ins to help them. According to Expectance Theory, this will lead to disappointment and a negative attitude towards the text or its writer and this may in turn affect the persuasiveness (Burgoon and Miller, 1985; Burgoon, Stern, and Dillman, 1995).

2.1 Earlier experiments

There is some experimental evidence for the positive influence of numeral markers on recall. Lorch and Chen (1986) for example manipulated a text with two enumerations of five elements and a text with one enumeration of ten elements. In the experimental versions, they inserted an enumerative trigger with a specific indication of the number of elements. Furthermore, each element was introduced by a numeral marker indicating its serial position in the enumeration. The control versions had no triggers and no numeral markers. Participants were asked to report all they could remember (free recall) or to list as many elements in the enumerations as they could remember. Lorch and Chen found a positive effect of numbering on recall. This effect was attributed to the fact that the participants spent more time on reading the numbered fragments. They

also found that in the experimental numbered condition, the participants more often presented the recalled elements in the exact same order as they were presented in the text.

Sanders, Land and Mulder (2007) did a similar study on the effect of marking on comprehension in a laboratory and in a more natural reading situation. One of their manipulations included the insertion of the ordinals *first, second, third* in enumerations. Just as Lorch and Chen, Sanders et al. report a positive effect of these numeral markers on comprehension.

As far as we can tell, the effect of numeral triggers has not yet been investigated. Sanders and Noordman (2000) studied the effect of more generic signalling clauses, which can be considered as a form of triggering. They inserted for example clauses like "a solution is in sight now" in texts with a problem solution structure just between the problem and solution part of the text. Sanders and Noordman report positive effects on reading time, which they interpret as evidence for the aforementioned Schematic Text Structure Expectation Hypothesis. They did not find any effects on recall. More empirical evidence for the effectiveness of Schematic Structural Expectations Hypothesis can be found in the work of Mulder (2008) and literature on advance organizers (Ausubel, 1960). Corkill's (1992) meta-analysis shows that advance organizers have an overall positive effect on recall.

We are not aware of empirical studies on the combined influence of numeral triggers and numeral lead-ins on recall and persuasion. This paper aims to fill this gap.

3. Research question and hypotheses

The discussion in the previous section gives rise to the following research question and hypotheses.

> Research Question: To what extent do numeral triggers of an enumeration of reasons and/or numeral lead-ins of successive reasons in an enumeration influence the persuasiveness of bad news letters?

The first hypothesis concerns the eventual effect of numerals on the extent of elaboration of the readers. According to the schematic Text Structural Expectations Hypothesis and following the usual procedure in the Elaboration Likelihood Model to detect an elaboration steering influence, we predict the following interaction effect of numerals and argument quality:

1. Numeral lead-ins in the context of a numeral trigger will widen the gap between the evaluation of the persuasiveness of texts with strong and weak reasons.

The second hypothesis results from the Schematic Text Structural Expectations Hypothesis and the Elaborated Likelihood Model under the condition that readers elaborate the reasons highly:

2. Numeral lead-ins in the context of a numeral trigger have an indirect positive effect on perceived persuasiveness, with the recall of the individual reasons as mediator.

The third hypothesis results from the Elaborated Likelihood Model under the condition that readers will elaborate less and use the number of reasons as a cue for peripheral processing:

3. Numeral lead-ins in the context of a numeral trigger have an indirect positive effect on perceived persuasiveness, with number awareness as mediator.

The fourth hypothesis results from the Elaborated Likelihood Model under the condition that readers elaborate less when using the phrases expressing the numeral markers as a stylistic cue for competent letter writing:

4. Numeral lead-ins in the context of a numeral trigger have an indirect positive effect on perceived persuasiveness, with text quality and/or writer competence as mediator.

The fifth hypothesis results from the Schematic Text structural Expectations Hypothesis and Expectancy Theory:

5. Combinations of a numeral trigger with non-numeral lead-ins or a non-numeral trigger with numeral lead-ins have a negative effect on the evaluation of text quality and/or writer and via these on persuasiveness.

4. Method

4.1 Participants

There were 171 (64%) female and 94 (36%) male participants in the experiment. Their mean age was 38.9 (SD 15.9). As far as education is concerned, there was a slight majority of those with a higher education: 144 (54%) versus 121 (46%) with vocational training. Randomization checks revealed that the proportions of participants with specific demographic characteristics did not vary across the conditions (all p's > .20).

All participants had good reading skills in Dutch and at least some experience with travel insurances. Travelling with a travel insurance and trying to get a reimbursement for broken or missing possessions is a national hobby for the Dutch. The participants were not paid for their services.

4.2 Design

The experiment had a between-participants 2 x 2 x 2 design (non-numeral *vs* numeral trigger, non-numeral *vs* numeral lead-ins, strong *vs* weak reasons).

4.3 Context

In our experiment, we used claim denial letters: a letter by which an insurance company informs their client that it will not reimburse a claim. As in Jansen and Janssen (2010, 2011) and in Janssen and Jansen (2013), claim denials are typical examples of bad news letters.[1] In this genre, the writer communicates a decision that has negative consequences for the reader. The advantage of this type of letter is that it they are not inherently convincing. Therefore, if in one of the conditions the readers are persuaded, or rather more willing to accept the insurance's standpoint as reasonable, we may regard this as a meaningful accomplishment.

We based our letters on real examples of actual letters from a corpus that we built over the years and on letters from a sample book of a major insurance company in the Netherlands. All texts were formatted in the conventional style of business letters, with logo and address information. The mean length of the letters was 186 words (min. 180, max. 191). The name of the insurance company sending the letters was fictitious so that a company's prior reputation would not affect readers' evaluations (see Appendix A for an example of one of the letters). The letters were presented in Dutch.

4.4 Independent variables

We opted for an enumeration consisting of more parts than the minimum (two), in order to make the numerals stand out and appear truly functional for the reader. At the same time, the enumeration had to be rather short for ecological reasons. The compromise was an enumeration of four parts. We composed two denial letters, one with four strong reasons (1) and the other four weak reasons (2).[2]

1. After careful examination of your claim, we regrettably have to inform you that we cannot reimburse the damage for four reasons. The first reason is that your claim is more than one year old. Policy terms state that you lose coverage if you do not file a claim within a year of the alleged theft (A). The second reason is that you did not file a report of the alleged theft at the local police station as is required in our policy terms and conditions (B). The third reason is that your insurance policy does not cover damage outside the E.U. (C). The fourth reason is that our records indicate that you have paid no premium since December 1, 2009, even after repeated reminders. Your insurance policy is therefore automatically terminated on March 1, 2010 (D).

2. After careful examination of your claim we regrettably have to inform you that we cannot reimburse the damage for four reasons. The first reason is that – in

our opinion – you have claimed more than the damage; our information shows that the price for that specific laptop computer was € 678,30 (A). The second reason is that the form provides evidence that you left your laptop computer unattended near the swimming pool; therefore, you are no longer entitled to reimbursement (B). The third reason is that our records indicate that you have filed three previous claims this year (C). The fourth reason is that we believe that due to the lack of witnesses we cannot determine with certainty that this was a case of theft (D).

The operationalization of reason quality was done in a two-step procedure. The first step was to analyze the reasons' content to differentiate between strong and weak reasons. If the reason was a direct exceedance of a policy term that could be determined objectively, the reason was a potentially strong one. Take for example the third reason, C, in (3):

3. policy terms and condition: the coverage is limited to countries in the European Union
    Fact: Sri Lanka does not belong to the European Union
    Conclusion: strong reason

If the reason could be considered as an exceedance of a policy term by way of one or more subjective interpretive steps, the reason was a potentially weak one. Take for example the first argument, A in (4):

4. policy terms and condition: policy holders must claim the right price for their stolen goods
    Fact: the insurance company has found an offer of the same laptop for a lower price than the policy holder claimed
    Company's subjective interpretation: policy holder is trying to swindle, therefore the claim is denied.
    Conceivable objection: it does not follow from the fact that the laptop is offered for a lower price, that the policy holder has bought the laptop for this lower price.
    Conclusion: weak reason

The second step was to test the quality of the reasons, in a manipulation check on the basis of the Likert proposition "The reasons of the writer are convincing". See Janssen and Jansen (2013) for a more elaborate discussion of the strong and weak reasons.

Both text versions were manipulated identically, by implementing numeral markers (or not) in the trigger, and in the lead-ins. The numeral trigger was created by complementing the first sentence of the paragraph, expressing the claim denial, with a phrase indicating of the category of elements enumerated and a stipulation of the

number of forthcoming reasons, expressed by the cardinal: *for four reasons*. The second manipulation occurred in the lead-in of each reason. In the numeral marker condition, each reason started with a phrase expressing the type of coherence relation and the stipulation of the exact serial position of the reason expressed by an ordinal: *the first/second/third/fourth reason*. In the conditions without explicit marking the first reason was presented without introduction. The reasons thereafter were introduced with the sequencers: *ook* 'also', *daarnaast* 'in addition' and *vervolgens* 'then'.

4.5 Measures

For this study, we used an evaluation instrument that had proved to be reliable in earlier experiments (Jansen and Janssen 2010, 2012). The questionnaire consisted of evaluative, demographic and content questions. The evaluative questions asked for a report mark (ranging from 1 to 10, as is usual in the Dutch educational system) and 31 Likert-propositions to measure specific evaluation dimensions, with seven-point scales (ranging from 1 totally disagree to 7 totally agree).

We performed a factor analysis (Principal Component with Varimax rotation) which resulted in four components with two items or more, explaining 56% of the variance in total. We coined the first component (perceived) 'persuasiveness'. It comprises 10 propositions about the reader's satisfaction with the letter and his willingness to remain a customer e.g., *I am satisfied with Solar's reaction* (*Cronbach's α* = .91). The second component is 'text quality', comprising 5 propositions about style and content e.g., *The writer jumps from one thing to another* (*Cronbach's α* = .84). The third component included the propositions about the 'politeness' of the writer. The fourth component is about the writer's 'likeability', the 9 propositions all reflect the commonplace opinion about insurance companies, viz. that they become die-hard bureaucrats as soon as it comes down to reimbursements, e.g., *The writer is arrogant* (*Cronbach's α* = .89). Although the last component, (perceived) 'empathy' of the writer with the reader, is very similar to the previous one, they do not form a homogeneous component together. The 7 propositions in the last component tap the reader's intuitions about the writer's involvement with the reader/client, e.g., *The writer is interested in me* (*Cronbach's α* = .89). (See Appendix B for a complete list and factor loadings)

The demographic questions were about the participants' gender, education, and age. The questionnaire continued with two questions testing validity aspects of the experiment. One asked about the participants' experience with insurance matters ("Did you ever file an insurance claim?"). The other was a proposition testing the ecological validity of the letter ("this letter may have been sent to a customer").

The final part of the questionnaire consisted of a series of nine content questions, two of them about the reasons. To determine the readers' accuracy of the estimation of the number of reasons, we asked first how many reasons for the decision were presented in the letter, with options ranging from 0 to 9. We subtracted the number of reasons reported by the participants from the number of reasons in the letter they had read, which was four in this experiment. In the second question, participants were

asked to write down as many reasons as they could remember, in the order the reasons were presented in the letter. The answers were scored independently by two persons who were unaware of the condition of the participant. We subtracted the number of reasons recollected from the number of reasons in the letter as well.

4.6 Procedure

The participants were recruited in public spaces, for example when they commuted by train to or from work. They received a booklet with a general introduction about the aim of study ('quality of insurance letters') and a short instruction on Likert-scales on the first page. On the next page, the participants found a scenario asking them to picture themselves as someone who had submitted a claim for the reimbursement of a stolen laptop and receives a letter from the insurance company. This letter was printed on the third page which the participants could read at their own pace.

All letters were identical except for the third paragraph. The first and the second paragraph contained the opening, some background information on the claim and the (standard) statement of any insurance company that the claim was 'investigated thoroughly'. The third paragraph presented the claim denial and the reasons or arguments for it. The final paragraph presented the client with information on how to appeal the decision, also standard information in this genre (see Appendix A for an example of the letters).

Reading the letter took about two minutes. Once the participants had finished reading, they filled out the questionnaire. If desired, they could reread the letter before making any assessments. Our research assistants made sure that participants did look back when they filled in content-related questions on the final page of the questionnaire. On average, participants needed 13 minutes to complete the task.

4.7 Statistics

The *direct* effects of the independent variables on the dependent variables were analyzed with multivariate and univariate ANOVAs. The *indirect* effects were studied with a serial multiple mediation analysis conducting ordinary least squares path analysis, with number awareness, recall of reasons, likeability and empathy as mediators and persuasiveness as an output variable. For our mediation analyses, we used Hayes' magnificent PROCESS tool for SPSS (Hayes, 2013).

5. Results

5.1 Preliminary analyses

We checked whether the ecological validity of the letters in the four conditions differed by doing chi-squares tests for the relation of trigger and lead-ins and the agreement of the participants (yes/no) with the proposition "This letter can readily be sent to customers." There were no significant results ($p > .05$). Furthermore, we used the Likert

proposition "The arguments of the writer are convincing" as a manipulation check of reason quality. The difference between strong (M = 5.7, SD = 1.4) and weak (M = 4.5, SD = 1.8) reasons was statistically significant ($F_{(1,263)}$ = 37.6, p < .001).

A correlation analysis of the dependent variables revealed significant relationship between number awareness and reason recall, between reason recall and persuasiveness and between the evaluative variables text, empathy, likeability and persuasiveness (see table 1). The correlations are not extreme (the highest correlation being .66 between empathy and persuasiveness, thus reducing the risk of multicollinearity).

Table 1. Bi-variate correlations between number awareness, reason recall, writer's empathy with the reader, writer's likeability and perceived persuasiveness

	Number awareness	Reason recall	Text	Empathy	Likeability
Reason recall	.41**				
Text	.11	-.01			
Empathy	.06	-.10	.14*		
Likeability	-.01	-.02	.63**	.26**	
Persuasiveness	-.05	-.20**	.12*	.66**	.18**

(* = p < .05, ** = p < .01)

5.2 Hypothesis testing

In this section, we test the five hypotheses presented in section 3. The first hypothesis relates to the possibility that the combination of a numeral trigger and a numeral lead-in stimulates the reader to elaborate more on the individual reasons. This deeper processing would lead to a greater evaluation gap between the texts with strong and weak reasons in the most marked condition.

This hypothesis was tested by conducting a multivariate ANOVA with numerals (presence versus absence), their location (in trigger versus in lead-ins) and reasons qual-

Table 2. Influence of numeral trigger and numeral lead-ins on likeability in the context of weak and strong reasons (1 = low, 7 = high)

	No numeral trigger				Numeral trigger			
	No numeral lead-in		Numeral lead-in		No numeral lead-in		Numeral lead-in	
	Weak	Strong	Weak	Strong	Weak	Strong	Weak	Strong
Likeability	3.8	4.2	4.0	3.7	4.1	3.6	3.8	4.8
	(1.5)	(1.3)	(1.3)	(1.4)	(1.0)	(1.3)	(1.4)	(1.1)

ity (strong versus weak reasons) as independent variables and number awareness, reason recall, text, empathy, likeability and perceived persuasiveness as dependent variables. The hypothesis predicts a three-way interaction effect. We found a three-way interaction of reason quality, trigger and lead-in (*Pillai's trace* = .05, *F* (6, 250) = 2.2, *p* < .05). The only significant between-subjects effect was on the dependent variable likeability (*F* (2,255) = 10.8, *p* = .001, η^2= .04). In Table 2 we present the scores.

Table 2 shows that the evaluation of the writer's likeability is unrelated to argument quality, *except* in the condition with numerals in both trigger and lead-ins. To evaluate this differential effect in a more straightforward way, we created a new independent variable with two levels: numerals in both trigger and lead-ins versus the three other conditions and did a two-way ANOVA with argument or reason quality as the second independent variable. The result are shown in Table 3 and Figure 1.

Table 3. The combined influence of reason quality and the condition both numeral triggers and numeral lead-ins versus a condition in which at least one of them is non-numeral in their influence on likeability (1 = low, 7 = high)

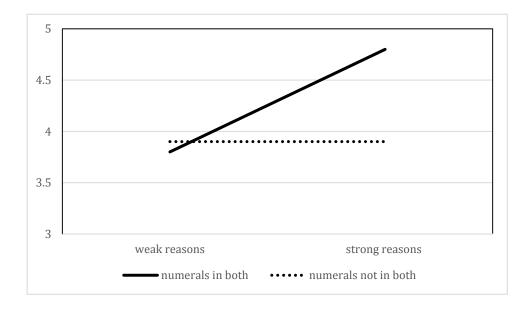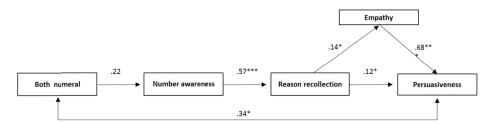|	Both numeral		Not both numeral	
	Weak	strong	Weak	strong
Likeability	3.8	4.8	3.9	3.9
	(1.4)	(1.1)	(1.3)	(1.4)

Figure 1. The influence of both numeral trigger and numeral lead-ins on the writer's likeability.

In the condition with both a numeral trigger and lead-ins, the difference between weak and strong reasons on likeability is significant (F (1,79) = 12.5, p = .001, η^2 = .14); in the condition where at least one of them is non-numeral, the difference between weak and strong reasons is not significant (F (1,192) < 1).

Readers of the letter with a series of strong reasons presented with a numeral trigger and numeral lead-ins perceive the writer as more likeable than readers of the same text with a series of weak reasons presented in the same way. If the series of reasons is presented with a non-numeral trigger and/or lead-ins, readers find a writer presenting strong reasons equally likeable as a writer presenting weak reasons.

The second hypothesis relates to the predicted effect of numeral markers on persuasion via recall of the reasons for the decision. As this hypothesis assumes an effect only if numerals are present in both trigger and lead-ins, we used the same independent variable that was introduced in the previous section: both numeral versus not both numeral. We then tested the effect of this independent variable on the output variable 'persuasiveness' with 'number awareness', 'reason recall', writer 'likeability' and writer's 'empathy' as possible mediators. The model with the most explained variance had 'awareness', 'reason recall', 'text quality' and 'empathy' as mediators (R^2 = .46, F (5,257) = 44.0, p < .001). The bias corrected bootstrap confidence interval for the indirect effects based on 5000 bootstrap samples was entirely above zero for two paths (see Figure 2).

Figure 2. The influence of a combination of both numeral triggers and lead-ins versus all other combinations of (non)-numeral triggers and lead-ins on perceived persuasiveness via the mediators number awareness, reasons recollection, text quality and empathy.

(The values for number awareness and reason recall are switched so that a positive sign means more aware and better recall. The numbers above the arrows are the unstandardized B-coefficients. *= p < .05, *** = p < .001).
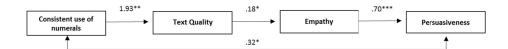
Both paths include 'awareness' and 'recall' of reasons. Numerals in both trigger and lead-ins make the participants more aware of the exact number of the reasons presented (B = .22, t = 2.2, p = .07), which positively affects the recollection of reasons (B =.57, t = 7.2, p < .001). After that, the paths diverge. The first path (*effect* = .01, *LLCI* = .002 - *ULCI* = .041) shows that better recollection leads directly to more

persuasiveness (B = .12, t = 2.2, p < .05). The alternative path (*effect* = .01, *LLCI* = .001 - *ULCI* = .079) indicates that better recall leads to more empathy (B =.14, t = 2.0, p < .05), which, in turn, affects persuasiveness (B =.6.8, t = 13.8, p < .001). There is also a *direct* positive effect of the all numeral condition persuasiveness (c' = .34, t = 2.4, p < .05). This means that mere presence of numeral lead-ins and triggers make the letter more persuasive.

The third hypothesis predicts an indirect effect of numeral marking on persuasiveness as a result of peripheral processing: the marking functions as a cue that activates the 'many reasons' heuristic from ELM. This hypothesis would have been supported, if number awareness mediated the influence of marking on persuasiveness, but this influence was not mediated by reason recall, because recall would indicate deep processing. As we see in figure 2, this is not the case: the influence of 'awareness' on 'persuasiveness' is obligatorily mediated by 'recall'. Therefore, hypothesis 3 is rejected.

The fourth hypothesis postulates that numeral markers are perceived to indicate that the text is produced by a competent writer. In this case a mediation role is predicted for text quality and/or writer likeability and/or writer empathy with the reader. This prediction is not substantiated by the data, see figure 2. So, hypothesis 4 needs to be rejected as well.

To test the fifth and last hypothesis, which predicted a negative effect of *inconsistent* implementation of numerals, a new independent variable was created with two levels: consistent implementation (trigger and lead-ins either numeral or non-numeral) and inconsistent implementation (numeral trigger with non-numeral lead-ins or non-numeral trigger with numeral lead-ins). The model with the most explained variance was with number awareness, reason recall, text quality and empathy as mediators (R^2 = .46, F (5,257) = 43.2, p < .001). The bias corrected bootstrap confidence interval for the indirect effects based on 5000 bootstrap samples was entirely above zero for one path. (See Figure 3)

Figure 3. The indirect influence of consistent implementation of numerals in trigger and lead-ins (versus inconsistent implementation) on perceived persuasiveness via the mediators text quality and empathy. (The values for number awareness and reason recall are switched so that a positive sign means more aware and better recall. The numbers above the arrows are the unstandardized *B*-coefficients. * = p < .05, ** = p < .01, *** = p < .001)

In this path (*effect* = .24, *LLCI* = .03 - *ULCI* = .45) consistent implementation of numerals leads to a higher evaluation of text quality (B = 1.93, t = 13.3, p < .001). The higher evaluation of text quality is related to a higher evaluation of the writer's empathy

with the client ($B = .18$, $t = 2.7$, $p < .01$) which leads to more persuasiveness ($B = .70$, $t = 13.9$, $p < .001$). There is also a direct positive effect of consistent implementation on persuasiveness ($c' = .32$, $t = 2.0$, $p < .05$). Therefore, we consider hypothesis 5 as sup–ported by the data.

6. Discussion

This study has limitations. The hypotheses were tested on only two letters, belonging to one genre, bad news letters. Moreover, they were all letters from an insurance company in which a claim of a policyholder was denied. It remains to be seen whether for example in an experiment with enumerations in different genres our results can be replicated. Second, our manipulation of reason quality was different from the standard procedure in ELM studies. In this study, the weak reasons were less objectively sound than the strong reasons, but nevertheless realistic and relevant for the conclusion, whereas the weak reasons in ELM studies focus on irrelevant aspects of goods or issues. To be honest, we prefer our approach. Third, this experiment was done in the Netherlands, with Dutch participants reading Dutch texts. Although we could not find any studies on the subject of cultural diversity with respect to numeral markers, we cannot exclude the possibility that people in some cultures attach more value to numbers. Fourth, it is possible that the number of reasons in the enumeration, four, made the participants suspicious whether the insurance company's persuasive motives were sincere (Shu and Carlson, 2014). Therefore, it is not clear if the results can be generalized to shorter enumerations. Finally, the participants had to picture themselves in the situation of the policyholder whose claim was denied. It is an open question whether readers whose own interests are at stake read and evaluate in the same way.

The results of our experiment provide evidence that adding numerals to both the trigger of an enumeration of reasons for a decision and to the lead-ins of the successive reasons has positive effects on the persuasiveness of texts. The first beneficial effect is that explicit marking stimulates the reader to scrutinize the reasons (Hypothesis 1). We found that in the condition with numerals in trigger and lead-ins, the participants found the writer more likeable when the claim denial contained strong as opposed to weak reasons. Argument or reason quality had no effects in the conditions without numerals. In other words, the presence of numerals in both contexts made the participants more attentive to argument quality. And as implied by ELM, higher elaboration only leads to more persuasion if the argumentation is sound.

Our study also finds support for the idea that numerals in trigger and lead-ins affect persuasiveness as a function of better recall of the reasons (Hypothesis 2). Mediation analysis showed that readers of the text with numerals triggers and lead-ins have a better recollection of the arguments which – in turn - affects persuasiveness. This finding is also in line with the ELM: highly elaborating readers base their evaluation of a text's persuasiveness on an assessment of argument quality. A precondition for this is

that the reader must remember the arguments presented in the text. Furthermore, this result indicates that the Schematic Structural Expectation Hypothesis can be successfully applied to the presentation of enumerations.

There are no indications in our findings that numeral markings stimulate peripheral processing by cueing the 'many reasons' heuristic. We did not find a relationship between 'number awareness' and 'persuasiveness' in which reason 'recall' was not involved. Thus hypothesis 3 is not supported. This outcome is consistent with the results in Janssen and Jansen (2013). They reported that adding an extra reason to a letter with one reason had a positive effect on persuasiveness. However, this effect disappears when the extra reason is added to a text with *two* reasons. They interpret this finding as an indication that their participants did not apply a 'the more, the better' heuristic, but elaborated on the reasons instead.

Hypothesis 4 predicted that texts with numeral markings in both contexts may be more persuasive because readers may see the marking as an indication for text quality and writer's competence. We did not find any support for this. 'Text quality' did not mediate any effect of numeral markings on persuasion.

Hypothesis 5, on the other hand, is supported by the data. We found evidence that the positive effect of numerals is limited to enumerations in which the numerals are used consistently in both trigger and lead-ins. Readers evaluate the text more negatively when the numerals are implemented inconsistently and this has a negative effect on the persuasiveness. This result is in line with the Schematic Text Structure Expectation Hypothesis: thwarting an expectation not only leads to a reduced recall, but also to more negative evaluations.

Our results do leave us with four intriguing issues that we would like to address in the remainder of this discussion: 1) the relationship between number awareness and reason recollection, 2) the importance of 'likeability', 3) the direct effect of numerals on persuasiveness and 4) the importance of perceived 'empathy'.
As for the relation between number awareness and reason recollection, we found no *direct* influence of numeral marking on reason recollection, only an indirect effect via number awareness. This brings us to the hypothesis that number awareness is a necessary condition for better recollection of reasons in general; a hypothesis that has to be tested in experiments with other texts and other operationalizations of number awareness and reason recall.

We found the expected interaction between marking and argument quality but only on likeability. The version with numeral lead-in and triggers and strong arguments led to a more positive evaluation of the writer. Our participants found him more 'likeable'. On the one hand, it would have been a stronger indication for a steering function of numerals towards higher elaboration if there was an influence on persuasiveness. On the other hand, we consider the found relationship a significant one. Likeability is after all a critical variable in business communication research because it taps the readers' attitudes to the company's reputation (e.g. Fombrun and Van Riel, 2004). Our results

indicate that it may be beneficial for a company's reputation to highlight an enumeration of strong reasons with numeral markers. As mentioned, the predicted effect was found only on 'likeability' and not on 'persuasiveness'. We interpret this mixed result as an indication that 1) numerals in both trigger and lead-ins stimulate readers to elaborate on the reasons and 2) the positive effect of the numerals on persuasiveness cannot be attributed to central processing alone. There are more results that can be interpreted as indications for this last idea, more specifically the direct effect of (consistent) numeral marking on persuasiveness.

Both mediation analyses (figures 2 and 3) revealed that the direct effect of numerals in trigger and lead-ins on persuasiveness remain, even if we take the respective indirect effects into account. We think we can - tentatively - explain these effects with the help of the Schematic Structural Expectation Hypothesis. The original idea of Sanders and Noordman (2000) and Mulder (2008) was that markers facilitate text processing and thus reading comprehension. We assume, based on our findings, that markers work in the same manner in text evaluation. We think that readers not only understand a text better when an expectation about text structure is created with numeral triggers and solved with lead-ins, but they may appreciate this 'service' as well. They may also consider the marking as a cue for solid reasoning: the writer has evidently thought it all out in advance. This positive evaluation results solely from the noticed presence of numeral markers, irrespective of the specific content of the reasons or the perceived text quality. Although promising and interesting, the validity of this explanation has to be tested in future experiments.

Two dependent variables in our study were so-called 'source variables': likeability and empathy. Initially neither of these measures played a leading role in our analyses. However, both turned out to be important mediating variables. 'Likeability' of the writer turned out to be sensitive for the difference between weak and strong reasons in combination with numeral triggers and lead-ins. And more importantly, persuasiveness proved to be influenced indirectly by the attributed 'empathy' of the writer. This effect is not self-evident and needs an explanation. We suggest the following. In daily life, we are unable to fact-check all information that is presented to us. Instead, we rely on and trust our sources. The more we like the sender, the easier we are convinced (cf. Chaiken, 1980; De Bono and Harnish, 1988; Pornpitakpan, 2004). When we do not personally know our sources, we form an impression of their trustworthiness based on simple observations. Shown empathy is one of the known attributes that increase a sender's credibility and persuasiveness (cf. Feinberg and Willer, 2015). Readers of a text from an unknown sender presumably have the same need for assessing a sender's empathy. However, they have limited cues to make such an assessment. Consequently, they use all possible signals from the text, including the numeral markers, for impression formation. The presence of numeral markers may make writers look more empathic for two reasons. First, markers indicate that the writer has spent more time and effort on composing. In other words, the writer invested more energy in his relationship with the reader. Furthermore, whether writers succeed in being

comprehensible or not, their intention of inserting the markers cannot be interpreted as anything else than making the text more transparent. That could be why a more explicit marking of reasons makes the writer seem more persuasive.

In conclusion, we would like to make a final remark about the relevance of our results for writing instruction. Let us go back to the enumerations of reasons with and without numeral markers, repeated here for convenience:

(1) After careful investigation, we have to inform you that we cannot reimburse you for two reasons. The first reason is that your claim is filed more than a year ago. According to our policy, the right to compensation expires if the claim is not submitted within one year. The second reason is that damage or loss of goods outside Europe is not covered.

(2) After careful investigation, we have to inform you that we cannot concede your claim for the following reasons. Your claim is filed more than a year ago. According to our policy, the right to compensation expires if the claim is not submitted within one year. Furthermore, damage or loss of goods outside Europe is not covered.

We do not rule out the possibility that readers who have come thus far in this article consider the arguments for implementing numerals convincing, but nevertheless hesitate to adopt the consequential writing advice in their own writing or teaching. Example (1) with its repetition of 'the (…) reason is that' may seem a bit too pushy, scholastic or even pedantic. And (2) may seem the perfect alternative. However, in general writers know their text's content well and they themselves do not need help to understand the reasons, nor triggers to scrutinize their own reasons. But in this, writers are in a very different position than their recipients who – especially in business contexts - probably want to spend as little time as possible on reading texts with unpleasant news. These readers benefit from as much support as possible to process texts efficiently and adding numeral markers turns out to be a very simple and mutually beneficial way to accommodate them.

Notes

1   For reasons of space we refer to the publications just mentioned for a detailed discussion of the materials and method.
2   The letters A, B, C and D referring to the respective reasons, are inserted here for the reader's convenience; they did not appear in the letters used in the experiment.
3   The presentation of the letter was followed by an invitation to write down up to five thoughts about the text, content or sender. As the results of this thought listing were not relevant for the problem under discussion, it is omitted here and in the results.

Acknowledgements

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Appendix A: Letter

Dear Sir or Madam,

On June 15th we received your form on which you report theft of your Acer Aspire 9301 AWSMi laptop computer. In your letter you mentioned that you lost your laptop on March 14, 2006, during a trip to Sri Lanka, near the swimming pool. You also mentioned a value of € 1475,69.

After the receipt of your letter we examined the data in light of the terms and conditions of your insurance policy to see if your case is eligible for reimbursement.

After careful examination of your claim, we regrettably have to inform you that we cannot reimburse the damage for four reasons. The first reason is that your claim is more than one year old. Policy terms state that you lose coverage if you do not file a claim within a year of the alleged theft (A). The second reason is that you did not file a report of the alleged theft at the local police station as is required in our policy terms and conditions (B). The third reason is that your insurance policy does not cover damage outside the E.U (C). The fourth reason is that our records indicate that you have paid no premium since December 1, 2009, even after repeated reminders. Your insurance policy is therefore automatically terminated on March 1, 2010 (D).

Based on this information we have decided not to reimburse you.

We regret having to tell you this. If you disagree with this decision, you can lodge a written complaint against this decision. Please send your complaint before July 30, 2007 to Solar Travel Insurance, Customer Service, Postbox 16520, 2500 KB The Hague. For more information, please check the enclosed brochure "You do not agree with a decision?" that is included in the envelope with this letter or available at www.solar.nl.

We hope we have informed you satisfactorily.

Yours sincerely,
(…)

Appendix B. Scales

The numbers in parentheses are factor loads.

Overall (report mark)
Rate the letter on a scale from 1-10

Persuasiveness
Solar is professional (.65)
The writer formulates the rejection in an orderly fashion (.71)
The writer gives sufficient arguments (.78)
I am satisfied with Solar's reaction (.72)
Solar is trustworthy (.67)
I abide by this decision (.81)
Probably I do not go into business with Solar again (.79)
The bad news is presented deliberately (.55)
The arguments of the writer are convincing (.77)
I am satisfied with Solar (.62)

Text quality
The writer jumps from one thing to another (.67)
The arguments are far-fetched (.71)
The writer gives too many arguments (.68)
The writer gives too few arguments (.79)
The letter is too long (.78)

Writer Likeability
The writer does not care for me (.70)
The writer has a negative attitude (.65)
The writer has not hit the right note (.55)
The tone of the letter is aloof (.78)
The writer is unkind to me (.59)
The writer is arrogant (.59)
The writer is stand-offish towards me (.79)
The writer has a negative attitude towards me (.65)
I am feeling stuck by Solar's reaction (.64)

Writer's empathy with the reader/client
The writer is helpful (.51)
The writer shows involvement (.78)
The writer is interested in me (.76)
The writer is friendly (.72)
Solar is client-oriented (.64)
The writer empathizes with my situation (.78)
The writer is able to imagine how I feel (.73)