

This is a *yes/no*-question?*

Judith Haan and Vincent J. van Heuven
Center for Language Studies, Nijmegen University /
Universiteit Leiden Centre for Linguistics

1. Introduction

It is widely acknowledged that there is not a single human language that does not permit its users to ask questions (e.g. Chisholm 1982). The speech act of questioning may invoke a variety of lexical, syntactic and prosodic, typically melodic, means. One popular type of question is the so-called question-word question, also called *wh*-question or information question, which prompts the addressee to forward a specific piece of information in order to fill in a gap in the speaker's knowledge:

- (1) a. What is your name?
- b. When will the plane arrive?
- c. Why are you late?

Possible answers to (1a) would be any one item from a virtually unlimited list of proper names 'John, Peter, Mary, Mr. Johnson, Dr. Peterson'. Any time reference would be a suitable answer to (1b): 'at 11.50, in an hour, tomorrow, never, ...'. And any reason would qualify as a response to question (1c). The replies to a question-word question, then, are members of a large, often limitless, set of possible answers. This is in sharp contrast to a second type of question, which is often called the *yes/no*-question. Here, in principle, only two answers are valid reactions on the part of the addressee: 'yes' and 'no', as is exemplified by (2):

- (2) a. Is your name John?
- b. Will the plane arrive on time?
- c. Are you late because you missed the bus?

Taking the statement as the unmarked sentence type, English — as well as Dutch — marks question-word questions by two lexico-syntactic cues: first of all the sentence begins with a question word (*what, when, why*), and secondly, the word order of subject and finite is reversed when the question word itself is not the subject of the sentence. In the *yes/no*-question type, English and Dutch have regular inversion of

subject and finite but the question status of the sentence is not marked explicitly by a question word. Both types of question are marked by melodic means, typically involving the presence of high pitch.¹

A third question type is the declarative question. This type is lexico-syntactically identical to the corresponding statement. The speech act of questioning is cued through melodic means only. In terms of possible replies, the declarative question belongs to the same type as the *yes/no*-question: a declarative question, too, can only be answered by ‘yes’ or ‘no’:

- (3) Your sister got married? (yes, no)

The present paper addresses the issue if the inversion and declarative question types are indeed functionally equivalent or whether there is a difference in use and/or meaning between the two. The examples in this introduction are taken from English; yet we will actually study the two question types in Dutch — although we suspect that our results generalize to other languages such as English and German.

Several Dutch grammarians maintain the position that the inversion question (i.e. the *yes/no*-question as defined above, i.e. marked by inversion of subject and finite) is functionally indistinguishable from its declarative counterpart, so that questions (4a) and (4b) can be used interchangeably:

- (4) a. Did your sister get married?
b. Your sister got married?

This position was taken by, for instance, van Alphen (1914:91), and more recently by den Hertog and Hulshof (1972:142) and even by the latest edition of the ANS, the authoritative reference grammar of Dutch (Haeserijn et al. 1997:1428). However, there is at least one dissident author, Droste (1972) who claims that the inversion and declarative questions should be considered functionally distinct.

According to Droste, the inversion type of *yes/no*-question first of all asks the addressee whether the proposition that is implied by the question is true or false, and secondly, expresses that the speaker himself is uncommitted as to the expected response. The speaker indicates that the chances of the implied proposition being true or false are equal. This is in contrast to the declarative question, in which the speaker asks whether the implied proposition is true or false but at the same time imparts his anticipation of the expected reply. In the declarative type the expected answer is ‘yes’ rather than ‘no’. In this respect the declarative question type, Droste argues, is somewhere in between the inversion question and the Dutch tag question ending in *hè?*, such that questions (5a) and (5b) both signal to the hearer that the speaker asks if the implied proposition is true or false, but where (5a) communicates the speaker’s position that the proposition is true, whilst in (5b) the speaker merely suggests that the reply is more likely to be positive than negative.

- (5) a. Je zus is getrouwd, hè?
 ‘Your sister got married, right?’
 b. Je zus is getrouwd?
 ‘Your sister got married?’

It is an open question whether the speaker’s anticipation of the affirmative reply is even stronger in the tag question than in the plain declarative question.²

In this context, pragmatics have suggested the use of the terms ‘asking for information’ when the expected occurrence of positive and negative responses is roughly equal, versus ‘asking for confirmation’ when one choice (here the positive alternative) is suggested as much more likely than the other (e.g. Geluykens 1987).

In this paper we will try to obtain experimental evidence for the claim that the two types of *yes/no*-questions, i.e. inversion questions versus declarative questions, are no functional equivalents, but differ from one another in the anticipation by the speaker of the response by the listener. Specifically, we will test the hypothesis that the inversion question type suggests no anticipation on the part of the speaker (i.e. ‘yes’ and ‘no’ responses are equally likely) whilst the declarative type suggests greater anticipation of the positive reply.

The second aim is to determine to what extent the declarative question type approaches the tag question with *hè?* in eliciting confirmation. The issue then is: if indeed the declarative question is intermediate between asking for information (prototypically the inversion question) and asking for confirmation (prototypically the tag question), is it closer to the tag question than to the information question?

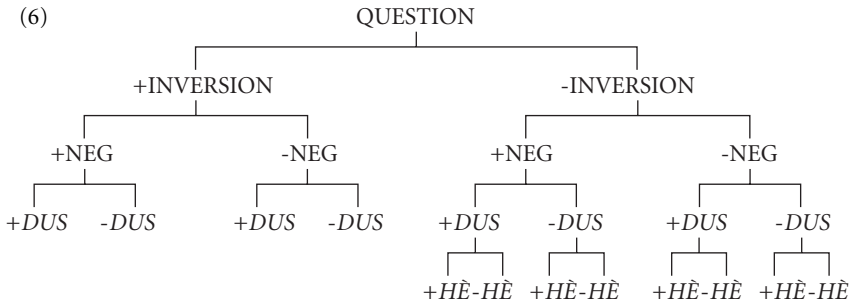
2. Approach

In order to settle these issues, we carried out a pen-and-paper experiment. The notions ‘information question’ and ‘confirmation question’ were assumed to occupy opposite poles on a continuum of predictability of the response. That is, the former was operationalized as a question the answer to which was thought to be maximally unpredictable for the speaker (given just the binary choice between ‘yes’ and ‘no’), whereas the answer to the latter was expected to be maximally predictable. The experimental materials included a range of conditions that were expected to elicit extreme as well as intermediate predictability scores. Thus, on the one hand there were questions with a confirmative character, i.e. they contained the particle *du* (‘so’) and/or the utterance-final tag *hè?* (‘right?’). Such questions were hypothesized to produce high scores on a predictability scale.³ On the other hand, answers to *yes-no* questions were expected to be maximally unpredictable: for the speaker, ‘yes’ or ‘no’ would seem equally probable (e.g. Kiefer 1981). Accordingly, such questions were expected to elicit low scores on a predictability scale. In addition, the

questions were systematically varied with respect to the absence vs. presence of negation. This was also done with a view to creating intermediate categories, considering that negation has been suggested to cause an information question to become more like a confirmation question (e.g., Belnap and Steel 1976:111). Accordingly, the answer to a negated question was expected to be more predictable for the questioner than the answer to its non-negated counterpart. In all, we meant to vary the materials along the following parameters:

1. [+INVERSION] vs. [-INVERSION] (i.e. yes-no question vs. declarative question)
2. [+NEGATION] vs. [-NEGATION]
3. [+*dus*] vs. [-*dus*]
4. [+*hè?*] vs. [-*hè?*]

Prior to the experiment proper we checked the acceptability of all possible combinations of the above four factors with four native speakers of Dutch. According to these, one combination had to be eliminated: yes-no questions were unanimously felt to be incompatible with the confirmative tag *hè?*. Thus, an utterance such as *Vertrekt de trein om zes uur, hè?* ‘Does the train leave at six, right?’ was judged ungrammatical. This incompatibility was taken as preliminary evidence that the *yes/no*-question is suitable only for eliciting information, not confirmation (see also Droste 1972:127). It meant, however, that the experimental design could not be orthogonal. Consequently, two analyses were carried out, one including both inversion and declarative questions in eight conditions, and one including only declarative questions, however with the added condition [+*hè?*] vs. [-*hè?*], as illustrated in schema (6).



3. Method

Three declarative questions were made up to be used as test sentences: (a) *De laatste bus is al weg?* ‘The last bus has already left?’, (b) *Ze hebben mooi weer voorspeld?*

‘They have forecast fair weather?, and (c) *Jullie kwamen op tijd aan?* ‘You arrived on time?’. Potentially, each of these could serve as a question for information the answer to which was maximally unpredictable for a questioner. These three core questions were then modified so as to feature INVERSION, NEGATION, and the particle *dus*; the [–INVERSION] subset additionally featured *hè?*. This resulted in $3 \times 12 = 36$ test sentences.

After randomization, the 36 test sentences were presented to 32 native speakers of Dutch, all of them staff members or students of the universities of Nijmegen and Leiden. In order to avoid possible interference from intonational cues stimuli were presented in print. Primarily, subjects had to make a binary choice: was, for an imaginary speaker of the written question, the answer *unpredictable* or *predictable*? The former option obviously left no room for gradations. The latter, by contrast, was viewed as gradable, and subjects opting for it had to indicate the *degree* of predictability. When the answer was judged maximally predictable, they ticked 100%. When the answer was felt to be less than 100% predictable, percentages of 80, 60, 40 and 20 were printed, but people were instructed to feel free to tick intermediate percentages as well. In addition, they had to indicate whether the answer was *predictably yes* or *predictably no* (recall that half of the questions featured negation). This division was introduced to make the task less monotonous for the subjects. Being not directly relevant to the research question, it is not taken into further account here.⁴ Order-of-presentation effects were controlled for by varying the order of the questions ($2 \times$), as well as the orders of *maximally unpredictable* vs. *maximally predictable*, and of *predictably yes* vs. *predictably no* ($4 \times$); this resulted in eight different orders.⁵

4. Results

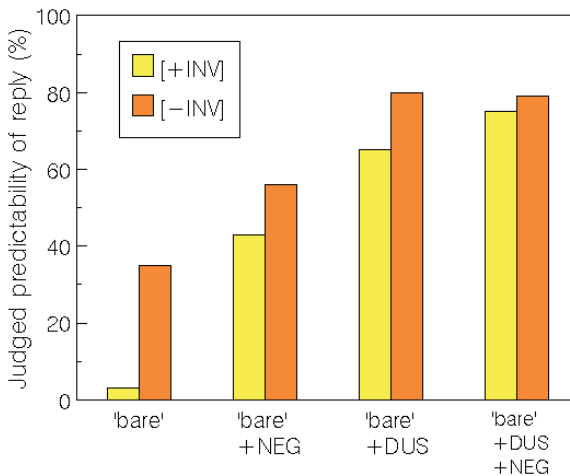
4.1 Inversion question versus declarative question

The scores were subjected to an analysis of variance (SPSS MANOVA, repeated measures), with four within-subject factors: SENTENCE (3 levels), INVERSION (2 levels), NEGATION (2 levels) and *dus* (2 levels). All factors were regarded as fixed.⁶ Table 1 below presents the (Huynh-Feldt adjusted) p-values, together with the values for F and η^2 . The significant interactions NEGATION \times SENTENCE and INVERSION \times NEGATION were ordinal, that is, differences between scores showed the same direction. The only disordinal significant interaction, *dus* \times NEGATION, is briefly discussed below. No significant higher-order interactions were found. Since there was no effect of sentence, scores were pooled across the three sentences. Figure 1 plots the main effects as a function of question type.

Table 1. Main effects of four factors on predictability scores, together with the significant second-order interactions.^a

Factor/interaction	df ₁	df ₂	F	p	η ²
SENTENCE	2	62	4.44	.017	.038
INVERSION	1	31	51.90	< .001	.626
NEGATION	1	31	101.58	< .001	.766
<i>dus</i>	1	31	311.17	< .001	.909
SENTENCE × NEGATION	2	62	7.99	.001	.175
INVERSION × NEGATION	1	31	21.48	< .001	.409
NEGATION × <i>dus</i>	1	31	118.42	< .001	.792

^a Eta squared represents the default index for effect strength provided by SPSS, not the contribution of the factor to the total sums of squares.

**Figure 1.** Mean percentages of judged predictability of the reply as a function of the factors INVERSION, NEGATION, *dus*. Each mean value represents 96 scores.

As Table 1 shows, the subjects significantly differentiated between the questions whose only difference was in [+INVERSION] vs. [-INVERSION] (i.e. 'bare' inversion question vs. 'bare' declarative question, respectively). The very low mean predictability score on the inversion questions (2.6%) provided clear evidence that replies to this question type were typically judged unpredictable, i.e. the answer might be equally *yes* or *no*. In its bare form, this question type scored '0' (i.e. 'maximally unpredictable') in 94% of the cases.

By contrast, the appreciably higher mean predictability score on declarative questions (31.6%) revealed that answers to this question type are, to some extent, predictable for the speaker; the difference with the inversion question was significant. At the same time, the scores on the predictability scale remained well below the maximum of ‘100% predictable’. Presumably, the additional features *dus*, NEGATION and *hè?* acted as a ceiling, causing subjects to somewhat reduce their scores on the ‘bare’ declarative question tokens.

Interestingly, declarative questions scored ‘0’ in 35 out of the 96 cases. That is, in 36%, replies to declarative questions were judged equally unpredictable as replies to inversion questions. Except for one case, subjects were consistent here: whenever they assigned ‘0’ to declarative questions, they gave the same score to inversion questions. This implicational relationship suggests that these subjects may have viewed the two question types as functionally equivalent. However, what is of major importance here is that, overall, the difference between (‘bare’) declarative question and (‘bare’) inversion question was significant. Addition of the particle *dus* produced a very strong effect on the degree of predictability of the reply (see Table 1). As expected, in either question type its presence substantially increased the mean scores: in inversion questions, this rose to 67%, in declarative questions, to 81%. Proportionally, however, inversion questions were affected most (cf. Figure 1).

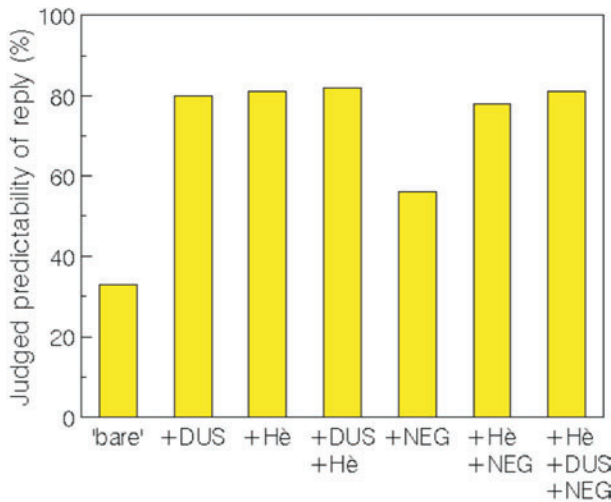
NEGATION, similarly, caused the answer to become more predictable, in both question types. However, its effect was substantially weaker than that of *dus*. The significant interaction INVERSION \times NEGATION was ordinal, that is, in either question type, NEGATION caused the scores to increase. By contrast, the significant interaction *dus* \times NEGATION was disordinal. That is, in declarative questions the combined effects of *dus* and NEGATION produced slightly lower scores, when compared with the effect of *dus* alone, whereas in inversion questions scores became higher. What Figure 1 also shows is that the overall mean scores for predictability did not exceed ‘80’. This may be taken to reflect that speakers remain conscious of the possibility that hearers will not in fact come up with the predicted reply.

4.2 Declarative questions with and without *hè?*

Unlike the inversion question, the declarative question type allows addition of the tag *hè?*, which was expected to result in substantially higher scores on the predictability scale. For the set of declarative questions/*hè?* questions, we will use the term ‘non-inversion questions’. In order to judge the relative effect of *hè?* vis-à-vis the other factors, a separate MANOVA (repeated measures) was run, with four fixed within-subject factors: SENTENCE (3 levels), NEGATION (2 levels), *dus* (2 levels) and *hè?* (2 levels). As before, scores were pooled across the three different psentences. Table 2 below presents the (Huynh-Feldt adjusted) p-values, together with the

Table 2. Main effects of four factors on predictability scores in non-inversion questions, together with the significant second and third-order interactions.

Factor/interaction	df ₁	df ₂	F	p	η ²
SENTENCE	2	62	1.10	.335	.032
NEGATION	1	31	7.80	.009	.201
<i>dus</i>	1	31	99.10	< .001	.762
<i>hè</i>	1	31	112.65	< .001	.784
SENTENCE × NEGATION	2	62	6.28	.004	.123
NEGATION × <i>dus</i>	1	31	24.40	< .001	.440
NEGATION × <i>hè</i>	1	31	50.06	< .001	.618
<i>dus</i> × <i>hè</i>	1	31	194.00	< .001	.862
NEGATION × <i>dus</i> × <i>hè</i>	1	31	17.48	< .001	.361

**Figure 2.** Mean percentages of judged predictability of the reply in non-inversion questions (see text) as a function of the factors NEGATION, *dus*, NEGATION+*dus*. Each mean value represents 96 scores.

values for F and η^2 . Figure 2 plots the mean scores for the different conditions.

It is clear that *hè?* acted as a slightly stronger boost on the predictability scores than did *dus*. When both occurred together, scores went up even further, producing the highest overall mean of 84.4. Combination of NEGATION with *hè?* and with *hè?* + *dus* resulted in slightly lower scores, that is, *hè?*-questions elicited the highest overall mean score of 84.4 with *dus* but without NEGATION. The three significant second-order interactions displayed roughly the same, slightly disordinal, patterns. The interaction *dus* × *hè?* reflected that the presence of *hè?* acted as a very strong

boost to the predictability scores when *dus* was lacking; however, when combined with *dus*, these scores hardly altered. Likewise, the interaction $\text{NEGATION} \times \text{dus}$ indicated that the effect of negation was considerable as long as there was no *dus*, whereas a combination with *dus* brought about very little change in these scores. In a similar vein, the interaction $\text{NEGATION} \times \text{h\`e?}$ showed that, in the absence of *h\`e?*, negation caused the scores to rise, whereas in combination with *h\`e?*, scores became slightly lower. These tendencies were also apparent in the three-way significant interaction $\text{NEG} \times \text{dus} \times \text{h\`e?}$. In all, the interactional patterns held a confirmation of the main effects: addition of *h\`e?*, *dus* or negation to ‘bare’ declarative questions caused a substantial increase in the mean scores, but combinations of these variables did not truly alter the scores.

5. Discussion and conclusions

The aim of the present experiment was to establish whether inversion questions and declarative questions differ in their communicative functions. While the former type is generally regarded as a true information question, it has been hinted in the literature that the latter might be better suited for asking confirmation. We assumed that the difference between ‘information question’ and ‘confirmation question’ can be expressed as the degree of predictability (as suggested by the speaker) of the corresponding reply. On a continuum from maximally unpredictable to maximally predictable, we expected inversion questions to represent the base line in that, for a given speaker, the reply was maximally unpredictable. On the other hand, questions with the particle *dus* and/or the tag *h\`e?* were expected to elicit very high scores for predictability. If the declarative question primarily functions as a confirmation question, it ought to get significantly higher predictability scores than the inversion question or, better still, its scores ought to be close to those on questions with *dus* and/or *h\`e?*. Likewise, we expected NEGATION to also elicit higher predictability scores, although our predictions on this variable were less concrete.

The results generally supported our expectations. First, subjects judged that, for a given speaker, the answer to an inversion question is maximally unpredictable, i.e., *yes* is as likely as *no* (mean predictability score: 2.6%). Second, answers to declarative questions were judged significantly more predictable (mean predictability score 31.6%), indicating that the communicative functions of inversion questions and declarative questions are not fully equivalent. In either question type, however, the particle *dus* acted as a strong boost to the scores. Yet, scores on inversion questions remained systematically lower than those on declarative questions, even in the presence of *dus*. Apparently, inversion is inherently less compatible with a request for confirmation.

Likewise, NEGATION systematically caused predictability scores to increase, be it to a lesser extent than did *hè?*. In the set of non-inversion questions, the tag *hè?* had a similar effect on the scores as *dus* in the set including both declarative and inversion questions.

Summing up, then, scores on the basic categories [+INVERSION] and [-INVERSION] indicated that inversion questions and declarative questions systematically differ in their communicative functions. Although the scores on declarative questions lay well below the scores elicited by *dus*, *hè?* or NEGATION, it is clear that declarative questions may be used to seek confirmation as well as information. At the same time the scores reflected a functional distance between declarative questions and *hè?*-questions, with the latter functioning solely as a request for confirmation.

Yet, in more than one-third of the cases declarative questions still scored '0', i.e. 'maximally unpredictable'; in fact, the intermediate level of the mean scores for declarative questions obviously derived from this relatively frequent occurrence of '0' scores. These scores were not randomly distributed, however. While roughly one half of the subjects gave '0' scores to both inversion and declarative questions, the other half clearly differentiated between the two, restricting the '0' score to inversion questions. Obviously, this finding is open to more than one interpretation. First, the former set of subjects may have lumped together the two question types, simply because they failed to notice the subtle difference (in print) between [+INVERSION] and [-INVERSION]. Alternatively, the fairly systematic distribution of '0' scores may reflect that speakers of Dutch have different intuitions about inversion vs. declarative questions. That is, for some of them declarative questions can be used to gain information as well as confirmation, whereas for others inversion questions must be used to seek information, and declarative questions for confirmation. This interpretation would be in line with informal observations that, in spontaneous speech, some speakers make frequent use of this question type whereas others never do. By the same token, it seems that some listeners persistently fail to interpret a declarative question as a *question*, forcing the speaker to repeat the utterance and to make its interrogative status explicit by other means.

Notes

* This article is based on Section 5.4 of Haan's (2002) dissertation. The research was financially supported by the Netherlands Organization for Research (NWO) under grant # 200-50-073 (principal investigators V.J. van Heuven and R. van Bezooijen).

1. For a detailed analysis of the pitch of Dutch question types, see Haan (2002) and van Heuven and Haan (2000, 2002).

2. Interestingly both question types (5a) and (5b) have the word order that is characteristic of statements. It is as if the speaker explicitly, rather than implicitly, first presents the complete proposition to the addressee, who is then prompted for a response by the tag and/or a sentence-final pitch rise. We have shown elsewhere that the sentence-final rise is obligatory both in Dutch tag questions as well as in declarative questions (van Heuven and Haan 2002; Kirsner and van Heuven 1996).
3. Note that, strictly speaking, *dus* is not confirmative. Rather, it indicates that the speaker feels justified in making an inference. This, in turn, is felt to increase the predictability of the response. *Hè?* more explicitly appeals for confirmation. Thus, in *dus* and *hè?* the predictability of answers would seem to spring from slightly different speaker attitudes.
4. As a matter of fact, we found that, in 95.4% of the questions whose answers were judged predictable, positive questions correlated with 'predictably yes', negative questions with 'predictably no'. As could be expected, predictability of the answer included the polarity as presented by the questioner.
5. After the subjects had ticked percentages, they were presented with a fourth question in the same twelve conditions as the three questions in the main task. This time, they had to order the different versions according to the predictability of the answers. This supplementary task was meant to act as a consistency check. As the results fully agreed with the scores on the main task, we will not take them into further consideration.
6. Although the three experimental sentences were not randomly chosen they can yet be treated as random, given that they could have been replaced by other equally acceptable sentences without affecting the research question or conclusions (cf. Jackson and Brashers 1994).

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