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INDETERMINACY IN VERBAL COMMUNICATION: A RELEVANCE-THEORETIC ANALYSIS OF APHORISMS

Abstract

Indeterminacy of meaning, which has to do with vagueness of the underlying speaker's intention, is a pervasive phenomenon in human communication, but researchers hardly ever address the issue, as it is notoriously difficult to account for. The relevance-theoretic notion of weak communication offers a viable explanation of how this phenomenon can be approached. This paper argues that weak communication and its satellite, that is, poetic effects, prove particularly useful to account for how aphorisms work. The focus is on showing that the process of aphorism comprehension, underlain by meaning indeterminacy, and certain intrinsic characteristics of the genre find a reasonable and comprehensive explanation when looked at through the lens of Relevance Theory.

1. Introduction

It is one of the important strengths of Relevance Theory (RT) that it enables a unitary account of communication that aims at conveying fully determinate and very precise meanings as well as communication the results of which are transparently indeterminate. While most pragmatic frameworks focus on relatively straightforward and tangible effects of communication, RT predicts that there may be an element of vagueness inherently involved in the meaning that communicators intend to convey (Sperber, Wilson 1986/95: 56), so – unlike other models – it does not idealize away these aspects of human communication and language use which are difficult to handle (Sperber, Wilson 2005, 2015). Instead, it attempts to penetrate their nature and puts forth a plausible, coherent and explicit explanation of what may be involved.

Thus RT offers a theoretical approach that makes it possible to adequately explain vaguer aspects of communication in a fairly precise way.

A relevance-theoretic analysis of aphorisms, whose meaning tends to be quite elusive, will be carried out here. The major focus will be on showing how indeterminate meanings of aphorisms can be explained in the relevance-theoretic approach. It will be argued that modelling the interpretation of aphorisms in terms of weak communication, a concept unique to RT, elucidates the subjective side of aphorism comprehension, helps to delineate the inferential paths that recipients may take in processing verbal input of this type, and explains why interpreters find it notoriously difficult (if not impossible) to explicate how they understand an aphorism. After a brief characterisation of aphorisms and a preliminary discussion of the underlying indeterminacy of what they mean is presented in Section 1, in Section 2, I outline the relevance-theoretic account of meaning indeterminacy, introducing the notion of weak communication as pivotal to explain vaguer aspects of verbal comprehension. In Section 3, the examples of aphorisms introduced in Section 2 are re-analysed along the relevance-theoretic lines. I argue that the nature of aphorisms and the cognitive effects they create can be fruitfully explored and adequately accounted for on this approach. Section 4 offers concluding comments.

2. Aphorisms

Aphorisms have been chosen for the analysis here, because it is widely recognised that what they convey is quite difficult, if not impossible, to specify, so their meaning appears, par excellence, indeterminate. As Morson (2003: 423) aptly puts it, "[t]hey gesture beyond themselves, and the white space that follows seems a part of them. They are momentary probes, or flashes that die out before we have quite made out what they reveal." Before a relevance-theoretic analysis of how the interpretation process of aphorisms might proceed is embarked on, it seems useful to define the term "aphorism" and characterise the effects that aphorisms evoke.[1]

As is often the case with literary genres, aphorisms are notoriously difficult to define. Drawing up a borderline between aphorisms and other similar short forms like proverbs, maxims, wellerisms, etc., is virtually impossible (Ángel-Lara 2011; Geary 2005). To quote Morson (2012: 4), "there is no agreed-upon definition of terms such as 'aphorism', 'saying', 'apothegm', or 'maxim'. Aphorisms sometimes include all short works, sometimes just those examples that have an author, and sometimes only a small subset that may be variously identified either by tone, form, or idea. One man's aphorism is another man's maxim."

In effect, depending on the research perspective adopted and specific objectives pursued, various scholars focus on different characteristics of the aphorism. Since the present discussion is concerned mainly with describing the "ticking mechanism"

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[1]   In fact, the suggestion that I should begin with this was made by one of the reviewers of the paper.

of aphorisms along relevance-theoretic lines, a rather informal definition of the notion will be adopted. Aphorisms will be defined here as pithy mini-texts, usually confined to one sentence or clause, through which the author comments on some universal truths or important aspects of human existence (cf., among others, Geary 2005; Gross 1983; Kuźniak 2005; Stephenson 1980; Wolf 1994). This definition highlights the most significant structural (that is, related to form) and functional (that is, linked to the philosophical and anthropocentric meaning) characteristics of aphorisms. Being mini-texts, they constitute autonomous, self-contained textual units. This appears quite essential here, in that all the contextual information needed to understand an aphorism is contained in its text itself. Therefore, while an aphorism may be embedded in a larger discourse, and, for instance, be a part of a novel, a play, or a conversation, it *stands out* from whatever precedes and follows it, so it can be (and frequently is) easily isolated, cited as such and will make full sense when extracted from a larger body of text.

Here is a small random selection of aphorisms chosen for the present analyses from a collection by an eminent Polish poet and satirist Stanisław Jerzy Lec, who is widely recognised as the virtuoso of the genre:[2]

(1) No snowflake in an avalanche ever feels responsible.

(2) Cannibals prefer men who have no spines.

(3) An Achilles' heel is often hidden in the jackboot of a tyrant.

(4) Most of the sighs we hear have been edited.

(5) In the beginning was the word, silence was created later.

These wise sayings appear fertile with meaning and it is quite a tall order to clarify what each conveys. However, a brief informal survey among my English native-speaker friends reveals that, when challenged to spell out how they understand what a given aphorism means, people tend to interpret (1)–(5) to deliver (roughly) the following (for each aphorism, a conceivable intuitive reading of the overall meaning is presented in square brackets):

(1) No snowflake in an avalanche ever feels responsible.
     [When involved in some collective action, an individual hardly ever feels responsible for the outcomes, especially when they are disastrous]

(2) Cannibals prefer men who have no spines.
     [People who have no strict values and moral standards that they adhere to are easy to exploit]

(3) An Achilles' heel is often hidden in the jackboot of a tyrant.
     [People tend to hide their weaknesses by appearing strong, uncompromising, even brutal]

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2   All the examples come from an English translation of Lec's collection entitled *More Unkempt Thoughts* (1968, translated by Jacek Gałązka) available at https://www.tsbvi. edu/braille/books/moreunkempt1.brf (last access: December 2015).

(4)   Most of the sighs we hear have been edited.
      [The emotions that people express are hardly ever spontaneous; they are usually intended to achieve premeditated goals]

(5)   In the beginning was the word, silence was created later.
      [Words are powerful and can provide salvation, but so can silence: divine and sacred][3]

Needless to say, the meanings listed above should not be viewed as shared by (or even acceptable to) all potential interpreters reading the aphorisms under scrutiny. As hinted at earlier, only an approximation to the interpretations that readers may come up with can be provided. Full, carefully thought out interpretations will certainly go beyond the suggestions above and may embrace more content. After all, as Morson (2003: 413) judiciously remarks, "[t]he aphorism, like the god's sign, does not contain but points beyond itself, step by potentially endless step. It is a mystery." Aphoristic meanings inevitably tend to be obscure. Besides, grasping what the aphorist is communicating and spelling it out in black and white are two different things: the richness of meaning that the reader is exposed to may have to do with a peculiar kind of cognitive overload effect (see Section 4), and in consequence, the intellectual outcome appears ineffable. It thus appears that an aphorism's meaning can sometimes be captured, but it cannot be easily expressed in words. Apart from the elusiveness of meaning and problems with expressing what one has managed to make out, undeniably there will also be differences across various individuals trying to make sense of the sayings, with some interpretations for (1)–(5) probably departing significantly from what is proposed above: one of the essential features of aphoristic sentences is that they generate very subjective responses.

    All this raises a number of questions that should be answered by a pragmatic theory that seeks to explain vaguer forms of verbal communication in general, and to describe the anatomy of aphorisms in particular. How can the unparaphrasability of aphorisms be accounted for? How does it happen that aphorisms convey so much by saying so little?[4] How can the fact that they may yield dissimilar and divergent interpretations across different speakers be explained? Most pragmatic models appear to shun questions and problems that go beyond relatively straightforward and determinate meanings that are communicated, so they can hardly be appealed to. RT is a notable exception in this respect. As I will attempt to demonstrate in what follows, the theory predicts that sometimes the meaning intended by the communicator may be (more or less) indeterminate and provides tools to elucidate the underlying mechanisms, which can be fruitfully applied to account for the nature and interpretation of aphorisms.

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[3]   For reasons that will become more obvious later on, this interpretation is most problematic.

[4]   Even though Lec's aphorisms focused on in this paper can be seen as very artistic, traditional or folk aphorisms will not be much different as far as the richness of interpretations afforded is concerned. I would like to thank an anonymous reviewer for pointing it out to me.

3. The relevance-theoretic account of meaning indeterminacy

RT is designed to be a model of ostensive-inferential communication, that is, the type of communication involving an overt manifestation of the intention to communicate something to the audience by producing an ostensive stimulus, on the basis of which the addressee infers the intended meaning (Sperber, Wilson 1986/95, 1987, 2002, 2015; Wilson, Sperber 2004). An ostensive stimulus, for instance an utterance, is taken to make manifest to the recipient a set of assumptions, which on this approach constitute the content of the communicator's informative intention. The set of assumptions that fall under the informative intention need not consist of a list of specific assumptions entertained by the speaker and replicated in the hearer's mind as a result of utterance processing. As Sperber and Wilson (1986/95: 58) point out, "to have a representation of a set of assumptions it is not necessary to have a representation of each assumption in the set. Any individuating description may do." This means that whereas sometimes what is communicated can be identified as a single proposition or a small set of easily recognised propositions, there are situations in which speaker's intention is not fully transparent and the range of assumptions backed by this intention is not easy to delineate. In such cases, "what the communicator intends to make manifest is partly precise and partly vague" (Sperber, Wilson 1986/95: 59), that is why in effect, there are potentially a few viable hypotheses about the intended meaning and the interpreter is not expected to choose a specific one, because there is none to be singled out (Carston 2002: 20–21). Since human communication is thus claimed to result in more precise or less precise cognitive effects, which affects its strength, in RT communication is taken to be a matter of degree, as it can be stronger or weaker (Sperber, Wilson 1986/95, 2008, 2015; Wilson, Sperber 2004).

How is utterance interpretation hypothesised to proceed in RT? How are the cognitive effects recovered? Assuming that human cognition is attuned to maximising relevance of incoming information (as the *Cognitive Principle of Relevance* posits) and that the utterance (or any other ostensive stimulus) comes with a guarantee that it is worth the audience's processing effort and is the most relevant one compatible with the communicator's abilities and preferences (the *presumption of optimal relevance*), Wilson and Sperber (2004) formulate the relevance-guided comprehension heuristic (first suggested in Sperber, Cara, Girotto 1995). This heuristic is claimed to underlie utterance interpretation and explain how the hearer arrives at the speaker-intended meaning. It instructs the interpreter to "[f]ollow a path of least effort in computing cognitive effects, test[ing] interpretive hypotheses (disambiguations, reference resolutions, implicatures, etc.) in order of accessibility" and to stop as soon as his expectations of relevance are fulfilled (Wilson, Sperber 2004: 613; Sperber, Wilson 2012: 7). In order to illustrate what is actually involved, let us look at a brief exchange in (6):

(6)   a.   Peter: Was the meeting long?
        b.   Mary: Yes, it was very long.

Assuming that Peter's question is about a particular departmental meeting that took place earlier on the day when they are talking, in interpreting Mary's answer, Peter takes (6b) to mean that the meeting he asks about took very long: "it" is easily identified to refer to the meeting he manifestly has in mind. This is where the path of least effort aimed to achieve satisfying cognitive effects takes Peter: it is on this interpretation that the utterance attains optimal relevance (Sperber, Wilson 1986/95: 144–145, 156–157). As it happens, there is just one mutually manifest assumption that is communicated by Mary, so (6b) is an example of strong communication.

The situation changes if Mary answers Peter's question indirectly. Let us consider (7) now:

(7) a. Peter: Was the meeting long?
     b. Mary: Hilda was in the chair.

As before, Mary's answer will achieve optimal relevance by providing information about whether the departmental meeting which was held on that day lasted long and is intended to be processed as such. By explicitly stating that Hilda was in the chair, Mary answers Peter's question indirectly, manifestly assuming that he will easily make out the intended interpretation. The interpretation involves recovering the implicated meaning: (7b) makes a number of background assumptions highly accessible to Peter and by processing these together with the explicit meaning of (7b), he will generate the intended implicit import of Mary's utterance. Let us stipulate, for the sake of the argument, that the background assumptions that processing (7b) makes salient in Peter's mind are similar to those in (8).

(8) a. If Hilda is in the chair, a meeting lasts twice as long as it usually does.
     b. Hilda likes to depart from the agenda.
     c. Many people find long meetings very annoying.

By making the premise such as (8a) highly salient to Peter, Mary manifestly intends him to draw the conclusion that the departmental meeting lasted very long, much longer than on average. This is a strong implicature in this context, as without drawing it, Peter could not treat Mary's utterance as optimally relevant. At the same time, Mary encourages her interlocutor to recover some further cognitive effects, otherwise she should have replied directly and saved him some mental effort. So the answer in (7b) not only implicates that the meeting lasted very long, but also makes highly accessible to the hearer a range of further implicit conclusions to be drawn, for instance, that Hilda probably made a lot of digressions during the meeting and many people were very annoyed, etc.[5] In fact, these further implicatures are only weakly implicated: the speaker encourages the hearer to draw some implications

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[5] As will be explained more thoroughly in the course of discussion in Section 4, it is the encyclopaedic entries attached to concepts encoded by the words used by the speaker that provide access to assumptions stored in the interpreter's memory.

of this sort, but her manifest informative intention does not endorse any specific ones to be generated. In other words, the communicator evidently wants the addressee to draw some further implications, but there is apparent indeterminacy as to which ones are intended. Therefore, it is up to the interpreter which of the implications that become manifestly salient due to his processing of the utterance in (7b) he will compute. These implicatures are assumed to be weakly communicated by Mary. Thus weak communication occurs when the speaker's informative intention is (at least partly) indeterminate.

To recapitulate, in the case of strong communication, the relevance-driven comprehension heuristic leads the interpreter to recover a determinate, specific assumption or an easily identifiable set of assumptions that are being conveyed, all manifestly endorsed by the speaker's intention. When communication is weaker, by following the path of least effort the addressee will arrive at one or two assumptions strongly backed up by the speaker's intention and a few assumptions which are not so evidently supported by the communicator but which the comprehender is encouraged to access, since the strongly communicated ones do not provide adequate gratification for the effort incurred. In cases of very weak communication, the comprehension heuristic will return a vast array of assumptions, none of which will be strongly warranted by the speaker's intention, but it will be mutually manifest to the communicator and her audience that the latter is expected to access some of them in the process of utterance interpretation so as to reach a satisfactory level of relevance. The weakest forms of communication create what Sperber and Wilson refer to as *poetic effects*. How poetic effects originate will be discussed on the basis of a relevance-theoretic analysis of aphorisms.

4. Interpreting aphorisms: a relevance-theoretic approach

A special effect created when "a wide array of weak implications which are themselves weakly implicated" are conveyed in verbal communication is called by Sperber and Wilson (2008: 100) a *poetic effect*. Aphorisms with their laconic form and rich meaning potential appear particularly suited to demonstrate how poetic effects work. Let me show how the examples of aphorisms introduced in Section 2 above, and repeated below in (9–10) for the reader's convenience, can be analysed along the relevance-theoretic lines.

(9) No snowflake in an avalanche ever feels responsible.

(10) Cannibals prefer men who have no spines.

(11) An Achilles' heel is often hidden in the jackboot of a tyrant.

(12) Most of the sighs we hear have been edited.

(13) In the beginning was the word, silence was created later.

As indicated above, on the relevance-theoretic approach it is posited that processing each of the aphorisms in (9)–(13) will result in a number of assumptions becoming available in the recipient's mind. This occurs because each of the concepts that are encoded by the words used in the aphorism is assumed to provide access to encyclopaedic information stored in the individual's memory (Sperber, Wilson 1986/95: 86). The encyclopaedic entry attached to concepts is a deposit of background knowledge about entities, actions, locations, properties, etc. that the concept denotes, which includes "commonplace assumptions, scientific information, culture-specific beliefs and personal, idiosyncratic observations and experiences. Some of this information may be stored as discrete propositional representations, some of it may be in the form of integrated scripts or scenarios (…), and some may be represented in an analogue (as opposed to digital) format, perhaps as mental images of some sort" (Carston 2002: 321). It is assumptions of the encyclopaedic type enabled by the concepts encoded by the words and phrases used in the aphorism that form the basis for the interpretation of the adage.[6]

How does this mechanism work in practice? In processing (9), assumptions about SNOWFLAKES, AVALANCHES, FEELING RESPONSIBLE as well as possibly some others that cross-referencing among the encyclopaedic entries of these concepts will bring to the fore, become salient in the interpreter's mind. In effect, a number of implications arise, possibly not unlike those in (14a)–(14e) below:

(14) a. Snowflakes are pieces of frozen water which are microscopic and very ephemeral.
      b. An avalanche is a rapid flow of huge masses of snow at high speed.
      c. Avalanches are extremely powerful and may not only kill people, but also destroy huge trees and houses.
      d. There must be millions and millions of tiny particles of snow in an avalanche, each of them contributing to the avalanche effect.
      e. You feel responsible for something only if you know that you control the process and the outcomes.
      f. It is easy to shed responsibility if you are one of many involved.

Having access to encyclopaedic assumptions of this kind, the interpreter may infer that in the same way in which we hardly realise that the destructive power of avalanches is generated by masses of infinitesimal snowflakes, very many individuals participating in an enterprise may not feel responsible for the end result, though in fact each of them contributes to it, in the same way in which each of the indiscernible flakes of snow contributes to an avalanche. Thus expanding the initial range of background assumptions and bringing in some others, the recipient of the aphorism may conclude that being one of very many involved in doing something may give you a false impression of not being accountable for the outcomes, especially when these are negative.

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[6] A literature specialist will certainly discern elements of allegory, creative metaphor, imagery, symbolism, etc. in some of the examples in (9)–(13), but these will not be much exploited here: my major concern is to describe and elucidate general inferential processes that a naïve reader might follow.

Similarly, by exploring the assumptions that the concepts evoked by words in (10) and (11) make available, some of which may resemble those listed below in (15a)–(15e) and (16a)–(16e) for illustrative purposes, the interpreter may infer the meaning implicitly conveyed by the two aphorisms.

(15) a. Cannibals eat the flesh of other humans.
      b. Cannibals are savage.
      c. Boneless meat is always preferable to meat with bones.
      d. People without a backbone lack courage and determination.
      e. Weak and timid people are much easier to control and manipulate.

(16) a. Tyrants are infamous for their despotism and cruelty.
      b. Highly aggressive individuals are known to be hiding their weaknesses and frustrations.
      c. An Achilles' heel is someone's weakness.
      d. Weak individuals tend to show toughness and power to hide their weaknesses.
      e. People often pretend to be somebody else than who they are deep down.

In the case of (10), the interpretation may be that people who are weak in character and easy to manipulate are often an easy prey to vicious and violent individuals. The aphorism in (11) may be taken to mean that tyrants hide the weaknesses that they have by acting aggressively and cruelly. Whatever it is, this kind of overall meaning emerges from the set of background assumptions made manifest to the reader. The crucial thing is that what the interpretation amounts to will invariably depend on the encyclopaedic information stored under the concepts evoked, which – as remarked on earlier – may be very different for different individuals. Importantly, those assumptions that contribute to the recovery of positive cognitive effects essential to attain the desired level of relevance will be necessarily accessed (hence, for example, (15c), which secures access to (15d) and (15e) contributing to overall relevance, features in the interpretation of (10)). It may also be that quite a vast array of assumptions become at one time manifest in the interpreter's mind creating a special type of cognitive effect, referred to above as cognitive overload. This is a state of mind (and possibly a brain-state) in which a large number of assumptions become suddenly manifest or more manifest to the individual, with only some of them (and sometimes none of them) developing into full mental representations. In their totality they create a potent kind of cognitive impact (for a more thorough discussion on the cognitive overload effect, see Jodłowiec 2015.)

With reference to aphorism (12), if a range of assumptions close to those in (17a)–(17e) become salient to the reader, then he may be led to think that, according to the aphorist, quite often by sighing people deliberately and purposefully, albeit not straightforwardly, communicate their emotions, frequently in order to achieve a calculated effect.

(17) a. Sighs are audible breaths.
      b. Sighs may express relief, tiredness, sadness, and other, usually negative, emotions.
      c. Sighs are usually emitted automatically, spontaneously and unintentionally.

    d. If something is edited, it is purposefully presented in a certain way.
    e. Texts or materials are edited for specific audiences to achieve particular goals.

In the same manner, there are a number of assumptions that become accessible to someone processing the aphorism in (13). This time they are, on the one hand, assumptions about how the word may be seen as a powerful creator of reality and how words have a rich symbolic potential, but on the other hand, assumptions concerning words generating not much more than noise, which makes silence something more important and superior. The obvious allusion to the Gospel of John 1:1 brings in intertextual considerations,[7] and adds extra layers of depth to this aphorism, which I will not attempt to explore here: my objective is to show *how* aphorisms communicate meaning rather than explain in detail what this meaning actually is. It is important to observe that the clash in implications brought to bear on the interpretation in the case of this aphorism reveals a paradox – a device often employed by aphorists (and traceable also in the other aphorisms discussed above).

    As the above discussion hopefully shows, the inherent characteristic features of the genre find a natural and plausible explanation when aphorisms are analysed along relevance-theoretic lines. In a nutshell, what aphorisms communicate is intrinsically vague and partly indeterminate, because they belong to the weak end of the strong–weak communication continuum. The phrasing of an aphorism is crucial: the words deliberately chosen by the aphorist provide access to a gamut of assumptions vital for the interpretation of an aphorism. Since the content of encyclopaedic entries in the concepts evoked is inevitably different for different people, these interpretations will tend to be idiosyncratic. The cognitive impact of an aphorism is taken to depend on the range of the assumptions brought to bear on the interpretation process and the cognitive effects that a given recipient finds satisfying.

    The description of aphorism comprehension in terms of weak communication affords significant insights into how it is possible that aphorisms communicate in the way they do. The crux of the issue is that apparently all that the aphorist wants to achieve is to affect the thoughts of the audience and to drive these thoughts in a certain direction (cf. Sperber, Wilson 1986/95: 60, see also Sperber, Wilson 2015). There is an evident indeterminacy as to the underlying communicator's intention, and, as a result, there is indeterminacy as to the actual implicatures that the author endorses, with no predetermined range of implications that the recipient will be intended to generate. This suggests that weak communication is necessarily involved and the responsibility for the meaning recovered is to a large extent shared by the reader (cf. Wilson's 2011 remarks on the interpretation of literary texts).

    As emphasised above, this model of aphorism interpretation predicts that the poetic effect generated when the aphorism is being processed may bring about a kind of cognitive overload in the recipient's mind: a sudden accessibility of a range of assumptions may prove relevant enough for the reader who will not go with the

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[7]   I would like to thank one of the reviewers for indicating that this aspect of interpreting (13) should be emphasised.

interpretation any further. This means that an optimally relevant interpretation will sometimes be achieved as soon as a big number of assumptions, just flashing through his mind, have become manifest to the recipient with only one or two of them, or without any of them as the case may be, obtaining the status of mental representations. If this happens, the reader may not attempt to draw specific conclusions from what he is exposed to, but will be satisfied with his thoughts being stirred, so to speak. Under the circumstances, the intention of the aphorist, as relevance theorists will argue, can be thought of in terms of changing the cognitive environment of the audience, that is, "their possibilities of thinking" (Wilson 2011: 70; cf. also Sperber, Wilson 2015).

This explains the elusiveness of meaning, which, as indicated earlier, is an essential feature of the genre. By and large, the meaning of figurative language tends to be difficult to spell out, and more often than not, trying to paraphrase it is tantamount to killing the effect that the poet or playwright aims to achieve. In the same vein, even though in the analyses above an attempt was made to list some background assumptions potentially relevant to the aphorism comprehension, they have not much more than an expository role and they do not give justice to what is actually embraced. This is due to the fact that, firstly, there will be a lot of idiosyncrasy in aphorism interpretation, as emphasised more than once above. Secondly, the array of assumptions accessed is probably much vaster than what was suggested. Thirdly, and most importantly, if the interpretation results in a cognitive overload effect, very few (if any) assumptions will actually reach the status of mental representations: increased manifestness of very many assumptions will occur instead. Reflecting on the nature of aphorisms, Geary (2005: 15–16) describes this effect metaphorically like this:

> Aphorisms are like particle accelerators for the mind. When high-energy particles like electrons and positrons collide inside an accelerator, new particles are created as the energy of the crash is converted into matter. The freshly minted matter spins out from the collision at incredibly high velocities and disintegrates again within about one millionth of a billionth of a billionth of a second. Trying to track the particles in this miniature big bang is like blowing up a haystack and trying to spot a needle as the debris flies past. Inside an aphorism, it is minds that collide and the new matter that spins out at the speed of thought is that elusive thing we call wisdom. Keep your eyes peeled or you'll miss it.

It does not mean though that the audience is always bound to be satisfied with fleeting and imprecise interpretations. Some people reach for books of aphorisms, because they seek solutions to problems of ontological nature, so they will be content only when they arrive at a more specific meaning. Also they are sometimes prepared to spend quite a lot of time to explore at depth what the aphorism means to them, ready to go beyond the initial context of immediately available background assumptions in order to expand and elaborate on the first recovered interpretation. Unlike in online communicative encounters, in which the comprehension process needs to be instantaneous and economical, interpreting literary texts, among them aphoristic output, may take as much time and effort as the reader is ready to invest.

So, as RT posits, processing constrained by the search for optimal relevance, which begins in a relatively small context consisting of immediately accessible background assumptions, may be gradually enlarged to embrace further assumptions enabled by concepts present in the initial set and then by the enlarged context and so on. "However, at a certain point in processing – which will vary from person to person and situation to situation – the cost of obtaining any further contextual implications will become too high, and processing will stop" (Wilson, Sperber 1991: 382). The expected and sufficient level of relevance in interpreting aphorisms may thus vary from individual to individual and/or from occasion to occasion.

5. Conclusion

The major goal of this paper is to show that a relevance-theoretic analysis of aphorisms provides interesting and significant answers to the queries about what "makes aphorisms tick" and how they are interpreted. Applying the relevance-theoretic notions of weak communication and poetic effect throws light on the general inferential mechanisms triggered in the recipient's mind when they read (or hear) an aphorism, as I have tried to argue. Certain pivotal properties of aphorisms, such as the rich and condensed meaning that they convey, their unparaphrasability and elusiveness, and very personal and subjective interpretations that they give rise to, find a credible and motivated explanation on the relevance-theoretic account.

As the above analyses of the interpretation underlying the processing of aphorisms hopefully demonstrate, RT offers a justification and elucidation of a margin of tentativeness in verbal production and comprehension. On the one hand, this allows illuminating insights into how language use can give rise to special cognitive effects, exploited by poets, joke-tellers, aphorists, etc. On the other hand, the approach corroborates the argument advanced by a number of researchers who point out that full explicitness in verbal communication is not only unachievable but virtually undesirable (Brożek 2014; Carston 1999, 2002, 2005, 2009, 2012; Dascal 2003, Searle 1992; Wilson 2014). The relevance-theoretic model of communication predicts that its weaker forms will be highly economical and hence fairly useful and popular, since so much more can be communicated by saying less.

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VIGILANCE MECHANISMS IN INTERPRETATION: HERMENEUTICAL VIGILANCE

Abstract

The mind has developed vigilance mechanisms that protect individuals from deception and misinformation (Sperber et al. 2010). They make up a module that checks the reliability and believability of informers and information. Vigilance mechanisms may also comprise a sub-set of specialised mechanisms safeguarding hearers from interpretative mistakes conducive to misunderstanding by triggering an attitude of *hermeneutical vigilance* (Padilla Cruz 2014). This causes individuals to check the plausibility and acceptability of interpretative hypotheses appearing optimally relevant. Relying on empirical evidence, this paper characterises this sub-set of mechanisms and suggests some avenues for future research.

1. The modular mind and comprehension

Relevance-theoretic pragmatics (Sperber, Wilson 1995; Wilson, Sperber 2004) endorses the massive modularity thesis, according to which the mind is a complex system of modules (Sperber 1994, 2001, 2005; Carruthers 2006). These are mandatory, deal with a specific type of input and perform their tasks very rapidly. Their output is the conceptual representations that the mind manipulates. Some modules involved in comprehension are the *decoding* module, which decodes linguistic input; the *pragmatic* module, which performs various types of inferences, and the *mind-reading* module, which attributes mental states like beliefs and/or intentions to our interlocutors (Wilson, Sperber 2004). Another module playing a crucial function in communication is the *social cognition* module, which computes information about

interlocutors' personal attributes (Wilson 2012). These modules are driven by the search for maximum gain in return for minimum allocation of effort and yield interpretative hypotheses about speaker's meaning.

Interpretative hypotheses are constructed through a process of *mutual parallel adjustment* of the explicit and implicit content of utterances (Carston 2002). Decoding and inference work simultaneously when parsing and disambiguating constituents, assigning reference to elements like pronouns or deictics, adjusting conceptual material through narrowing or broadening, or recovering elided material. These tasks result in the *lower-level explicature* of an utterance. This may be subsequently inserted in a conceptual schema alluding to the action the speaker is thought to perform by means of her words and/or to the attitude she is perceived to have towards the proposition communicated.[1] The output of this is the *higher-level explicature*. Both lower- and higher-level explicatures amount to the explicit content of the utterance. This may additionally be inferentially related to *implicated premises* supposed to be necessary in order to arrive at the expected *implicated conclusions*, or the implicit content of the utterance.

A hearer will only regard a particular interpretative hypothesis as the intended message – i.e. the speaker's *informative intention* – if he attributes a *communicative intention* to her – i.e. if he really thinks that the speaker intends to communicate that message. However, attributing a particular informative and communicative intention to the speaker does not involve that the hearer reaches the right interpretation and believes what she says. One thing is to infer a particular interpretation and correctly understand an utterance, while another is to give credibility to it.

2. Epistemic vigilance

Hearers are prone to believe information when they perceive their interlocutors as *benevolent* – i.e. sincere, honest – and *competent* – having a good command of the grammar and norms of use of their language (Sperber 1994; Wilson 1999). Empirical evidence reveals that this results from the operation of further mechanisms finetuned between the ages of two and four, which focus on our information sources and the information communicated, thus enabling children not to gullibly trust just any kind of information or interlocutor (Clément, Koenig, Harris 2004; Koenig, Harris 2007; Corriveau, Harris 2009; Mascaro, Sperber 2009). These mechanisms check the reliability and sincerity of communicators and the credibility of the information they give (Sperber et al. 2010). Among other relevant data and factors, such mechanisms take into account the beliefs about informers accrued from previous encounters (e.g. the degree of authority or expertise in specific matters, trustworthiness, etc.); moral commitments determining whether one should actually rely on some individuals; the reputation of individuals as informers distributed within

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[1]   Reference to the speaker is made through the feminine 3rd person singular pronoun, while reference to the hearer is made through the masculine counterpart.

a social group; signals about the speakers' competence in or knowledge about specific issues (e.g. assertiveness, seeming certainty or conviction, difficulties at finding appropriate words, frequent rephrasing, stuttering, hesitation or contradictions); speakers' gaze direction or avoidance of eye contact; the relevance of the information dispensed or its coherence with information already possessed, or emotional reactions that might condition what individuals think about others (e.g. (dis)like, sympathy, anger, etc.) (Origgi 2013: 224).

These mechanisms trigger an attitude of *epistemic vigilance* (Mascaro, Sperber 2009; Sperber et al. 2010): an alertness to the possibility of being deceived that results in a critical stance to both informers and the information that they provide (Sperber et al. 2010: 363). In other words, epistemic vigilance intervenes in communication by generating a cautious attitude that prevents individuals from being blindly, naïvely and uncritically gullible (Sperber et al. 2010; Mercier, Sperber 2011; Sperber, Mercier 2012). It moves individuals from a position of *indiscriminate trust*, where they believe information unquestioningly, or another of *gullible trust*, where they even believe information that contradicts previous personal observation, to a position of *sceptical trust*, indispensable for avoiding deception (Clément et al. 2004: 361–363).

Epistemic vigilance may be activated to varying degrees. The stronger its activation, the more deception and/or misinformation is likely to be avoided; the weaker its activation, the more individuals run the risk of being deceived and/or misinformed (Michaelian 2013; Sperber 2013). However, individuals may raise their vigilance and inspect the data and factors listed above more closely in order to be aware of the reasons why they should (dis)trust someone or some information. When they do so, they exercise *active vigilance* (Origgi 2013: 224).

3. Active vigilance and interpretation

Active vigilance involves an awareness of the heuristics deployed while processing – i.e. which inferences are made when determining if someone or some information is reliable – and the biases that might have affected it – i.e. why one reaches that conclusion. Such awareness must be of external factors, like cultural norms conditioning interaction and beliefs about other individuals and states of affairs spread throughout a milieu (*external vigilance*), and of internal factors, like moral commitments, personal norms and beliefs about other individuals and specific states of affairs, as well as emotional reactions to and biases against them (*internal vigilance*). Since these factors have an impact on what a person thinks about others or how that person treats some information, individuals need to distance themselves from the conclusions they draw about others and the information they dispense, tracing their origin and assessing the potential consequences that believing those conclusions might have. In doing so, individuals can reconstruct the inferential steps taken and the beliefs exploited while inferring. This enables people to adopt a critical attitude to them, which is essential to separate valid inferences from those that manipulation of certain beliefs, norms or biases might have yielded (Origgi 2013: 226–227).

Since exercising active vigilance and introspecting enable people to reconstruct their inferences when deciding whether to trust certain informers and information, people may also introspect and trace the inferential routes they follow when constructing interpretative hypotheses. To put it differently, individuals may bring to consciousness how and why they segment, parse and disambiguate linguistic material, assign referents, narrow or broaden concepts, recover elided material, embed lower-level explicatures under higher-level ones, use some contextual material as implicated premises or overlook another, or reach some implicated conclusions.

4. Hermeneutical vigilance

Children process ambiguous sentences rapidly and effortlessly, and construct good-enough meaning representations (Ferreira 2003). Between the ages of three and six, children have problems with interpreting, for instance, homophones (Khanna, Boland 2010). Upon suspecting misinterpretation, they resort to cues such as lexical information (Norris, McQueen, Cutler 2003) in order to evaluate the appropriateness of their interpretations, but erroneous interpretations seem to linger in their minds (Ferreira et al. 2002)[2]. Between the ages of six and eleven, children still have problems with assigning referents to pronouns, though eye movement tracking reveals that they revise initially wrong referents (Engelen et al. 2014). Eye movement also unveils that some four- and five-year olds revise interpretations of ambiguous sentences (Choi, Trueswell 2010). By the age of eight or nine, children seem to achieve adult-like processing abilities, even if they may still hesitate between competing interpretations of some types of sentences or elements therein (Lorsbach, Katz, Cupak 1998; Parault et al. 2005; Weighall 2008).

This suggests that the human mind is sensitive to inadequate interpretations. That sensitivity would progressively develop in parallel to the abilities to read other people's minds and attribute beliefs and intentions – essential for understanding, among others, irony (Wilson 2013) – or to assign credibility to informers and information (Mascaro, Sperber 2009). The frontal lobes, whose neurodevelopment requires time, would be responsible for such sensitivity. One of their components, the left inferior frontal gyrus (LIFG), seems to cope with resolution of some conflicts, among which are those of competing interpretations (Milham et al. 2001; Ye, Zhou 2009). Damage in LIFG correlates with inability to disambiguate garden-path sentences (Norris, McQueen, Cutler 2009) and underdevelopment of frontal lobes surfaces in processing problems (Woodard, Pozzan, Trueswell 2016).

Further evidence that humans develop some form of caution against misinterpretation can be adduced from the realm of humour. In puns and some jokes, humourists are aware of the potential ambivalence of some words or syntactic strings and can somehow anticipate how the audience may process them, as well as which

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[2]   Some five-year olds, in contrast, do not seem to rely on contextual information in order to revise misinterpretations.

contextual information they will use (Yus Ramos 2008). This enables humourists to cunningly guide and wittingly bias the audience to an interpretation that appears very reasonable or expectable because of its compatibility with the encoded linguistic material, the frames that the audience will very likely activate or the implicated premises that they will supply. At a certain point, however, a completely unexpected, maybe incongruous, interpretation suddenly surfaces as plausible and puzzles the audience, who might have assigned plausibility to the initial interpretation (Attardo 1993, 2014). Awareness of that new interpretation and its plausibility would be possible thanks to that caution, which enables the audience to discover the ambivalence of the text and where the humourist's wittiness and cunningness reside.

Vigilance mechanisms could therefore be thought to include a specialised cluster of mechanisms targeting interpretative processes and their outputs, which might be located in the frontal lobes, more specifically in the LIFG. Those mechanisms would check if the interpretative hypotheses constructed are plausible and acceptable, and therefore allow the hearer to arrive at the intended message. Such a cluster of mechanisms would be sensitive to flaws in interpretative hypotheses, and hence to their implausibility and unacceptability. Their sensitivity to possible mistakes in any of the tasks of mutual parallel adjustment would safeguard hearers from misinterpretation. Since epistemic vigilance protects individuals from deception, the mechanisms protecting from misinterpretation could be said to enact a form of vigilance that could be labelled *hermeneutical vigilance* (Padilla Cruz 2014). It causes individuals to test the plausibility and acceptability of interpretations before finally regarding them as intended. This cluster of mechanisms would be an evolutionary response to the need to determine the plausibility of interpretative hypotheses prior to their final acceptance (Mazzarella 2013).

5. Avenues for research

Individuals tend to adopt a trustful attitude towards others and the information they convey, so they do not constantly check if their vigilance mechanisms work and fulfil their functions efficiently. Individuals rely on these mechanisms and only check if their level of activation is adequate when they feel some risk of deception (Origgi 2013: 224). The same would be true of the mechanisms assessing the accuracy of interpretative hypotheses: on average they would be moderately activated and individuals would be confident enough that they do their interpretive tasks appropriately. Individuals would only verify that these mechanisms actually work well when they perceive misunderstanding. Likewise, their level of activation could be raised if individuals are alerted to serious risks of misinterpretation.

In argumentation, epistemic vigilance examines the validity, strength and coherence of claims and premises, and can detect fallacies and cases of deception (Mercier, Sperber 2011; Oswald 2011). Relevance theorists have recently re-analysed some *hearsay* particles and adverbials, evidential adverbials, parenthetical clauses, past participles and quotatives in some languages as devices enacting the activation of

epistemic vigilance. Such elements assist epistemic vigilance to determine whether to trust or discredit some information by indicating if the informer possesses adequate or enough evidence lending support to what is said (Ifantidou 2001; Wilson 2012; Unger 2012; Padilla Cruz [forthcoming]). Quite similarly, hermeneutical vigilance mechanisms could be alerted to the possibility of misinterpretation, even if innocuous and merely intended for the sake of amusement and enjoyment, as in some forms of humour. Stress, intonation and paralanguage, which have been analysed as elements guiding the construction of higher-level explicatures about the speaker's attitude to the proposition expressed (Wharton 2009), could also have evolved as a means to alert or over-activate mechanisms surveying interpretations and checking the correctness of interpretative hypotheses. It would therefore be insightful to investigate which tones or shifts in them, what types of gestures or facial expressions (e.g. sneers, gazes, winks, etc.) could serve this purpose in different languages and cultures.

In humour, for instance, contextual elements about which individuals may possess encyclopaedic information (e.g. the type of programme individuals are watching/listening, the type of people featuring therein, etc.), the medium where a text appears (e.g. headline, advertisement, sitcom, etc.), the type of text (e.g. a canned joke, monologue, sketch, etc.), images or accompanying discourse (e.g. phrases such as "do you know the one…?") could also be thought to alert hermeneutical vigilance mechanisms by signalling actual, potential or upcoming verbal playfulness. Additionally, textual features and elements unveiling the humorous nature of a text – lexical, semantic or syntactic ambiguities, metaphors, etc. (Attardo et al. 2011; Alvarado Ortega, Ruiz Gurillo 2012; Attardo 2014) – could similarly be argued to be exploited by hermeneutical vigilance mechanisms in order to assign plausibility to new interpretations. It would be interesting to chart which those elements are, whether they are used in specific humorous (sub-)genres, how they are perceived, their interrelation with other devices and, ultimately, their effects on the activation of vigilance mechanisms.

Exercising vigilance is no doubt necessary to overcome or avoid misunderstanding at the explicit and implicit level of communication, as hearers may reach erroneous interpretations, which accidentally appear relevant (Wilson 1999), and believe them to have been intended (Padilla Cruz 2013a). The fact that other individuals appear not to be fully competent communicators due to 'strange' or deviant behaviours may induce some hearers to wrong them and forge unfortunate stereotypes. In social epistemology, such wronging is known as *epistemic injustice* (Fricker 2007). One of its sub-types is *testimonial injustice*, which arises when individuals think that others should not be credited because of the quality of the information they supply. Another sub-type is *hermeneutical injustice*, which originates when individuals are not understood as they expect or deserve (Fricker 2006). Low level of hermeneutical vigilance may explain why testimonial and hermeneutical injustices are perpetrated: they may originate as a consequence of not revising conclusions about other individuals and their claims, which are drawn as a result of using inadequate premises in inferential processes. Future investigations could elucidate if hermeneutical vigilance mechanisms are inhibited in specific communicative contexts or by factors such as

lack of familiarity with idiosyncratic ways of speaking, differing patterns of thinking, social closeness or distance, or emotional or psychological states like sorrow, anger, illness, tiredness, absentmindedness, etc. (Mustajoki 2012).

Misunderstanding is germane to communication in a first language, but risk thereof may exponentially increase when communicating in a lingua franca (LF) or second language (L2) being learnt and not yet mastered. A small-scale qualitative study shows that not being vigilant enough led learners of Spanish and English at different proficiency levels to credit erroneous interpretations in a series of listening comprehension tasks. Not adopting a critical attitude towards the ways in which they assigned referents or disambiguated sentences, identified illocutionary force or derived implicit contents made them misunderstand their interlocutors or different texts (Padilla Cruz 2013b). If vigilance mechanisms are part of our genetically-determined equipment, they perform their tasks regardless of the language used to communicate: individuals cannot prevent these mechanisms from performing their computations. However, since vigilance needs time to develop, it might also need fine-tuning to the peculiarities of an LF or L2. Researchers could also look into how it gets adapted to them, the amount of time adaptation requires and if instruction could help.

6. Conclusion

Ever since comprehension was described as a decoding activity, great progress has been made in unravelling its complexity and intricacies. Models from disciplines like theory of mind or philosophy of mind and empirical evidence from developmental psychology reveal that a series of sophisticated mental mechanisms are put to work when constructing interpretative hypotheses leading to understanding speaker's meaning. While one of those modules performs inferences and another is responsible for belief or intention attribution, another determines whether to (dis)trust individuals and information. This work has argued that vigilance mechanisms may include a set of devices that scrutinise the adequacy and acceptability of interpretative hypotheses as a way to avoid misinterpretation. It has also suggested avenues for future research, which will certainly contribute to fuller insights into the factors influencing that series of mechanisms, how they work and, ultimately, how the mind behaves in comprehension.

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DEGREES OF PROCEDURE ACTIVATION AND THE GERMAN MODAL PARTICLES *JA* AND *DOCH* – PART 1

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

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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.

1. Introduction

In this paper I want to look at the German modal particles *ja* and *doch* in order to address the question how their modal (1–2) and non-modal uses (3–7) may be related.

(1)   Morgen gibt es ja die neuen Angebotspreise im Geschäft, da ist es besser, wenn ich morgen einkaufen gehe. [Modal use]
       'Tomorrow, the new sales prices apply, so it is better that I go shopping tomorrow.'

(2)   Es ist doch kein Problem, wenn ich morgen erst einkaufen gehe. [Modal use]
       '(After all,) it's not a problem if I go shopping only tomorrow.'

(3)   A: Kannst du morgen einkaufen gehen?
       A: 'Can you go shopping tomorrow?'
       B: Ja. [Non-modal use as affirmative response particle]
       B: 'Yes.'

(4)   Heute betrachten wir noch eine weitere Theorie der Diskursanalyse. Ja, es ist ver-wirrend, so viele Theorien kurz hintereinander zu behandeln. [Non-modal use as emphasis marker]
       'Today, we look at yet another theory of discourse analysis. It is indeed confusing to deal with so many theories in a short time.' ('Yes, it is (indeed) confusing…')

(5)   Ja, kannst du denn nicht MORGEN einkaufen gehen? [Non-modal use as question introducing particle]
       'Well, can't you go shopping **tomorrow**?'

(6)   A: Kannst du denn nicht morgen einkaufen gehen?
       A: 'Can you not go shopping tomorrow?'
       B: Doch, das kann ich auch. [Non-modal use as corrective response particle]
       B: 'Yes, I can do this, too.'

(7)   Es gibt eine verwirrende Anzahl von Theorien über Modalpartikeln. Doch um einen Überblick zu bekommen, reicht es, die zwei wichtigsten zu betrachten. [Non-modal use as contrastive particle]
       'There is a confusing number of theories about modal particles. But in order to gain an overview, it is enough to look at two of the most important ones.'

Virtually every scholar researching these particles states that the modal and non-modal uses of the respective particles are so different in nature that different types

of analyses are needed to explain them. In fact, a widespread view is that every modal particle has a non-modal homonym (see e.g. Abraham 1991). On the other hand, the same scholars point out that there are strong intuitions that the modal and non-modal uses of the particles in question are somehow related. Against this background, the question about the relation between the modal and non-modal uses of particles has become one of the most central ones for theoretical accounts to solve. But apart from Waltereit's (2001) polysemy account and Blass' (1990) relevance theoretic unitary account of the modal particle *auch*, no detailed answers to this question have been given so far. In a programmatic article, König (1997) argues that a unitary account of the relation between modal and non-modal uses of particles may be possible on the basis of relevance theory. However, previous relevance theoretic accounts of *ja* and *doch* have not yet advanced to the state where a solid unitary account could be provided (Blass 2000, 2014). In this paper I argue that a unitary account may be available by appealing to essentially non-representational properties of the theory of procedural meaning in relevance theory. 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 relevance theoretic comprehension heuristic will use these procedures in the course of utterance interpretation. Following Blass (2000, 2014), I would like to suggest that *ja* and *doch* trigger a procedure to raise the manifestness 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* can be accounted for in terms of differences in the degree to which the activation level is raised: non-modal uses of *ja* and *doch* raise the activation of the manifestness procedure to a high degree, whereas modal uses raise this procedure's activation level to a low 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. These properties are most typically present 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.

This paper is organized as follows: in section 2 I will review previous approaches to modal particles in German, in particular considering their relation to the indication of common ground. In the next two sections, I will present data from qualitative corpus research on *ja* and *doch* in the *Deutsches Referenzkorpus* maintained at the Institut für Deutsche Sprache in Mannheim. In section 5, I introduce the central theoretical notions of procedural meaning and mutual manifestness. In section 6, I will develop my proposal for a unitary analysis of *ja* and *doch* in detail. I explain the details of the proposal in 6.1, compare it to other procedural accounts of modal particles in 6.2 and discuss predictions and linguistic evidence for these predictions in 6.3. I conclude with a summary of the main points and some suggestions for further experimental testing.

2. Modal particles in German

German (and other Germanic languages) has a set of particles with the following salient features: they occur in sentence internal position, i.e. after the finite verb and before the non-finite part of the verb (if there is one); they are typically unstressed in this position. The functions of these particles are particularly difficult to pin down: they are most often untranslatable into languages like English, their meaning cannot be described in conceptual terms, and they do not appear to affect the truth-conditions of the sentence uttered.

While this simplified characterization of salient properties provides a useful heuristic for identifying modal particles, König (1997) provides a fuller list of negative and positive criteria:

(8)   Properties of modal particles

Negative criteria **Modal particles…**	*Positive criteria* **Modal particles…**
	occur in the middle field
cannot occur pre-verbally	occur before the rheme
cannot be focused	occur after all pronominal elements
cannot be questioned	occur only in some sentence moods
cannot be coordinated	multiple modal particles may
do not affect truth conditions	occur in one sentence
	occur mostly in spoken language

Particles with these properties have been called *modal particles* (Modalpartikeln) or *colouring particles* (Abtönpartikel). The particle *ja* is one of this class, and I will illustrate the properties of modal particles with *ja*:

(9)   Peter kann ja   auch   morgen   einkaufen gehen.
       Peter can   MP as.well tomorrow shopping go.
       'Peter can go shopping tomorrow as well.'

Example (9) shows that it is not possible to find a corresponding particle in English. Moreover, the translation seems fine without a literal rendering of *ja*. Whatever the effect of *ja* in German, it does not seem to be possible to replicate this in English with an explicit rendering.

Example (10) illustrates the syntactic position of *ja* in the middle field. The finite verbal element is underlined and the non-finite one is in italics:

(10) a. Peter <u>ist</u> ja aus lauter Zerstreueung nach Hause *gegangen*.
          Peter is MP out. of much absent-mindedness to home went
          'Peter went home out of great absent-mindedness.'
      b. Peter <u>ist</u> ja nach Hause *gegangen* aus lauter Zerstreuung.
      c. *Peter <u>ist</u> nach Hause *gegangen* ja aus lauter Zerstreuung.
      d. *Peter ja <u>ist</u> nach Hause *gegangen*.
      e. Ja, Peter <u>ist</u> nach Hause *gegangen*.

Whereas some material such as the phrase *aus lauter Zerstreuung* ('out of absent mindedness') may be right dislocated (particularly in spoken language), *ja* cannot move with it, as illustrated by the contrast between (10b) and (10c). Neither can *ja* move to a position before the finite verb, as shown in (10d). However, *ja* can occur in sentence initial position, but in this case the particle has a different function than the one it has in the middle field position. In (10e), for instance, *ja* has the response particle function and is rendered in English by 'yes'. (I will discuss the non-modal uses of *ja* in more detail below.)

    That modal particles cannot be coordinated can be easily demonstrated in (11):

(11)   *Peter ist *ja und sogar* nach Hause gegangen.

The non-truth conditional nature of modal particles [pointed out first by Weydt (1969)] can be seen by the fact that they do not fall under the scope of logical operators. The attempt to negate whatever *ja* contributes to the meaning of the utterance results either in ungrammaticality (example 12c) or in failure: (12a) negates the proposition PETER WENT HOME and is equivalent to (12b).

(12) a. Peter ist ja nicht nach Hause gegangen.
      b. Peter ist nicht nach Hause gegangen.
      c. *Peter ist nicht ja nach Hause gegangen.

The following examples show that *ja* does not fall under the scope of the conditional, either. Assuming that *ja* contributes the meaning that could be paraphrased as (13b), we can test whether *ja* in (13a) falls under the scope of the conditional operator by asking which of the conditions in (13c) must be true. Clearly, the truth of (13a) depends only on the truth of the premise *Peter went home*, not on the truth of (13b). Hence *ja* is non-truth conditional.

(13) a. Wenn Peter *ja* nach Hause gegangen ist, dann haben wir nicht genug Mitspieler für Monopoly.
        'If Peter *MP* went home, then we don't have enough players for a monopoly game.'
      b. It is common knowledge that Peter went home.
      c. Wenn Peter nach Hause gegangen ist und das gemeinsames Wissen ist, dann haben wir nicht genug Mitspieler für Monopoly.
        'If Peter went home and it is common knowledge that Peter did so, then we don't have enough players for a monopoly game.'

Modal particles precede the rheme of the uttered sentence, as can be seen by the fact that the material that answers question (14a) occurs after the modal particle *ja* in (14b):

(14) a. What did Peter do?
      b. Peter ist *ja* nach Hause gegangen.

Another property on the list in (8) is that modal particles follow all pronominals in the sentence. Consider (15): the only appropriate response to the question in (15a) is (15b).

(15) a. A: Peter wollte   doch unbedingt   einmal die Queen sehen. Wir müssen
          A: Peter wanted MP by.all.means once   the queen see.   We   must

          ihm sagen, dass morgen   eine einmalige Gelegenheit dafür   ist.
          him tell   that tomorrow a   singular   opportunity for.this is.

          A: 'Peter desperately wanted to see the Queen once. We must tell him that tomor-
          row there will be a unique opportunity for this.'
      b. B: Peter hat sie ja schon gesehen.
          B: Peter has her MP already seen.
          B: Peter has already seen her once.
      c. B: ??Peter hat ja sie schon gesehen.
      d. B: ??Peter hat ja schon sie gesehen.

The examples in (16) show two points: first, it is not possible to use any of these
interrogatives to question the unique contribution of *ja*. In particular, neither (16a)
nor (16b) could be used to ask *Is it common knowledge that Peter went home*. Sec-
ond, these examples show that *ja* cannot occur in interrogative sentences. This il-
lustrates the fact that modal particles are restricted in their distribution to certain
sentence moods.

(16) a. ??Ist Peter *ja* nach Hause gegangen?
          Did Peter *MP* go home?
      b. ??Weisst du, ob *ja* Peter nach Hause gegangen ist?
          Do you know whether *MP* Peter went home?

(17) a. Peter ist *ja auch* nach Hause gegangen.
      b. Dass Peter nach hause gegangen ist, ist *doch aber auch* wirklich die Höhe!
          That Peter went home is really outrageous!

As Schoonjans (2013) discusses in detail, these criteria do not always deliver clear
results. Consider, for instance, the criterion that modal particles are unstressed.
While this is true for modal *ja* in declarative sentences, the same particle receives
stress in imperatives:

(18) Pass **ja** gut auf!
      Pay close attention!

Is this an instance of the modal use of *ja*? Abraham (1991) affirms this and includes
this stressed *ja* in the class of modal particles, whereas Lindner (1991) does not.
Gutzmann (2010) discusses these uses in detail and argues that they are indeed
instances of modal uses. However, the stress they receive is not focal stress, rather it
is an indicator for a *verum focus* operator, a kind of non-contrastive focus expressed
on the finite verb or complementizer in German that puts the truth of the proposi-
tion expressed by the utterance in focus (Höhle 1992). In other words, these uses
do not invalidate the criterion given in (8) that modal particles cannot be focused;
some modal particles may in some uses receive stress, but this stress does not trigger
contrastive or constituent focus interpretations.

Because of problems with the mechanical application of intensional criteria for modal particle identification, König (1997) argues that the class of modal particles is better characterized in extensional terms by listing its members. He suggests the following list of modal particles:

(19) aber, auch, bloss, denn, doch, eben, eigentlich, einfach, halt, ja, mal, nur, ruhig, schon, vielleicht, wohl.

However, Schoonjans (2013) shows that an extensional characterization of modal particles is likewise problematic. He surveyed 11 studies of German modal particles published between 1975 and 2010 and found that only 8 particles are listed as modal particles in all of these publications, listed in (20). In total, these studies list the 21 particles in (21) as modal particles.[1]

(20) bloss, denn, doch, eben, ja, mal, nur, schon

(21) aber, auch, bloss, denn, doch, eben, eh, eigentlich, einfach, etwa, erst, halt, ja, mal, nicht, nur, ruhig, schon, sowieso, vielleicht, wohl.

While this suggests some considerable disagreement about what elements the class of modal particles contains, a closer look at Schoonjans' survey reveals that among the works published since 1989 there appears to be a fairly good consensus that the class of modal particles contains the items on König's list in (19). Gutzmann (2009, 2010, 2015) cites the following list from Hartmann (1998: 660), which differs minimally from König's:

(22) aber, auch, bloss, denn, doch, eigentlich, eben, etwa, einfach, erst, halt, ja, nun, mal, nur, schon, vielleicht, ruhig, wohl.

However, the list remains unstable as suggestions for adding items continue to be made [see, for instance, Pittner's (2009) detailed proposal to add *wieder* to the list of modal particles].

As König (1997: 57–58) points out, these lists of modal particles overlap with lists of other word classes and particle types:

(23) a. Adjectives and adverbs: doch, etwa, vielleicht, wohl, einfach ruhig, mal, nun (nun-mal), halt, eben
      b. Focus particles: erst, auch, nur, bloss, schon
      c. Conjunction particles: aber, denn
      d. Response particles: ja, eben.

This overlap is widely regarded as resulting from the historical development of modal particles, which appear to be the end point of a grammaticalization process that started with words of different classes (Burkhardt 1994; König 1997: 58; Traugott 2007; Waltereit, Detges 2007; Pittner 2009; Zeevat, Karagjosova 2009). However,

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[1] Burkhardt (1994) lists as many as 51 modal particles in German. However, most lists stay within the range of 15–20 items.

this way of looking at the class of modal particles raises the question of how these different particle classes are related. Is it really the case that a given item such as *ja* may be simultaneously a member of different word classes? Or are there several homonymous particles such as *ja* belonging to different word classes? Or are there merely several uses of particles, e.g. modal uses of *ja* and response word uses of the same particle?

One observation that has been taken to suggest a homonymy account of modal and non-modal particles is that the same particle can occur two or more times in a simple sentence as long as the two occurrences are not of the same type (e.g. Abraham 1991: 207). Diewald (2013: 21) gives the following example for *ja*:

(24) *ja*, und dann kommt *ja* der grosse Balken, *ja?*
      JA, and then come   JA the large   beam,   JA?
      '*Okay*, and then – *we know that* – comes the large beam, *right*?'

Although Diewald does not quote any co-text and does not describe any situational context for this example, one can easily imagine this sentence being uttered in a situation where the speaker (let's call her Petra) and her addressee (let's call him Michael) are in the process of putting up a pre-fabricated garden booth. Michael just asked whether they should execute a certain step in the instructions. Petra responds with (24). The first *ja* is used as the indication of an affirmative response ('yes'). The continuation of the utterance expresses her statement that the next step would be to handle the large beam. *Ja* inside this sentence is a modal particle, indicating that Petra believes this statement to be common knowledge (presumably because Michael and Petra have discussed the instruction manual previously). The tag particle *ja* (with rising intonation), however, indicates that she is asking for reassurance whether her statement is in fact correct.[2]

Finally, a property of modal particles that is pointed out at least since Lütten's (1979) study of *doch*, *ja* and *eben* is that the proposition(s) they operate on are to be taken as common ground, as uncontroversial among the communicators. Later studies claim that this is not only a property of some modal particles, but a property of modal particles as a class (Fischer 2006; Degand, Cornillie, Pietrandrea 2013; Repp 2013). Thus, in example (15b), *ja* indicates that the communicator assumes that it is common knowledge and uncontroversial between communicator and audience that Peter has already seen the Queen some time in the past (but that the audience needs to be reminded of this).

Having reviewed the properties of German modal particles in general, I will now turn to a closer examination of the properties of *ja* and *doch* in particular. Unless otherwise indicated, the data for this discussion is taken from the *Deutsches Referenzkorpus* maintained by the *Institut für Deutsche Sprache* in Mannheim.

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2   In some dialects, the tag question would be expressed with (phonological variants of) the expression *nicht wahr* rather than *ja*.

3. *Ja*

3.1 Sentence initial *ja*

3.1.1 Response particle

Ja can be used as a response particle to indicate that the communicator gives a positive answer to a question. Example (3), repeated here as (25), illustrates this use:[3]

(25) A: Kannst du morgen einkaufen gehen?
      B: Ja. [Non-modal use as affirmative response particle]
      A: Can you go shopping tomorrow?
      B: Yes.

In the following example, the sentence introduced by *ja* can be understood as an indirect quotation of an answer given by the interviewee:

(26) Die 50er Jahre. *Ja*, da brummte es im Quartier. Der Niedergang begann erst später – etwa 1995, "mit dem Aussterben der zweiten Mieter-Generation", weiß Heimatpfleger Hartmut Alder.
      The 1950ies. Yes, it was lively in this neighborhood then. The decline started late – roughly in 1995 "with the dying out of the second generation of renters," as local historian Hartmut Alder knows to report. (BRZ13/JAN.07109 Braunschweiger Zeitung, 19.01.2013, Ressort: SZ-Lok; *Hier steckt die Energie überall*)

This example is taken from a newspaper report on an interview with a local historian. As such it is clear that the second sentence conveys information that is indirectly attributed to historian Hartmut Alder, who is quoted verbatim in the third sentence.

  Ja can also be used to respond to implicit questions. Consider the second instance of *ja* in (27):

(27) Eigentlich heißt es ja "mit Speck fängt man Mäuse". Ich könnte zu diesem Thema neuerdings beisteuern: Mit weißer Macadamia-Nuss-Schokolade fängt man Mäuse. Und zwar ganz schnell und unblutig. *Ja*, ich gestehe – wir hatten eine Maus im Haus.
      'The traditional saying is "one catches mice with bacon". I could add to this theme: one catches mice with Macadamia nut chocolate. And this quickly and bloodless. *Yes*, I admit – we had a mouse in the house.' (BRZ13/JAN.06395 Braunschweiger Zeitung, 18.01.2013, Ressort: Helmstedt-Lokal)

In the first four sentences, the writer claims to know rather well that one can bait mice with a non-traditional bait such as Macadamia nut chocolate. This raises an implicit question: *How does the writer know? Did s/he have a mouse in the house to catch with this method?*, to which the writer responds positively with *Ja* 'yes'.

  This use of *ja* as a response particle to implicit questions raised in the discourse can become rather complex. In the following example, the implicit questions raised appear to be rhetorical:

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3   This use is so well-known that I use an invented example for its conciseness.

(28) Es ist einfach nur kalt. *Ja*, es ist Winter, und die momentane Wetterlage ist allemal
      besser als die herbstliche Dauerberieselung, die wir noch um Weihnachten hatten, aber
      ich präferiere dann doch Temperaturen jenseits der 20-Grad-Grenze.
      'It is simply only cold. *YES (MP)*, it is winter, and the present weather is certainly bet-
      ter than the constant dripping (of rain) in autumn, but I do prefer temparatures over
      the 20-degree-point.' (BRZ13/JAN.06013 Braunschweiger Zeitung, 17.01.2013, Ressort:
      Helmstedt-Lokal)

The first sentence *Es ist einfach nur kalt* 'It is just cold' raises an implicit question
such as *Is it not winter, and isn't it good to have cold, winter-like weather?* Responding
to this implicit question initially with *ja*, the writer agrees with statements behind
these implicit rhetorical questions before elaborating on his or her complaints about
the weather (after the connective *aber* 'but').

3.1.2 Question modifier

In example (29), the sentence starting with *Ja* does not answer an implicit question
and cannot be understood as a response particle. Rather, it introduces an explicit
question that in the writer's opinion arises saliently in the discourse at this point:

(29) Und Waschbären und womöglich noch andere Tiere wagen es doch tatsächlich sich in
      unseren Gärten zu bedienen oder kommen sogar in unsere Häuser. *Ja*, woran liegt das
      denn wohl? Vielleicht daran, dass die Menschen in ihrem Nicht-genug-kriegen-können
      wesentliche Teile der Erde bereits für sich in Anspruch genommen und für die Tiere
      nicht mehr genug freie, unvergiftete Natur übrig gelassen haben?
      'And racoons and even other animals dare indeed to help themselves to food in our
      gardens or even come into our houses. *MP*, what is the reason for this? Maybe because
      people in their unending crave for possession already have claimed large chunks of parts
      of the world and did not leave enough free, unpoisoned natural habitat for animals?'
      (BRZ13/JAN.03491 Braunschweiger Zeitung, 10.01.2013, Ressort: BS-Leser; Wir müssen
      den Tieren ihren Lebensraum lassen)

Although *ja* introduces a question in (29), it does not by itself trigger the inter-
rogative interpretation. This function is carried out by word order and intonation.
Intuitively, *ja* gives more weight to the question, thereby raising the expectation
that the answer to this question is regarded by the speaker as highly significant.
What is important to notice is that *ja* contributes in some way to how the question
is supposed to be understood and cannot be seen as a variant of a response particle
use of *ja*. Since *ja* occurs sentence intially it is also not a modal use.

3.1.3 Re-assuring the audience about speaker's belief in P

Sentence initial *ja* can be used to re-assure the audience that the communicator
believes the proposition conveyed is true and encourages the audience to at least
entertain it as possibly true. Consider (30):

(30) Mir gab diese Begegnung sehr viel. *Ja*, man sieht sich im Leben meistens zweimal…
      'This meeting meant much to me. *Indeed (MP)*, one often meets twice in life…'
      (BRZ13/JAN.00691 Braunschweiger Zeitung, 03.01.2013, Ressort: WN-Lok; Zufällige
      Begegnung)

The statement introduced by *ja* has not been common ground before the utterance. Even when uttered, it is questionable whether the audience accepts it as true, so it is questionable whether it really becomes common ground. Nevertheless, the communicator claims to hold this belief and encourages the audience to do so, too.

Similarly in (31):

(31) "Wir wissen schon seit langem, dass wir immer älter werden und keine jungen Mitglieder mehr zu uns in die Kyffhäuserkameradschaft dazustoßen. *Ja*, es ist traurig und sehr schmerzhaft, euch dies mitteilen zu müssen", so Petzold, "wir kommen nicht umhin, unseren Verein auflösen zu müssen."

'"We know already for a long time that we are becoming older and young people don't join us anymore in the Kyffhäuser-club. *Yes (MP)*, it is sad and painful to announce this to you," says Petzold, "but we cannot avoid having to dissolve our club."' (BRZ13/ JAN.02198 Braunschweiger Zeitung, 08.01.2013, Ressort: Gifhorn-Lokal; Kyffhäuser in Jembke lösen sich auf)

The information marked by *ja* may have been (more or less weakly) common belief before the time of utterance – having been made manifest through the preceding text. But the main point is: the communicator guarantees the audience that he believes the proposition expressed.

Naturally, what is emphasized in the sense of made more certain has often been common ground already. But this is not always the case. Therefore it is obvious that *ja* may affect the evidential strength of an assumption or its salience. But whether it is already common ground does not matter.

What examples (29)–(31) have in common is that *ja* occurs sentence intially and its function cannot be reduced to or traced back to the use of *ja* as response particle. However, one difference should be noted as well: in spoken discourse, (29) is unstressed whereas in (30) and (31) the particle receives stress.

3.2 Sentence internal (middle field) *ja*

3.2.1 Colouring or modal use

As pointed out above, the typical modal use of *ja* is where the particle occurs in the syntactic middle field, after the finite verb and before the non-finite element of the verb, if there is one, and where the particle is unstressed in this position. Such modal uses of particles typically occur in material that is assumed to be common ground between communicator and audience. (32) is a typical example of such a modal use of *ja*:

(32) Diese Jungs aus Turin rocken. Waste Pipes sind sympathisch, spielen gut und werden *ja* schon mal als die heimlichen Nachfolger von Led Zeppelin bezeichnet.

'These boys from Turin rock. Waste Pipes are congenial, play well and are *(MP)* sometimes already called the secret successors of Led Zeppelin.' (A09/JAN.00035 St. Galler Tagblatt, 03.01.2009, S. 34; Hin und Weg)

This example is from a concert review. The readers of such a review must be assumed to be interested in the particular kind of concert and therefore knowledgeable about famous bands. Such a readership must be assumed to be at least partially familiar with the idea that the band *Waste Pipes* are rumoured to be successors of a famous precursor. Hence the review author cannot pass on this information as something new. By using *ja*, the author gives a clue to the audience that she is not advancing this information as something new, but rather expects the audience to have encountered it before. In other words, *ja* indicates that the sentence provides information that is presented as a reminder of its relevance in the text.[4]

Blass (2000) points out that this common ground indicating function of *ja* may be exploited for argumentative, perhaps even manipulative, purposes. She provides the following example from the weekly magazine *Der Spiegel*, from an interview with the politician Oskar Lafontaine:

(33) S: Der Ansturm billiger Arbeitskräfte aus   Spanien, Portugal und Griechen-
         the storm   cheap   labour   from Spain   Portugal and Greece

      land beginnt gerade erst. Wie wollen Sie die Billigkonkurenz   stoppen?
         starts   just   only how want   you the chep-competition stop

      'The storm of cheap labour from Spain, Portugal and Greece has just begun. How do
      you want to stop the cheap competitors?'

      L: Jedenfalls   nicht durch eine Senkung der   deutschen Löhne auf
         in-any-case not   by   a   reduction of-the German   wages to

      das portugiesische Niveau. Die Befürworter einer solchen Strategie
      the Portugese   niveau The supporters   of-a such   strategy

      fordern Lohnsenkungen ja   nie   für sich,   sondern immer
      demand wage-deductions of.course never for themselves, but   always

      nur   für andere.
      only for others

      'Under no circumstances by lowering the German wages to the Portuguese level.
      Those who are in agreement with that demand this lowering never for themselves,
      of course.' [Example 17 from Blass (2000: 50)]

Many people would not agree with the claim that all who propose wage cuts propose this only for others, and L knows this, still he uses this claim as an uncontroversial

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4   As Kaja Borthen pointed out to me in personal communication, if the audience is able to access a contextual assumption to the effect that *Only 'Led Zeppelin' is another band making music of the same genre and that could be described as congenial and good playing*, then they could inferentially anticipate the idea that *Someone might call 'Waste Pipes' as the secret successors of 'Led Zeppelin'*. In this way, the proposition conveyed in the clause containing *ja* may be accessible to the audience without being known to them. The relevance theoretic notion of *manifestness* introduced below applies to such potentially inferrable information as well as to information being known (i.e. metally represented as facts) and is therefore broader and arguably in a better position to cover the various ways in which information may be said to be common ground.

assumption supporting his argument. *Ja* indicates that the audience should entertain the proposition expressed as if it were mutually manifest.

The main feature of these manipulative uses of *ja* is that a proposition (an idea) is presented as if it were common ground that the audience does not necessarily subscribe to. This is a case of common ground accommodation, as it were. However, there are also uses of *ja* with propositions that are not common ground and that cannot be described as inviting (or tricking) the audience into assuming this information to be common ground even though they disagree with it. Consider (34):

(34)   Ob ihm das nie Probleme bereitet habe, diese doch eher mässige Körpergrösse, wollen wir wissen. «Ursprünglich wollte ich *ja* Opernsänger werden», sagt er. «Dafür war ich aber definitiv zu klein. Dann hat mir Fred Tanner, ein ganz toller und baumlanger Schauspiellehrer, gesagt: «Du kannst mit Deiner Grösse so viele Rollen spielen, die mir verwehrt sind.» Und genau diese Erfahrung habe ich gemacht.»'
'We wanted to know whether this has never caused him any problems, this rather modest body size. "Originally I wanted *(MP)* to become an opera singer", he said. "For this, I really was too small. Then Fred Tanner, a wonderful acting teacher tall like a tree, told me: "given your size, you can play so many roles that I just can't fit." And this is exactly the experience that I made." (A09/JAN.00054 St. Galler Tagblatt, 03.01.2009, S. 25; Der Vielseitige)

The information in the sentence marked with *ja* is not already common ground. This might, of course, be a case of the manipulative use of *ja*, attempting to accommodate something that is not common ground as indeed mutually believed. But the communicator does not attempt to present the information in the clause with *ja* as a true and agreed premise in an argument. A speaker checking for whether this information is actually 'agreed' will not feel deceived – rather, the impression is that indeed this is new information which is interesting to know. A vigilant audience will not feel deceived – therefore, analyzing this example along the lines of the manipulative *ja* [as in (33) above] is not the right approach.

This example shows that claims about a common ground indicating function of modal particles are overstated. Not all modal uses of *ja* indicate common ground. This is in line with König's (1997: 69–70) observations on examples (35) and (36):

(35)   Dein Mantel ist ja ganz schmutzig.
       Your coat is MP completely dirty.

(36)   Paul hat ja noch gar nicht bezahlt.
       Paul has MP not yet payed.

(35) can be used discourse initially to point out something to the addressee that he has not noticed yet (e.g. the back of the addressee's coat is dirty and the speaker has noticed it). By exclaiming (35), the speaker alerts the addressee to this fact, and (36) can be said by someone newly discovering while checking payment records that Paul has not payed yet (again, this would be an exclamation).

A noteworthy variant of the modal use of *ja* is its use in concessions:

(37)   Es ist *ja* schön und gut, wenn die High-Society der Pädagogikdirektoren und Fachleute diskutiert, ob der naturwissenschaftliche Unterricht phänomenologisch und anwendungsfreundlicher gestaltet werden muss, damit sich endlich mehr junge Menschen für die Ingenieur-Laufbahn entscheiden.
'It is *(MP)* all well and good that the high society of directors of pedagogy and experts discuss whether teaching science should be approached in a phenomenological way and in a more application-aware manner in order that more young people decide to become engineers.' (A09/JAN.00056 St. Galler Tagblatt, 03.01.2009, S. 22; Pisa und die andere Realität)

It is expected that the text continues with *Aber… Ja* marks a concession, and a concession is by nature something that is mutually believed.

3.3 Summary

Ja has a variety of non-modal uses, including that of response particle and question modifier. Non-modal *ja* can also have a kind of emphasis function by re-assuring the audience that the communicator believes the proposition expressed and encourages the audience to do the same. Modal uses of *ja* often indicate that the proposition conveyed is common ground, or that the audience should treat this proposition as common ground. However, there are modal uses of *ja* that carry genuinely new information rather than pointing to common ground.

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DEGREES OF PROCEDURE ACTIVATION AND THE GERMAN MODAL PARTICLES *JA* AND *DOCH* – PART 2

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

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.

4. *Doch*

4.1 Sentence initial

Sentence initial *doch* introduces a proposition that is supposed to replace another proposition that the communicator assumes the audience to entertain and which is at odds with the proposition the *doch* sentence conveys. Consider (38):

(38) Krankheitsbedingt fielen … gleich vier wichtige Spieler aus. *Doch* die Gäste überraschten zu Beginn der Partie und führten im Verfolgerduell mit 10:2 Punkten.
      'Due to sickness … as much as four important players were missing. *But* the guests surprised already in the beginning of the game and took the lead in the hot pursuit duel with 10:2 points.' (BRZ13/FEB.09618 Braunschweiger Zeitung, 27.02.2013, Ressort: 1HE-Spo; Königslutter verliert Verfolgerduell)

The statement that four important players in the team where sick and could not play gives rise to the implicature *It is no surprise if this team loses*. The utterance introduced by *doch* conveys the proposition that this team surprised everyone by winning the game by a large margin. This proposition, which contradicts the implicature, is advanced as replacing the proposition implicated by the previous utterance.

The following example works along similar lines:

(39) Auch in diesem Jahr sind wieder absolute Spitzenkönner am Start. *Doch* nicht nur Profis, sondern auch Anfänger können in speziellen Kategorien mitmachen. Insgesamt wird mit einer Beteiligung von gegen 2000 Skatern gerechnet.
      'This year, too, absolute top skaters take part. *However* not only experts, but also beginners may participate in special categories. In total the participation of about 2000 skaters is expected.' (A00/AUG.52032 St. Galler Tagblatt, 07.08.2000, Ressort: TB-AMR (Abk.); Einmal mehr: Sitter übers Ufer)

The audience may infer the assumption *This event is only for highly accomplished competitors such as professionals*. The utterance introduced by *doch* expresses a proposition that directly contradicts this implicated assumption and encourages the audience to entertain this proposition as true instead.

In both examples (38) and (39), the particle *doch* may be replaced with *aber*. Notice that variants of (38) with sentence initial *aber* together with sentence medial or pre-verbal *doch* are possible, as in (40) and (41). Notice that *doch* must be stressed in these cases. Although both (40) and (41) are acceptable according to my intuitions, (40) appears to be more natural than (41) (whose acceptability might be contested by some native speakers).

(40) Krankheitsbedingt fielen … gleich vier wichtige Spieler aus. *Aber* die Gäste überraschten *DOCH* zu Beginn der Partie und führten im Verfolgerduell mit 10:2 Punkten.
'Due to sickness … as much as four important players were missing. *But* the guests surprised *nevertheless* already in the beginning of the game and took the lead in the hot pursuit duel with 10:2 points.'

(41) Krankheitsbedingt fielen … gleich vier wichtige Spieler aus. *Aber DOCH* überraschten die Gäste zu Beginn der Partie und führten im Verfolgerduell mit 10:2 Punkten.
'Due to sickness … as much as four important players were missing. *But nevertheless* the guests surprised already in the beginning of the game and took the lead in the hot pursuit duel with 10:2 points.'

4.2 Sentence internal (middle field) *doch*

4.2.1 Typical modal use

Typical modal uses of *doch* are ones where the particle occurs sentence internally in the middle field and does not carry any stress. Example (42) illustrates this:

(42) Das Energiefondsreglement basiert auf jenem von St. Gallen. Dies wurde von der vorberatenden Kommission unter dem Vorsitz von Markus Mauchle (CVP) und verschiedenen Parlamentariern, die sich zu Wort meldeten, positiv erwähnt, hätten *doch* so Kosten gespart werden können.
'The regulations for the energy saving fund are based on that from St. Gallen. This was mentioned positively by the pre-examination committee presided by Markus Mauchle (CVP) and several parliamentarians that got up to speak, because *after all (MP)* costs could be saved this way.' (A09/MAR.01357 St. Galler Tagblatt, 05.03.2009, S. 37; Energieeffizienz verbessern)

This example is taken from a newspaper report on the plan of a county council to introduce a far-reaching new regulation, a regulation to provide financial assistance to home owners or home builders to implement measures for better energy efficiency. From the newspaper text preceding the quote in example (42) the audience can derive the implication *Developing a far-reaching new technical regulation with large financial implications is cost intensive*. But it is also common knowledge that when the processes of drafting such a regulation re-uses the work of other commissions, costs may be saved.

The sentence marked with *doch* provides a reason for the statement made in the previous utterance, that several parliamentarians called it a good thing that the draft regulation is based on that of another county. In other words, these parliamentarians claimed that by basing the new regulation on that from another county the government was able to save costs.

It is moreover available to the audience in principle, but perhaps not entertained by them in practice: it is common knowledge that when the work of another commission is re-used, costs are saved.

It seems possible that *ja* could have been used instead: *hätten so ja Kosten gespart werden können*, although *doch* sounds preferable in this example. It may be that the

assumption *Preparing a far-reaching technical regulation is cost intensive* is transparent to (though perhaps not necessarily entertained by) a part of the audience. Making more strongly evident the information that *by re-using the work of another commission one can save costs* would then be relevant; it would explain why the parliamentarians making this comment may have found it relevant to mention this fact although it has nothing to do with the merits of the content of the proposed legislation.

Consider also (43):

(43)   Zwar könne sich der Kanton Thurgau nicht mit Graubünden vergleichen, das touris-musmässig in der Champions League spiele, aber der Landstrich zwischen Diessenhofen und Horn habe touristisch ein hohes Entwicklungspotenzial, verfüge er *doch* über all das, was immer mehr von Gästen gesucht werde: Natur, Erholung und Ruhe.
       'although the Kanton Thurgau cannot compare with Graubünden, which plays in the Champions League as far as tourism is concerned, but the countryside between Diessenhofen and Horn has much tourism potential, since *after all (MP)* it has what guests are looking for more and more: nature, recreation and quietness.' (A09/MAR.04607 St. Galler Tagblatt, 14.03.2009, S. 31; Kommt im Thurgau die Beherbergungstaxe?)

The utterance preceding *doch* conveys the claim *The Kanton Thurgau has a high potential for development as a tourist region*. This is a claim that the audience may not be prepared to accept at face value (in other words, the audience may be inclined to believe its negation). The utterance with *doch* contains information that supports this claim. The information marked with *doch* is accessible to the audience, and hence easily verifiable. By supporting the claim that the Kanton Thurgau has a high potential for development as a tourist region, the information conveyed in the clause with *doch* can indirectly contradict and eliminate the idea that the Kanton Thurgau does not have the potential for being developed as a tourist region, the belief that the audience may have held.

Apparently, a generalization can be made: *doch* indicates assumptions that should be transparent or accessible to communicator and audience, but that the speaker believes are not entertained strongly enough by the audience.

4.2.2 Atypical modal uses
Doch may receive different degrees of stress even while occurring in the middle field. Such uses are atypical modal uses.

(44)   Eines der Ziele der Präsidentin ist es aber *doch*, dass die SP Rheintal wieder wächst.
       'One of the goals of the president is *after all* that the SP [Social Democrat Party] Rheintal should grow again.' (A09/JAN.02090 St. Galler Tagblatt, 10.01.2009, S. 41; Grosser Tag für kleine Partei)

Doch marks information that the audience may have believed to be (implicitly) negated by what was said before. Moreover, the information marked by *doch* is something that the author believes should be uncontroversial: having the goal that a small party should grow again after a setback is a natural goal that one could expect any party leader to have.

Notice that *doch* occurs together with *aber* in the middle field. This, together with the observations made in (38), (40) and (41) above, indicates that these particles cannot have the same function. I assume that *aber* can be explained along the lines of Blakemore (2002) on English *but*, i.e. as activating a procedure to weaken and eliminate a previously communicated assumption. Then *doch* must activate a different procedure.

Notice that the utterance in which *doch* occurs conveys a proposition that *replaces* a wrong assumption, one that usually is implicated in the previous utterance(s). This means: it communicates a proposition that is supposed to be stronger in evidence than its negation.

Consider next example (45):

(45) Zu Hause haben wir ein sogenanntes «Zimmer des Grauens», eine Abstellkammer mit Plunder, den wir nicht mehr benötigen. Bananenschachteln, gefüllt mit Büchern und Erinnerungen, türmen sich darin bis zur Decke. So oft ich auch umziehe, begleiten sie mich *doch* jedesmal wieder in die neue Wohnung.

'At home we have a room that we call "the chamber of horrors", a storage room with things that we don't need any more. Banana packs filled with books and memorials are stacked up to the ceiling. Whenever I move, they *still (MP)* accompany me into the new apartment.' (A09/JAN.06585 St. Galler Tagblatt, 29.01.2009, S. 27; Nicht alle mögen es exhibitionistisch)

Doch marks something that runs counter to expectations: it is expected that when one moves a lot, one gets rid of unnecessary stuff. This expectation is created (or strengthened) by calling the room with the junk 'the chamber of horror'. But the sentence with *doch* states that the author typically carries unnecessary stuff along with every move. This information is already available to the audience in the sense that it is implied by the previous reference to the existence of the 'chamber of horror'. By using *doch*, this information is strengthened to the point where it can cancel earlier expectations to the contrary.

Intuitively, the heavier the stress on *doch*, the more evident the replacement- or elimination-function of *doch* becomes. In (44), *doch* is weakly stressed. The uncontroversial nature of the president's goal to see the party grow once more is more in focus than its function to counter erroneous assumptions to the contrary that the readers might have picked up from what was said before. In contrast, there is heavy stress on *doch* in (45), and the main impact of the last sentence is to express dismay at the fact that despite efforts to the contrary, the speaker still carries lots of useless stuff with him with every move.

4.3 Stressed *doch* in the pre-field of subordinate clauses

Doch can also occur in adverbial or subordinate clauses. In these sentences, the particle occurs before the verb of the adverbial or subordinate clause and is stressed. Examples are (46) and (47).

(46) Für die Papier- und Spanplattenwerke, die in den letzten Jahrzehnten einen enormen
Aufschwung erlebt hatten, könnte der Rohstoff Holz dann knapp werden – wenn nicht
doch noch brachliegende Potenziale in den Privatwäldern mobilisiert werden.
'For the paper and chipboard factories, which experienced enormous growth during
the last decades, the raw material wood may become scarce – unless unused potentials
from private woods may be used, *after all (MP)*.' (HAZ09/JAN.00282 Hannoversche
Allgemeine, 03.01.2009, S. 6; Die stillen Reserven)

The utterance marked with *doch* asserts a possible alternative that counters the
negative expectation expressed in the previous one.

A similar use can be seen in example (47):

(47) Das kann man sehr wohl als tragikomisches Porträt nicht nur der argentinischen
Gesellschaft verstehen. Dort wurden die Menschen schon früher und weitaus heftiger
von der Krise getroffen. Die Argentinier haben daraus aber die Konsequenz gezogen,
dass man in unsicheren Zeiten lieber drauflosleben sollte, anstatt sich zu sorgen – und
letztlich *doch* nichts ändern zu können.
'This can indeed be understood as a tragi-comic portrait not only of Argentinian soci-
ety. In that country, the people were hit by the crisis earlier and much harder. But the
Argentinians came to the conclusion that it is better to live life to the full in insecure
times rather than to worry – and *after all (MP)* not be able to change anything.' (HAZ09/
JUN.01533 Hannoversche Allgemeine, 11.06.2009; *Ich bin in Hochstimmung*)

The utterance with *doch* counters an implication of the previous one: *through re-
straint and worrying the individual can improve the economic situation of the coun-
try*. The proposition that counters this implication is presumably part of the com-
mon ground.

In these examples, the replacement- or elimination-function of *doch* is most
prominent. Whether or not the information presented in the *doch*-clause is com-
mon ground does not matter.

4.4 Doch as response particle

Like *ja*, *doch* can be used as a response particle:

(48) Familie W. aus Sassenburg ist auf den Hund gekommen. Nichts Ungewöhnliches?
Doch! Denn die W.'s haben sich nicht für irgendeinen Hund entschieden, sondern für
einen Elo.
Family W. from Sassenburg started to enjoy having a dog. Nothing unusual? *Oh, but
yes!/ Fiddlesticks!* For family W. decided to get not just any kind of dog, but an *Elo*.
(BRZ09/JAN.12487 Braunschweiger Zeitung, 29.01.2009; In Vierbeiner Ari steckt nur
das Gute)

As this example illustrates, the particle can be the only linguistic item in an utterance
when used as a response word. In this respect, *doch* patterns just like the response
word *ja*. However, in contrast to *ja*, *doch* cannot be used to initiate questions.
The response word *doch* typically gives an affirmative response to a negative question.

3.3 Summary

Sentence initial (i.e. non-modal) *doch* introduces utterances that convey an assumption which replaces its negation, which in turn was entertained earlier. This suggests that the information conveyed in the *doch* utterance is given such a high degree of evidential strength that it overrides its negation. The assumption conveyed in the utterance need not be common ground.

Sentence internal (i.e. modal) *doch* likewise introduces utterances conveying an assumption that replaces its negation, but this assumption is taken to be common ground, although the communicator thinks the audience may not entertain this assumption strongly enough.

5. Accounting for the meaning of modal particles

In the last three sections, I reviewed the properties of modal particles in German in general, and those of *ja* and *doch* in particular. Two of these properties in particular have shaped the development of analyses of modal particles profoundly: the non-truth conditional nature of these particles, and their relation to the common ground status of the information conveyed in the utterance in which they occur. Here, I will review these properties in somewhat more detail and argue that the best way to account for these properties is to approach them as having procedural meaning in the sense of Blakemore (1987, 2002, 2004).

5.1 Non-truth conditional semantics and procedural meaning

As Iten (2005) points out, the standard approaches to linguistic semantics rest on two principles: the principle of Compositionality and the principle of Semantic Innocence. The former principle says that the meaning of the whole sentence is determined in a principled, rule-based way from the meaning of its parts, whereas the latter principle says that the semantic contribution of a linguistic item does not change across contexts. As is well known, indexicals pose a *prima facie* challenge to the principle of Semantic Innocence since the truth-conditional content of these expressions depends on the context. This prima facie challenge can be overcome by adopting a suggestion famously proposed by Kaplan (1989) that the semantic meaning of indexicals is not the content communicated by a given use of the indexical, but by their *character*, which is basically a procedure to determine the referent of the indexical expression. This procedure is indeed the same across contexts. Wilson and Sperber (1993), reprinted in Wilson, Sperber (2012: 149–168), have argued that these procedures should be understood in psychological terms as constraints on the inferential phase of utterance interpretation, along the lines suggested by Blakemore (1987).

The idea that verbal communication crucially involves a layer of inference goes back to Grice's groundbreaking work (Grice 1957, 1967, 1989). Sperber and Wilson (1995) argued for the idea that the inferences involved in comprehension are constrained by a cognitive principle rather than by rational norms as envisaged by Grice. Another

idea suggested by many scholars in reaction to Grice's work is that pragmatic infer-ence processes are involved not only in recovering the implicit side of communication (Grice's *implicatures*), but also in recovering aspects of the explicitly communicated meaning, Grice's *what is said*. Among the inferential pragmatic tasks in identifying the proposition conveyed are disambiguation, reference resolution, variable assign-ment, determination of quantifier domains in discourse, free enrichment of under-determined expressions and lexical broadening and narrowing (see, for example, Carston 2002; Recanati 2004; Sperber, Wilson 1995; Wilson, Sperber 2012).

Taking these two ideas together, the following picture emerges: the study of how we comprehend the meaning of utterances must crucially involve a psychologically realistic account of how pragmatic inference processes work. Linguistic semantic information is fed to these pragmatic processes after being decoded by the grammar. Ideally, language should therefore be expected to encode semantic information in such a way that the pragmatic inference processes are served best. As Blakemore (2002) comments, this amounts to a reversal of the traditional formula 'semantics first, then pragmatics' to a view where pragmatics takes centre stage and (linguistic) semantic theory is shaped by asking how semantic information can best facilitate pragmatic processes. Consequently, the question of how well a certain semantic analysis of a linguistic expression integrates into pragmatic inferences will play an important role in the analyses below.

According to Sperber and Wilson (1995), Wilson and Sperber (2004), the human mind is oriented towards achieving efficiency in processing incoming stimuli: it tends to allocate processing resources to those inputs which promise to be most *relevant* in a technical sense. The relevance of an input to cognitive processes increases to the extent that the stimulus achieves *positive cognitive effects,* that is, improvements of the individual's representation of the world, for no unjustified *processing effort*. Sperber and Wilson show how this tendency towards processing efficiency gives rise to a comprehension procedure, a heuristic procedure of the following kind: access interpretive hypotheses for utterances (including hypotheses about intended context, implicit import and explicit content) in order of accessibility, starting with the one involving the least processing effort to access, and check whether the utterance, on this interpretation, yields cognitive effects of the expected kinds and levels. If so, accept the interpretation as the one intended by the communicator; if not, continue along a path of least effort until an interpretation satisfying relevance expectations is met or the processing effort involved does not warrant continuation.[1] It should be emphasized that in this procedure, context, implicit import and explicit content are calibrated in parallel.

Blakemore (1987) drew attention to the fact that on this general account of utter-ance comprehension, it is not only important to look at the representational content of mental representations conveyed by the utterance, but also to computations (that is, inferences) over those representations and the cognitive processing effort

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[1]   For an explanation of the justification of this comprehension procedure, see Sperber and Wilson (1995) and Wilson and Sperber (2004).

that these incur. Arguably, this leads to the expectation that natural languages may contain expressions that do not only contribute to representational content, but also to information about the inferential processing of representational contents. Such expressions would have an important function in helping the audience save processing effort and hence optimize the addressee's search for relevance. Blakemore showed how analyzing expressions such as *but, so, after all, well* as encoding *processing procedures* in this sense can shed interesting new light on these and other expressions which are traditionally approached in terms of Grice's notion of *conventional implicatures* or Potts' (2005, 2007) notion of *at issue entailments*. Subsequent research has shown how Blakemore's procedural semantics can be extended to analyze the semantics of pronouns (Wilson, Sperber 1993; Wharton 2003b), attitudinal particles (Wharton 2003a, 2009), parentheticals (Ifantidou-Trouki 1993; Ifantidou 2001; Blakemore 2005) and other linguistic items in cognitive terms. Another strand of recent research addresses the question of how the procedural instructions that these indicators encode are mentally realized and is converging towards the hypothesis that procedural indicators raise the activation status of inferential heuristic (sub-)procedures that the comprehension procedure makes use of in its search for a relevant interpretation of utterances (Unger 2011; Wilson 2011). This raising of the activation levels of mental inferential procedures is often referred to as *triggering*.

Unger (2011: 118–119) illustrates this idea with the following example:

(49) a. The apple trees are full of fruit.
      b. It's been a good summer.

In processing the sequence of (49a) and (49b), the audience will have to decide whether the communicator intended the relation between these utterances to be (50a) or (50b):

(50) a. *The apple trees are full of fruit* is a reason for the communicator having concluded that *it has been a good summer*. *The apple trees are full of fruit* is a premise (among others) from which one can conclude *it has been a good summer*.
      b. The information *It has been a good summer* describes a reason for its being the case that *the apple trees are full of fruit*. *The apple trees are full of fruit* is evidence for the statement *it has been a good summer*.

Interpreting (49b) following the relevance-theoretic comprehension heuristic includes computing cognitive effects. In doing so, the comprehension heuristic makes use of other, smaller scale inferential procedures dedicated to various ways in which cognitive effects might be established. Among such smaller scale (sub-)procedures are the following:

(51) a. *Procedure A*: Assume that the explicature of the utterance conveys a premise. Find other assumptions, see whether they can be used as premises, and compute conclusions.
      b. *Procedure B*: Assume that the utterance conveys a conclusion. Find other assumptions that can be used as premises in an argument supporting the explicature of the utterance as a conclusion.

Sub-procedures such as *Procedure A* and *Procedure B* work in parallel, and one of them will deliver cognitive effects matching the audience's expectations. Linguistic items such as the connective *so* in English can be understood as raising the activation level of *Procedure B*. As a result, for an audience following the relevance-theoretic comprehension heuristic, *Procedure B* is more highly activated than *Procedure A*, and *Procedure B*'s output is more easily accessible than the outputs of other sub-procedures (such as that of *Procedure A*). Hence, this audience will be much more likely to use the outputs of *Procedure B* in the comprehension procedure than an audience that was not exposed to the procedure triggering effect of *so*. Moreover, the overall comprehension process has become more focused in the sense that the comprehension heuristic works as if the simplifying assumption that only *Procedure B* should be followed were built into the utterance interpretation process, resulting in a gain of efficiency of the comprehension process.

Linguistic items such as the English connective *so* raise the activation level of certain inferential procedures. This means, in other words, that words such as *so* establish a link between a linguistic item and a mental state of a language user, a state where certain inferential procedures are more highly activated. Other words such as *apple*, *red*, etc. that contribute to the truth conditions of the proposition conveyed in an utterance establish a link between a linguistic item and a mental concept. As Wilson (2011: 10–11) points out, although both mental concepts and mental procedures are not part of semantic competence, the link established between linguistic items and concepts, or between linguistic items and mental states of language users in which certain procedures are activated, amounts to semantic interpretation.

5.2 Mutual manifestness and pragmatic processing

As discussed in previous sections, the German particles *ja* and *doch* (and arguably, the whole class of modal particles) have, in their modal uses, the function of indicating common ground. Common ground is usually defined in terms of mutual knowledge or belief. Stalnaker (2002: 701) defines the common ground between communicator and audience as speaker presupposition: "To presuppose something is to take it for granted, or at least to act as if one takes it for granted, as background information – as *common ground* among the participants in the conversation." This common ground is based on what the communicators mutually believe:

> The common beliefs of the parties to a conversation are the beliefs they share, and that they recognize that they share: a proposition φ is common belief of a group of believers if and only if all in the group believe that φ, all believe that all believe it, all believe that all believe that all believe it, etc. (Stalnaker 2002: 704)

The common ground can deviate from common (or mutual) belief somewhat in the sense that the speaker may presuppose not only what they actually take to be common belief, but also what they *assume*, *presume*, or *pretend* to be common belief.

Notice that this definition of common ground on the basis of mutual belief contains an infinite regress. Sperber and Wilson (1995) point out that because of this

regress it is not possible to build a psychologically adequate theory of comprehension on the basis of this mutual belief-based notion of common ground. Such a notion of common ground requires the communicators to entertain a recursive, infinite belief representation, and for checking whether mutual belief exists, the communicators would have to go through an infinite series of checks. Instead, Sperber and Wilson (1995) argue that a psychologically adequate notion of common ground can be built around the notion of *manifestness* rather than that of belief or knowledge. A piece of information is *manifest* to an individual at a given time to the extent that the individual is capable of representing it mentally and accepting it as true or probably true. Thus, manifestness is a dispositional notion: it captures how likely it is that an individual will actually represent a certain piece of information. Manifestness is a matter of degree. A piece of information can be strongly manifest to the point that a mental representation of it is definitely entertained by the individual. In this case the individual can be said to believe or know this piece of information. Consider, for instance, a helicopter landing a hundred meters in front of your office window. The movement and noise is so unmistakable and unusual that you are bound to look out of the window and watch the scene. It is highly probable that you will mentally represent the information *There is a helicopter landing outside*.

However, a piece of information can also be weakly manifest in the sense that the individual is capable in principle of thinking about it. Imagine you are working in your office at twilight and are positioned so that you could look outside and see what is going on, but you are absorbed in your work. A bat is flying close by your window. In principle, you are capable of noticing this scene and representing in your mind the information *There is a bat flying by the window*. However, the bat flying by the window at twilight is not easy to notice, and you are paying more attention to other information at the time, so that the information about the bat flying past your window is not very salient. You are unlikely to even notice it, let alone represent the information *There is a bat flying by the window*. Still, it is manifest to you (albeit weakly so) that there is a bat flying by the window.

The set of pieces of information that are manifest to an individual at any given time constitute the *cognitive environment* of the individual. Our cognitive environment consists of all the information that we are in principle capable of representing to ourselves as facts (i.e. as true or probably true representations). Several people can share their cognitive environment. For instance, when two people are together in an office, the layout of the furniture and the presence of books and office material is manifest to each. Hence, their cognitive environments overlap. Moreover, the fact of their co-presence in the room is manifest to each of them. Hence it is manifest to each individual that they share a cognitive environment. When two persons share a cognitive environment in such a way that it is manifest to them that they share a certain cognitive environment, then the shared cognitive environment is a *mutual cognitive environment* in the terms of Sperber and Wilson (1995). The mutual cognitive environment consists of those pieces of information that are *mutually manifest* to those who share this environment. In other words, a piece of information is *mutually manifest* to two individuals A and B to the degree that

(a) the assumption is manifest to A, (b) the assumption is manifest to B, and (c) it is manifest to both A and B that they share a cognitive environment in which the assumption is manifest to both parties. Since manifestness is a dispositional notion, the notion of mutual manifestness does not lead to the kind of infinite regress that the notions of mutual belief or mutual knowledge lead to: mutual manifestness does not have to be represented, so there is no infinite representation to believe or know, let alone to check whether it holds.[2] The common ground in communication can be understood as the mutual cognitive environment between communicator and audience.

Recall the claim that the German particles *ja* and *doch* mark a certain piece of information as belonging to the common ground. Since manifestness is a matter of degree, "marking" some communicated information as mutually manifest should be interpreted as indicating that this information is mutually manifest *to a higher degree* than it would have been without the use of the particles. Moreover, since manifestness (and mutual manifestness) is a dispositional notion affecting the *likelihood* of a certain piece of information being represented (i.e. entertained) by an individual, using linguistic means to raise the degree of manifestness of a certain item in the cognitive environment amounts to raising the probability that the audience will actually entertain it. Hence, a linguistic indicator raising the degree of (mutual) manifestness can be relevant as a reminder, to make sure that the audience will actually use a certain piece of information from the common ground in processing this or a future utterance. Recall example (42) above, where weakly mutually manifest assumptions are brought to the audience's attention.

Relevance theoretic analyses of *ja* have been proposed by König (1997) and Blass (2000). At first sight, these two analyses seem quite different. König (1997) suggests that *ja*, in both modal and non-modal uses, indicates that the utterance is relevant in virtue of strengthening an assumption. In other words, the claim is that *ja* indicates the cognitive effect of contextual strengthening. Blass (2000), on the other hand, argues that *ja* in its modal use triggers a procedure to embed the proposition expressed under a propositional attitude description *It is mutually manifest that…* However, on closer inspection the analyses turn out not to be so very different. Recall that manifest information is information that the individual is capable of representing and accepting as true or probably true. The more *salient* the information is in the cognitive environment, the more likely an individual is to actually represent it; and the stronger evidence is available for its truth, the easier it is for an individual to evaluate the information as true or probably true. Hence, manifestness depends on two different properties of (pieces of) information: its cognitive *salience*, and its epistemic *evidential strength*. Against this background it is easy to see that a linguistic indicator pointing to the evidential strength of a piece of information is by definition an indicator that points to it being highly manifest. Seen in this light, both König's

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[2]   Of course, the communicators *may* in some cases mentally represent a proposition as mutually manifest. But this representation is not made on the basis of an infinite series of checks, but on the basis of the recognition of simple clues such as physical co-presence.

and Blass' analyses argue that *ja* is an indicator of a high degree of manifestness of the information conveyed in the utterance.

The main difference between König's and Blass' accounts is that König suggests that analyzing *ja* as an indicator of a high degree of manifestness in the sense of there being strong epistemic confirmation for the information communicated can shed light on both modal and non-modal uses of *ja*, whereas Blass (2000) does not attempt a unitary semantic analysis and restricts her account to modal uses of *ja*. As a consequence of this restriction, her analysis brings the mutuality of the information marked with *ja* more into focus. But again, the differences appear larger at first sight than after close inspection. Recall what it means for a linguistic item to 'indicate mutual manifestness': it means to increase the manifestness of assumptions about whom the piece of information in question is manifest to. Consider (52):

(52) a. (Susanne and Johannes are in the same office and a bat flies by the office window in the twilight. Both are seated so that they can notice the bat in principle, and both are busy with work. Susanne says to Johannes:)

Da   ist *ja*   eine Fledermaus am Fenster verbeigeflogen.
There is MP   a   bat   by window flown
'A bat flew *MP* past the window.'

   b. A bat flew past the window.
   c. It is manifest to Johannes that a bat flew past the window.
   d. It is manifest to Susanne that a bat flew past the window.

In this example, (52b) is mutually manifest to Susanne and Johannes even before Susanne's utterance. This means that besides (52b), the assumptions (52c)–(52d) are manifest as well. Susanne's utterance increases the manifestness of these assumptions. The utterance would achieve this effect without the particle *ja*. By using *ja* in her utterance, Susanne indicates that assumptions (52c)–(52d) should become even more strongly manifest to Johannes.

In other words, the function of indicating mutual manifestness can be reduced to the function of indicating manifestness, the difference being the target of what kind of pieces of information are to be made more manifest: in the case of indicating the manifestness of a piece of information I, it is the assumption I that is being made more manifest [assumption (52b) in the example above]. In the case of indicating the *mutual* manifestness of a piece of information I, it is assumptions about who shares the cognitive environment in which I is manifest that are being made more manifest [assumptions (52c)–(52d) in the example above].

This suggests that one could integrate the proposals by König (1997) and Blass (2000) in the following way: *ja* triggers a procedure to raise the degree of manifestness of some assumption communicated by the utterance in the sense of indicating that there is strong evidence for its truth (i.e. raising the epistemic strength factor of manifestness). Further pragmatic processing must identify whether it is the basic import of the utterance (i.e. its explicatures and implicatures) that are being made more manifest or whether assumptions about who shares the cognitive environment in which these explicatures or implicatures are manifest that are being targeted for

raising their manifestness to the audience. This line of analysis may indeed lead to a descriptively adequate account of modal and non-modal uses of *ja*.[3] However, it would fail to explain in systematic ways why unstressed *ja* in the syntactic middle field shows such a strong connection to indicating mutual manifestness, whereas *ja* outside of the middle field does not.

In fact, accounting in systematic ways for this correlation between word-order variation and prosody of particles and the particles' effect on the manifestness or *mutual* manifestness of the information conveyed in the utterance turns out to be the fundamental issue facing unified accounts of modal particles in German. This issue does not only arise for *ja*; as discussed above, it arises similarly for *doch*. In the next section I want to propose a way to approach this issue in a relevance-theoretic procedural account of *ja* and *doch*.

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[3]   Waltereit (2001) argues that such an account would fail to distinguish sufficiently between several particles that according to König (1997) likewise indicate contextual strengthening. It is true that König does not address this issue. However, the theory does provide sufficient tools to work out such a finer grained analysis. Apart from the idea that linguistic items may trigger more than one procedure [a line of analysis explored more fully by Blass (1990) with respect to the German modal particle *auch* in relation to its counterparts *also* in English and *má* in Sissala, as well as by Blass (2000) with respect to the German modal particles *ja*, *doch* and *wohl*], recall the observation that the notion of manifestness involves two factors: the cognitive salience and the epistemic strength of information. It is conceivable that linguistic indicators of manifestness may target these factors individually or collectively. In this paper I will not pursue this possibility further as it does not appear to be necessary to develop an explanatory account of *ja* and *doch*, which is the main focus of this paper.

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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

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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.

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[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

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[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

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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

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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

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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,

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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.

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