Studia Linguistica Universitatis Iagellonicae Cracoviensis 133 (2016): 63–74
doi:10.4467/20834624SL.15.005.4894

CHRISTOPH UNGER*
Norwegian University of Science and Technology, Trondheim
christoph.unger@ntnu.no

DEGREES OF PROCEDURE ACTIVATION AND THE GERMAN MODAL PARTICLES *JA* AND *DOCH* – PART 3

Keywords: modal particles, procedural meaning, German

Abstract

In this paper I argue that a unitary account of the modal and non-modal uses of the German particles *ja* and *doch* can be provided by appealing to essentially non-representational properties of the theory of procedural meaning in Relevance Theory (RT). According to Wilson (2011), procedural indicators such as *ja* and *doch* function by raising the activation level of cognitive procedures, increasing the likelihood that audiences following the RT comprehension heuristic will use these procedures. Partially following proposals by König (1997) and Blass (2000, 2014), I would like to posit that *ja* and *doch* trigger a procedure to raise the epistemic strength of the proposition conveyed. *Doch* triggers a second procedure in addition, a constraint on context selection to the effect that the proposition conveyed must be processed in a context containing its negation. Since raising the activation level of cognitive procedures can be done in degrees, I argue that the basic difference between modal and non-modal uses of *ja* and *doch* is a reflection of differences in the degree of activation level rise: non-modal uses of *ja* and *doch* raise the activation of the manifestness procedure to a high degree, giving rise to effects such as emphasis or contrast, whereas modal uses raise this procedure's activation level merely to some degree. As a result, modal *ja* and *doch* are uniquely suitable to mark propositions that do not need much evidential strengthening but would benefit from some such effect. This is most typically

* I warmly thank Kaja Borthen, Deirdre Wilson, the participants of the Relevance Roundtable in Kraków, September 2015, and an anoymous reviewer for very helpful comments and discussion. This research was supported by The Research Council of Norway as part of project number 230782.

the case in mutually manifest assumptions that the communicator intends to use as premises in arguments. However, in some discourse contexts assumptions that are not mutually manifest may also fit this description. The prediction of this analysis is that the modal uses of *ja* and *doch* do not form a clearly delimited class; rather, borderline cases exist defying generalizations. I will present data from a qualitative corpus study that confirms these predictions.

6. Degrees of procedure activation and effects on mutual manifestness

6.1 The proposal

Following up on the considerations of section 5.2 I propose that *ja* and *doch* both trigger the procedure (53):

(53) Entertain the most salient proposition[1] accessible at this time with a greater degree of (epistemic) strength than what you would do otherwise.

This procedure raises the manifestness of an assumption. It may target explicatures or implicatures of the utterance or assumptions about who shares the cognitive environment in which these are manifest.

Ja and *doch* differ in that *doch* (but not *ja*) triggers a second procedure as well:

(54) Construct the negation of the proposition conveyed in the utterance and access it as a contextual assumption.

By triggering procedure (53), *doch* makes sure that the audience will treat the proposition it conveys as having a high degree of epistemic strength. Simultaneously triggering procedure (54) ensures that the audience will process this same proposition in a context that contains its negation. Since procedure (53) ensures that the audience entertains the proposition conveyed as strongly evidenced, this guarantees that the negation of the proposition constructed as a result of procedure (54) will be contradicted and eliminated, since it will be entertained with less epistemic strength than the proposition expressed. Thus, the audience is forced to experience a cognitive effect of contradiction and elimination. Notice that by triggering these two procedures, *doch* incurs a certain amount of seemingly gratuitous processing effort: the audience must construct or access an assumption that is immediately eliminated by a stronger one. However, by incurring this processing effort, the communicator can achieve rich effects that have consequences not only for the comprehension of the present utterance. These effects consist in it having made manifest, and hence potentially accessible for use in subsequent arguments, that there is an accessible proposition NOT P that contrasts with the proposition P expressed, and P is strongly evidenced.

[1] The most salient proposition is generally speaking the proposition expressed in the utterance. However, in some uses of *ja* and *doch* as response words, the utterance does not express a proposition. See the discussion below.

In other words, an accessible proposition is not only eliminated from the context, but the reasons for this effect are manifest as well. These effects cannot be achieved by a procedural indicator such as English *but* which arguably triggers only a procedure which results in the elimination of an assumption that is accessible to the hearer (Blakemore 2002: 108–115). Such a procedural indicator makes only the result of this effect manifest (namely, that the audience should entertain P, but discard NOT-P from the context), not the steps by which this result is achieved. This difference may help to explain why *doch* is not rendered redundant by *aber* in (40) and (41): while both particles trigger procedures that lead to the elimination of an accessible proposition that contradicts the proposition expressed, *doch* makes the steps by which this elimination is achieved manifest to the audience. Similarly, this account of *doch* can also shed interesting light on examples such as (42) and (43), where it is not easy to identify a proposition that is contradicted by the utterance containing *doch*. *Doch* yields as direct output of the procedures it triggers two assumptions: NOT-P, and P endowed with a high epistemic strength. These assumptions may contribute to the overall relevance of the utterance in different ways. In particular, the strengthening of the proposition expressed may yield more cognitive effects, thus contributing more to satisfying the relevance expectations raised in the utterance. Arguably, this is the case in (42) and (43).[2]

Returning to the procedures (53) and (54), it should be noted that these rather specific and highly specialized inferential procedures are part of a massive collection of specialized inferential procedures that the comprehension heuristic may make use of (Wilson 2011: 11). These highly specialized procedures work in parallel, but their activation level changes constantly depending on various factors. Linguistic items may trigger particular procedures in the sense of raising their activation level. As a result, audiences following the RT comprehension heuristic are more likely to use the respective procedure(s) and their outputs in comprehension.

Notice that on this view of mental architecture, the activation level of a cognitive procedure is a matter of degree. Moreover, what is important is not so much a specific level of activation as activation relative to other procedures. For example, the main factor in the procedural account of *so* outlined in section 5.1 is that *so* raises the activation level of *Procedure B* in (51) to a level higher than that of *Procedure A*. As a result, applying the inferences that *Procedure B* specializes in and their outputs are easier to access than those of *Procedure A*. Consequently, an analysis of *so* does not have to specify in absolute terms to which level it activates *Procedure B*; this level may vary greatly from one instance of use to another. For the analysis to be effective it is only necessary to ensure that *so* raises the level of activation of *Procedure B* to the minimum extent above that of competing procedures (such as *Procedure A*) so

[2] This analysis of *doch* differs from that of König (1997). König argues that *doch* triggers a procedure to indicate that the utterance containing it is to achieve relevance by leading to the cognitive effect of *contradiction and elimination*. I think that this analysis fits much better the particle *aber* and have outlined in this pargraph some advantages of such a move. Of course, an in-depth comparison with König's proposal requires a thorough study of *aber*, which is beyond the scope of this article.

that the relevance comprehension heuristic would reliably pick out the output of *Procedure B* as the intended interpretation. However, it is conceivable that in some cases raising the activation level of a procedure beyond this minimum level may be exploited for specific effects. I suggest that this is the case with the manifestness procedure (53) triggered by *ja* and *doch*. In modal uses, that is when the particle is placed in the syntactic middle field and carries no stress, the activation level of this procedure is activated merely to the minimum level at which it can be expected to have an effect on the comprehension heuristic. As a result, these uses of the particles are appropriately applied to propositions that do not need much evidential strengthening (or raising in salience) but would benefit from some such strengthening. Typically, this is the case for propositions which are mutually manifest, and function as premises in arguments. But occasionally other propositions also benefit from minimal strengthening. Stage setting information such as *The speaker initially wanted to become an opera singer* in example (34) is a case in point. Such information is not relevant in its own right, but rather supplies information that allows the communicator to make a relevant remark later on.[3]

In non-modal uses, on the other hand, I argue that the procedure (53) is activated to a higher degree than the minimally effective one. As a result, these uses of the particles may occur in utterances conveying propositions that have not been manifest to the audience previously. In the case of *doch* raising the activation level of the manifestness procedure (53) may support the deployment of the other procedure triggered by *doch*, procedure (54): by raising the epistemic strength (i.e. manifestness) of the proposition expressed to a fairly high degree, this proposition will then more effectively trigger the contextual elimination of the contextual assumption constructed on the basis of procedure (54) together with the assumptions that are supported by the eliminated one. This explains the intuition that non-modal uses of *doch* raise the replacement function of *doch* to higher prominence as compared to the modal uses of the same particle.

This account raises the question of what mechanisms are responsible for affecting the degrees of activation level raising of certain procedures. I suggest that there are two mechanisms at work, both exploiting linguistic properties directly in pragmatic processing: a prosody-based mechanism, and a word-order based mechanism. The prosody-based mechanism works by processing degrees of stress as a natural sign (in the sense of Wilson, Wharton 2006; Wharton 2009) and links higher phonetic stress on the linguistic indicator with a higher degree of activation level raising applied to the procedure that the indicator links to. The word-order based mechanism exploits linearity in online-processing along the lines proposed by Sperber, Wilson (1995: 202–217). When the audience encounters a procedure trigger as the first element of the sentence uttered, the respective procedure is immediately activated. As a result, the mind is prompted to develop the conceptual clues that follow into a representation compatible with the triggered procedure. Such a processing strategy is effective

[3] See Unger (2006) for a detailed relevance-theoretic account of the processing of such stage setting information.

by placing strong expectations on the content of the cognitive effects expected and is the more effective the stronger these expectations are. These expectations are the stronger the more highly activated the procedures triggered by the linguistic indicator are. Hence, this strategy naturally favours the use of linguistic expressions that strongly activate processing procedures near the beginning of the utterance. On the other hand, when a linguistic indicator is used later in the sentence, some complex conceptual content is already processed when a certain inferential procedure is triggered. The mind will then work out how this procedure can contribute to a relevant interpretation with minimal processing effort. This processing strategy works well even if the activation level of the procedure is raised only to a certain degree.

The syntax of German allows speakers to exploit both these mechanisms: it allows flexible syntactic placement of modal particles as well as the exploitation of stress as a natural (rather than encoded) indicator. The syntax of English does not allow the exploitation of word order variation with respect to the particles in question. This predicts that English speakers cannot exploit degrees of procedure activation to the extent that German speakers can. This in turn predicts that English particles often lack the effects that modal uses of German particles can achieve.

It remains to be explained what light this analysis can shed on the use of *ja* and *doch* as response particles and on the use of *ja* as question modifier. According to Sperber and Wilson (1995), questions are an instance of the *metarepresentational use* of utterances, i.e. a use of utterances where relevance is achieved not by virtue of describing a state of affairs in a possible world, but by resembling another representation. In the case of interrogatives, the utterance metarepresents answers that would be relevant to one of the interlocutors if true. For example, the linguistic form of a question such as (55) indicates that the audience should embed the propositional form of the utterance in a metarepresentation frame (56) spelling out for whom the proposition embedded would be desirable to know. The value of the variable for X will have to be recovered by pragmatic inference and Sperber and Wilson (1995: 243–254) show how the full range of illocutionary forces that questions may have can be explained in this way. In the case of an information question, the result of pragmatic interpretation is the construction of a metarepresentation as in (57) in a context where it is manifest that the addressee is in a position to tell that the he bought cheese this morning:

(55) Did you buy cheese this morning?

(56) It is desirable for X to know that the addressee bought cheese this morning.

(57) It is desirable for the speaker to know that the addressee bought cheese this morning.

A positive response particle indicates that the speaker confirms that the proposition metarepresented in her interlocutor's question is in fact true. A particle that triggers a procedure to strengthen an already manifest assumption can fulfill this function rather well. Given that *ja* and *doch* trigger such a procedure, these particles suggest themselves for use as response particles. *Doch* triggers an additional procedure,

one that requires the utterance to be processed in a context where the negation of the proposition expressed in the utterance is manifest. This means that *doch* can be relevantly used as response particle in affirmative answers to yes-no questions with negation, or as corrective answers to positive yes-no questions. Since the import of response particles that trigger strengthening (i.e. manifestness raising) procedures hinges on their effective activation, response particle uses of *ja* and *doch* should trigger their respective procedures to a high degree. It follows that they should be used in syntactic positions that facilitate this effect.

In a response to a yes-no question, the proposition conveyed is already accessible in the pragmatic interpretation of the question preceding the response, so the response may not need to explicitly repeat any conceptual representations explicitly. The particle *doch* (and *ja*) may be used alone to raise the status of this representation from merely accessible to mutually manifest.[4]

When *ja* is used in a question such as in (5) or (29), the only representation that it can relevantly strengthen is the metarepresentation resulting from the pragmatic interpretation as a whole. The question in (29) *Ja, woran liegt das denn wohl* 'MP, what is the reason for this?' is a rhetorical question: the continuing text indicates that the writer suggests that the answer is not hard to find, indeed that it is possible for the audience to supply the answer themselves. This means that the pragmatic interpretation of the question results in a metarepresentation as follows:

(58) It is desirable for the speaker to know whether the answer for the reason of the statement made in the earlier utterance is known in principle to the audience.

Strengthening this metarepresentation as a whole achieves relevance by encouraging the audience to consider various implications the various sub-parts of this metarepresentation may lead to. For instance, the thought that it is desirable for the writer to know that the audience already can provide the answer gives insights into the

[4] In this analysis I follow Fretheim's (2014) claim that utterances consisting solely of response particles do not invoke complex implicit syntactic structure. However, nothing essential hinges on this point. Unlike Fretheim (2014), I do not assume that the response words *ja* and *doch* are anaphors, i.e. linguistic elements introducing a semantic variable denoting a previously conveyed proposition. Rather, I envisage an analysis where the only procedures triggered by these response words are the ones that these words trigger also in their non-response word uses. These apply to the most salient propositions at the time of utterance, and in responses to yes-no questions, identifying the intended proposition is unproblematic: it is the one metarepresented in the question. Thus, there is no need to invoke a procedure or logical variable to trigger an access function, and thus no need to assume that response words should be anaphors. Of course, this analysis has the consequence that utterances consisting only of a response word *Ja* or *Doch* have no logical form and hence no explicatures. Since the role of verbal expressions in ostensive communication is nothing more than to provide evidence for the communicator's informative intention, and the informative intention is to make manifest or more manifest a set of propositions (or assumptions), rather than to always encode a logical form, I see no reason to avoid this conclusion (contra Fretheim 2014, who suggests that the definition of explicature should be amended to make sure response word-only utterances convey explicatures). Surely more should be said about the analysis of response words, but this would go well beyond the scope of this article.

argumentational stance of the writer. The thought that it is possible for the audience to provide the answer may convey the idea that the audience is not in a position to legitimately problematize the issue in argumentation. Finally, the answer itself gives rise to cognitive effects. By using *ja* in this question, the audience is induced to be prepared to invest the processing effort involved in actually entertaining many of these possible implications together. To achieve this effect, the strengthening procedure triggered by *ja* should be activated to a high degree. This predicts that the particle should be used in the pre-field.

Having explained my proposal for a procedural semantics of *ja* and *doch*, I will now discuss how this proposal relates to other procedural analyses of German modal particles outside of relevance theory (section 6.2) before proceeding to discuss some predictions that my analysis makes and how these may be used to evaluate the merits of this proposal (section 6.3).

6.2 Other procedural accounts

The idea that some linguistic items should be analyzed in procedural terms is not inherently tied to relevance theory. In fact, as Wilson (2011: 12–13) points out, the relevance-theoretic notion of procedural meaning was inspired by Oswald Ducrot's work on argumentation in language (Anscombre 1983; Anscombre, Ducrot 1989; Ducrot 1972; Ducrot, Fouquier, Gouazé 1980). Ducrot and his colleagues argue that linguistic expressions generally indicate an argumentative orientation. Winterstein (2012) develops a procedural account of *but* in this framework, contrasting his work to that of Blakemore (2002).[5]

Yet another type of analysis of *doch* in procedural terms outside of relevance theory is proposed by Egg (2013). He argues that *doch* indicates that the utterance containing the particle *doch* (the *p-utterance*) conveys a proposition p which is advanced as a reaction to a proposition conveyed by an earlier utterance (the *a-proposition*, conveyed by the *a-utterance* or antecedent utterance). The p-proposition is part of the common ground (the *p-proposition*) and defeasibly entails NOT q. In the simplest cases, the p-proposition is the proposition expressed by the utterance, and the a-proposition is the proposition expressed by the antecedent utterance. However, the a-proposition need not have been explicitly expressed before the time of the p-utterance. In this case, the a-proposition could be a member of the sincerity conditions for an earlier speech act performed by the a-utterance, or of a "not verbalized" a-utterance (Egg 2013: 134). Notice that on this analysis, *doch* triggers an inference process to recover a contextually available (although not necessarily expressed) proposition that satisfies certain semantic properties. This is what characterizes this analysis as a procedural one. Perhaps the most salient difference between this procedural analysis and a relevance-theoretic procedural analysis is that Egg's account says nothing about the cognitive nature of the pragmatic processes involved in

[5] See also Iten (2000) for a comparison between the argumentation theory and relevance theory frameworks.

identifying or supplying the a-utterances. It merely describes in a formal language the constraints that the a-proposition must fulfill. In this way the analysis is compatible in principle with any pragmatic theory providing an explicit account of inference processes in comprehension. It could, for instance, be combined with a relevance-theoretic account. However, a relevance-theoretic procedural analysis allows one to take into account not only constraints on formal properties of a-propositions, but also constraints on non-representational properties of possible antecedent propositions such as their relative cognitive salience. Below I will propose such an account that makes essential use of procedures sensitive to non-representational properties of assumptions and show how this opens up interesting avenues for providing a unitary semantics to modal and non-modal uses of *ja* and *doch*.

Besides, Egg's (2013) account raises apparently unanswered questions. First, a-propositions are claimed to be either propositions expressed by antecedent utterances or felicity conditions of antecedent utterances or felicity conditions of unexpressed antecedent utterances. It is not clear how the analysis would apply to instances where the antecedent propositions to *doch* utterances are implicatures of earlier utterances, such as in examples (38), (39) and (42). Moreover, it is not clear how the proposition expressed contradicting a defeasible entailment can explain the intuition of a tension arising between what is communicated and what is common ground. It is in the very nature of the notion of defeasible entailment that the entailment is simply not represented when propositions are activated in the common ground that are not compatible with the entailment. This means that no cognitive process takes place. But the absence of a cognitive process does not shed light on the triggering of cognitive intuitions such as the audience feeling a tension between incoming information and common ground. It seems that an explanation of this intuition can only be achieved if one assumes that a cognitive process of elimination of incompatible assumptions does take place.

6.3 Predictions

In this section I want to discuss predictions that the proposed analysis makes and assess evidence for these. The first prediction that my proposal makes is that the distinction between modal and non-modal uses of the particles *ja* and *doch* may be a scalar rather than a binary one. This is because modal and non-modal uses of *ja* and *doch* affect degrees of activation level raising of cognitive procedures. As a result, there might be uses of particles that fall in between the extremes so that it is doubtful whether the use is modal or non-modal. Such cases do in fact exist. Stressed uses of sentence internal *ja* and *doch* are a case in point (see the relevant data discussion in sections 3 and 4.2.2 above).

Another prediction is that since stress is claimed to affect degrees of procedure activation, and stress itself comes in degrees, the effect of stress on instances of modal (and non-modal) particle use is expected to result in unclear intuitions about some examples. There is good evidence in the literature that this is indeed the case. Discussions of the influence of prosody on the interpretation of (modal) particles

often present claims about acceptability intuitions that appear doubtful. To pick out one example, consider the following example from Jacobs (1991: 147) (his example 4):

(59) A: Udo hat Luise geheiratet.
B: Udo hat (*ja) Gérda geheiratet. (p. 147)
A: Udo has married Luise.
*B: Udo has (*ja [in fact]) married Gérda.* [Accent indicates stress.]

Jacobs claims that on the contrastive reading, *ja* is not acceptable, whereas the utterance without *ja* is fully acceptable. I agree that the contrastive reading is most natural without the particle *ja*. But the claim that *ja* is never acceptable in this position is too strong. Contexts can be found where the use of *ja* is quite acceptable. Consider speaker A suffering from dementia, and speaker B trying to gently prop A's memory politely. Speaker B might very well say *Udo hat ja Gérda geheiratet* 'Udo married GERDA'. Using *doch* instead of *ja* would be more natural if B simply wants to correct A. But for gentle corrections such as to correct someone suffering from memory loss or dementia, *ja* appears to be even more suitable. This intuition could easily be explained on the assumption that *ja* indicates (mutual) manifestness: B wanting to jog A's memory indicates that P is mutually manifest, so B does not have the intention to contradict or correct A but to re-establish mutual manifestness.

Another piece of evidence comes from Abraham (1991). At the end of his rather insightful and in-depth discussion of prosody on various particle uses, the author states: "I have to admit, however, that my intuition as to what role exactly intonation contours play in sentences like (27) besides stress accent is vague. Given this fading intuition my conclusions, even at this superficial level, can only be preliminary" (Abraham 1991: 215). That intuitions about these matters are unclear and variable across individuals is to be expected if the influence of prosody on the interpretation is not mediated by semantic or syntactic representations but results from its significance as a natural sign that exploits scalar degrees rather than a discrete repertoire of linguistic signs.

My proposed analysis states that a lower degree of procedure activation implies that that particle must preferably be used in utterances where the intended interpretation may be manifest enough for the audience even without actually going through the (weakly) activated inference procedure. This makes two related predictions: first, audiences are more likely to have the impression that the particle "has no effect" (or "is superfluous") in its modal uses rather than in its non-modal uses. Second, in a significant number of cases, the best translation of German modal particles *ja* and *doch* into English is to not directly render the particle at all. Both predictions appear to be borne out. With respect to the first one, virtually everyone working on German modal particles has commented on the "elusiveness" of the meaning of modal particles as opposed to their non-modal "homonyms", see in particular Abraham (1991) and Waltereit (2001). Concerning the second prediction, Fischer (2006: 55) reports that studies of translations looking for the rendering of modal particles in English have found that "most often no equivalents were identified at all". For Fischer as much as for the researchers she

refers to, this situation is not satisfactory. On the account proposed in this paper, this situation is to be expected.

The theoretical predictions discussed so far turn around the claim that modal and non-modal uses of particles exploit degrees of procedure activation and that therefore the binary distinction between modal and non-modal uses is not quite appropriate. There is one account of German particles that also predicts graded nuances of modal uses, and this is the account proposed by Waltereit (2001). Waltereit claims that modal and non-modal uses of particles result from semantic change in the speech act domain. He illustrates this with the particle *ja*: the particle *ja* in (60) indicates that it is common knowledge that painting has always been person X's hobby. This could be understood as implying that both speaker and hearer assent to this proposition.

(60) Die Malerei war *ja* schon immer sein Hobby.
'(*As you know*), painting has always been his hobby.'

However, non-modal *ja* can have a variety of functions besides its function as response indicator, or assent indicator. It is not clear why this function of non-modal *ja* should be the basis for the conceptual analysis of *ja* rather than, say, its use as question introducer.

Ja can be used as indicating assent to a previous statement by someone else, as in (61):

(61) – Die Malerei war schon immer sein Hobby.
.. 'Painting has always been his hobby.'
– Ja.
.. 'Yes.'

Waltereit proposes that the mutual assent indication function of modal *ja* and the assent indicating function of non-modal *ja* are closely related just in the way that the concepts of FIRE and FIREPLACE are, which in Latin are expressed by the same word *focus*. The relation is one of metonymy, as argued by Meibauer (1994).[6] In other words, the meaning of modal particles and their non-modal counterparts are related by metonymic mapping of concepts in the speech act domain. Since metonymic mappings may be closer or more distant, the connection between modal and non-modal uses may be a matter of degree between various particles, and presumably also within various uses of the same particle.

What evidence could differentiate my proposed analysis from that of Waltereit? Waltereit (2001) claims that modal uses are related to non-modal uses by metonymic relations between the situations described by typical non-modal and modal uses,

[6] Notice that this claim presupposes that the particles in question have a conceptual semantics. This is not easy to reconcile with the fact that the particles have non-truth conditional meaning. Although concepts contributing to higher-level explicatures may not contribute to the truth conditions of an utterance, they may be paraphrased in ways that affect the truth conditions of the utterance, see Wilson, Sperber (1993) for discussion. It is not obvious how this could be done in the case of *ja* and *doch*.

respectively. In contrast, I claim that the relation between these uses is more direct (they trigger the same procedures) and involves non-representational factors. I suggest that these contrasting predictions may be experimentally tested. Given the task of rephrasing a given text to avoid particles (especially modal particles), subjects should make explicit, in a significant number of cases, metonymic relations of the sort Waltereit's account requires, if Waltereit's account is right. If, on the other hand, my account is right, the retellings will not make metonymic relations in the sense of Waltereit (2001) explicit. Rather, in a significant number of cases, the retellings of modal uses of particles will simply omit the particle. I know of no existing experimental evidence that bears on this issue, so it may be worthwhile to run an experiment. I leave this for further research.

7. Conclusion

In this paper I have argued that the relation between the modal and non-modal uses of some particles in German may be explained by the communicator exploiting differences in the degree of procedure activation. This exploitation is made possible by the role prosody can play in German as well as syntactic properties of this language that allow significant word order variation with respect to particle placement. Moreover, I have argued that the relation between modal and non-modal uses of *ja* and *doch* exploits non-representational properties of utterances for communicative purposes. Hence the difference between modal and non-modal uses of these particles cannot be captured by formal approaches that involve modelling operations on representations. Finally, I have pointed out some predictions that my analysis makes and reviewed the literature for evidence about these. There is a significant amount of linguistic evidence for the account I propose. But this evidence should be supplemented by experimental pragmatic evidence.

References

Abraham W. 1991. Discourse particles in German: How does their illocutive force come about? – Abraham W. (ed.). *Discourse particles: Descriptive and theoretical investigations on the logical, syntactic and pragmatic properties of discourse particles in German*. Amsterdam: 203–252.

Anscombre J.-C. 1983. *L'argumentation dans la langue*. [2nd edition]. Mardaga.

Anscombre J.-C., Ducrot O. 1989. Argumentativity and informativity. – Meyer M. (ed.). *From metaphysics to rhetoric*. Amsterdam: 71–87.

Blakemore D. 2002. *Relevance and linguistic meaning*. Cambridge.

Blass R. 2000. Particles, propositional attitude and mutual manifestness. – Andersen G., Fretheim T. (eds.). *Pragmatic markers and propositional attitude*. Amsterdam: 39–52.

Blass R. 2014. German evidential procedural indicators ja and wohl in comprehension and argumentation. [Paper presented at the conference Interpreting for Relevance. University of Warsaw].

Ducrot O. 1972. *Le dire et ne pas dire: Principes de sémantique linguistique*. Paris.
Ducrot O., Fouquier E., Gouazé J. 1980. *Le mots du discours*. [Tech. Rep.]. Paris.
Egg M. 2013. Discourse particles, common ground, and felicity conditions. – Gutzmann D., Gärtner H.-M. (eds.). *Beyond expressives. Explorations in use – conditional meaning*. Leiden: 125–149.
Fischer K. 2006. Grounding and common ground: modal particles and their translation equivalents. – Fetzer A., Fischer K., (eds.). *Lexical markers of common grounds*. Berlin: 47–66.
Fretheim T. 2014. The pragmatics of 'Yes' and 'No'. [Paper delivered at the 6th International Conference on Intercultural Pragmatics and Communication. University of Malta].
Iten C. 2000. The relevance of Argumentation Theory. – *Lingua* 110.9: 665–699.
Jacobs J. 1991. On the semantics of modal particles. – Abraham W. (ed.). *Discourse particles: Descriptive and theoretical investigations on the logical, syntactic and pragmatic properties of discourse particles in German*. Amsterdam: 141– 162.
König E. 1997. Zur Bedeutung von Modalpartikeln im Deutschen: ein Neuansatz im Rahmen der Relevanztheorie. – *Germanistische Linguistik* 136: 57–75.
Meibauer J. 1994. *Modaler Kontrast und konzeptionelle Verschiebung: Studien zur Syntax und Semantik deutschre Modalpartikeln*. Tübingen.
Sperber D., Wilson D. 1986/1995. *Relevance*. Oxford.
Unger C. 2006. *Genre, relevance and global coherence: The pragmatics of discourse type*. [Palgrave Studies in Pragmatics, Language & Cognition]. Basingstoke.
Waltereit R. 2001. Modal particles and their functional equivalents: A speech-act-theoretic approach. – *Journal of Pragmatics* 33.9: 1391–1417.
Wharton T. 2009. *Pragmatics and non-verbal communication*. Cambridge.
Wilson D. 2011. The conceptual-procedural distinction: Past, present and future. – Escandell-Vidal V., Leonetti M., Ahern A. (eds.). *Procedural meaning: Problems and perspectives*. [vol. 25. Current Research in the Semantics/Pragmatics Interface]. Bingley: 3–31.
Wilson D., Sperber D. 1993. Linguistic form and relevance. – *Lingua* 90.1/2: 1–25.
Wilson D., Wharton T. 2006. Relevance and prosody. – *Journal of Pragmatics*. 38.10: 1559–1579.
Winterstein G. 2012. What but-sentences argue for: An argumentative analysis of *but*. – *Lingua* 122.15: 1864–1885.