
ARTICLE

A cross-linguistic puzzle and its theoretical implications: Norwegian *jo*, German *doch* and *ja*, and an advertisement

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It has long been recognised that at least some linguistic expressions—such as the connectives *but* in English, *mais* in French, and the particles *doch* in German and *jo* in Norwegian—function to affect the audience’s inference or reasoning processes rather than, or in addition to provide conceptual content. There is a debate, however, whether the inference procedures triggered by these linguistic expressions function primarily to affect the audience’s recognition of the communicator’s arguments, or primarily to guide the audience’s comprehension process. I discuss this question with reference to an instructive example from an advertisement in Norwegian. The advertisement is an argumentative text where the modal particle *jo* achieves subtle argumentational and stylistic effects that differ from those achieved by the corresponding German modal particles *doch* or *ja*. I demonstrate how the procedural semantic analyses independently developed by Berthelin & Borthen (submitted) of *jo* and Unger (2016a,b,c) of *ja* and *doch* support a pragmatic-semantic account of the argumentational effects of these particles. Although the semantics we propose for the respective particles does not directly relate to argumentation, it is specific enough to affect argumentation in predictable ways. The reason for this is that comprehension procedures and argumentation procedures closely interact in processing ostensive stimuli (such as verbal utterances) for optimal relevance.

Keywords modal particles, argumentation, comprehension, procedural meaning, relevance theory, Norwegian, German

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1. INTRODUCTION

Germanic languages are rich in so-called *modal particles*: particles that occur syntactically in a position between the finite and the infinite element of the verb (the *middle field*), and are primarily unstressed in this position. The German particles *ja* and *doch* are prototypical examples, and are perhaps the most widely studied modal particles in German. The Norwegian modal particle *jo* overlaps in function with both German modal *ja* and *doch*. This means that an empirically adequate semantic-pragmatic analysis of these particles will not only need to explain their usage within the respective language systems, but also shed light on cross-linguistic similarities and differences in the usage of these particles. In this paper I will discuss a case study exploring to what extent Berthelin & Borthen’s (submitted) analysis of Nor-

wegian *jo* and Unger's analysis of German *ja* and *doch* (Unger, 2016a,b,c) can shed light on why rendering Norwegian *jo* in a particular advertisement text with German *ja* or *doch* would intuitively change the argument's function in a subtle way. While this case study certainly does not amount to a general cross-linguistic comparative pragmatic account, its success suggests that the semantic analyses of the respective particles at the basis of this study receive some support from comparative pragmatic studies, at least enough to encourage further case studies of this kind.

The paper is organised as follows: in section 2 I present two examples of uses of Norwegian *jo* in an advertisement text and describe which effect it has in German to render these uses of *jo* with either *ja* or *doch* in German. Section 3 introduces the pragmatic background framework I use, i.e. relevance theory. In section 4 I summarise the semantic analyses of the Norwegian and German particles under discussion. Section 5 discusses the main topic of this paper, i.e. how the semantic analyses of the particles that were independently developed shed light on cross-linguistic differences in usage, given the way the semantics interact with pragmatics. The main claim in this section is that Norwegian *jo* has slightly different effects on argumentation than German *ja* or *doch*, and that it is these differences in the way the particles impact argumentation that account for the cross-linguistic usage differences. The last section summarises the main conclusions of the paper.

2. AN ADVERTISEMENT

Consider the following example of an internet advertisement posted in the autumn of 2015 on the web site of the public transport company AtB, which runs the public transport system of the city of Trondheim in Norway:¹

(1) [Big letter caption:]

I år sparer Helge fra Heimdal 17 000 på å ta buss i stedet for bil til byen
'This year, Helge from Heimdal saves 17000 NOK by taking the bus instead of the car into town.'

Har du egentlig tenkt over hva du sparer ved å ta bussen? Du sparer penger, samtidig som du gjør miljøet en tjeneste. [a] *Pengene du sparer, kan du jo bruke på noe hyggelig eller nyttig.* Se priseksemplene våre fra Heimdal og Buvika nedenfor.
'Have you thought about what you can save by taking the bus? You save money, and at the same time you do the environment a service. [a] The money you save, you can certainly (jo) use for something nice or useful. See our example calculations from Heimdal and Buvika below.'

Tenk også på at det blir renere luft, bedre by- og nærmiljø og mindre kø i rushtrafikken hvis flere reiser kollektivt. En av de største miljøfordelene vi har er om flere parkerer bilen og reiser sammen.

'Remember, too, that it will make for cleaner air, a better environment in the city and surroundings and less traffic queues in the rush hour when many people travel together on public transport. One of the biggest improvements of the environment we can make is that many people let their car stay parked away and travel together.'
 Visste du at...

'Did you know that...'

- på en time i morgenrushet inn til Trondheim passerer 100 busser i snitt pr time gjennom Prinsenkrysset
'during one hour in the morning rush hour into Trondheim an average of 100 buses pass the Prinsen crossroad'
- bussene kutter bilkøen med nesten tre mil over Elgseter bru
'the buses shorten the traffic queue over Elgseter bridge by almost three miles'
- de som sykler og går, kutter 5 kilometer med kø. Det til sammen, tilsvarer en sammenhengende kø fra Trondheim til Børsa, eller fra Trondheim til Stjørdal.
'those who bike or walk cut the traffic queue by 5 kilometres. Together, this would make one uninterrupted queue from Trondheim to Børsa, or from Trondheim til Stjørdal.'

Alt dette på en av våre miljøvennlige busser. I Trondheim kjører det 214 gassbusser, 10 hybridbusser og 41 busser som går på biodiesel.

'All this by taking one of our environmentally friendly buses. In Trondheim operate 214 gas-fuelled buses, 10 hybrid-powered buses and 41 buses running on bio diesel.'

[b] *I tillegg kan du jo lese, sove, jobbe, slappe av, være sosial og dagdrømme om bord :-).*

'In addition you can (jo) read, sleep, work, relax, be social and day-dream on board :-).'

The utterances containing the particle *jo* are set in italics and indicated [a] and [b].

Here is a German version:

(2) [Big letter caption:]

Dieses Jahr spart Helge aus Heimdal 17000 NOK wenn er mit dem Bus anstatt mit dem Auto in die Stadt fährt.

Haben Sie eigentlich darüber nachgedacht, was Sie sparen, wenn sie den Bus nehmen? Sie sparen Geld und gleichzeitig leisten Sie der Umwelt einen Dienst. [a] *Das Geld, das Sie sparen, können Sie sicher [??ja/doch] für etwas Angenehmes oder Nützliches gebrauchen.* Siehe die Rechenbeispiele [für die Strecke] von Heimdal und Buvika unten.

Bedenken Sie auch, dass die Luft reiner und die Umwelt in der Stadt und der näheren Umgebung sauber wird wenn viele Menschen öffentliche Verkehrsmittel benutzen. Eines der besten Mitteln, das wir haben, die Umwelt zu verbessern, ist wenn viele Menschen lassen ihr Auto stehen und fahren gemeinsam.

Wussten sie schon dass...

- während einer Stunde in der morgendlichen Stossverkehrszeit etwa 100 Busse die Kreuzung der Prinsen gate passieren
- die Busse verkürzen den Stau über die Elgseter Brücke um etwa 3 Meilen
- Fahrradfahrer und Fussgänger verkürzen den Stau um weitere 5 Kilometer. Zusammen ergäbe das einen Stau von Trondheim nach Børsa oder von Trondheim nach Stjørdal.

Alles das nur wenn man einen unserer umweltfreundlichen Busse nimmt. In Trondheim fahren 214 gasbetriebene Busse, 10 Busse mit Hybridantrieb und 41 Busse angetrieben mit Biodiesel.

[b] *Ausserdem können sie [??ja/doch] im Bus auch [??ja/doch] lesen, schlafen, arbeiten, ausruhen, Gemeinschaft pflegen und Tagträumen :-).*

Notice that rendering utterances [a] and [b] with either *ja* or *doch* will result in a text that has undesirable effects:

- (3) Das Geld, das Sie sparen, können Sie *ja* sicher für etwas Angenehmes oder Nützliches gebrauchen.
 ‘The money that you save, you can *MP* use for something pleasant or useful.’

Using the modal particle *ja* in this way, the communicator appears to be patronising the audience. It is self-evident that one can use money saved on avoidable expenses for something more pleasant. When the communicator overtly focuses the audience’s attention on that contextual assumption by using the particle *ja*, the audience will likely infer that the communicator believes that the audience is ignoring obvious facts that most people would not fail to notice. This in turn will likely make the audience feel that the communicator is looking down on them, speaking from above as if to someone who does not know obvious facts. Clearly, to create such an impression would be counterproductive for a communicator trying to convince the audience to take the bus.

Using the modal particle *doch* as in below has basically the same effect, only that the communicator’s patronising attitude will be felt even stronger.

- (4) Das Geld, das Sie sparen, können Sie *doch* sicher für etwas Angenehmes oder Nützliches gebrauchen.
 ‘The money that you save, you can *MP* use for something pleasant or useful.’

The same comments apply to utterance [b]:²

- (5) Ausserdem können sie *ja* im Bus auch lesen, schlafen, arbeiten, ausruhen, Gemeinschaft pflegen und Tagträumen .-).
 (6) Ausserdem können sie im Bus *ja* auch lesen, schlafen, arbeiten, ausruhen, Gemeinschaft pflegen und Tagträumen .-).
 (7) Ausserdem können sie im Bus *doch* auch lesen, schlafen, arbeiten, ausruhen, Gemeinschaft pflegen und Tagträumen .-).
 (8) Ausserdem können sie *doch* im Bus auch lesen, schlafen, arbeiten, ausruhen, Gemeinschaft pflegen und Tagträumen .-).

However, it is not the case that sentences [a] and [b] can never be rendered naturally in German with the particles *ja* or *doch*. Consider the following dialogue:

- (9) A: I know, I can save money by taking public transport, but is this so important?
 B: Das Geld, das du sparst, kannst du *doch/ja* für etwas Angenehmes oder Nützliches verwenden.

In this dialogue, speaker A makes it manifest that he ignores a fact that one would suppose people would normally not ignore. Given this, speaker B has good grounds not only to explicitly communicate the information that A is ignoring, but using the modal particle to indicate that this is actually general knowledge that most people would not ignore. In other words, speaker B is justified in sounding a little patronising, and this does not jeopardise her overall communicative or argumentative goals.

Similar remarks apply to the following dialogue:

- (10) A: I know, it's environmentally friendly to take the bus. But it's a time-killer, spending so much time on the bus without anything to do.
 B: Aber das ist doch gut, nicht jede Minute auf Hochturen sein zu müssen. Ausserdem kannst du *doch/ja* lesen, arbeiten, schlafen, ausruhen, schwätzen mit Leuten (= *være sosial* 'be social') oder Tagträumen im Bus.
 'But this is in fact good, not to have to be on high energy all the time. In addition, you can *doch/ja* read, work, sleep, relax, be social or day-dream on the bus.'

While the patronising effect that comes with using *ja* or *doch* does not arise when no particle is used as in (11), the most natural way to render the advertisement in German would be to use the adverbs *sicher* 'surely' or *bestimmt* 'certainly' as in (12).³

- (11) Haben Sie schon darüber nachgedacht, was Sie sparen, wenn sie den Bus nehmen? Sie sparen Geld und leisten zugleich der Umwelt einen Dienst. Das Geld, das Sie sparen, können Sie für etwas Angenehmes oder Nützliches brauchen.
 (12) Haben Sie schon darüber nachgedacht, was Sie sparen, wenn sie den Bus nehmen? Sie sparen Geld und leisten zugleich der Umwelt einen Dienst. Das Geld, das Sie sparen, können Sie sicher/bestimmt für etwas Angenehmes oder Nützliches brauchen.

We can summarise these observations as follows: first, the German modal particles *ja* and *doch* cause the audience to entertain implications that in the case of texts like (2) jeopardise the communicator's argumentative goals. Second, the Norwegian modal particle *jo* does not give rise to such implications in (1). Finally, German texts can be construed where the implications induced by *ja* and *doch* do not jeopardise the communicator's argumentative goals, and in these the particles may be used without ill effects.

How can these observations about the differences in use between Norwegian *jo* and German *ja* and *doch* be explained? In principle, there may be non-linguistic and linguistic explanations. A non-linguistic explanation might run as follows: it is because of cultural differences that a German audience, but not a Norwegian one, would make the unwanted inferences. A linguistic explanation, on the other hand, claims that there is some difference in the semantics between the Norwegian and German particles that helps to account for the usage differences.

A non-linguistic explanation based on cultural differences would predict that no matter how one would rephrase the critical utterances in (2), a German version of this advertisement will always fail to achieve the communicator's argumentative goals. However, this is not correct, as the above discussion shows. Thus, a linguistic explanation appears to be called for, and in this paper I explore a linguistic explanation. More specifically, I want to show how the procedural semantics that Berthelin & Borthen (submitted) develop for Norwegian *jo*, and the one that Unger (2016a,b,c) proposes for German *ja* and *doch* support a pragmatic-semantic account of the argumentational effects of these three particles. The quoted procedural semantic accounts are particularly suitable for this purpose because they are closely

tied to the same cognitive pragmatic framework, that of relevance theory. They have been developed independently of each other, without comparative linguistic goals in mind. Moreover, these accounts are the most advanced ones within the general framework of relevance-theoretic procedural semantics, incorporating insights from earlier accounts such as König (1997) and Blass (2000). Although the semantics these authors propose for the respective particles does not directly relate to argumentation, it is specific enough to affect argumentation in predictable ways. The reason for this is that comprehension procedures and argumentation procedures closely interact in processing ostensive stimuli (such as verbal utterances) for optimal relevance. The goal of procedural semantic analyses is to provide explanatory accounts for the linguistic semantics of the items under analysis. This means that adequate procedural semantic analyses should make correct predictions about the effect of uses of the linguistic items even in use cases that were not envisaged when the analyses were proposed. The analyses of Norwegian sentence internal *jo* and German *ja* and *doch* were not designed with cross-linguistic applications in mind. The finding that they nevertheless make the right prediction about cross-linguistic differences in use in cases like (1) and (2) illustrates the explanatory power of these accounts, demonstrating that they indeed account for the right generalisations about the meaning and function of the respective particles.

In order to make this argument, I will proceed as follows: in section 3, I will discuss pertinent theoretical background assumptions on the relation between comprehension and argumentation in ostensive communication and the way in which procedural meaning affects these processes. Section 4 reviews the analyses of Norwegian *jo* (Berthelin & Borthen, submitted) and German *ja* and *doch* (Unger, 2016b,c,a) that form the basis for the comparative considerations in section 5.

3. COMMUNICATION, COMPREHENSION AND ARGUMENTATION

3.1 *Ostensive communication*

This study is performed within relevance theory (Sperber & Wilson, 1995; Wilson & Sperber, 2004; Wilson, 2014; Carston, 2002, 2012). Relevance theory is a theory about the mental processes involved in comprehending what is called *ostensive communication*. Consider examples (13)-(16):⁴

- (13) A: Do you want to play squash?
B: I have an injured leg and can't play.
- (14) A: Do you want to play squash?
B: [Deliberately and openly shows that his leg is bandaged.]
- (15) A: Do you want to play squash?
B: [Deliberately and openly shows that his leg is bandaged while saying:] With this leg, I can't play.
- (16) A: Do you want to play squash?
B: [The leg bandage is visible to A, but B does not deliberately show it] Sorry, I

can't play.

In all of these examples, B communicates that he does not want to play squash, and does this in a way that A can also understand the reason why B declines A's invitation to play squash: B has an injured leg. But there is a difference between (13)-(15) on the one hand, and (16) on the other. In (13)-(15), B overtly points out that his leg is injured, and that he intends to point to this fact as the reason for his refusal. In (16), B does not overtly point to or mention his injured leg. The fact that his leg is injured is in evidence for A, therefore A can guess that B's leg injury is the reason why B does not want to play squash. But there is nothing in B's communicative act that requires A to notice the injured leg and make the inference as to the relation between this fact and B's refusal. In the terms of Sperber & Wilson (2015, 119) we can say that in (13)-(15), B has *ostensively* communicated both that he does not want to play squash, and that his reason for this refusal is that his leg is injured. In (16), on the other hand, B has ostensively communicated only that he does not want to play squash. Although A can infer with reasonable assurance what B's reason for the refusal is, B has not made overt any intention that A should make this inference. The intention to communicate what his reason for the refusal is was not made overt by B.

From these observations, we can derive a preliminary definition of ostensive communication, a definition that I will make more precise below. To ostensively communicate something means to make overt an intention to inform an audience of a certain piece of information. This means that a communicator engaging in an act of ostensive communication has two intentions: an *informative intention*, which consists of an intention to inform the audience of a certain piece of information, and a *communicative intention*, which consists of an intention to make the informative intention overt. Sperber & Wilson (1995, 60-61) point out that making an intention overt amounts to inform the audience that one has this intention. Therefore, the communicative intention can be formulated as a second order informative intention: an intention to inform the audience that the communicator has the informative intention I. A final step in making the definitions of the informative and communicative intentions of communicators precise is to specify in more detail what it means to *inform* an audience of something. I will take this step shortly, but first let us pause to consider some important traits of ostensive communication.

First, acts of ostensive communication—i.e. *ostensive stimuli*—provide the audience with only *partial* evidence of the communicator's informative intention. The audience needs to access further contextual information to *infer* the intended meaning. This is blatantly obvious in (14), but also in (13) the audience would have to infer (at least) what the relation between the conjunct expressions *I have an injured leg* and *[I] can't play* is (that the first may count as a reason for the communicator's inability to play squash); that *[I] can't play* should be understood as *[I] can't play squash today*; and that by stating his inability to play squash as a result of his leg injury the communicator intends to convey a negative answer to A's question. Since ostensive communication always requires the audience inferring communicators' intentions, Sperber & Wilson (1995) use the more explicit phrase *ostensive-inferential*

communication. A central concern for a theory of ostensive-inferential communication is to explain how the human mind can infer communicators' intentions with sufficient reliability. Indeed, accounting for our *comprehension* of ostensive communication has been a central concern of relevance theory since its beginning.

Second, verbal communication is a particularly powerful instance of ostensive communication, powerful in the sense that the partial evidence that verbal ostensive stimuli provide for the communicator's informative intention can be rather nuanced by the use of linguistically encoded meaning. While linguistically encoded meaning always under-determines the speaker's meaning (Sperber & Wilson, 1995; Carston, 2002) and thus never provides more than partial evidence for the speaker's intended meaning, verbal utterances provide much more fine-grained inputs to the inference processes involved in comprehending ostensive stimuli than non-verbal stimuli. Indeed, since natural language expressions cannot be used in communication apart from being used as ostensive stimuli providing input to cognitive inference processes, it can be expected that natural language is optimised for this interaction with the pragmatic inference systems. One area in which relevance theorists have been exploring this idea of optimal interaction between natural language semantics and pragmatic processing is the study of *procedural meaning* in the sense of Blakemore (1987, 2002). Blakemore argues that some natural language expressions may encode a meaning of a special type by providing information about what inferences the conceptual meaning provided in the utterance feed into. The semantic analyses of the Norwegian particle *jo* and the German particles *ja* and *doch* that I will use as the point of departure for my analysis of the comparative pragmatic observations on the use of these particles in (1) and (2), make use of this notion of procedural meaning. I will explain this in more detail at the appropriate places in this paper.

Third, the communicative consequences of an act of ostensive communication depend not only on the audience's comprehension of the communicator's informative intention. In (13), for instance, the audience may correctly comprehend B's intention to make them understand that the reason for B's refusal to accept A's invitation to squash is that his leg is injured. However, it makes a difference for A if he believes that the statement *I have an injured leg* is true or not. If A accepts it as a true statement, he will accept B's refusal as being based on a justified reason. If A does not accept the truth of this statement, then he will treat B's refusal as being based on a cheap excuse. The difference this makes in the social interaction between A and B is obvious. Since the audience's judgements about the credibility of ostensively communicated information have such obvious consequences, Sperber et al. (2010) argue that a theory of ostensive communication must not only account for how the audience comprehends the communicators' informative intention, but also for how the audience makes inferences about the trustworthiness or believability of communicated information. They argue that there is evidence that the human mind uses a variety of specialised cognitive mechanisms dedicated to exercise epistemic vigilance on the part of the audience. These cognitive mechanisms are triggered by ostensive stimuli just as comprehension mechanisms are, and work largely in parallel to the inference processes involved in comprehension. One important component of epistemic vigilance is a mechanism devoted to process *arguments*, i.e. inferences

identifying warrant relations between claims that the individual is not prepared to accept at face value and beliefs that may support those claims. Argumentation obviously plays an important role in the text that is at the centre of this paper, example (1). Indeed, I will argue that difference in usage of Norwegian *jo* on the one hand, and German *ja* and *doch* on the other, results from differences in which the semantically encoded meaning of the respective particles interacts with inferences employed in argumentation.

3.2 Comprehending ostensive communication

The central issue for a theory of ostensive-inferential communication is to account for how our mind can infer the communicator's informative intention. After all, the non-demonstrative inferences involved in this process are inferences to the best explanation, and a single ostensive stimulus (utterance) may be contextualised in different ways leading to many different possible inferences. Although verbal communication sometimes fails because the audience may infer meanings that communicators did not intend to convey, ostensive communication is remarkably successful. Sperber & Wilson (1995) argue that this is because ostensive communication comes with a specific claim to *relevance* (in a technical sense) that can easily be verified by the mind following a simple and fast cognitive *heuristic* procedure.

The notion of relevance involved is a technical one: An input to cognitive processes is relevant to the degree that it has many *positive cognitive effects* (i.e. true improvements of the individual's representation of the world that can only be derived by processing the input against a set of contextual assumptions), and the *processing effort* to achieve these effects is low (Sperber & Wilson, 1995, 265-266).

Relevance in this technical sense is what our mental processes look for in processing inputs. Ostensive stimuli are a special type of input: they are pieces of *overtly intentional* behaviour. They are not relevant unless we can ascribe specific informative and communicative intentions to the communicator. This in turn means that the mind must inferentially process these inputs. But since according to the cognitive principle of relevance the mind attends to those inputs that are maximally relevant, this means that ostensive stimuli must come with a specific claim of relevance. They must be at least relevant enough to be worth the audience's processing effort. However, communicators that want to be understood should strive to make their ostensive stimuli even more relevant than that. They cannot make their stimuli more relevant than their abilities and preferences allow. Consequently, ostensive stimuli come with a tacit claim to what Sperber & Wilson (1995) call *optimal relevance*: the ostensive stimulus is at least as relevant for the audience to pay attention to, and moreover the most relevant one given the communicators abilities and preferences. This is the *communicative principle of relevance* (Sperber & Wilson, 1995, 270).

The communicative principle of relevance is a claim about the level of relevance that a given ostensive stimulus will achieve for the audience. Comprehending ostensive stimuli means verifying this claim. The most obvious way to verify this relevance claim, and thereby go about comprehending the ostensive stimulus, is to

apply the following procedure (Wilson & Sperber, 2004, 614-617): First, access the interpretive hypothesis that is most easily accessible to the audience. An interpretive hypothesis is a set of hypotheses about the propositions that are *explicitly* and *implicitly* communicated. This includes hypotheses about reference assignment, variable assignment, free enrichment of the logical form, speech act and propositional attitude description, implicatures, and the contextual assumptions which are needed to warrant these inferences. Having accessed the most easily accessible interpretive hypothesis, the second step in the procedure is to check whether the utterance satisfies the audience's relevance expectations. If it does, the audience is licensed to accept this interpretation as the author-intended one. If it does not, the audience will access other interpretive hypotheses in order of accessibility, following a path of least effort until either an interpretation satisfying the audience's expectations of relevance are satisfied, or the process is abandoned because it causes gratuitous processing effort.

In order to illustrate how this heuristic works, consider how Per will comprehend Jessica's utterance in (17):

- (17) Per: Wasn't that superb last night, how Andrew played the violin?
 Jessica: Well, he didn't win the young talent's prize for nothing.

Recognising Jessica's utterance as an ostensive stimulus in response to his question, Per will understand that Jessica tacitly claims not only that her utterance is optimally relevant to Peter, but also that it is optimally relevant to Peter by addressing the question whether Jessica disagrees with Peter's assessment that Andrew played very well in last night's concert. Verifying this claim is straightforward by accessing the hypothesis that Jessica explicitly communicated the idea that *John did not win the young talent's prize for musicians by not playing above standard level* and processing this against the contextual assumptions *Winning the young talent's prize requires performance well above standard level* and *Someone who performs well above standard level at a competition is capable to perform well above standard level in general*. These contextual assumptions warrant the conclusion that *John played well above standard level at the concert last night*, and this conclusion manifestly satisfies the relevance expectations raised by Jessica's utterance. Per is therefore justified to treat this conclusion as an implicature, i.e. as an implication that Jessica intended him to draw and attribute to her informative intention.

This explanation is only a rough sketch of how to account for how we comprehend Jessica's utterance. In reality, the interpretations we arrive at are likely to be much richer in the sense that they weakly convey a range of implications, rather than merely a few precisely identifiable ones. I will touch on this issue in a moment when I consider the role of the particle *well*, which has a constraining function on the inferences that the audience is expected to draw from the utterance.

3.3 Procedural meaning

What is the place of linguistic semantics in this picture? Let us look at two different words in Example (17) and ask what is their role in the comprehension process: *nothing* and *well*. The word *nothing* can be understood as linguistically encoding

a schematic concept expressing the idea of an entity that does not exist. What this idea amounts to in the context of the expression *for nothing* needs to be determined in context.

The word *well*, on the other hand, has a signalling function: it signals that the utterance is more relevant in the accessible contexts than the audience may have anticipated (Blakemore, 2002, 140-141). This signalling function works as follows: *well* raises the activation level of the relevance-theoretic comprehension procedure as a whole. This means that all the sub-heuristics or procedures that the mental comprehension module may use in working out the comprehension heuristic become more activated by the use of *well*. As a result, it is less effortful for the audience to compute more *weakly communicated* implicatures than it would have been without the use of this explicit trigger (Blakemore, 2002, 140-141). Blakemore explains the meaning of *well* in her own words as follows:

[*Well*] is being used to encourage the hearer to process the utterance for relevance in a context which the speaker believes would not have otherwise yielded a maximally relevant interpretation (Blakemore, 2002, 141)

Linguistic semantics is about what words or morphemes linguistically encode. Linguistic meaning feeds into pragmatic inference processes and supports the inferential phase of comprehension. The goal of linguistic analysis is to find out what it is that enables a given linguistic item to optimally support the inferential component of the pragmatic comprehension process. Sperber & Wilson express these ideas in the following words:

The [communicative] principle of relevance makes it possible to derive rich and precise non-demonstrative inferences about the communicator's informative intention. With the principle, all that is required is that the properties of the ostensive stimulus should set the inferential process on the right track; to do this they need not represent or encode the communicator's informative intention in any great detail. Thus, illocutionary-force indicators such as declarative or imperative mood or interrogative word order merely have to make manifest a rather abstract property of the speaker's informative intention: the direction in which the relevance of the utterance is to be sought. (Sperber & Wilson, 1995, 254)

What I propose to do in this paper is to check the adequacy of the linguistic semantic analyses developed by Berthelin & Borthen (submitted) and Unger (2016a,b,c) of the Norwegian and German particles in question. These analyses were developed along the lines of the approach to procedural semantics outlined in this section. These analyses will be tested by way of exploring how well the semantic hypotheses that they make support the pragmatic processing of given examples. In this evaluation, an important question will be how well the given analyses explain the role these particles have not only on comprehension, but also on argumentation.

3.4 *Ostensive communication and argumentation*

Ostensive communication with verbal utterances gives enormous benefits to human communicators. By means of this type of communication, people can acquire rich and nuanced information that they could not acquire by any other means. Moreover, this information—if true and accurate—could improve their mental representation of the world tremendously both in terms of quality and quantity. Besides, verbal ostensive communication can enable communicators exchanging information that makes them much more effective in coordinating cooperative behaviour. However, ostensive communication also exposes the audience to the risk of being intentionally or unintentionally misinformed. Having the mind infested with misinformation and no way to efficiently guard against this problem would undermine the benefits of ostensive communication. Sperber et al. (2010) argue that the only rational approach for the audience to take in fighting this problem is to selectively allocate trust. This means that the audience varies between being more critical about the communicated information in some situations, but more disposed to be credulous in others. An audience that modulates levels of trust in this way exercises what Sperber et al. (2010) call epistemic vigilance. The same authors go on to argue that our mind is equipped with a number of cognitive mechanisms dedicated to this task. Among them is what Mercier & Sperber (2009, 154-157) call an *argumentation module*. The purpose of this cognitive mechanism is to link claims with chains of premises that support them.

Claims are statements that the audience is not prepared to accept at face value. The mechanisms of the argumentation module search for mental representations that could be inserted in the schema (18):

(18) P1 AND P2 ... WARRANT CLAIM C

When the WARRANT relation is established between a series of representations and the content of the claim, the series of representations P1 ... P2 will lead to the same logical inferences as representation C alone does, in any context. In other words, the series of premises (i.e. arguments) interpretively resembles and metarepresents the claim. The argumentation module is therefore a module dedicated to processing metarepresentations of a certain type.

To see how such an argumentation module may interact with comprehension mechanisms, let us look at an example taken from the advertisement in (1). Intuitively, the first sentence conveys an explicit statement that also conveys the implication *The audience should take the bus*. Moreover, we get the strong feeling that this implication is not something that the audience should merely comprehend, but it is something that the communicator intends to persuade the audience of. How can we explain these two intuitions? Consider first the comprehension of the implicature.

- (19) a. Explicit statement: One can save 17000 NOK in a year by taking the bus instead of the car for getting into town for work everyday.
 b. Contextual premise: I am interested in saving costs.
 c. Contextual implication: I can save money by taking the bus instead of the

- car. (Follows from (19a) and (19b))
- d. Contextual implication: I should take the bus. (Follows from (19b) and (19c))

The first sentence of the advertisement in (1) conveys an explicit statement (19a). This statement yields cognitive effects if processed in a context that contains assumption (19b): in this context, (19a) yields (19c) as a contextual implication. Furthermore, the contextual implication (19c) may be used as a premise together with (19b) to yield yet another contextual implication (19d). Since the explicit statement (on this interpretation) yields positive cognitive effects without incurring unreasonable processing effort, it can be accepted as an explicit statement the communicator intended to convey. Furthermore, since it is easy to see that with only minimal context extension, (19d) yields more cognitive effects (outline what sort of behaviour changes would follow from taking the bus), this implicit conclusion can also be attributed to the communicator's informative intention and accepted as an implicature.

However, the implicature amounts to a claim that the audience may not be prepared to accept at face value. This is, among other factors, due to the cognitive effects detailing behaviour changes that the audience would need to implement if they accepted that claim. True, the implicature (19d) logically follows from the explicit content of the utterance and an easily accessible contextual assumption. But how strong is the inferential warrant that the implicature receives from these premises? This is where the argumentation module comes in. Having identified the implicature as a claim that the audience is hesitant to accept, the argumentation module looks for premises that may warrant the claim strongly enough to justify acceptance. The comprehension procedure has already selected an appropriate context. The most effort-effective path for the argumentation module is to start with those contextual assumptions and the logical relations that the comprehension procedure has established among them and evaluate the strength of the warrant relation that these premises may confer on the implicated conclusion. Having found that the premises (19a), (19b) and (19c) indeed strongly warrant the conclusion (19d), the audience is now confronted with the fact that it is inconsistent to hold on to belief in the mentioned premises and still refuse to accept the conclusion that *I should indeed take the bus*.⁵

As this discussion makes clear, comprehension and argumentation evaluation are distinguishable processes that may work in parallel on ostensive stimuli. Wilson (2011) argues that linguistic procedural indicators may trigger (i.e. raise the activation level of) sub-procedures implemented not only in the comprehension module, but also in the argumentation module⁶. In particular, she accepts an argument made by Sperber (2001) that inferential connectors such as English *but*, *so*, *therefore*, and so on, should be analysed as triggering argumentation procedures directly.

However, since argumentation evaluation and comprehension work parallel in the way outlined above, processing procedures primarily related to comprehension may have a secondary effect on argumentation evaluation, and vice versa. This means that it should be an empirical issue whether in a given language a certain inferential connector triggers a comprehension procedure or an argumentation procedure.

Unger (2012) argues for this position by showing that by adopting this position, we can explain a number of intra-linguistic and cross-linguistic properties of certain inferential connectives and evidential particles. I will adopt this position in the present paper, showing that while *jo*, *ja* and *doch* effect argumentation evaluation, they do so in an indirect way.

4. PROCEDURAL MEANING OF NORWEGIAN JO AND GERMAN JA AND DOCH

4.1 Argumentative orientation in the semantics of the particles?

Since the difference in acceptability of *jo* on the one hand, and *ja* and *doch* on the other, appears to be connected with different functions of the utterance in argumentation, one may argue that the semantics of the particles must refer to argumentative orientation. For instance, it might be claimed that German *doch* and *ja* indicate a ‘negative’ argumentation orientation in the sense that the utterance is marked as providing reasons against a claim. Norwegian *jo*, on the other hand, does not specify this argumentative orientation. But this is difficult to maintain in the face of examples such as this:

- (20) 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 hidden successors of Led Zeppelin.’ (A09/JAN.00035 St. Galler Tagblatt, 03.01.2009, S. 34; Hin und Weg)

I do not see how the utterance with *ja* in (20) could be interpreted as involving an argumentation against a certain claim. On the contrary, *ja* occurs in the last of a series of three reasons to *support* the claim made in the first sentence of this example.

4.2 Mutual manifestness and common ground

It has long been recognised that these particles function to indicate what is ‘common ground’ between communicator and audience (Lütten, 1979; Fretheim, 1991; Fischer, 2006; Blass, 2000). Sperber & Wilson (1995) argue that a cognitively realistic account of the informal notion of ‘common ground’ must be based on the notions of *manifestness* and *mutual manifestness*, rather than on notions of mutual knowledge or belief.

Manifestness is a property of inputs to mental processes, or in other words, pieces of information (Sperber & Wilson, 2015, 133-135). A piece of information is *manifest* to the degree that the individual is capable of representing it mentally and accepting it as true or probably true. As I am typing this, I am able to see the Trondheimsfjord out of my office window. The water surface is visible in different colours, depending on the weather and position of the sun. Right now, the colour is some non-discript shade of greyish blue, not much contrasting with the colour of the sky. This fact is manifest to me. However, this fact not having much impact on my

activities, I do not pay attention to it, and most likely do not represent it in my mind. At other days, however, it happens that the same scene of the Trondheimsfjord may light up in such special colours that I cannot help paying attention and look up in the middle of my work. In this case, the information that the water surface is visible in special colours is not only highly manifest to me, but also manifest to a degree that I clearly do represent this fact mentally.

The totality of inputs to mental processes that are manifest to an individual at a given time is the individual's *cognitive environment* (Sperber & Wilson, 2015, 135). When two individuals meet and communicate, their cognitive environment overlaps: they may have shared memories from former conversations, they may be able to draw on facts that they each have learned at school. If they meet in a face-to-face conversation, they will both be able to represent their common physical environment. In short, two individuals may have a *shared cognitive environment* (Sperber & Wilson, 2015, 135) consisting of pieces of information that are accessible to them both.

The shared environment between individuals engaged in communication may have a subset of information about which it is also manifest to the individuals that they share it. Sperber & Wilson (1995, 41-44) define this subset as the *mutual cognitive environment*. A piece of information is mutually manifest to communicator and audience to the extent that it is manifest in their mutual cognitive environment. For example, when you come to visit me in my office, it is immediately manifest that we share the information about what colour the water surface of the Trondheimsfjord has that moment. This is part of our mutual cognitive environment (although we may not represent this information), because it is manifest to both of us that we are capable of seeing the fjord from the office window. At the same occasion, you may notice a copy of a textbook on statistics on my desktop. You happen to have read this particular textbook a while ago. It will be manifest to you that I most likely will have read a portion of this textbook, and this information will be in our shared cognitive environment. However, since it is not manifest to me that you have read this book as well, this information is not in our *mutual cognitive environment*. Consequently, you cannot in our conversation say something to me that depends on knowing what is written in that particular book and expect me to immediately understand what you meant. In contrast, when during our conversation in my office the clouds suddenly clear and the sun lights up the fjord in amazing colours, I can exclaim *Wow, what an amazing view!* and expect you to understand what I was trying to communicate.

These very general considerations already suffice to illustrate that correctly estimating and keeping track of what is mutually manifest is an important task for communicators. One can therefore expect that languages may have developed expressions whose function is to indicate the degree of manifestness or mutual manifestness of certain pieces of information (Blass, 2000). Shortly I will review semantic analyses of the particles *jo* (Norwegian), *ja* and *doch* (German) which attribute to them the function to indicate in which way the information communicated is assumed by the communicator to be (mutually) manifest.

Finally, recall that manifestness is a matter of degree. Information may be more or less manifest to an individual, depending on two factors: first, the more accessi-

ble to mental representation or memory retrieval a piece of information is, the more manifest it is to the individual. Second, the stronger evidence is available for evaluating it as true, the more manifest it is. Therefore we can expect procedural indicators of the degree of manifestness of a piece of information to fall into three types:

- (21) a. Expressions indicating that the information conveyed is highly accessible.
 b. Expressions indicating that the information conveyed is strongly evidenced.
 c. Expressions indicating that the information conveyed is highly manifest as a result of all factors combined.

The analyses reviewed below argue that the respective particles under investigation realise these options in different ways.

4.3 Norwegian *jo*

According to Berthelin & Borthen (submitted), the Norwegian particle *jo* in its sentence internal position raises the activation status of two processing procedures. These procedures can be described as follows (rephrasing Berthelin & Borthen's formal analysis slightly):⁷

- (22) a. Interpret the explicature of the utterance as mutually manifest to communicator and audience
 b. Interpret the explicature of the utterance as a premise for supporting some accessible assumption(s) *q* as implicature(s)⁸

Applying this semantics to example (1) [a], we can account for the audience's comprehension in the following way:

- (23) a. The money you save, you can certainly use for something nice or useful.
 b. If taking the bus brings both personal and environmental advantages, then there are stronger reasons for taking the bus than the audience might have been aware of.
 c. Saving money for use on nice or useful things is a personal advantage.
 d. There are stronger reasons for taking the bus than the audience has previously been aware of.
 e. It is not the case that there are no good reasons for taking the bus.

The previous sentence explicitly stated that one can save money by taking the bus to work, and to the extent that the audience accepts this claim, the explicature of the utterance (that one can surely use saved money on something useful or nice) is already manifest to the audience. The particle *jo* indicates that this is indeed the intended interpretation, but also triggers a search for some more implications. Additional premises like (23b) and (23c) are easily accessible, and yield conclusions such as (23d) as implicature. This implicature functions in turn as an argument to oppose the assumption THERE ARE NO GOOD REASONS TO TAKE THE BUS in (23e).

Applying the semantics to example (1) [b], we can explain the comprehension process in this way:

- (24) a. You can read, work, relax, communicate and dream on board the bus.
 b. One can use the time on the bus for useful or pleasurable purposes in ways one

- could not when driving a car or riding a bike.
- c. If riding the bus to work has even more advantages than financial ones, there are even stronger reasons for taking the bus than the audience has previously been aware of.
 - d. There are even stronger reasons for taking the bus than the audience has previously been aware of.

Assumption (24a) describes something that the audience has most likely experienced before, something that is strongly manifest to him. *Jo* requires the audience to look for more implications that follow particularly from this assumption. Such implications can be gained from accessing easily available premises such as (24b) and (24c), which together yield the conclusion (24d). This conclusion contextually strengthens the further conclusion (weak implicature) needed in processing (1) [a], thus increasing relevance by backwardly strengthening this conclusion.

Notice this point about implicatures: implicatures are implications (conclusions or premises) that the communicator *intends* the audience to entertain. This means that they must be compatible with the communicator's preferences (and abilities). For example, in a communication where the communicator persuades the audience of some point, only relevant implications that are conceivably in harmony with this goal of the communicator can be considered as potential implicatures. Thus, the constraint that the information marked by *jo* as more manifest should be used to derive further *implicatures* (i.e. the constraint in (22b)) in effect restricts the search for further implications to those that may be consistent with the communicator's manifest goals.

4.4 German particles *ja* and *doch*

Unger (2016a,b,c) argues that the German particles *ja* and *doch* have the following procedural semantics:⁹

- (25) *Ja* indicates that there is strong evidence for the truth of P.
- (26) *Doch* triggers the following procedures:
 - (a) increase the epistemic strength for P.
 - (b) access a context containing NOT P

Both modal and non-modal uses of *ja* and *doch* (i.e., where the particle does not occur in the sentence medial position between the finite and infinite component of the verb) raise the activation level of these procedures. However, modal and non-modal uses of these particles raise the respective procedures to different degrees: in modal uses, the procedures are activated merely to some degree, whereas in non-modal uses these procedures are activated to a higher degree. As a consequence, modal uses of these particles are relevant only in situations where it is useful for the communicator's success that the manifestness of propositions conveyed in the utterance is raised to some extent, but not much. Such situations may involve argumentation, where persuasive arguments often can be made by explicitly referring to mutually manifest premises.

Why is it good for persuasive arguments to point out that the claim is warranted

by mutually manifest assumptions (premises)? If a claim is warranted by some assumptions that both the audience and communicator take for granted (i.e. is highly manifest to them) and have reasons to think that they share them (i.e. is mutually manifest to them), then the audience has good reasons to accept this claim. Not doing so would imply revising a *mutually* manifest assumption, and this does not only involve a cognitive cost for re-assessing the validity of this assumption, but also a social cost for rejecting some common ground (Unger, 2018). Therefore it is of high persuasive value if the communicator can show the audience that her claim is warranted by premises that are part of their *mutual* cognitive environment.

Recall that manifestness involves two factors, epistemic strength and cognitive accessibility. Both *ja* and *doch* affect the manifestness of propositions by indicating the epistemic strength of these propositions. Therefore, applying either particle to an assumption that is already mutually manifest enough in context may bias the audience to seek the relevance of this move in the claim that the audience did not appreciate the factuality of the mutually manifest assumption.

This is in contrast to Norwegian *jo*, which affects the manifestness of propositions on the whole rather than selectively affecting the epistemic strength factor involved in manifestness. This is not likely to bias the audience into attributing to the communicator the belief that the audience did not appreciate the factuality of the mutually manifest assumption.

5. ARGUMENTATION IN THE ADVERTISEMENT AND THE ROLE OF MODAL PARTICLES

The advertisement page on AtB's web site makes it immediately manifest to the audience that the text is intended to achieve relevance by providing reasons why the audience should decide to take the bus. Effective reasons are those that the audience will agree with, so the audience's expectation will be that whatever reasons the text will provide for taking the bus, these will be ideas that are already at least weakly mutually manifest. Using a linguistic indicator of mutual manifestness in this situation will raise the level of manifestness of those ideas more than is necessary, and the audience will look for additional cognitive effects. Arguably, this is what German *doch* or *ja* would cause here: the audience will look for further cognitive effects and finds them in interpretations that involve the communicator rebuking the audience for overlooking commonly conceded factors – something that could be offensive and hence unfortunate in texts that aim to convince an audience to consume the advertised product.

Norwegian *jo*, on Berthelin & Borthen's (submitted) analysis, does more than merely indicate mutual manifestness. It also triggers the search for implicatures, and in an argumentative context such as the one triggered in this advertisement, these may multiply if the mutually manifest assumption conveyed by the utterance containing *jo* is taken as a reason aimed at convincing the audience: implicatures may be recovered that expand on the force of the arguments given in the text. This may offset the detracting effect that a manifestness raising procedure may have on

interpretation. Since German *ja* and *doch* do not trigger this procedure, there is nothing that could offset the detracting effects that the manifestness-raising procedures triggered by these particles may have in this kind of argumentative context.

However, Norwegian *jo* does trigger such a manifestness raising procedure that can lead to detracting effects in this context. But the implicature construction procedure is likewise triggered by this particle, and this may offset these detracting effects. This may explain why the uses of *jo* on the AtB web page (in particular the second one) are judged as only marginally acceptable by at least some native speakers (Kaja Borthen, personal communication).

6. CONCLUSION

In this paper I have considered similarities and differences in the use of the modal particles *ja* and *doch* in German on the one hand, and the Norwegian modal particle *jo* on the other. These particles largely share the discourse function of indicating that the information conveyed should be regarded as common ground. They also have in common that they can have subtle and profound impacts on argumentation. However, the respective particles impact argumentation in different ways, raising the question whether these differences can be traced to differences in the particles' semantics. In this paper I discussed in detail an extended example of the use of Norwegian *jo* that cannot be replicated in German by use of the particles *ja* or *doch*. According to independently developed procedural semantic analyses of these particles, German *ja* and *doch* indicate that it is mutually manifest to communicator and audience that the information conveyed in the utterance is well evidenced. When this particle is applied to information that most likely already is well evidenced for the audience, then the particle is likely to encourage the audience to draw implications that call into question the communicator's goals. Norwegian *jo*, on the other hand, indicates not only that the information conveyed is mutually manifest—either well evidenced or easily accessible—and is supposed to help the audience recognise the communicator's implicatures. Since implicatures are implications that the communicator intends the audience to draw, and it is reasonable to assume that rational communicators intend their audience to draw implications that are in line with their communicative goals, it follows that the audience is not likely to draw implications from utterances marked with *jo* that would compromise the communicator's argumentative goals. I showed how these differences in the semantics of the particles explain the different argumentative effects that the particles have in the extended example. Since the procedural semantic analyses of the three particles in question were developed independently without recourse to cross-linguistic or comparative observations, the fact that these analyses can explain the observed differences in argumentative effects provides additional support for these semantic analyses.

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ENDNOTES

1. Source: www.atb.no/kampanjer accessed 28 October 2015.
2. The example pairs (5)-(6) and (7)-(8) indicate that word order variation does not affect these judgments.
3. Thanks to Patrick Grosz for pointing this out. He also points out that the particle-less version is more unnatural than using any of the particles under discussion. I agree with this relative judgement, although I must stress that omitting the particle in (11) does not lead to complete unnaturalness, according to my intuitions. However, the point is that although using *ja* or *doch* will result in a natural discourse in German, their uses causes effects that are absent in the Norwegian text, and clash with the persuasive goals of the advertisement.
4. Examples (13)-(16) are based on an example use by Grice (1989, 109) and discussed by Sperber & Wilson (2015, 119).
5. In the absence of an epistemic defeater, that is. A defeater may be the knowledge that I live close enough to my work place that by cycling or walking I could save even more than by taking the bus instead of the car.
6. and other dedicated cognitive mechanisms relevant for the processing of ostensive stimuli, e.g. other epistemic vigilance mechanisms besides the argumentation module, social cognition mechanisms, emotion reading mechanisms, and others.
7. Other accounts of *jo* include Andvik (1992) and Fretheim (1991).
8. An anonymous reviewer objects to this analysis on the grounds that (a) sentence-final *jo* often does not trigger implicatures, and there is no reason to expect sentence-final *jo* to be lexically different from sentence-internal *jo*, and (b) sentence internal stressed *jo* in double peak constructions such as *Det BLE jo KRANGLA i går* 'It came to a quarrel last night' or *De KRANGLA JO* 'They quarreled' appear to be indicators of concessive speech act types rather than triggers of implicature. However, even if we assume *jo* to be lexically the same in sentence internal and sentence final positions, it does not follow that the particle cannot have different functions in the different positions. In particular, it is possible that sentence final *jo* operates on higher-level explicatures rather than on implicatures, given that sentence-final particles occur in the right dislocated syntactic position which is pragmatically closely associated with modulations of higher-level explicatures (Borthen, 2014, forthcoming; Berthelin, forthcoming). Finally, what makes concessive speech acts relevant is what the fact that the communicator conceded a certain point to her audience implies for the conversational score. For example, a communicator saying *De KRANGLA JO* will typically implicate something like *That the communicator concedes that the persons the conversationalists talk about have quarreled does not affect her main claim made earlier in the conversation.* In other words, it appears that concessive speech acts necessarily come with (perhaps weakly communicated) implicatures. Thus, these objections against claiming that part of the function of sentence internal *jo* triggers implicatures are not convincing, although they do indicate that a thorough investigation of the relation between sentence medial and sentence final *jo* is highly desirable. This, however, is beyond

the scope of this paper.

9. For other approaches to *ja* and *doch*, see e.g. Zimmermann (2011). Karagjosova (2009) develops a unified account of accented and unaccented *doch* within Discourse Representation Theory. For historical linguistic perspectives, see Burkhardt (1994) and Zeevat & Karagjosova (2009).

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