The perceived functions of linguistic risk quantifiers and their effect on risk, negativity perception and decision making

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Abstract

When someone is told: “it is possible that you will lose your investment”, “possible” can be interpreted as plainly reflecting the speaker’s degree of certainty (i.e., likelihood-communication device) or as tactfully communicating the probable occurrence of losses (i.e., hearer-face-management device). We suggest that risk quantifiers can also serve the speaker’s interest by decreasing the chance of being blamed for an incorrect wrongful prediction (i.e., speaker-face-management device). In five experiments, we investigate how individuals interpret risk quantifiers and the effect of their interpretations on risk perception. Results show that speaker-face-management is the most frequent interpretation in both negative and positive outcome predictions, for different probability terms, and in different cultures. Results consistently show that device interpretation determines risk judgment, negativity perceptions and decision making. Results are discussed within the framework of politeness theory and implications for risk communication are reviewed.

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Introduction

Every day people make decisions with uncertain outcomes. They assume financial risk when taking out personal loans and mortgages and trade risky equities on the stock market or expose themselves to health risks through choice of doctors, hospitals and medical treatments. When making such decisions, the precise risk is often not available to the decision maker, but can be estimated while communicating with counselors, salespeople or friends. For example, one could say to a friend considering taking out a particular life insurance policy, “If you buy this insurance, it is possible that it will cover you in the event of an accident in a foreign country”. The interpretation of this statement and the resulting risk perception may in turn shape the hearer’s decision to take out the insurance or not.

When communicating the risk of an event occurring, it is likely that individuals will use linguistic risk quantifiers, such as “it is possible” or “there is a chance”, as they are the favoured tool for communicating degree of certainty (Erev & Cohen, 1990; Wallsten, Budescu, Zwick, & Kemp, 1993). Such quantifiers, also called probability terms or verbal probabilities, have been almost exclusively considered as likelihood communication devices, but recently it has been argued that they can be used for the purpose of face-management. Bonnefon and Villejoubert (2005, 2006) demonstrated that the probability term “possible” was used to hedge communication of an upsetting truth to the conversational partner. We suggest that, in addition to communicating uncertainty and cushioning the threat to the hearer’s face, risk quantifiers could be used by the speaker to protect his own face from blame by the hearer. This speaker-face-management strategy aims to avoid blame in case the speaker’s prediction does not come to pass. The goals of the present research are to extend the functions of verbal probabilities to the protection of the speaker and to examine the effect of verbal probability interpretation on risk perception and decision making.

The interpretation of verbal probabilities

Verbal probabilities communicate a certain likelihood of the target event occurrence. The probability communicated is qualified as vague, because verbal probabilities communicate a range of probabilities which can vary across and even within individuals. For example, consider these two statements:

(1) a. There is a small chance that your investment will be successful
   b. It is quite certain that the salesmen will achieve their quotas
It is obvious that statement (1a) communicates a lower probability than statement (1b) even if it is hard to say whether the speaker of statement (1a) intended to communicate a 30% or a 40% probability of successful investment. Linguistic risk quantifiers in both statements can be easily ordered on a numerical probability scale quite consistently. Tapping verbal probabilities for their numerical meaning assumes they are likelihood-communication devices (for a review of probabilistic meaning of verbal probabilities, see Wallsten & Budescu, 1995).

In addition to the likelihood-communication function, Bonnefon and Villejoubert (2005, 2006) suggested that verbal probabilities could be used to soften the communication of an upsetting truth. This face-management function for risk quantifiers was inspired by politeness theory (Brown & Levinson, 1987). Politeness theory assumes that each individual has a social face which refers to the desired public image (Goffman, 1967). Social face consists of both a negative face, which is seeking freedom of action, and a positive face which is seeking approval and favourable opinion from others. Anything that threatens either of these two goals can be considered as a Face Threatening Act (FTA). For example, requests are FTAs damaging the negative face of the recipient, because they decrease subsequent freedom of action. Criticisms are FTAs damaging the positive face of the recipient, because they are cues of disapproval. The need to protect one’s face results in different communication strategies used to prevent, or at least decrease, frictions in society. Different politeness strategies can be used, such as apologies (e.g., I am sorry, could you …), politeness marks (e.g., please could you be so kind as to …) or hedging strategies (e.g., perhaps you could …). According to Bonnefon and Villejoubert (2006), the use of risk quantifiers falls into this last category in which speakers try to mask their certain opinions in vagueness. Bonnefon and Villejoubert (2006) did not provide direct evidence that politeness lay in vagueness but provided evidence that politeness may consist of the communication of an optimistic risk estimate (lower probability that a negative outcome would occur).

To demonstrate the speakers’ need to soften threats towards hearers, Bonnefon and Villejoubert (2005, 2006) showed that a verbal probability (i.e., it is possible) qualifying a severe event was interpreted more often as a hearer-face-management than the same expression qualifying a less severe or neutral event. In their study, participants reading the severe prediction (2c) were thus more likely to interpret “possible” as a hearer-face-management device than the readers of the less severe statement (2d):

(2) c. It is possible that you will develop deafness
d. It is possible that you will develop insomnia

The perceived goal of the speaker’s prediction (e.g., likelihood vs. tactful communication) influenced the way participants perceive the risk communicated. Participants interpreting “possibly” as a likelihood-communication device judged the GP to be communicating a 55% probability of becoming deaf, whereas participants interpreting “possibly” as a hearer-face-management device judged the GP to be communicating a 74% probability (Bonnefon and Villejoubert, 2006; see also Piggin & Bonnefon, 2011).

The process undermining risk perception given speakers’ conversational intention is the following: When recipients of a prediction interpret a risk quantifier as a likelihood-communication device, speakers are assumed to be communicating their degree of certainty. As a result, hearers should appraise the risk communicated without adjustment. In contrast, when recipients interpret the risk quantifier as a hearer-face-management device, speakers are assumed to be communicating a lower degree of certainty than their own degree of certainty.

As a result, when a risk quantifier is interpreted as a hearer-face-management device, recipients adjust the risk of outcome occurrence upward to match the speaker’s perceived opinion. A limitation of politeness theory, as conceptualised by Brown and Levinson (1987), is the almost exclusive focus on hearers’ needs and on the effect of these needs on the way speakers choose to word their own messages (Eelen, 2001). Speakers’ needs and the effect of these needs on the way they are communicated have been overlooked. In terms of risk quantification, the hypothesis has been that speakers choose their words to satisfy hearers’ needs. Yet, the face of the speaker may also be in play in conversations. The words chosen to express an opinion may thus be used to protect the speaker’s own face by preventing the occurrence of an FTA such as a reproach or criticism.

The speaker-face-management interpretation

The interplay between the concerns of the speaker, who provides risk quantification, and the concerns of the listener, who hears the estimate, could result in more than the two already identified devices (i.e., likelihood-communication and hearer-face-management). We hypothesise that a speaker-face-management strategy can be contrasted with the hearer-face-management strategy. We argue that speakers could portray an event as uncertain, not to be nice to the hearer, but to avoid being blamed by the hearer in the event the prediction turns out to be wrong. Our rationale is that the forecaster could be blamed or criticised for an incorrect prediction, which is an FTA damaging the positive face of speakers. Thus, to avoid this potential threat, speakers may communicate a lower degree of certainty than their own. When communicating the possible occurrence of an event, positive or negative, speakers could therefore choose to use a risk quantifier to decrease the possibility of being blamed in the event the predicted outcome does not occur.

There exists a range of supporting evidence for speakers avoiding blame by underestimating risk. For example, Halberg, Teigen, and Fostervold (2009) found that speakers’ safety matters when they had to describe a quantity, such as duration or distance with a single bound interval (e.g., more than, less than). When asked to provide an estimate to avoid eventual future blame from the recipient, participants preferred a lower bound expression (e.g., more than 40 km) to a higher bound one (i.e., less than 50 km), whereas when asked to provide an informative or useful estimate they preferred upper bound expressions (Halberg et al., 2009). Further, in their third experiment, these authors showed that preference for a cautiously bounded estimate was related to the severity of potential mistakes.

Moreover, low probability predictions are, in general, considered more correct than higher estimates if the predicted event does not occur, and the speaker is thus less likely to be blamed (Keren & Teigen, 2001). Teigen and Nikolaisen (2009) found similar results using numerical quantifiers (e.g., amount of money saved). They showed that when one predicts the amount of money which can be saved after a bad investment, the prediction was considered more correct if the actual amount saved was more than the amount predicted (i.e., the prediction was an underestimate) than if the actual amount saved was less than the amount predicted (i.e., the prediction was an overestimate).

The speaker-face-management hypothesis can be compared to the fuzzy cover hypothesis of Erev and Cohen (1990). The latter hypothesis posits that people prefer to use linguistic rather than numerical probabilities, because the fuzzy degree of certainty communicated protects the speaker from being held responsible in case the outcome does not occur. It is indeed possible that linguistic formats are more suited to the avoidance of responsibility than are numerical probabilities, but the speaker-face-management
hypothesis departs from the fuzzy cover hypothesis in one important aspect. In contrast to the fuzzy cover hypothesis, the speaker-face-management hypothesis does not foster the protection of the hearer's interest through vague risk communication, but by an adjusted probability communication. We argue that the face-management use of verbal probabilities does not pertain only to the hedging strategies but also to the optimistic assessment. Moreover, the multi-function account of verbal probabilities, as developed here, assumes that verbal probabilities can be used to plainly communicate likelihood, the function of the verbal probability depending on the speaker's intention. According to the speaker-face-management hypothesis, speakers reluctant to take responsibility for the consequence of their predictions could state "it is possible that you have cancer" instead of "it is probable that you have cancer" to prevent being criticised in the event the patient suffers from another medical condition. It is hypothesised that risk quantifiers interpreted as speaker-face-management devices are perceived as communicating a lower probability than risk quantifiers interpreted as likelihood-communication devices.

The present research

The present research examined in five experiments how politeness concerns oriented toward both hearers and speakers affect the interpretation of verbal probabilities and consequently related risk perception, negativity perception and decision making. The main purpose was to test for the existence of the speaker-face-management interpretation and to replicate the existence of the two other interpretations (i.e., likelihood-communication, hearer-face-management) and their related effect on risk perception. As a secondary goal, we tested the generalisability of these results in different cultures (study 1a and 1b), for different verbal probabilities (study 2), in different contexts (study 3) and when politeness expectations were manipulated (study 4).

Experiment 1

This experiment is an adapted replication of Bonnefon and Villejoubert's (2006) study of the interpretation of "possible" (i.e., likelihood-communication vs. hearer-face-management) when qualifying two medical conditions (i.e., insomnia and deafness) and the effect of such interpretations on risk perception. The methodology was adapted to allow participants to choose a third interpretation: speaker-face-management device.

Experiment 1a

Method

Participants. Participants were contacted by email by a UK marketing firm which offers e-vouchers in exchange for online completion of surveys. One hundred and five individuals, 57 males and 48 females, aged from 19 to 75 years (M = 48.73, SD = 11.95), took part. Most of the participants formed part of the working population (76%), 4% were unemployed and 20% retired. Education level ranged from no formal qualification (3%) to post graduate (23%); 22% had attained GCSE level or equivalent, 19% A level or equivalent and 33% undergraduate level.

Design. Replicating Bonnefon and Villejoubert (2006), we manipulated the degree of threat of a medical prognosis in a within subject design. Participants imagined that their general practitioner (GP) was telling them, "you will possibly become deaf" in the severe condition, or "you will possibly become insomniac" in the less severe condition. The order of presentation of the conditions was randomised. According to Bonnefon and Villejoubert (2006), the base rate of occurrence of the two conditions in France was low and similar at around 3%. In the UK adult population, from which our sample was drawn, the incidence of deafness and significant hearing difficulties was 11.8% (Mathers, Smith, & Concha, 2000) while the incidence of insomnia was 10% (Morphy, Dunn, Lewis, Boardman, & Croft, 2007). The base rates of occurrence of the two conditions could therefore be seen as similar with a slightly lower rate for insomnia.

Material and procedure. Participants read two medical scenarios in which they had to imagine that they were visiting their female GP and were given a prognosis. The prognosis was insomnia in one scenario and deafness in the other.

In each scenario, participants assessed the probability the GP had in mind when stating her diagnosis. Unlike Bonnefon and Villejoubert (2006), we did not use the Multi Stimuli Method to measure the probabilistic meaning of the uncertain quantifier but instead used the Range Elicitation Method. This easy-to-administer method captures the probabilistic meaning of vagueness as it provides participants with the possibility of selecting a range of probabilities. Participants provided the lower and the upper bound of their probability judgments on two probability axes ranging from 0%: The GP is certain that you will not develop insomnia [deafness] to 100%: The GP is certain that you will develop insomnia [deafness]. Participants then identified the reason why the GP used the expression "possibly" to qualify her prognosis. They chose from three possible devices (i.e., likelihood-communication, hearer-face-management and speaker-face-management) presented in a randomised order. The devices were respectively described as:

- She is not sure about her diagnosis.
- She does not want to say harshly that you would become insomniac [deaf].
- She wants to be cautious in her assertion in case the diagnosis turns out to be wrong.

The same questions (i.e., probability and device), presented in the same order, were then asked about the second scenario. Lastly participants provided socio-demographic information (i.e., age, gender, occupation, highest education qualification achieved and ethnic background).

Results and discussion

Age, gender and level of education did not have an effect on device interpretation or on risk perception; all subsequent analyses were conducted without integrating these variables.

Device interpretation according to outcome severity. Across the insomnia and deafness conditions, the uncertain quantifier “possible” was interpreted most of the time as a speaker-face-management device (67.1% on average). Likelihood-communication was the second most frequent interpretation (21.9% on average) and the hearer-face-management interpretation the least frequent (11.0%). The low frequency result for the hearer-face-management interpretation represents a departure from that of Bonnefon and Villejoubert (2006) who reported a greater rate of such interpretation (39%). When given the choice among three devices, rather than between two, participants overwhelmingly preferred the speaker-face-management interpretation in which the perceived goal of speakers is to protect their own face preventing hearers from blaming them in the event their prognosis is wrong. The speaker-face-management interpretation was the most frequent choice for both insomnia and deafness conditions (respectively 67.7% and 68.8%). Moreover, “possible” was more often
interpreted as a hearer-face-management device when it qualified deafness (15.2%) than when it qualified insomnia (6.7%), although the effect of outcome severity on device interpretation was not statistically significant according to a marginal homogeneity test ($p = .219$).

**Effect of device interpretation on risk perception.** The average risk perception in the insomnia and deafness scenarios as a function of risk quantifier interpretation is depicted in the left panel of Fig. 1. As shown in Fig. 1, the interpretation of “possible” led to different risk perceptions. When “possible” qualified insomnia, the highest risk perception estimate was found for the hearer-face-management interpretation ($M = 51.43$, $SD = 30.24$) and the lowest such estimate for the likelihood-communication interpretation ($M = 38.79$, $SD = 19.58$); risk perception for the speaker-face-management interpretation was in between ($M = 45.37$, $SD = 22.28$). Owing to the small number of participants interpreting “possible” as a hearer-face-management device ($n = 7$), we conducted a Kruskal Wallis one way analysis of variance to investigate the effect of verbal probability interpretation on risk perception. This test showed no statistically significant difference ($\chi^2 (2) = 2.58$, $p = .275$).

When “possible” qualified a severe condition (i.e., deafness), its interpretation had an effect on the perceived risk communicated ($F(2, 102) = 6.42$, $p = .002$, $\eta^2_{pp} = .13$). As is shown in Fig. 1, the risk perceived in the hearer-face-management interpretation ($M = 65.52$, $SD = 16.89$) was higher than in the likelihood-communication ($M = 41.76$, $SD = 20.15$); Mdiff = 23.76, $p = .002$, CI [10.60, 36.91], $d = 1.28$) and than in the speaker-face-management interpretation ($M = 53.68$, $SD = 19.20$); Mdiff = 11.84, $p = .068$, CI [1.40, 22.27], $d = 0.66$. All post hoc tests reported are Tuckey HSD tests and are presented with 95% confidence intervals. Further, risk perception for the speaker-face-management interpretation was higher than for the likelihood-communication interpretation ($M = 11.92$, $p = .057$, CI [1.73, 22.10], $d = 0.61$).

Overall, our results suggest that uncertain quantifiers are very often perceived as tools to prevent the hearer blaming the speaker in the event the prognosis is found to be wrong. This interpretation then affects the perceived risk of developing a medical condition especially for those of a severe nature. The second experiment aimed to replicate these first findings and test their generalizability in an East European culture.

**Experiment 1b**

One of the main assumptions of politeness theory is a universal concern for face (i.e., the need to be recognised and to act freely). This assumption has been tested in various contexts providing support for the cross-cultural need for face management as well as for variation in the magnitude of this need across cultures especially individualistic vs. collectivistic cultures (e.g., Holtgraves & Yang, 1990). Individualism, collectivism and power distance orientations are deemed to trigger differences in politeness expectations across cultures. According to Hofstede (2001), the UK population has a higher individualism score (89) than the Slovak sample (52) and a lower orientation toward power distance (35 vs. 104). If trends for the UK sample are replicated in the Slovak population in spite of the marked differences in cultural orientations, further evidence of the universality of face concerns will have been identified.

**Method**

**Participants**

Two hundred thirty-four undergraduate economics students took part in this study. Most were females ($n = 158$). They were aged from 20 to 28 ($M = 21.30$, $SD = 1.06$).

**Design**

The exact same design was used as for Experiment 1a.

**Material and procedure**

The exact same procedure was used as for Experiment 1a. In order to establish semantic equivalence of the scenarios and questions, they were first translated from English to Slovak by a bilingual Slovak native speaker. Then they were back-translated from Slovak to English by a professional bilingual translator and compared (Brislin, 1993). The rates of incidence of insomnia and deafness in Slovakia remain unknown since to our knowledge no epidemiological studies have yet been conducted in this country. We can assume however that within Europe the rates of incidence of the two medical conditions are similar. For example, the incidence of deafness and hearing difficulties is similar, at around 10%, across UK, Italy, Spain and Denmark (Mathers et al., 2000).

**Results and discussion**

Age and gender did not have an effect on device interpretation or risk perception. All subsequent analyses were thus conducted without integrating these variables.

**Device interpretation according to outcome severity.** As in Experiment 1a, across both insomnia and deafness conditions, the uncertain quantifier “possible” was interpreted most of the time as a speaker-face-management device (59.0%). The hearer-face-management interpretation was the least frequent (16.2%) while likelihood-communication fell in between (25.8%). “Possible” was more often interpreted as a hearer-face-management device when it qualified deafness (20.5%) than when it qualified insomnia.

![Fig. 1. Mean probability attached to “possible” when it qualified insomnia and deafness, as a function of whether it was interpreted as a likelihood-communication, speaker-face-management or hearer-face-management device in Experiments 1a and 1b. Error bars represent 95% confidence intervals.](image-url)
(11.9%), although the effect of outcome severity on device interpretation was not statistically significant according to a marginal homogeneity test \( (p = .628) \).

**Effect of device interpretation on risk perception.** Mean risk perception as a function of outcome severity and risk quantifier interpretation is exhibited in the right panel of Fig. 1.

When “possible” qualified insomnia, the mean probabilities were not significantly different on the basis of device interpretation \( (F(2,228) = 2.61, \ p = .065, \eta^2_{pooled} = .02) \). Nonetheless, the risk perception of developing insomnia was higher in the hearer-face-management interpretation \( (M = 54.46, \ SD = 22.50) \) than in the speaker-face-management one \( (M = 48.63, \ SD = 20.95) \), and, in turn, the risk perception was higher in the speaker-face-management interpretation than in the likelihood-communication one \( (M = 43.36, \ SD = 22.09) \).

The interpretation of “possible” also had an effect on the risk communicated when it qualified deafness \( (F(2,228) = 14.18, \ p < .001, \eta^2_{pooled} = .11) \). As shown in the right panel of Fig. 1, the highest risk estimate was provided for the hearer-face-management interpretation \( (M = 61.98, \ SD = 22.04) \) and the lowest for that of likelihood-communication \( (M = 39.09, \ SD = 21.35) \). Risk perception in the hearer-face-management interpretation was statistically significantly higher than those for likelihood-communication \( (Mdiff = 22.88, \ p < .001, \ CF[12.71,33.07], d = 1.05) \) and speaker-face-management \( (Mdiff = 12.74, \ p = .002, \ CF[4.05,21.44], d = 0.58) \). Furthermore, the risk estimate in the speaker-face-management interpretation \( (M = 49.24, \ SD = 21.98) \) was higher than in that of likelihood-communication \( (Mdiff = 10.15, \ p = .004, \ CF[5.48,20.07], d = 0.47) \).

Experiments 1a and 1b provided substantial evidence of the existence of the speaker-face-management interpretation of linguistic risk quantifiers in negative outcome predictions. Although some participants interpreted the risk quantifier “possible” as either a hearer-face-management or likelihood-communication device, most of them believed that “possible” aimed to prevent the recipient of the statement blaming the speaker in the event of non occurrence of the predicted outcome. The severe prognosis triggered more face-management interpretations, but the present results failed to show a statistically significant severity effect, as found by Bonnefon and Villejoubert (2006).

The perceived risk of outcome occurrence was related to device interpretation of the linguistic risk quantifier. These results replicated Bonnefon and Villejoubert’s (2006) findings in both the severe condition (i.e., deafness) and less severe conditions (i.e., insomnia), although results did not reach significance in the less severe condition.

The speaker-face-management and hearer-face-management interpretations of risk quantifiers were perceived as communicating a higher probability of occurrence than the likelihood-communication device. Risk perception in the speaker-face-management interpretation was also different from that in the hearer-face-management interpretation in terms of whose face was being protected (speaker vs. hearer).

Thus far, only one linguistic risk quantifier has been studied and the interpretation effect may be tied to the expression “it is possible”, rather than a phenomenon applying widely to linguistic risk quantifiers. The next experiment was tailored to generalise the processes identified previously to three new linguistic risk quantifiers communicating a low, medium and a high probability. Moreover, in the two previous studies, the wording of the device description in the questionnaire may explain the preference for the speaker-face-management interpretation. Participants had to choose between a speaker who is tactful (i.e., wants to announce bad news tactfully) but may or may not be sure, a speaker who is uncertain and cautious (i.e., wants to be cautious about his assertion in case he is wrong) and a speaker who is simply uncertain (i.e., the speaker is not sure the event will happen). The fact that the cautious speaker is uncertain whereas the tactful speaker can be perceived as certain might have played a role in the participants’ general preference for the speaker-face-management interpretation. The next experiment was thus designed to rule out this possibility by refining the description of the three interpretations so that each makes clear that the speaker has a degree of certainty.

**Experiment 2**

**Method**

**Participants**

Two hundred and eighteen Americans recruited through Amazon Mechanical Turk took part to this study in exchange for a remuneration of US$ 0.10. Participants were aged from 18 to 79 \( (M = 33.91, \ SD = 12.94) \) and most were females \( (60.8\%) \). In this sample, 72.7% were in paid work \( (17.7\% \) in management, \( 11.5\% \) in sales and office work, \( 8.6\% \) in services and \( 34.5\% \) in other occupations), while 27.3% were not \( (22.5\% \) unemployed and \( 4.8\% \) retired). Education ranged from less than a high school diploma \( (1.4\% \) to a doctoral degree \( (1.4\% \); \( 13.2\% \) had a high school degree, \( 70.4\% \) reported attending college, and \( 9.6\% \) had a Master’s degree. Most of the participants were White/Caucasian \( (75.1\%) \), \( 11\% \) were African American, \( 6.2\% \) Asian, \( 5.7\% \) Hispanic. The remaining \( 2\% \) had another ethnic background. Ten participants did not report their socio-demographic characteristics.

**Design**

In a between subject design, participants read that they had one of a low, medium or high probability of losing an important investment. The three linguistic risk quantifiers had been selected in a pre-test conducted with Mechanical Turk participants. The probability terms used were, there is a small probability \( (M = 25.85, \ SD = 20.15, \ N = 41) \), perhaps \( (M = 42.45, \ SD = 15.13, \ N = 174) \) and it is quite likely \( (M = 82.12, \ SD = 14.62, \ N = 160) \).

**Material and procedure**

After being presented with an informed consent screen and agreeing to participate, participants read the investment scenario: Imagine that you have invested in the stock market all the savings you have accumulated over time. You are a novice with such investments but you think that the stocks you bought are very good. When you talk about your investment with a friend who is stock broker, he says to you:

“[Risk quantifier], the stocks you bought will lose their value”.

The probability perception was assessed as in the previous experiment. Then participants chose among three devices (randomly presented):

- He is not sure the stocks will lose their value.
- He does not want to say harshly the probability that your stocks will lose their value.
- He wants to be cautious in his assertion in case his prediction is wrong.

Lastly social demographic data were collected focusing on age, gender, profession, highest diploma and ethnic background.

**Results and discussion**

Education, job and ethnicity were not found to affect device interpretation or risk perception and so they were excluded from subsequent analyses.
Device interpretation results were similar to those presented previously. When participants were told of the uncertain occurrence of a negative event, they interpreted the risk quantifier most often as a speaker-face-management device (47.1%), then as a likelihood-communication (30.1%), and least frequently as one of a hearer-face-management (22.8%). Interpretation frequencies differed across the three risk quantifiers (χ² (N = 218) = 19.85, p = .001, φ = 0.21), as shown in Table 1.

Participants interpreted “it is likely” more often as a hearer-face-management device than “there is a small probability” or “perhaps”. This may have been the caused by the manipulation of the probability of occurrence of financial losses. Indeed greater probability of occurrence of a negative outcome might generate a greater threat and hence more face-management interpretations.

The analysis of variance revealed that probability perception was determined by both risk quantifier (F(2, 209) = 52.39, p < .001, η²par = .22) and its interpretation (F(2, 209) = 8.02, p < .001, η²par = .07) which did not interact (F(4, 409) = 1.44, p = .221, η²par = .03). Table 2 presents mean probability perception as a function of the three risk quantifiers and their interpretations.

The hearer- and speaker-face-management interpretations led to perceptions of higher probability than did the likelihood-communication interpretation (respectively, Mdiff = 19.08, p < .001, CI [12.08, 26.07] and Mdiff = 9.97, p < .001, CI [4.08, 15.87]). Further, as previously, the hearer-face-management interpretation led to greater risk perception than the speaker-face-management interpretation (Mdiff = 9.10, p = .003, CI [2.66, 15.54]).

These results provide evidence that the interpretation of risk quantifiers and the effect of this interpretation on risk perception is not dependent on one specific expression or one specific probability magnitude.

Experiment 3

Face-management interpretations of uncertain statements have thus far been studied in terms of the communication of the possible occurrence of a negative outcome (e.g., criticism, bad news, correction). In the three previous experiments, we showed that the risk perception of the occurrence of a negative outcome was a function of three interpretations. In this experiment we aimed to extend the politeness implications of the interpretation of risk quantifiers to positive outcome predictions.

Politeness theory also accounts for positive outcome predictions, albeit differently than for negative ones. The communication of uncertainty about an outcome desired by the hearer can be perceived as threatening. When speakers communicate uncertainty about the occurrence of a desired outcome, they can be tempted to soften the threat of uncertainty by communicating a higher degree of certainty than that of their own. As a result, the risk recipient’s perception should be adjusted downward. The adjustment of risk perception in hearer-face-management interpretations for positive outcome predictions is thus the opposite of adjustment for negative outcomes. Consider for example the hearer-face-management interpretations in statements (3e) and (3f). Statement (3e) describes the traditional negative outcome prediction studied previously (i.e., bad news), whereas statement (3f) describes a positive outcome prediction.

According to politeness theory, a hearer-face-management interpretation of the statement (3e) will lead to an upward adjustment of the probability that Marie will say “no” relative to a likelihood-communication interpretation. In contrast, a hearer-face-management interpretation of statement (3f) will lead to a downward adjustment of the probability that Marie will say “yes” relative to a likelihood-communication interpretation.

Table 1
Frequency of interpretation of three verbal probabilities as likelihood-communication (LC), speaker-face-management (S-FM) and hearer-face-management (H-FM).

<table>
<thead>
<tr>
<th>Interpretation</th>
<th>LC (%)</th>
<th>S-FM (%)</th>
<th>H-FM (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is a small probability (n = 69)</td>
<td>40.0</td>
<td>44.3</td>
<td>15.7</td>
</tr>
<tr>
<td>Perhaps (n = 74)</td>
<td>37.8</td>
<td>45.9</td>
<td>16.2</td>
</tr>
<tr>
<td>It is quite likely (n = 75)</td>
<td>13.3</td>
<td>50.7</td>
<td>36.0</td>
</tr>
<tr>
<td>Total (n = 219)</td>
<td>30.1</td>
<td>47.0</td>
<td>22.8</td>
</tr>
</tbody>
</table>

Table 2
Mean probability communicated by three risk quantifiers as a function of their interpretation as likelihood-communication, speaker-face-management and hearer-face-management.

<table>
<thead>
<tr>
<th>Interpretation</th>
<th>LC (%)</th>
<th>S-FM (%)</th>
<th>H-FM (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is a small probability (n = 69)</td>
<td>23.86 (17.36)</td>
<td>28.42 (19.63)</td>
<td>44.36 (18.20)</td>
</tr>
<tr>
<td>Perhaps (n = 74)</td>
<td>51.00 (11.97)</td>
<td>53.42 (13.73)</td>
<td>59.54 (16.02)</td>
</tr>
<tr>
<td>It is quite likely (n = 75)</td>
<td>54.95 (16.90)</td>
<td>64.14 (14.69)</td>
<td>65.02 (15.37)</td>
</tr>
</tbody>
</table>

Method

Participants
Participants were solicited by a market research firm which draws on the United Kingdom population. The sample of 208 individuals was composed of 119 males and 86 females aged from 19 to 76 years (M = 47.09, SD = 11.74). Three participants did not record their socio-demographics. Most participants were working (82.7), 3.8% were unemployed and 13.5% were retired. Level of education ranged from no formal qualification (1.9%) to post graduate (22.1%) with 14.4% having attained GCSE level or equivalent, 22.6% A level or equivalent and 37.5% undergraduate level.

Design
In a within subject design we manipulated the valence of the outcome (negative vs. positive) in a scenario describing the possible profitability of a stock investment. The order of the conditions was counterbalanced.
Material and procedure
Participants read the Investment scenario used in Experiment 2, in which the friend communicated the possible occurrence of either a bad (Possibly, the stocks you bought will lose their value), or a good outcome (Possibly, the stocks you bought will be profitable). The subjective base rates of occurrence of the two outcomes had been pretested to be similar. The mean probability that the stock investment would be profitable was 53.53% (SD = 13.83) and the mean probability that the stocks would lose their values was 51.15% (SD = 13.75; t(109) = 1.19, p = .242, d = 0.17).

Probability perception and device interpretation were assessed as in Experiments 1a and 1b. To measure the perceived negativity of the news, participants judged whether the news was good or bad by positioning a cursor on an axis which ranged from 1: extremely bad to 10: extremely good in increments of 1. The scores were then reversed so that an increase in score indicated an increase in negativity of news.

After completing these questions for one condition, participants read the complementary scenario and responded to the same three questions (i.e., probability, device and severity).

Lastly social demographic data were collected focusing on age, gender, profession, highest diploma and ethnic background.

Results and discussion
Education, job and ethnicity were not found to affect device interpretation or risk perception and so they were excluded from subsequent analyses.

Effect of outcome valence on device interpretation
When “possible” qualified bad news (i.e., “your stocks will lose their value”), roughly the same proportion of participants chose the speaker-, hearer-face-management and likelihood-communication devices (38.0%, 23.5% and 38.5%, respectively). On the other hand, when “possible” qualified a positive outcome (i.e., “your stocks will be profitable”), a small majority of participants interpreted the risk quantifier as a likelihood-communication device (51.5%) and 41.8% interpreted it as a speaker-face-management device. Few participants judged that “possible” aimed to soften the threat to the hearer of the uncertain occurrence of a good outcome (6.7%). The valence of the outcome did not have an effect on the interpretation of the uncertain quantifier interpretation according to a marginal homogeneity test (p = .512).

Effect of device interpretation on risk perception
Gender was found to affect risk perception in the positive outcome prediction condition (t(202.12) = -2.17, p = .031). Females perceived a greater probability of occurrence of the good outcome than males (M = 52.56, SD = 12.66 vs. M = 48.43, SD = 16.66). As a result, we integrated gender as a control variable in the analyses focusing on risk perception. Analyses did not reveal any significant interaction of gender with device interpretations.

Fig. 2 depicts the mean risk perception as a function of the quality of the news (bad or good) and risk quantifier interpretation. For the bad news event, results replicated the effect of interpretation on risk perception (F(2,206) = 13.23, p < .001, η²par = .11). In the hearer- and speaker-face-management interpretations participants perceived greater risk (M = 60.51, SD = 18.96, M = 53.23, SD = 16.03 respectively) than in the likelihood-communication interpretation (M = 45.19, SD = 17.40). In both cases the difference was significant (Mdif = 15.83, p < .001, CI [8.41,23.24], d = 0.84 and Mdif = 8.50, p = .006, CI [2.03,14.97], d = 0.48). Moreover, as expected, the hearer-face-management interpretation elicited a greater risk perception than that of the speaker-face-management (Mdif = -7.33, p = .053, CI [-14.72,0.08], d = -0.42).

The results for the positive outcome prediction (i.e., possibly the stocks will be profitable) showed that device interpretation affected the probability of occurrence of the event (F(2,205) = 10.37, p < .001, η²par = .09). The highest risk perception was found for the speaker-face-management interpretation (M = 53.34, SD = 15.00); it was higher than the risk perception for both the hearer-face-management (M = 35.38, SD = 14.92; Mdif = 19.84, p < .001, CI [10.06,29.62], d = 1.20) and the likelihood-communication interpretations (M = 48.08, SD = 13.65, Mdif = 5.65, p = .021, CI [0.68, 10.62], d = 0.37). Risk perception in the hearer-face-management interpretation was lower than in that of the likelihood-communication interpretation (Mdif = -14.19, p = .003, CI [-24.10, -4.27], d = -0.89).

As predicted, when the risk quantifier “possible” was interpreted as a speaker-face-management strategy, whatever the valence of the predicted outcome, participants perceived a lower probability of occurrence than when “possible” was interpreted as a likelihood-communication device. In contrast, the hearer-face-management interpretation led to a different pattern of probability perception for positive and negative outcomes.

Lastly, it should be noted that the probability attached to the likelihood-communication device was not different for negative and positive outcomes showing that participants were not sensitive to wishful thinking, also referred to as desirability bias. This result supports the elusive character of this bias as underlined by Bar-Hillel and Budescu (1995).

Effect of device interpretation on perceived negativity of the prediction
Scores below or equal to five reflected the perception of good news (i.e., a positive valence), whereas scores above five reflected the perception of bad news (i.e., a negative valence). The communication of uncertainty of the possibility that the stocks would be profitable was understood on average to be good news (M = 4.49, SD = 1.76), whereas the communication of uncertainty of the possibility that the stocks would lose their value was understood on average to be bad news (M = 6.63, SD = 1.56, t(206) = 13.00, p < .001, d = 1.15). This result suggests that framing uncertainty as gains rather than as losses could be a speaker’s strategy to protect the hearer’s face or to avoid being blamed.

The perceived degree of negativity was also dependant on the risk quantifier interpretation, in both the negative and positive outcome predictions (respectively F(2,205) = 18.30, p < .001, η²par = .15; F(2,205) = 20.51, p < .001, η²par = .17).

When the predicted outcome was negative, the news was perceived to be worse in the hearer- and speaker-face-management interpretations than in the likelihood-communication interpretation.
interpretation ($M = 7.69$, $SD = 1.67$; $M = 6.45$, $SD = 1.25$ and $M = 6.15$, $SD = 1.47$), yet only the hearer-face-management interpretation led to a statistically significant higher perception of negativity compared to that of likelihood-communication ($M_{\text{diff}} = 1.54$, $p < .001$, CI [0.92,2.16], $d = 0.98$ and $M_{\text{diff}} = 0.30$, $p = 0.395$, CI [−0.24,0.84], $d = 0.22$). Further when interpreted as hearer-face-management, the prediction was perceived as worse than in the speaker-face-management interpretation ($M_{\text{diff}} = 1.24$, $p < .001$, CI [0.63,1.86], $d = 1.31$).

When the predicted outcome was positive, the news was perceived to be worse in the hearer-face-management interpretation ($M = 6.85$, $SD = 1.61$). This perceived negativity was more important than when the prediction was interpreted as either a likelihood-communication or a speaker-face-management device (respectively, $M = 4.70$, $SD = 1.53$; $M_{\text{diff}} = 2.16$, $p < .001$, 95% CI [1.06,3.25], $d = 1.73$ and $M = 4.01$, $SD = 1.68$; $M_{\text{diff}} = 2.84$, $p < .001$, 95% CI [1.76,3.93], $d = 1.31$). Further, in the positive outcome prediction, when “possible” was interpreted as a likelihood-communication device, participants felt the news was worse than when “possible” was interpreted as a speaker-face-management ($M_{\text{diff}} = 0.69$, $p = 0.09$, CI [0.14,1.24], $d = 0.41$).

These results illustrate that hearer-face-management interpretations did not soften threat perception but on the contrary triggered greater negativity perception. The higher negativity perception of the news may have been caused by the higher risk perception. Indeed in the negative outcome context risk perception had a positive effect on the prediction negativity ($R_{\text{adj}}^2 = 1.39$, $\beta = .378$, $p < .001$), whereas in the positive outcome context it had a negative effect ($R_{\text{adj}}^2 = .220$, $\beta = −.473$, $p < .001$). Higher subjective probability of occurrence of a negative outcome led to higher perceived negativity of the news, and congruently, a lower subjective probability of occurrence of a positive outcome led to a lower perceived negativity of the news.

Although positive outcome predictions elicited less need for the use of politeness strategies, these strategies still affected risk perception as well as the perception of the negativity of the news. Results further stress the need to account separately for face-management strategies oriented toward the hearer or toward the speaker, as they have opposite effects in positive outcome contexts.

**Experiment 4**

Our previous findings were not based on direct manipulation and so can be considered as indirect tests of the effect of politeness concerns on risk perception. In contrast, this experiment was tailored to manipulate the hearer’s interpretation of the risk quantifier as a hearer-face-management, speaker-face-management or likelihood communication device. Further, the present study aimed to extend our investigation of the effect of device interpretation beyond that of probability perception to that of decision making.

**Method**

**Participants**

Participants were recruited through Amazon Mechanical Turk. The sample of 178 Americans was composed of 69 males and 101 females aged from 18 to 69 years ($M = 35.64$, $SD = 12.88$). Most of the participants were working (69.7%), 4.5% were retired and 25.8% were unemployed. The level of education ranged from high school (11.2%) to doctoral degree (0.6%). Most participants had a college degree (70.8%) while 10.1% had a master’s degree. Most of the participants were White Caucasian (68%), 11.8% were Asian and 9% were African American. Eight participants (4.5%) did not provide their socio-demographic characteristics.

**Results**

The manipulation of the conversational context had a significant effect on device interpretation ($\chi^2$ (4, $N = 178$) = 13.02, $p = .011$, $\phi = .27$). A MANOVA was conducted to analyse the effect of the conversational context on risk perception and decision making. The multivariate test showed a significant effect of the conversational context ($F(2,174) = 2.82$, $p = .025$, $\eta^2_{\text{par}} = .03$). The test of between-subjects effects revealed that conversational context determined the probability perception that the stocks will lose their value ($F(2,175) = 3.50$, $p = .032$, $\eta^2_{\text{par}} = .04$) and the decision to keep or sell them ($F(2,175) = 2.82$, $p = .031$, $\eta^2_{\text{par}} = .04$).

Participants perceived greater risk in the hearer-face-management condition ($M = 38.75$, $SD = 21.87$) than in both those of speaker-face-management ($M = 30.73$, $SD = 16.17$) and likelihood-communication ($M = 30.60$, $SD = 19.48$; $M_{\text{diff}} = 8.01$, $p = .075$, CI [−0.62,16.65], $d = 0.42$ and $M_{\text{diff}} = 8.14$, $p = .052$, CI [−0.07,16.35], $d = 0.39$). The speaker-face-management conversational context, however, led to a similar risk perception as the likelihood-communication context ($M_{\text{diff}} = 0.13$, $p = .999$, CI [−8.76,8.76], $d = 0.01$).

Moreover, participants were more willing to sell their stocks in the hearer-face-management conversational context ($M = 3.76$, $SD = 1.68$) than in those of likelihood-communication ($M = 3.16$, $SD = 1.89$) or speaker-face-management ($M = 2.98$, $SD = 1.36$). Decision making was statistically different in the two face-management contexts ($M_{\text{diff}} = 0.78$, $p = .037$, CI [0.04,1.52], $d = 0.51$). Decisions made in the likelihood-communication context were not, however, statistically different from the decisions made in the speaker- and hearer-face-management contexts (respectively $M_{\text{diff}} = −0.60$, $p = .111$, CI [−1.31,0.10], $d = 0.33$ and $M_{\text{diff}} = 0.78$, $p = .838$, CI [−0.56,0.92], $d = 0.12$).

This difference between the two face-management contexts may have been triggered by the risk perception that stocks would lose their value. Indeed, risk perception had a positive effect on the intention to sell the stock ($R_{\text{adj}}^2 = .063$, $\beta = .250$, $p = .001$). Participants reported greater intention to sell the stocks when they perceived a greater risk that they would lose their value.
Politeness concerns, manipulated by the conversational context, shaped risk perception. The context stressing the need for hearer-face-management elicited greater risk perception than did the contexts stressing the need to speak plainly and to prevent the hearer blaming the speaker.

General discussion

The present research showed that risk quantifiers can be interpreted as performing three functions: communicating uncertainty (i.e., likelihood-communication device), softening the communication of bad news (i.e., hearer-face-management device), or decreasing the chance of recipients blaming speakers for their assertions (i.e., speaker-face-management). Five experiments demonstrated that risk quantifiers are interpreted as performing these three functions and that these interpretations give rise to different risk estimates, negativity perception and decision making. Moreover, findings provide evidence that the three interpretations occur in different cultures and in negative and positive outcome predictions.

The three perceived functions of verbal probabilities

Speaker-face-management, the most frequent function

The frequency of likelihood-communication interpretations was surprisingly low for expressions that are assumed to be used to communicate uncertainty (33.5%). In fact probability terms were most of the time interpreted as face-management strategies (66.5%). This finding highlights the pervasive nature of politeness expectations in risk communication.

Uncertainty quantifiers were most often deemed to be used in a self-serving manner, as a speaker-face-management strategy aiming to prevent the hearer blaming the speaker (50.5% of the interpretations, on average in Experiments 1, 2 and 3). Participants interpreted “possible” three times more often as a tool to prevent the speaker being blamed than as a tool to protect the recipient (16.0%). This result shows the importance of the interest of the speaker and stresses the need to further take into account the need of speakers when formulating hypotheses stemming from politeness theory (Brown & Levinson, 1987).

Findings call into question the use of linguistic risk quantifiers to communicate risk in applied domains in which the ambiguity of their interpretation and related risk perception could be harmful. Indeed, our results showed little agreement among recipients of uncertain predictions (e.g., it is possible that your car will break down) of the function served by the risk quantifiers. These results also call into question the well-established view of considering verbal probabilities as vague quantifiers of uncertainty (e.g., Wallsten & Budescu, 1995). Indeed, the variability of their numerical meaning can be largely diminished by taking into consideration the type of interpretation made by the person translating the linguistic expression into a numerical one.

Risk perception in the hearer-face-management interpretation, the strongest deviation from the likelihood-communication interpretation

The greatest deviation in risk perception away from the likelihood-communication interpretation was found for the hearer-face-management device. Across all Experiments, hearer-face-management interpretations gave rise to an adjustment twice as large as speaker-face-management interpretations (resp 15.70% and 7.11%, in absolute value respectively). These results illustrate the power of adjustment based on tactful consideration of the hearer’s face.

The smaller effect on risk perception of the speaker-face-management interpretation compared to that of hearer-face-management may be explained by the possibility that the speaker-face-management strategy is in fact comprised of two strategies which differently affect risk perception. Indeed, our hypothesis was that speakers may avoid being blamed for inducing the hearer into an error of commission (e.g., selling the stocks when in fact their value is increasing) by giving an underestimate. It is also possible, however, that speakers want to avoid blame for an error of omission and so may exaggerate the risk. This last strategy corresponds to a “better safe than sorry” approach. The present studies did not allow for the disentanglement of these two speaker-face-managements strategies associated with the avoidance of omission and commission errors. Further research on risk estimate communication might provide evidence as to whether speaker-face-management can be achieved by these two strategies.

Non-exclusivity of device interpretation

Bonnefon and Villejoubert (2005, 2006) asserted that the functions of verbal probabilities were exclusive (i.e., either hearer-face-management or likelihood-communication) with risk quantifiers being either used to communicate the degree of certainty of the speaker or as a hedging strategy used by a certain speaker. Accordingly, if a hearer interprets “possible” as intending to perform a hearer-face-management function, the hearer will also interpret the speaker as being certain about the occurrence of the target outcome. Yet their data, as ours, fall short of endorsing such a conclusion. Indeed, if this were the case, when verbal probabilities were identified as a likelihood device, the authors should have concluded that “it is possible” was being interpreted as communicating 100% probability. Instead, results of earlier research as well as the studies presented here showed (only) an increase in the probabilistic meaning of the expression “possibly”. We should thus consider whether the boundary between the functions of the two devices, hearer-face-management and likelihood-communication, is so clear cut as suggested by Bonnefon and Villejoubert (2005, 2006). This argument applies also to the speaker-face-management device which was not chosen as a tool to communicate carefully a certainty but to communicate carefully a degree of certainty by using a lower degree of certainty. A more sensible interpretation of verbal quantifiers is thus one that assumes that risk quantifiers are simultaneously fulfilling several functions with one of them dominating. This approach to face-management implies that verbal probabilities are optimistic reports of risk, in which speakers are supposed to communicate an assessment in favour of the hearer’s interests.

Disentangling the effect of risk quantifier interpretation and severity on risk perception

Politeness theory was initially applied to the interpretation of linguistic risk quantifiers to provide an alternative explanation to the negativity bias observed in risk perception (Harris & Corner, 2011; Patt & Schrag, 2003; Weber & Hilton, 1990). Negativity bias purports to account for the tendency of individuals to allocate different probabilities to severe and less severe outcomes. For example, the “possibility” of contracting malaria has been judged more likely than the “possibility” of contracting a cold (Weber & Hilton, 1990). Our results, together with those of Bonnefon and Villejoubert (2006), support the argument that the severity effect may be mediated by the interpretation of the intention of the speaker. This pragmatic and conversational account of the severity effect does not support the hypothesis of Vosgerau (2010) that the severity effect is caused by an increase of arousal understood erroneously as a cue of risk magnitude. Nonetheless, before concluding that
severity (and subsequently worry or arousal) is not directly at play in risk assessment, further investigation manipulating these variables and integrating risk quantifier interpretations should be conducted. Indeed, Harris, Corner, and Hahn (2009) brought sound evidence of the occurrence of the negativity bias in contexts not involving communication strategies such as hearer- or speaker-face-management. Harris et al. showed that when risk was communicated by means of cell matrices representing the frequency of occurrence of negative outcomes varying in severity, participants perceived a greater probability of occurrence of severe outcomes. Harris et al. and Harris and Corner (2011) posit that severity affects risk perception before risk is even communicated, because of the asymmetry of the loss function. Following Weber (1994), these authors suggest that the severity bias occurs in the subjective probability formation. Further investigation of the effect of severity should inform which approach accounts best for severe outcome risk perception.

Implications for risk communication

Uncertainty assessment is a complex task subject to different biases and heuristics (e.g., under/over-confidence, availability). Thus, the communication of risk by informed individuals could be seen as a solution to cope with risk assessment complexity. Unfortunately, as exemplified in the present research, the communication of risk is also a very complex matter, involving a range of speakers’ and hearers’ concerns and objectives, and embedded in a specific conversational context which is further governed by general social rules. The complexity of risk communication may result in miscommunication issues with possible severe consequences, especially when politeness concerns are involved, as noted by Bonnefon, Feeney, and De Neys (2011). What then can be done to achieve efficient risk communication, and, in turn, efficient decisions? It has been suggested that other types of quantifiers such as numerical probabilities could provide a remedy for the challenge of pragmatic interpretation. Results of Juanchich and Sirota (2011) showed that numerical probabilities as well as verbal ones can be understood as face-management devices. Nevertheless, their results provide evidence that numbers could be better candidates for risk communication since they elicited a smaller probability difference among interpretations than verbal probabilities. The association of verbal and numerical probabilities (e.g., it is likely (between 70% and 90%)) could also enhance the precision of risk perception (Wittman & Renoij, 2003; Wittman, Renoij, & Koele, 2007). Budescu, Broomell, and Por (2009, 2011) showed that this strategy may be beneficial in reducing the range of probabilities covered by verbal probabilities. The introduction of numerical probabilities presented together with verbal ones could either provide a numerical anchor guiding subsequent numerical judgment or could increase recipients’ agreement of the interpretation of probability terms (e.g., as likelihood-communication device). Lastly, and moving beyond the format of risk communication itself, speakers stating clearly their intentions may enhance risk perception accuracy and is thus desirable, especially in high stake forecasts.

If it is sometimes commendable to suppress the different interpretations of verbal probabilities and their effect on risk perception, it remains the case that the range of functions served by verbal probabilities illustrates humans’ great ability to communicate opinions while maintaining social contracts and protecting personal interests.

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References

Bonnefon, J. F., & Villejoubert, G. (2005). Communicating likelihood and managing face: Can we say it is probable when we know it to be certain? In B. G. Bara, L. Barsalou, & M. Bucarello (Eds.), Proceedings of the 27th annual conference of the cognitive science society.