

(e.g. Garcia-Retamero, Galesic, & Gigerenzer, 2011). We explore the responses of subjects in probabilistic dilemmas, in order to test the facilitating effect of graphical representation by two types of pictorial illustrations (Eulero-Venn diagram and Iconic diagram) (e.g. Moro, Bodanza, & Freidin, 2011).

Design. We registered the subject's categorical responses to dilemmas (repeated measures in numerical-verbal/graphical-pictorial forms), in time pressure condition.

Methods. We recruited 229 undergraduate Italian students (female 84.3%). To each subject we submitted two dilemmas, selected from Garfield's Statistical Reasoning Assessment (2003), investigating the reasoning about odds. The first dilemma investigated the understanding of disease risk related to a surgery, while in the second dilemma the subjects were requested to evaluate the accuracy of probabilistic weather forecasting. We prepared two parallel forms of each dilemma (numerical-verbal/graphical-pictorial). We analysed the frequencies of correct/incorrect responses in two couples of dilemmas. To analyse the obtained data we applied the McNemar test and the Marginal Homogeneity test.

Findings. We compared correct and incorrect answers given to each item in the two conditions (with and without graphics). The McNemar test for each pair evidenced a significant difference in performance between these conditions. However our interest was mainly focused on people who do not work properly when dealing with a verbal-numerical presentation of evidence, while their performance was good in the presence of a pictorial-graphical presentation. To highlight this circumstance, we coded the answers through new categorical variables (one for each pair of items): subjects who didn't give correct answers in correspondence to both presentation formats, subjects who gave correct answers only in correspondence to verbal-numerical format, subjects who gave correct answers only in correspondence to pictorial-graphical format, subjects who gave correct answers in correspondence to both presentation formats. The Marginal Homogeneity Test showed significant differences between the two pairs of items. In fact the number of subjects who gave correct answers only in the presence of a pictorial-graphical presentation format was higher in the first pair of items (using as a pictorial-graphical presentation based on Euler-Venn diagrams), with respect to the second pair (using a presentation based on an ideogram).

Conclusions. There is an effect of graphical facilitation that, however, depends on the adopted graphical representation. The probabilistic reasoning under conditions of uncertainty could be helped by highly meaningful pictorial-graphical presentations (Moro, Bodanza, & Freidin, 2011).

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Introducing, reinforcing and mitigating “Known, Unknown and Believed” in *Harry Potter and the Deathly Hallows*

According to the Theory of the Known, the Unknown, the Believed (KUB Theory; Bongelli, Zuczkowski 2008, Zuczkowski et al. 2011), the multitude of evidential and epistemic markers (both lexical and morphosyntactic) can ultimately be reduced to three basic ones (*I Know, I do not Know, I Believe*) reflecting three different “territories of information”. Within this framework, a piece of information is communicated as belonging to one of these three territories; therefore, dialogic communication can be considered as an exchange of information originating in one of the three evidential and epistemic territories and directed at a different one. KUB Theory was developed from the main findings of the analysis of two corpora of non-dialogical written texts, in Italian and in English (Bongelli et al., in press); subsequently it was applied to a corpus of Italian political speeches (Riccioni et al., forthcoming, Bongelli et al., submitted), and is now being tested in the *Harry Potter* series. The present study continues our recent study (Philip et al. 2012) of Known, Unknown and Believed in the dialogues in Chapter 10 of *Harry Potter and the Deathly Hallows*. This chapter was identified through key-word analysis as a pivot point in the narrative (Philip 2011), and its dialogues are a rich source of information regarding both plot and characterization. Yet during our initial

analysis, we found particular types of structures difficult to classify within KUB Theory. The scope of the present work is, therefore, to examine these structures – imperatives and question tags – in more detail, and to compare them with another less problematic, but still complex structure: introducing verbs and their dependent clauses. Sentences which feature subordination often involve a combination of Known, Unknown and Believed elements. These distinct types of information interact and unfold dynamically within dialogue, the information conveyed in a proposition being reinforced or mitigated by the KUB value of the introducing verb or question tag. What we have investigated, therefore, is this interplay between types of information, i.e. how KUB in introducing verbs interacts with KUB in dependent clauses; how KUB in main clauses is mitigated by KUB in question tags; and how to determine the KUB value of an imperative.

Imperatives appear to presume obedience and therefore the realization of the order as a (future) Known. Introducing verbs and question tags however, combining as they do with finite verb clauses, drive the dynamics of information flow. Introducing verbs are usually K, and their presence reinforces K and strengthens B in the dependent clause (U only occurs with a U introducing verb). In question tags, a similar effect occurs (K is weakened, B mitigated, and U reinforced). Yet the characters' preference for information types (c.f. Philip et al.) is also at play: only Harry uses U introducing verbs, while Hermione is the originator of almost all B clauses. The dynamics of dialogue in *Hallows* Chapter 10 is therefore revealed to be most complex, at once justifying this more detailed investigation and confirming the need to continue work on KUB in dialogic interaction.

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Knowing and not knowing: expressing (un)certainty in the Italian subjunctive

The subjunctive mode is a source of difficulty for many learners of Italian, in part because the function of the subjunctive varies from language to language, and in part because guidance regarding its use is misleadingly exhaustive. At first glance, the subjunctive would appear to occupy an inordinate amount of space in grammars for Italian learners. In fact, in addition to complete lists of the conjunctions which require a concessive clause in the subjunctive, the verbs of belief, doubt and sentiment which also require the subjunctive is typically accompanied by a long list of example verbs, including *credere* (to believe), *pensare* (to think), *temere* (to fear), etc. Yet what is not explicitly listed nor even mentioned in passing, is how verbs of certainty, e.g. *sapere* (to know), behave in the negative, i.e. when the certainty that they express is reversed. This study investigates the use of the subjunctive when certainty is negated, drawing its data from a corpus of contemporary spoken and written Italian. Analysis of the corpus data makes it possible to locate the small details of language which trigger the use of the subjunctive mode, with interesting findings. Taking as its main focus *non sapere* (not to know), negated form of the verb of certainty *par excellence*, the study isolates the linguistic features which consistently demarcate the grammatical choice between indicative and subjunctive. One of these is the assertion of fact over opinion: when the dependent clause introduces a fact or some form of widespread knowledge, the indicative reinforces the certainty of that fact; when the information presented is not widely known or believed to be a fact, the subjunctive is preferred, fulfilling its role as indicator of belief, doubt or sentiment. The other feature is the standpoint of the speaker: the negative particle *non* reinforces ignorance of the known in indicative clauses, and highlights the unknowable in subjunctive clauses. By way of contrast, two other verbs were also examined: *essere sicuro* (to be sure) and *credere* (to believe), representing the intermediate and end-points respectively on the cline of subjunctive use. *Essere sicuro* is a near synonym of *sapere*, being a verb of certainty which tends to refer to fact and accepted knowledge. However, it transpires that even in the positive, it occurs together with subjunctive and indicative dependent clauses with roughly the same frequencies of occurrence. The addition of the negative particle effectively converts *essere sicuro* into a verb of uncertainty, while both positive and negative interrogative uses also require subjunctive dependent clauses. *Credere*, the “control” since it obligatorily requires the subjunctive, does not fail in its duty: no occurrences of indicative mode were found with this verb, whether positive, negative or interrogative. This small study raises an important consideration for language description in general: there are areas of language, such as negation, where grammar and semantics merge. These must be addressed not only as grammatical features, but also as nuanced expressions of meaning.



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The
communication of
certainty and
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LINGUISTIC, PSYCHOLOGICAL, PHILOSOPHICAL ASPECTS

October 3rd - 5th 2012

UNIVERSITY OF MACERATA, ITALY

Book of Abstracts