Modal Particles ≠ Modal Particles (= Modal Particles)
Differences between German modal particles and how to deal with them semantically

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Abstract

It is an implicit assumption in the literature on German modal particles (MPs) that they behave homogeneously. This assumption, however, has been challenged recently. First, it has been noted that not all MPs exhibit strict speaker orientation and that some can receive a non-speaker oriented reading. Secondly, while some MPs (like *wohl*) seem to modify the sentence mood directly, others (like *ja*) have been argued to make an independent contribution. This paper presents a formal, multidimensional framework that analyses MPs as contributing expressive/use-conditional content and sketches how it can model the observed heterogeneous behavior.

1 Introduction

Even though modal particles (MPs) constitute a relatively small and closed class of words, their existence can be viewed as one of the characteristic properties of German. Accordingly, MPs have received a lot of attention in both the traditional German linguistics literature (e.g., Autenrieth 2002; Helbig 1988; Thurmail 1989; Weydt 1969, 1988) as well as in more theoretically oriented streams of linguistic research (Bayer & Obenauer 2011; Bayer & Trotzke t.a. Coniglio 2011; Egg 2013; Repp 2013; Struckmeier 2013: e.g.,). Even if there is still some ongoing debate about their syntactic and semantic analysis, a result of the extensive body of research undertaken is that their behavior is well studied and there seems to be a canonical list of properties that most work seems to have settled upon (cf. e.g. Thurmail 1989: 37; Meibauer 1994: 29; Autenrieth 2002: 27).

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Characteristic properties of MPs:

- are uninflectable.
- cannot receive main stress.
- occur only in the so-called middle field (Germ. Mittelfeld).
- occur commonly before the rhyme.
- can be combined with each other.
- cannot be coordinated.
- cannot be modified.
- are optional.
- cannot be negated.
- cannot be questioned.
- have sentential scope.
- do not affect truth-conditions.
- are speaker-oriented.
- modify the sentence mood.

Not all of these properties are interesting or unproblematic. The fact that modal particles cannot be inflected, (1a), is one of the necessary properties that makes them particles in the first place, but does not help to distinguish them from other particles like, for instance, focus particles. Regarding (1b), it is well-known that there are some notorious stressed versions of MPs, most notably doch ja and schon, which are analyzed in Egg & Zimmermann 2012, Gutzmann 2010, and Féry 2010 respectively.

(2) A: Malte ist nicht nach Utrecht gefahren. (Egg & Zimmermann 2012: 226)
   'Malte didn’t go to Utrecht.'
   B: Er ist doch nach Utrecht gefahren.
   'He did go to Utrecht.'

(3) A: David riecht wie ein Zombie. (Gutzmann 2010: 132)
   'David smells like a zombie'
   B: David ist ja ein Zombie.
   'David is a Zombie, you should have known that!'

(4) A: Do you like natto beans? (Féry 2010)
   B: Ja, die mag ich schon.
   'Yes, I do like them.'

There are also well-known exceptions to the middle-field restriction. Together with a wh-phrase, certain MPs like bloß, nur or schon can occur in the so-called prefield (Germ. Vorfeld), that is, the position that corresponds to CP,spec (Bayer & Obenauer 2011; Bayer & Trotzke t.a.).

(5) Wo nur ist der Stolz geblieben?
   'Where nur is the pride remained'
   where NUR is the pride remained
Regarding the optionality of MPs, (1h), optative clauses are a notable exception in which MPs are rather obligatory (Grosz 2012, 2013), insofar as optative clauses without MPs are judged as rather badly (Grosz 2013: 150).

(6) a. Wenn es doch/nur/bloß wärmer wäre! *If only it were warmer!*
b. #Wenn es wärmer wäre.

Similar judgments apply to deliberative ob-verb-last questions (Gutzmann 2011b: 80f., Zimmermann 2013).1

(7) a. Ob sie wohl kommt? *If she will come, I wonder.* b. ?Ob sie kommt?

These are well-known exceptions to some of what has been assumed to be crucial properties of MPs.2 In this paper, I will add to these exceptions by focusing on the last two properties in (1), that is, speaker orientation (1m) and interaction with sentence mood (1n). First, regarding the former, it shall be noted at the get-go that this is rather unfortunate terminology, since many MPs target the hearer when they appear in interrogatives, as a reviewer rightly pointed out.3 Hence, we should think of this property more as utterance orientation. However, even under this revised notion, it is not the case that all MPs are necessarily utterance-oriented. While utterance orientation seems to be the default, there are also MPs that can receive an embedded interpretation, at least in some embedding contexts.

Secondly, even though all MPs interact in intricate ways with the mood of the sentence in which they occur, the do not all do so in the same manner. As has been previously been argued (e.g. Gutzmann 2008; Zimmermann 2004a), there are (at least) two ways in which MPs can interact with sentence mood. First, there are MPs that directly modify the sentence mood, just like (1n) suggests. But secondly, there are also MPs that add an independent, mood-like contribution to the sentence. It is only the overall interpretation that makes it seem as if the mood may be modified.

My aims in this paper are twofold. First, I want to present the non-homogeneous behavior of MPs regarding (1m) and (1n) in more detail. Secondly, I want to argue for an approach that analyzes MPs as contributing expressive or use-conditional meaning (Kaplan 1999; Potts 2007), and make a suggestion about how the observed differences in behavior

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1 For more discussion, see Altmann 1993 and, more recently, Thurmair 2013.
2 For more discussion of the properties commonly ascribed to MPs, see Thurmair 2013.
3 This seems to be true for MPs like denn, which can only occur in interrogatives, or MPs like doch or wohl that occur in declaratives, where they target the speaker, but undergo an "epistemic flip" in interrogatives so that they relate to the hearer's epistemic state (Zimmermann 2004a,b).
may be accounted for in the same formal framework. In order to do so, I will first motivate the general idea of analyzing MPs as expressives in Section 2. After that, I will, in Section 3, sketch a multidimensional framework in the Pottsean tradition (Potts 2005). I will discuss the behavior of MPs regarding utterance orientation and speech act modification in Section 4, and then sketch how the heterogeneous data might be implemented in this framework in Section 5. Section 6 concludes and points out some areas for further research on these matters.

2 Modal particles and expressive

Many of the characteristic properties of MPs listed in (1) are shared by by expressions that contribute expressive instead of descriptive content and, accordingly, MPs have been analyzed as being expressives as well (Gutzmann 2009, 2013; Kratzer 1999, 2004; McCready 2012; Zimmermann 2004a). To see this, let us first check the prototypical properties of expressive meaning.

(8) Characteristic properties of expressives (Potts 2007: 166f.)

   a. **Independence**: Expressive content contributes a dimension of meaning that is separate from the regular descriptive content.

   b. **Nondisplaceability**: Expressives predicate something of the utterance situation.

   c. **Perspective dependence**: Expressive content is evaluated from a particular perspective. In general, the perspective is the speaker’s, but there can be deviations if conditions are right.

   d. **Descriptive ineffability**: Speakers are never fully satisfied when they paraphrase expressive content using descriptive, i.e., nonexpressive, terms.

   e. **Immediacy**: Like performatives, expressives achieve their intended act simply by being uttered; they do not offer content so much as inflict it.

   f. **Repeatability**: If a speaker repeatedly uses an expressive item, the effect is generally one of strengthening the emotive content, rather than one of redundancy.

Let us go through this list and check in how they apply to MPs as well. Independence targets the fact that expressives (at least non-mixed ones, cf. Gutzmann 2011a; McCready 2010), do not affect the truth-conditions of an utterance. For instance, the following sentences are true if Kaplan got promoted, regardless of the negative attitude expressives like *damn* or *bastard* express regarding their argument.
Besides this intuition, the independence of expressive content can be witnessed by the fact they cannot be directly challenged in discourse by a plain denial. An expressive like damn cannot targeted by simple negation. 4


The fact that they cannot be interpreted under negation, make them similar to presuppositions. However, with presuppositions, there is an inherent dependency of the descriptive from the presupposed content, while expressives are truly independent. That is, one can agree to the asserted content, while then rejecting the negative attitude regarding Kaplan conveyed by damn.

(11) A: That damn Kaplan got promoted. 
B: Yes, he got promoted, but nevertheless, I think he's a fine guy.

This is not possible for standard cases of presuppositions.

(12) A: Kaplan won the race. B: #Yes, he won, but he didn't participate.

Independence also holds for MPs. First, speakers consistently have the very robust intuition that MPs do not effect the truth-conditions of an utterance. That is, the following variants all have the same truth-conditions.

(13) Kaplan wurde \[\{\emptyset, \text{ja}, \text{halt}, \text{doch}, \text{eben}\}\text{ befördert.} \text{‘Kaplan got }\emptyset/\text{MP promoted.’}\]

As is the case for expressives, the contribution of an MP cannot be directly challenged. For instance, the contribution by ja may be rendered requiring that the propositional content “is either already part of shared knowledge, or else can be verified on the spot, given the extra-linguistic evidence” (Kratzer 2004: 126). This cannot be targeted by a plain denial. 5

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4 Of course, expressive content, just like presuppositions or implicatures, may be challenged by more indirect ways, e.g. by What do you mean by "damn" or Wait – why did you say “damn”?.

5 Again, more indirect ways of challenging the content of ja are impossible. See the previous footnote.
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(14) A: Kaplan wurde ja befördert.
   B: #Nein, das wusste ich nicht.

   'Kaplan got promoted, as you know.'

   'No, I didn't know that.'

However, it seems possible to challenge the contribution by *ja* if one first accepts the propositional content, similar to how the expressive in (11).

(15) A: Kaplan wurde ja befördert.
    B: Okay, aber das wusste ich nicht.

   'Okay, but I didn't know that.'

Nondisplaceability says that expressive meaning generally cannot be displaced by linguistic means (Potts 2007: 169). That is, even inside linguistically expressed semantic contexts – like speech or attitude reports, modal or conditionalized statements, or reports of past events – expressives cannot be evaluated in that semantic context, but always convey something about the utterance context or the utterance itself. For illustration, consider the following examples (cf. Potts 2007: 170).

(16) a. That damn Kaplan is late. #I like him.
    b. Maybe that damn Kaplan is late. (#Then again, maybe I like him.)
    c. Yesterday, that damn Kaplan was late. #Today, I like him again.

In contrast to the expressive content, the descriptive content in (16a)–(16b) gets displaced by the semantic operator. Even if the utterance is true, it does not (necessarily) hold for the utterance situation that Kaplan is late.

In addition, observe that presuppositions also behave differently. Crucially, presuppositions allow for non-global interpretation. Consider first the following example.

(17) [Context: Kaplan didn’t participate in the race.]
    David dreamed that Kaplan didn’t win the race.
    \[ \leadsto \] David dreamed that Kaplan didn’t participate or win in the race. (local)
    \[ \leadsto \] David dreamed that Kaplan participated in the race and didn’t win. (intermediate)

That is, displacement in this sense means that the interpretation of an utterance is displaced from the actual utterance situation. It is often assumed to be one of the key features or “design features” of human languages (Hockett 1958: 579), setting them apart from other forms of communication like animal communication (Coleman 2006; Hockett 1958; Hockett & Altmann 1968; Yule 2006). It should not be confused with the syntactic notion of displacement, which is a descriptive notion concerning some movement operations.
The context in (17) makes it clear that a global interpretation, in which the presupposition that Kaplan participated in the race project, is not feasible. However, the sentence is nevertheless fine, since it still has both a local and intermediate interpretation of the presupposition. Crucially, this does not hold for expressives and hence a similar example to the one in (18) renders an embedded expressive infelicitous.7

(18) [Context: Neither I nor David feel negatively towards Kaplan or whether he is promoted or not.]

David dreamed that damn Kaplan didn’t get promoted.

David dreamed that it was not the case that he dislikes Kaplan or that he get promoted. (local)

David dreamed that he disliked Kaplan and that Kaplan didn’t get promoted. (intermediate)

Similar observations can be made for MPs. That they cannot be negated is actually one of their characteristic properties, as stated in (1i). But just like expressives, they can neither be deferred by modals or past tense. The following examples illustrate this. In addition to ja, I use doch, which marks the propositional content as previously known but inactive, and suggests that it may contradicting some recent discourse issue.

(19) a. Kaplan wurde ja nicht befördert. #Das konntest Du nicht wissen.

‘Kaplan ja didn’t get promoted. #You could not have known that.’

b. Vielleicht wurde ja Kaplan befördert. #Aber vielleicht weißt Du das auch noch nicht.

‘Maybe Kaplan ja got promoted. Then again, maybe I didn’t know that.’

c. Gestern wurde Kaplan doch befördert. #Heute hast Du das aber nicht vergessen.

‘Yesterday, Kaplan doch got promoted. #But today, you certainly have not forgotten that.’

The reason for this is, arguably, that MPs always take widest scope (1k), and hence can never end up in the scope of negation, or a tense or modal operator.

Obviously, nondisplaceability is closely connected to speaker or utterance orientation, since having an embedded interpretation is an instance of linguistic displacement. Speaker orientation is also featured in (1m) of the list of MP-properties and is viewed as a central property of MPs.8 However, and this will of course be one of the two main topics of this

7 I used “neither I nor David” in the context to control for possible differences in in speaker orientation, which I will discuss later.

8 A reviewer asked whether one shouldn’t assume that MPs are modifiers of speech acts, following Jacobs’s (1991) approach which is couched in terms of illocutionary semantics. Space limitations do not permit me to give this discussion a proper treatment here, so I refer the reader to relevant discussion in Autenrieth 2002; Gutzmann 2008, 2015; Ormelius-Sandblom 1997; Thurmair 2013.
paper, the case for speaker orientation is not as clear as the one for displacement by other means. Interestingly, Potts (2007) already equipped the property of speaker orientation with the caveat clause that the perspective from which expressive content is evaluated does not always need to be the speaker if the right conditions hold. Without further contextual support, expressives receive a speaker-oriented interpretation, which is why the following sentence seems odd at least.

(20) Kresge believes that that **damn** Kaplan should be promoted. *I think he’s a nice.

However, as Potts makes very clear, the negative attitude displayed by the expressive may be attributed to an individual other than the speaker. Consider, for instance, Kratzer’s (1999) example that predates Potts’s by several years (my emphasis, DG).

(21) My **father** screamed that he would never allow me to marry that **bastard** Webster.

The most sensible interpretation of (21) is one in which the expressive **bastard** receives an embedded interpretation. That is, the negative evaluation of Webster is likely to be attributed to the speaker’s father. This reading can be made clear with a continuation like the following.

(22) But he always hated him, the more I loved him.

However, a subject interpretation of (21) is not the only one. Consider a context in which the speaker, after a divorce, feels very negatively, while the speaker’s father was always against the marriage because he think negatively about his daughter and that Webster is too good for her. Then, (21) will again get a speaker-oriented interpretation. The question is how this flexible interpretation can be accounted for. However, to answer this question properly and also tackle the question of non-utterance-oriented MPs, we need to have the details of the formal system in place. Therefore, I will postpone giving examples for the (un)embeddability of MPs for now until the more detailed discussion in Section 4.

The next property in (8d), descriptive ineffability, concerns the observation that expressives cannot be perfectly paraphrased by descriptive vocabulary. This is directly reflected by the fact that MPs can hardly be paraphrased at all, as can be witnessed by the huge body of work on the proper translation of MPs. As a quick argument, consider the impossibility of **ja** in rhetorical question or the impossibility of **denn** in rising declaratives.

at, or green (Geurts 2007: 210). However, as I argued in Gutzmann 2013, the crucial point here is that something would get lost, even if one came up with a perfect descriptive paraphrase for an expressive item, since one changes what Kaplan (1999: 41) calls the mode of expression. That is, even if ‘as you may know’ were a perfectly adequate descriptive paraphrase for ja, using it over the MP would switch the mode of expression and hence affect the way this content interacts with the other content and the discourse structure. For instance, it is much easier to challenge the content of the complex phrase than the content of the MP.

(23) A: Kaplan wurde befördert, wie Du vielleicht weißt.
   as you maybe know got Kaplan promoted
   ‘Kaplan got promoted, as you may know.’
B: Nee, das wusste ich nicht.
   no that knew I not
   ‘No, I didn’t know that.’

The next property on Potts’s (2007) list, immediacy, construes expressive meaning as non-disputable. This contrasts with the descriptive content of an assertion, which is thought to propose an update to the discourse context by adding the propositional content to the common ground (cf., among many others, Farkas & Bruce 2010; Stalnaker 1978). Instead, expressive content is not put onto the discourse table for further discussion, acceptance, or rejection, but directly inflicts an update onto the discourse.1 That is, they impose an update, instead of proposing one, to use AnderBois, Brasoveanu & Henderson’s (2013) terminology. As for MPs, it is hard to see whether this property applies to them or not. As already shown, it is clear that the contribution made by an MP cannot be accepted, challenged or refuted like ordinary descriptive content can. However, they do not impose an independent update on the common ground either, like damn or the appositives studied by AnderBois, Brasoveanu & Henderson (2013) may do. Instead, MPs give additional information about how the propositional content relates to the common ground (Bárány 2009; Bross 2012; Egg 2013; Gast 2008; Repp 2013; Zeevat 2005).11

The last remaining property, repeatability, concerns the observation that proper expressives can be repeated without being redundant, instead enforcing the expressive effect. Potts (2007: 182) provides the examples in (24), which contrast which the feeling of re-

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10 It is because of this property that, in his previous work, Potts (2005) subsumed expressive content under the broader notion of non-at-issue content. However, as I argued in Gutzmann 2012: Chap. 9.3, the two distinctions between truth-conditional/descriptive vs. use-conditional/expressive content on the one hand, and at-issue vs. non-it-issue are orthogonal to each other and all four possibilities are attest. The inference from use-conditionality to non-at-issueness is a default inference at best.

11 This is why, instead of the traditional term modal particles, the particles in question are often called discourse particles, which seems descriptively more apt, but may suggest to cover other particles with discourse functions as well, which syntactically speaking are not MPs. See the discussion in Abraham (this volume).
dundancy one gets with the descriptive counterpart in (25).

(24)  a.  Damn, I left my keys in the car.
     b.  Damn, I left my damn keys in the car.
     c.  Damn, I left my damn keys in the damn car.

(25)  #I’m angry! I forgot my keys. I’m angry! They are in the car. I’m angry!

As discussed by Geurts (2007) and myself (Gutzmann 2013), repeatability is not a good criterion to distinguish between descriptive and expressive content. First, there are instances of descriptive content that can be repeated to strengthen the intensity instead of being redundant (cf. Geurts 2007: 213).

(26)  a.  far far away, many many years ago, a very very big apple
     b.  He entered the room and he sat down, before he took out a newspaper out of the big box he had with him.

Secondly, there are expressives that cannot be repeated. First, not all expressives can appear in as many syntactic positions as damn can. Repeating them leads to much more marked constructions. So, while both (27a) and (27b) are perfectly fine, the combination in (27c) is rather odd, while (27d) really feels redundant, and (27e) just is ungrammatical.12

(27)  a.  That bastard Kaplan got promoted, that bastard.
     b.  Kaplan got promoted, that bastard.
     c.  #That bastard Kaplan got promoted, that bastard.
     d.  #Kaplan got promoted, that bastard, that bastard.
     e.  *That bastard bastard Kaplan got promoted.

In addition, note that repeating damn in the same position is rather marked as well, in contrast to the repetition of very in (26a).

(28)  ??That damn damn damn Kaplan got promoted.

That is, repeatability does not seem to be a definite criterion for expressive content after all. Hence, the fact that MPs usually cannot be repeated at will does not constitute an obstacle for a use-conditional analysis.

(29)  *Kaplan wurde \{ doch doch \\
halt halt \\
ja ja \\
wohl wohl \} befördert. ‘Kaplan got MP MP promoted.’

12 There is compound reading of bastard bastard akin to the famous salad salad (Ghomeshi, Jackendoff, Rosen & Russell 2004).
To conclude, MPs share all the clear criteria for expressive meaning, only differing regarding those that do not hold strictly for what we think of as true expressives to begin with. Therefore, it is not a surprise that several suggestions to analyze MPs as contributing expressive meaning have been made (Gutzmann 2009, 2013; Kratzer 1999, 2004; McCready 2012; Zimmermann 2004a). In the following, I will sketch the basic ideas of such an approach and how one might be able to implement the observed flexible non-homogeneous behavior regarding speaker/utterance orientation and sentence mood modification.

3 A multidimensional approach to MPs

The hallmark of multidimensional approaches is that they feature a second meaning dimension for expressive/use-conditional content along side the ordinary truth-conditional component. The general idea of such a hybrid semantics, as I call the simultaneous employment of truth- and use-conditions for semantic analyses, is rather independent of the actual formalization. However, in order to have a predictive theory, one needs an account of how the use-conditional content of an utterance is composed of the truth- and use-conditional content of its parts. In this section, I will briefly sketch the approach I developed in Gutzmann (2012, 2015), which I call $L_{TU}$, and which can be regarded as a consequently multidimensional reformulation of the influential family of approaches developed by Potts (2005) and others (Gutzmann 2011a; McCready 2010). Since I am interested in the application of this approach to MPs, I will directly start using MPs for illustrating how the system works. However, as I note elsewhere (Gutzmann 2013), the term expressive meaning may not be well suited for MPs, since that term may suggest an emotional component, while for most MPs it is not really apparent that they concern the speaker’s emotions. Therefore, I suggest to adopt Recanati’s (2004) terminology and use the term use-conditional meaning as a more general term for conventional non-truth-conditional meaning.

The basic idea of all hybrid frameworks is that use-conditional expressions like MPs can access the truth-conditional content in order to take an argument. What is crucial about this kind of expressions, which may be called functional expletive use-conditional items (Gutzmann 2013), is that they do not affect their argument from a purely truth-conditional perspective but rather place a use-conditional proposition into the use-conditional dimension which is independent from the truth-conditional content. That is, using an MP in an otherwise purely truth-conditional sentence leads to a hybrid content that makes a meaningful contribution to both dimensions of meaning. That is, a simple example like in (30) gets a two-dimensional interpretation along the lines of (31), where the superscripted $t$ and

\[ t \]

They are functional, since they need an argument, and expletive, because truth-conditional-wise they are empty. The notion of (certain) expressives being semantic expletives, comes from Cruse (2004: 57), which should be not be confused with syntactic expletives. See Gutzmann 2013 for a typology of kinds of use-conditional items.
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u specific the truth- and use-conditional content respectively.14

(30) Peter schläft ja. ‘Peter sleeps MP’

\[ \| (30) \| ^ t = \left[ \text{sleep(peter)} : t \right] \]

\[ \| (30) \| ^ u = \left[ \text{ja (sleep(peter)) : u} \right] \]

The difference between truth-conditional and use-conditional content comes down to a lexical distinction in semantic types. In addition to the usual truth-conditional types, \( \mathcal{L}_{TU} \) introduces a new basic type for use-conditional propositions (which are sets of contexts) and a corresponding clause for the recursive definition of complex use-conditional types.15

(32) Ordinary truth-conditional types

a. \( e, t, s \) are basic truth-conditional types \((\text{entities, truth values, worlds})\)
b. If \( \sigma, \tau \) are truth-conditional types, \( \langle \sigma, \tau \rangle \) is a truth-conditional type.

(33) Use-conditional types

a. \( u \) is a basic use-conditional type. \((\text{use-conditional proposition})\)
b. If \( \sigma \) is a type and \( \tau \) is a use-conditional type, \( \langle \sigma, \tau \rangle \) is a use-conditional type.

The way the two meaning dimensions are calculated in \( \mathcal{L}_{TU} \) is by not using just two, but rather three dimensions.

(34) \( t\text{-dimension} \bullet s\text{-dimension} \bullet u\text{-dimension} \)

I use the diamond and bullet that separate the three dimension as a notational nod towards the Potts/McCready tradition. Officially, though, the semantic representations are just triples.

The first dimension, called \( t\text{-dimension} \) contains the ordinary truth-conditional content of an expression. The third dimension, called \( u\text{-dimension} \) functions as a store for all complete use-conditions. The second dimension, which I call \( s\text{-dimension} \), is where the interaction between truth- and use-conditional content takes place and ensures that the entire

14 In (31) and the following, bold face \( \text{ja} \) is the translation of the natural language \( \text{ja} \) into the intermediate logical language. If \( \text{ja} \) is interpreted by the interpretation function \( \left[ \cdot \right] \), we get its proper meaning, which can be rendered as a function from proposition \( p \) onto the set of contexts in which the speaker thinks that the addressee may already have known \( p \). This constitutes the set of contexts in which \( \text{ja} \) can felicitously be used. The details of the particular use-conditions are hard to pin-down, but perfectly rendered lexical semantics for \( \text{ja} \) do not matter for the purposes of this paper.

15 Following Potts’s (2005) framework, the definition of complex use-conditional types in (33b) does not allow for a mapping from truth- to use-conditional types, which captures the observation that once launched, use-conditional content cannot be brought back to the truth-conditional level (cf. Barker, Bernardi & Shan’s (2010: 111) principle of non-interaction).
semantic derivation proceeds in a compositional fashion. Depending on the expression in question, it may contain truth- or use-conditional content. Crucially, for the purposes of the compositional system, every expression features all three dimensions, even if they may contain rather trivial material. For instance, a simple truth-conditional expression like sleep receives the following 3-dimensional representation in $L_{TU}$.17

\[(35) \quad \text{sleep} \leadsto \text{sleep} : (e, \langle s, t \rangle) \bullet \text{sleep} : (e, \langle s, t \rangle) \bullet U \]

The big $U$ in the third dimension is a dummy element that denotes trivial use-conditions that are fulfilled in every context of use (i.e., it denotes the set of all contexts). Note how in (35) the content of the t-dimension is replicated in the second dimension (the s-dimension), in order to make it available for use-conditional expression. For instance, an MP like ja, whose 3-dimensional representation in $L_{TU}$ can be given as in (36). What is crucial there is that, in the case of functional expletives like ja, the truth-conditional dimension contains an identity function $I$ on expression of the type that the argument of function in the s-dimension has.18 This models the fact that functional expletives leave the truth-conditional content of their argument untouched.

\[(36) \quad \text{ja} \leadsto I_{\langle s, t \rangle} \bullet \text{ja} : \langle \langle s, t \rangle, \langle u, \rangle \rangle \bullet U \]

These 3-dimensional representations are composed according to two composition rules, called multidimensional application and use-conditional elimination respectively.

\[(37) \quad \text{Multidimensional application} \]

\[
\alpha_1 : \langle \sigma, \tau \rangle \bullet \alpha_2 : \langle \rho, \nu \rangle \bullet \alpha_3 \quad \beta_1 : \sigma \bullet \beta_2 : \rho \bullet \beta_3
\]

\[
\alpha_1(\beta_1) : \tau \bullet \alpha_2(\beta_2) : \nu \bullet \alpha_3 \odot \beta_3
\]

\[(38) \quad \text{Use-conditional elimination} \]

\[
\alpha_1 \bullet \alpha_2 : u \bullet \alpha_3 \quad \alpha_4
\]

\[
\alpha_1 \bullet \alpha_2 \bullet \alpha_3 \odot \alpha_4
\]

The two arrow diagrams in Figure 1 illustrate how these two rules compose the three mean-
ing dimensions. The application rule (37) executes functional application in the first two dimensions, while the content in the u-dimensions (all use-conditional propositions) is simply merged by means of the use-conditional conjunction “⊙”, which is interpreted intersectively. The purpose of the elimination rule (38) is to store away use-conditional content that has reached the (use-conditional) propositional level in the s-dimension into the third dimension (where it will be dragged along the derivation). It also refills the s-dimension by replicating the content from the t-dimension in the s-dimension, so that the truth-conditional content thereby becomes available for further applications again.

Equipped with these rules and suitable 3-dimensional semantic representations, we have all the tools set up in order to provide a derivation for (30). In order to save space, I often write the three dimensions vertically, with the t-content at the bottom and the s- and u-content stacked upon it.19

From the 3-dimensional representation of (30), we can get the truth- and use-conditional interpretation, by semantically interpreting the first and third dimension respectively.

Note that, since \([I(\alpha)] = [\alpha]\) and since \([U \odot \varphi] = [\varphi]\), I do not drag the identity function and all trivial \(U\) elements along the entire derivation.
Without diving deeper into the details of the sketched framework, note that it, like Potts’s (2005) original system, captures the projection behavior of use-conditional items. In $\mathcal{L}_{TU}$, they cannot be embedded for the simple fact that the use-conditional content generated in the second (s-)dimension is stored into the third (u-)dimension once it reached propositional level and hence escapes higher embedding functions.

However, what is crucial about this for the point I want to make in this paper is that, without further assumptions, it treats all MPs indifferently. Hence, we need to think a bit more about how to implement the non-homogeneous behavior regarding embedding and how they interact with sentence mood. Before I will sketch how it may be implemented in $\mathcal{L}_{TU}$, these differences will be discussed in the next section.

4 Heterogeneous behavior

In this section, I will add to the set of properties from the list in (1) for which there are exceptions, by looking at the ability of MPs to receive a not speaker/utterance-oriented, embedded interpretation (1m) and at the different ways they interact with the semantic mood of the sentence (1n). I will start with the embedding cases, before discussing sentence mood modification and the lack thereof.

4.1 Speaker orientation

As has recently been discussed, mostly by Döring (2013) and Coniglio (2011), not all MPs behave the same regarding their speaker-orientedness. For instance, $ja$ can hardly be shifted to a non-speaker. This holds for (most) verba dicendi, as well as for evidentials.20

(40) #Yoshi sagte, dass Luigi $ja$ Zelda liebt. (but I don’t believe that).

Y said that Luigi $ja$ Z

des loves L M

#“Yoshi said, that (as we know) Luigi loves Zelda, but I don’t believe that.”

(41) #Laut Yoshi liebt Luigi $ja$ Zelda (but I don’t believe that).

according to Y loves L M Z

#“According to Yoshi, Luigi loves (as we know) Zelda, but I don’t believe that.”

The knowledge ascription of $ja$ invariably holds for the speaker, which explains why $ja$ is odd in those sentences, due to pragmatic reasons. This is also shown by the fact, that the

20 As a reviewer pointed out, (40) and many of the following examples improve if subjunctive mood is used in the embedded clause. I agree with the reviewer, that this effect, which is systematic should be taken into account. However, in order to model the interaction between subjunctive and non-utterance-oriented interpretation, one need to capture the distancing effect of subjunctive in the present system, which I cannot do here. But see Potts (2005: 186-93) for a first suggestion for an expressive approach to subjunctive mood in German, which may provide a good starting point for formalizing the observed interaction.
addition in the parentheses, which try to force an embedded interpretation, does not save the examples, which they would, if such a reading were available.

In contrast to *ja*, an MP like *wohl* can be attributed to a non-speaker when it occurs in an embedded context or in the scope of evidential constructions.

(42) Yoshi hat gesagt, dass Luigi *wohl* Zelda liebt.

„Yoshi said that Luigi probably loves Zelda.”

(43) Laut Yoshi liebt Luigi *wohl* Zelda

„According to Yoshi, Luigi probably loves Zelda.”

That a non-speaker interpretation is available for these examples is illustrated by the observation that continuations enforcing either one or the other reading are possible. Consider, for instance for (42), the following two continuations.

(44) a. Er war sich sicher diesbezüglich.

‘He was confident about that.’

b. Ich bin mir sogar sicher diesbezüglich.

‘I am even confident about that.’

Space limitations do not permit me to go into the details of which MPs can receive a shifted interpretation and which cannot – I refer the reader to Döring 2013 for a detailed discussion using authentic examples – but for the purposes of this paper, the contrast between *ja* and *wohl* suffices to illustrate that there are at least some MPs that can be interpreted embeddedly.

4.2 Interaction with sentence mood

In the literature on MPs in German, it is commonly assumed that they interact with sentence mood, as stated by (1n). However, how one should think about this interaction is not always spelled-out in any detail, and it is almost always silently assumed that whatever mechanism is used to model that interaction is the same for all MPs. But as has been discussed in different contexts (e.g. Zimmermann 2004a and Gutzmann 2008, 2012), MPs can be divided into two classes according to how they actually interact with sentence mood. First, there are those MPs that can genuinely be called *sentence mood modifiers*, since they directly alter the semantic mood of the sentence they occur in. In contrast, the other class may be called *free modifiers* or *propositional MPs*, because they do not alter the sentence mood directly, but rather apply to the propositional content and add a free and independent use-conditional proposition to the overall use-conditions of a sentence. I will refer to
them as mood particles and propositional particles, respectively.

Again, ja and wohl serve as examples for each category. For instance, ja is a typical example of a propositional particle. It combines with a proposition and yields an independent use-conditional comment to it without changing the rest of the propositional content.

(45) Luigi hat Zelda ja schon immer geliebt.
Luigi has Zelda MP already always loved
‘Luigi always loved Zelda (and you may already have known that).’

We already saw a simple derivation involving ja in (39) that illustrated how ja leads to multidimensional content. However, I left out sentence mood from the picture in the previous section. In order to illustrate the difference between propositional and mood particles, we need sentence mood to be represented in the semantic derivation as well though. The basic idea is that mood operators are use-conditional expressions as well that apply to the sentence's propositional content, in the same way as ja does.  

(46) \[ \text{decl} \]

(47) a. \[ (46)^t = \text{love(zelda)(luigi)} : t \]
b. \[ (46)^u = \text{decl(love(zelda)(luigi))} : u \]

Hence, for a simple declarative involving not only decl, but also ja, like (45), we get two use-conditions that will end up being conjoined in the third dimension.

\[
\begin{array}{c}
\text{ja} \\
\text{Lx}
\end{array} \quad \begin{array}{c}
\text{MA} \\
ja
\end{array}
\]

\[
\begin{array}{c}
\text{U} \\
\text{ja(love(zelda)(luigi))} : u \\
\text{love(zelda)(luigi)} : \langle s, t \rangle
\end{array}
\]

\[
\begin{array}{c}
\text{U} \\
\text{ja(love(zelda)(luigi))} : u \\
\text{love(zelda)(luigi)} : \langle s, t \rangle
\end{array}
\]

The content provided by ja and the assertive mood of the declarative thus independently add use-conditions to the meaning profile of the entire utterance. Taken together, they

21 The details of the semantics of mood do not matter for the present purposes, which is why I just use decl as a placeholder. For an explicit proposal, see Gutzmann 2015 and, for an alternative modeling, Murray 2014.
form complex use-conditions for the entire sentence.\textsuperscript{22}

In contrast to this, \textit{wohl} is a mood particle, because it can be thought of as directly modifying the sentence mood, for instance, by lowering the knowledge threshold required for felicitous assertions (in case of declaratives), or felicitous answers to a question (in case of interrogatives).

\begin{equation}
(49) \quad \text{Luigi hat Zelda \textit{wohl} schon immer geliebt. }
\end{equation}

\textit{Luigi has Zelda MP already always loved }  \\
\text{‘Presumably, Luigi always loved Zelda.’}

That \textit{wohl} modifies the mood can be seen by the fact that an utterance containing \textit{wohl} is licensed in contexts in which a plain assertion or question is not. For instance, if one explicitly mention one’s uncertainty or lack of evidence, using a plain declarative is infelicitous, while the addition of \textit{wohl} rescues the utterance.\textsuperscript{23}

\begin{equation}
(50) \quad \text{Ich bin mir nicht ganz sicher, aber Luigi liebt \textit{(#wohl)} Zelda.}
\end{equation}

\textit{I am me not entirely sure but L loves MP Z}  \\
\text{“I am not entirely sure, but Luigi presumably loves Zelda.”}

\begin{equation}
(51) \quad \text{[I know you don’t know Lothar that much,]} \textit{(#wohl)}
\end{equation}

\textit{aber wird ihm diese Wildschweinskulptur \textit{(#wohl)} gefallen?}  \\
\text{but will him this wild.boar.sculpture MP appeal.to}  \\
\text{‘but will this wild-boar sculpture presumably appeal to him?’}

Under the current use-conditional view on sentence mood, mood particles pose a problem for the standard Pottsean account of expressives, since it does not allow for expressions that can take expressive/use-conditional content as their argument. Even if the Pottsean approach can be extended to cover such expressive modifiers as well (Gutzmann 2011a), the sketched multidimensional approach can directly handle such cases with its set of two composition rules. I will come back to this issue when I show how the differences can be accounted for in \textit{L\textsubscript{TU}} in the following section.

\textsuperscript{22} The use-conditional approach to sentence mood sketched here is much simplified version of the analysis of sentence mood I developed in Gutzmann 2015. For the present purposes, it suffices to assume that mood operators are “just there”.

\textsuperscript{23} A reviewer asked if this would commit me to conclude that \textit{möglicherweise} ’possibly’ or \textit{es ist möglich} ’it is possible’ as modify the mood as well, because they would rescue an assertion as well. I would say yes and no. As has recently been argued by Wolf (2014), modal adverbs like \textit{possibly} modify the strength with which an assertion is made (similar to \textit{wohl}), while other modal expressions modify the propositional content itself. Even if different, both are strategies to warrant an assertion in view of uncertainty. Similar observations apply to other hedges like sluiced \textit{I think}. 

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4.3 Summary

*Prima facie*, the attested heterogeneous behavior poses problems for an expressive, multidimensional analysis. In those systems, including the logic $L_{TU}$ sketched here, it is predicted that all MPs always have wide scope. If some MPs can be embedded and do not take scope at the highest sentential level, how can they be handled by the same system? Furthermore, the difference between propositional and mood particles seems to pose a problem, at least for Potts’s standard system. Does that mean that a multidimensional expressive approach is not viable?

5 Accounting for differences

I think that the answer to this question is *no*. The tools offered by expressive approaches in general, and $L_{TU}$ in particular, actually allow for enough flexibility to account for these differences in a natural way, without the need for new *ad hoc* mechanisms that only account for the differences between MPs. To account for the two sources of nonhomogeneity amongst MPs, we need to take a closer look at the lexical semantics of the MPs and what the application rules of $L_{TU}$ allow us to compose. In the following, I will show that focusing on these aspects leads us to a natural incorporation of the observed data in the multidimensional framework of $L_{TU}$.

5.1 “Context shifts”

The strong prediction of speaker-orientation made by multidimensional approaches in the Pottsean tradition, including $L_{TU}$, is not only challenged by the embeddability of some MPs, but also by the apparent shiftability of expressive content as well, as already shown by example (21) above, which I repeat here.

(21) My *father* screamed that he would never allow me to marry that *bastard* Webster.

However, instead of modifying the underlying combinatorics to capture such cases, Harris & Potts (2009) suggest (and tested) that shifted expressives as in (21) are not actually shifted after all. Following Potts 2007, they instead assume that such expressives do not express a speaker attitude, but the attitude of the so-called contextual judge ($c_J$), which they adopt from Lasersohn’s (2005) work on predicates of personal taste. In most cases, the judge actually *is* the speaker, so that we get speaker orientation as a default.

However, the judge can be shifted to another discourse entity – for instance to the subject of a speech report – if it is both salient enough and makes sense as the source of the attitude. If this is the case, as in (51), where the father and his emotion are not only salient but a subject-oriented interpretation is also pretty reasonable, the father my become the judge. We thus get a virtually embedded interpretation (i.e. the attitude is ascribed to the subject...
of the matrix clause), while crucially it is still interpreted at matrix level. It just happens to be attributed to the subject of the attitude report who is the contextual judge. This simulates the effect of a shifted interpretation, while the expressive actually still scopes out of the attitude context.

(52) \[\langle \text{My father screamed that he would never allow me to marry } \_\_\_\text{ Webster, } \]
\[c_f [\text{=the father}] \text{ has a negative attitude towards Webster} \rangle\]

One argument for implementing the shifting at the discourse level is that expressives can receive a non-speaker-oriented interpretation even if they are syntactically not embedded and the individual to which they are shifted is not mentioned in the sentence at all.

(53) Peter really hates Mary's boyfriend. However, Mary really loves that Baster Webster.

An approach to the “shiftability” of expressions along these lines offers us a natural place to account for the differences amongst MPs. The basic idea is that the distinction between shiftable and unshiftable MPs comes down to a distinction of what kind of attitude holder is specific in the lexical semantics of an MP. On the one hand, if an MP attributes an attitude to the contextual judge like expressives do, it is expected to be shiftable in a similar way. On the other hand, if an MP cannot be shifted, \textit{ja} serves as our example here, it invariantly attributes an attitude to the speaker, and thus the pseudo-shift reading in which the judge happens to be the subject of the an attitude verb is not an option for such an MP. That is, a distinction between judge-referring MPs and speaker-referring MPs is a straightforward way to account for the difference in shiftability between \textit{ja} and \textit{wohl}.\footnote{This approach bears some resemblance to Eckardt’s (2015) work on context shifts in indirect speech, where she distinguishes between shiftable context-reference (with a lower case “c”) and unshiftable Context-reference (with a capital “C”).}

5.2 Mood particles

Potts's (2005) approach to expressives does not allow for expressive content to be an argument. However, as I argued elsewhere, we might need to extend his system to also cover what I called expressive modifiers- In particular, we want to account for examples like \textit{fucking bastard}, in which \textit{fucking} intensifies the expressive attitude expressed by \textit{bastard}. The system of $L_{TU}$ already has this option built in, as can be witnessed from the type definitions. This is of importance for the present purposes since, as already mentioned above, I consider mood operators to contribute use-conditional content as well. If mood particles like \textit{wohl} modify those operators, they are another instance of expressive modifiers besides those I discussed in Gutzmann 2011a.

Given these assumptions, the system of $L_{TU}$ allows one to derive a sentence containing mood particles like \textit{wohl}.

\footnote{This approach bears some resemblance to Eckardt’s (2015) work on context shifts in indirect speech, where she distinguishes between shiftable context-reference (with a lower case “c”) and unshiftable Context-reference (with a capital “C”).}
MPs ≠ MPs (≡ MPs)

That is, the system of $L_{TU}$ easily allows us to have both, mood and propositional particles, and the differences between them boils down to a difference between semantic types.

6 Conclusion

Modal particles are often viewed as a homogeneous class. However, at least with respect to the two properties this paper focuses on – speaker orientation and interaction between sentence mood – there is some heterogeneous behavior between MPs that at first sight poses challenges to such approaches. Some MPs are shiftable, while others are not. Some MPs modify the proposition directly, while others modify the sentence mood.

However, as have illustrated, these observed differences can be accounted for by multidimensional approaches that were built in order to capture the expressive-like use-conditional nature of MPs. Regarding shiftability, the differences can be accounted for by a different lexical anchoring of the attitude holder. Either an MP refers to the contextual judge, and thus is predicted to be shiftable, or an MP refers to the speaker and hence is unshiftable.

The difference between mood and propositional particles can also be analyzed in a system like $L_{TU}$, by assuming a type difference between those classes of particles.

Some topics for further research include the investigation of the syntactic consequences of the discussed semantic heterogeneity, like scoping behavior and conditions for shifted interpretation, as well as the syntactic mechanisms that connect MPs with their higher arguments.

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