

Instructions for Interpretation as Separate Performatives*

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1 Overview

A wide variety of linguistic forms and constructions have been seen not as contributing to semantic content, but rather as helping to determine how that content is used. In this paper, we will examine three such forms: vocatives, topics, and force markers.

- (1) a. Mary, what's that you're eating?
b. Mary, please have a seat.
- (2) a. MARY, I like a lot, but JOHN, I hate.
b. Mary, I like her a lot.
- (3) a. IMP [sit down]!
b. Q [does Mary like John]?
c. ASSERT [John likes Mary].

In informal terms, a vocative identifies to whom the sentence's content is addressed, a topic informs the addressee what it's about, and a force marker says how the speaker wishes to use it to update the conversational context. I include all of these functions under the broad label "instructions for interpretation", and in this paper I will pursue the idea that they should be studied within a single theoretical framework.

The main idea of my analysis are as follows:

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- Instructional meanings are **expressive**, in the sense recently studied by Potts (2003a). Expressive meanings constitute a separate “dimension” from ordinary **at-issue** meaning.
- The expressive meaning of the three forms in (1)a, (2)a, and (3)a are, roughly, as follows:
 - (1)a *“I request Mary’s attention.”*
 - (2)a *“My mental representation of Mary is active.”*
 - (3)a *“This sentence’s at-issue meaning is added to the addressee’s To-do List.”*
- Embedded topics (embedded vocatives and force markers as well, if they exist) can be interpreted with respect to a context provided by embedding operator.

Section 2 will outline some background considerations concerning the meaning of vocatives, and then sketch an expressive account. Section 3 will focus on topics and section 4 will examine how an expressive analysis could be applied to force markers.¹ Finally, the possibility of having topics (and perhaps vocatives and force markers as well) in embedded clauses shows that expressive meanings can be absorbed into non-expressive content in constructions with a context-shifting character, such as propositional attitudes (cf. Schlenker 2003, Anand & Nevins 2004); section 5 will discuss cases in which topics are embedded under propositional attitude verbs.

2 Vocatives

2.1 Vocatives and Reference to the Addressee

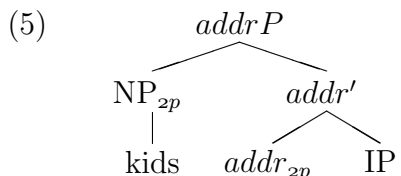
Before we get into the expressive meaning of vocatives, it will be helpful to note some background facts concerning their syntax and interpretation. In the first place, the examples in (4) show that a vocative may occur with any clause type, and need not correspond to an argument:

- (4) a. John, you may be interested in this.
- b. Maria, what’s that on your nose?
- c. Test takers, no one touch your pencils!
- d. Kids, Anna play the piano and Kristin turn pages for her!
- e. Susan, did John finish the illustrations?

¹As I’ll point out below, I am actually not convinced that there are such things as force markers, but in this paper I will explore the idea that they can be analyzed as introducing expressive content if there are. As we go about the task of exploring whether natural language contains any elements which should be thought of as marking force, it will be useful to have as many different ideas about what it would mean to mark force as possible.

In imperatives, the vocative must be related to the subject, since the vocative refers to the addressee(s) and the subject must refer to, overlap with, or quantify over the set of addressees. (This last point about imperatives is not true in all languages, but it is in English and many others; cf. Mauck et al. 2004.)

I follow Zanuttini (2004) in proposing that vocatives occur in the specifier of a particular syntactic phrase, labeled *addrP*. The representation will be something like the following:



Of interest to us here is the semantics of the *addrP*; in particular, we have to make clear how the reference to the addressee is handled. The tree in (5) reflects the idea that the *addr* head bears second person features, which are shared with the vocative in its specifier. An XP_{2p} with these features presupposes that XP denotes the set of addressees; otherwise it doesn't affect the ordinary semantic meaning of what it combines with. This point reflects the intuition that a sentence with a vocative is truth-conditionally equivalent to the corresponding sentence without a vocative, and is formalized in (6):²

- (6) a. $\llbracket XP_{2p} \rrbracket_c = [\lambda w \lambda x : \{y : \llbracket XP \rrbracket_c(w_c)(y)\} = \text{addr}(c) . \llbracket XP \rrbracket_c(w)(x)=1]$
 b. $\llbracket \text{addr}_{2p} \rrbracket_c = [\lambda p \lambda Q . p]$

It is possible that *addr* plays a more dramatic role in imperative semantics, since in imperatives we need to make sure that the denotation of the subject of the sentence is related to the addressee(s) in the appropriate way. The details of imperative semantics are not crucial for us here, but see Zanuttini & Mauck (2004).

2.2 Instructional Meaning of Vocatives

2.2.1 Informal Description

The pragmatic contribution of vocatives remains to be characterized explicitly later on, but can be described informally as indicating that the addressee is to pay special attention to the sentence's semantic content.³ There are at least three different subtypes of vocatives

²In this paper, I give semantic definitions with respect to a context parameter c ; $\llbracket \phi \rrbracket_c$ is the meaning of ϕ with respect to c . I suppress the assignment function, as its not relevant for the definitions given, and represent the role of possible worlds in giving semantic content within the object language.

³Lambrech (1996b) proposes that a general notion of "RELEVANCE" is the basis for the meaning of vocatives and topics. However, he doesn't explain at all what RELEVANCE is, either in terms of a general theory of meaning or the specifics of different kinds of topics and vocatives. As we'll see, it is possible to do better.

(and very possibly more). We can begin by differentiating two subtypes, what Zwicky (1974, 2004) refers to as **calls** and **addresses**:

1. “Calls are designed to catch the addressee’s attention.”
2. Addresses “maintain or emphasize the contact between speaker and addressee.”
(Zwicky 1974, 787)

Strong support for the claim that calls and addresses are really distinct comes from the fact, pointed out by Zwicky, that some items can only be used as calls:

- (7) a. Cabby, take me to Carnegie Hall.
b. *I don’t think, cabby, that the Lincoln Tunnel is the best way to go to Brooklyn.
- (8) a. Hey you, give me that boat hook!
b. *What I think, you, is that we ought to take the money and run.
(Zwicky 1974, (32)–(35); also Schegloff 1978)

To the extent that (7)b is acceptable, it is extremely condescending.

Zwicky (1974) also discusses the fact that vocatives may express a wide variety of features of the discourse situation, specifically those concerning the nature of the relationship between speaker and addressee: cf. *honey*, *dumbass*, *ma’am*, *your honor*, *Franz*, *Franz Kafka*, *Mr. Kafka*, *waiter*, *dude*, *son*, *comrade* (all of these from Zwicky 1974). It’s possible that these sociolinguistic aspects of the use of vocatives are part of the meaning associated with the being a vocative; alternatively they might represent independent effects due to lexical choice. That is, it’s obvious that the use of *honey* in any grammatical position will carry a particular affective meaning having to do with the relationship between speaker and the the referent. (This meaning may well be expressive, by the way.) So the fact that a vocative use of *honey* has that meaning may not tell us anything about the meaning of vocatives in and of themselves. But it’s also possible that it is part of the meaning of vocatives (or perhaps only some sub-types of vocatives) that they indicate the relationship between speaker and addressee, in which case the fact that words like *honey* independently have a similar meaning would make them natural candidates for use as vocatives.

Though I don’t have a firm opinion on this issue, it seems to me that the fact illustrated with (7)b suggest that the meaning of addresses does involve the relationship between speaker and addressee. The oddness of *cabby* here is due to the fact that only address terms may easily function as addressees. Therefore, we have *doctor* and *judge* easily, *teacher* only out of the mouth of a child, terms like *madam* and *sir*, and names. As far as I can tell, aside from names, contemporary English only uses “upward looking” address terms.⁴ They refer to an individual who is seen as having higher status within the interaction, at least in as much as his or her status is determined by the named role of doctor, judge, etc. But *cabby* is not plausibly upward looking in this sense. Therefore, it’s hard to construe it as an address terms, and a sentence like (7)b is virtually unacceptable. In order for it to be made acceptable, it

⁴I can only speak with any confidence of American English here. Perhaps other varieties have a wider range of addresse terms.

can only be understood as similar to such outdated “downward looking” address terms as *boy*, *kid*, and *driver*. Because of this, to the extent that it’s acceptable, it is condescending. If this reasoning is correct, it supports thinking that part of the meaning of addresses has to do with the relationship between speaker and addressee.

There are probably further subtypes of vocatives. As pointed out by Robert Frank (p.c.), *cabby* can be used sentence-finally, while *you* is either odd or has a special meaning.⁵ This is not a plausible position for a call:

- (9) a. Please take the Lincoln tunnel, cabby.
- b. ?Please take the Lincoln tunnel, you.

Given that the set of vocative NPs possible in final position differs from those possible in initial and medial position, it seems that final vocatives represent a separate subtype. I will refer to final vocatives as **tags**.

In this paper, I will focus on calls, because my major concern here is figuring out what kind of semantic framework should be used to understand vocatives, and the meaning of calls seems to be the most clear. As Zwicky pointed out, calls function to get the addressee’s attention. Some of their characteristics make sense in light of this function: Clear cases of calls can be introduced by *hey*. They may be realized by certain quantifiers, for example *everyone*; I suggest that *everyone* is shifted to type *e* and therefore can be used to catch the attention of a whole group of addressees. Downward entailing and proportional quantifiers are unacceptable, because they cannot be so shifted. The distribution of indefinites as initial vocatives is complex: Indefinites introduced by *a(n)* are impossible. *Some* is acceptable in imperatives, but not in other clause types, when the set of addressees is explicitly mentioned, as with (10):

- (10) Some of you, come here!

However, this type of phrase cannot be introduced by *hey*. Moreover, it doesn’t conform to the presupposition of vocatives proposed in (6), and the fact that it is only possible in imperatives suggests that the intimate relationship between vocative and subject in imperatives is crucially involved here. It might simply be a subject which allows for an unusual intonational break following it, or it may combine the functions of vocative and subject in some way. To the extent that it has a call-like function at all, it seeks the attention of all of the addressees. That is, it seeks the attention of the denotation of *you*, not *some of you*, so in a pragmatic sense only *you* represents the call. *Some* quantifies the subject argument with the set of addressees as its domain. This isn’t the place to go further into the complexities of vocatives and subjects in imperative clauses.⁶ Overall, if we leave aside patterns specific

⁵In some varieties of American English, (9)b is allowed with an affectionate connotation to the use of *you*. This use is not possible in initial or medial position, so (8)a is not particularly affectionate in this variety, and (8)b is still bad. Thus, this use of *you* may be revealing of the pragmatic contribution of the sentence-final vocative subtype.

⁶The status of *someone* is unclear to me; while in certain cases it seems possible to use it as a vocative (e.g., *Someone, help me!*), it can’t be preceded by *hey* and is unacceptable in clause types other than vocatives.

to imperatives, the view that calls refer to the addressee or set of addressees, and serve to catch the addressee(s)' attention, seems correct.

Though I am focusing on calls, I would like to make a few tentative comments about tags and addresses. It seems to me that tags, i.e., final vocatives, are as Zwicky describes addresses. They are used to maintain contact with the addressee. It makes sense that they may be realized by *everyone*, but not other quantifiers or *you*.⁷ The situation with *someone* is similar to what we found with calls. Final *someone* can only occur with imperatives, and so may be a subject, or at least involved in some special relation to the subject argument:

- (11) Help me someone!

Addresses, that is medial vocatives and initial vocatives which aren't calls, are similar to tags, but they convey an additional emphasis on the sociolinguistic import of the lexical choice. As with final vocatives, they can be realized by *everyone*, but not other quantifiers or *you*. I speculate that *you* is impossible because there's no special sociolinguistic import of *you* to be emphasized. The fact that only noun phrases which can function as address terms are possible makes sense, since these terms incorporate relevant sociolinguistic information as part of their meaning. More work will be necessary to better understand the nature of this meaning (it may well be expressive), and how it is related to the syntax of addresses.

2.2.2 The Expressive Meaning of Vocatives

I suggest that the meaning of vocatives be formulated as **expressive content** in the sense discussed recently by Potts (2003a,b, 2004). Potts has applied his theory of expressive content to conventional implicatures, epithets, appositives, and honorifics. All of these present meaning which is separate from the central at-issue content expressed by a sentence. For example, the appositive in (12) (= Potts 2004, (22)a) adds the non-at-issue content "*Lance is a cyclist.*" The antihonorific in (13) (= Potts & Kawahara 2004, (11)) adds the non-at-issue content "*It sucks that Mary overslept.*"

- (12) Lance, a cyclist, is from Texas.

- (13) John-wa [Mary-ga nesugoshi-chimat-ta] -koto-o shitteiru.
 John Mary oversleep-antihon-PAST -fact know
At-issue: 'John knows that Mary overslept.'
Expressive: 'It sucks that that Mary overslept.'

Some of the main points of Potts' theory are as follows:

Moreover, it is best when it's not clear whether anyone is listening, and in these ways it seems like *some of you* in a context in which it's not clear if *you* has any referent.

⁷In those dialects which allow final *you*, it is only possible in imperatives, and conveys the speaker's affection towards the addressee.

1. Expressive content can be introduced in various ways, including intonation, particular morphemes, and syntactic structures.
2. Expressive meaning never has complex compositionality. For example, there is no intonational pattern which needs to be combined with another intonational pattern in order to express a meaning. (This would be like a predicate, which must combine with a subject to express a proposition.) Of course it's possible to combine multiple intonational patterns, but the result is simply the sum of what you'd get if you used each independently.
3. This means that we can compute the overall expressive meaning of a sentence as simply the result of gathering together all of the simple expressive meanings introduced somewhere in the structure.

(14) I met that bastard Lance, a cyclist.

This sentence has the expressive meaning {“*Lance is a cyclist*”, “*Lance is a bad guy*”}.

4. The final meaning of a sentence has two “dimensions”, and can be represented as a pair, $\langle A, C \rangle$, where A is the ordinary, at-issue meaning and C is the set of expressive meanings.
5. Expressive meanings are performatives (Potts & Kawahara’s 2004). This implies that they are automatically true once understood. So, the expressive meaning of (12) could perhaps be better paraphrased as “*I hereby assert that Lance is a cyclist.*” (I won’t go into details concerning the nature of performatives here.)

Potts manages the parallel calculation of the ordinary meaning A and the expressive meaning C via the type theory; specifically, a given domain of meaning may have two types, τ_A and τ_C . The details of the available types explain what kinds of expressive meanings we find (e.g., the lack of complex compositionality). I do not follow Potts in these matters of mechanics because I think it is more straightforward to calculate the two meanings explicitly using separate interpretation functions, following the idea of Rooth’s (1985) focus semantics. In the approach I prefer, there are two interpretation functions, $\llbracket \]_c$ for regular content and $\llbracket \]_c^C$ for expressive content.⁸ The following interpretation principles provide a starting point; they can interpret a reasonable subset of English.

1. For all nodes N with daughters D_1 and D_2 , (**Ordinary Function Application**)
if $\llbracket D_2 \rrbracket_c$ is in the domain of $\llbracket D_1 \rrbracket_c$, then
 - (a) $\llbracket N \rrbracket_c = \llbracket D_1 \rrbracket_c(\llbracket D_2 \rrbracket_c)$
 - (b) $\llbracket N \rrbracket_c^C = \llbracket D_1 \rrbracket_c^C \cup \llbracket D_2 \rrbracket_c^C$
2. For all nodes N with daughters D_1 and D_2 , (**Expressive Function Application**)
if $\llbracket D_2 \rrbracket_c$ is in the domain of $\llbracket D_1 \rrbracket_c^C$, then

⁸In addition, there is the third interpretation function for focus semantics, $\llbracket \]_c^f$, if Rooth’s approach to focus is correct.

- (a) $\llbracket N \rrbracket_c = \llbracket D_2 \rrbracket_c$
- (b) $\llbracket N \rrbracket_c^C = \{\llbracket D_1 \rrbracket_c^C(\llbracket D_2 \rrbracket_c)\} \cup \llbracket D_2 \rrbracket_c^C$.

3. For all nodes N with single daughter D , then (**Unary Branching**)

- (a) $\llbracket N \rrbracket_c = \llbracket D \rrbracket_c$
- (b) $\llbracket N \rrbracket_c^C = \llbracket D \rrbracket_c^C$

According to these rules, expressive meanings can only be introduced via two methods: They may arise via functions from ordinary meanings to expressive meanings; such a function is applied to its argument by Expressive Function Application and the result is then in the set of “finished” expressive meanings. Alternatively (and I’m not sure if this ever happens), they may be introduced directly as members of some node’s set of finished expressive meanings (e.g., they could enter the derivation as the member of a singleton $\llbracket T \rrbracket_c^C$, for some terminal node T). Once an expressive meaning is a member of set of expressive meanings, there is no rule which allows it to take additional arguments; it will simply percolate up the tree.⁹

I illustrate the functioning of these principles by looking at (12) again. I assume that the appositive structure causes the following meaning-shift:¹⁰

- (15) a. $\llbracket \text{NP}_{appos} \rrbracket_c = \emptyset$
- b. $\llbracket \text{NP}_{appos} \rrbracket_c^C = \llbracket \text{NP} \rrbracket_c$

The following illustrates how the compositional rules work, given simple assumptions about lexical meanings:

- 1. (a) $\llbracket \text{Lance} \rrbracket_c = \text{Lance}$.
- (b) $\llbracket \text{Lance} \rrbracket_c^C = \emptyset$
- 2. (a) $\llbracket \text{is} \rrbracket_c = [\lambda f.f]$.
- (b) $\llbracket \text{is} \rrbracket_c^C = \emptyset$
- 3. (a) $\llbracket \text{from} \rrbracket_c = [\lambda x \lambda y \lambda w.x \text{ is from } y \text{ in } w]$.
- (b) $\llbracket \text{from} \rrbracket_c^C = \emptyset$
- 4. (a) $\llbracket \text{Texas} \rrbracket_c = \text{Texas}$.
- (b) $\llbracket \text{Texas} \rrbracket_c^C = \emptyset$
- 5. (a) $\llbracket \text{a} \rrbracket_c = [\lambda f.f]$
- (b) $\llbracket \text{a} \rrbracket_c^C = \emptyset$
- 6. (a) $\llbracket \text{cyclist} \rrbracket_c = [\lambda x \lambda w.x \text{ is a cyclist in } w]$

⁹This point changes somewhat with the addition of rule (34) below.

¹⁰Of course there are restrictions on what NPs can function as appositives.

- (b) $\llbracket \text{cyclist} \rrbracket_c^C = \emptyset$
7. (a) $\llbracket \text{a cyclist} \rrbracket_c = [\lambda x \lambda w. x \text{ is a cyclist in } w]$.
 (b) $\llbracket \text{a cyclist} \rrbracket_c^C = \emptyset$.
8. (a) $\llbracket \text{a cyclist}_{\text{appos}} \rrbracket_c = \emptyset$.
 (b) $\llbracket \text{a cyclist}_{\text{appos}} \rrbracket_c^C = [\lambda x \lambda w. x \text{ is a cyclist in } w]$.
9. (a) $\llbracket \text{Lance a cyclist}_{\text{appos}} \rrbracket_c = \text{Lance}$.
 (b) $\llbracket \text{Lance a cyclist}_{\text{appos}} \rrbracket_c^C = \{[\lambda w. \text{Lance is a cyclist in } w]\}$.
10. (a) $\llbracket \text{Lance a cyclist}_{\text{appos}} \text{ is from Texas} \rrbracket_c = [\lambda w. \text{Lance is from Texas in } w]$.
 (b) $\llbracket \text{Lance a cyclist}_{\text{appos}} \text{ is from Texas} \rrbracket_c^C = \{[\lambda w. \text{Lance is a cyclist in } w]\}$.

The idea of non-at-issue content as a separate performative is natural for calls. For example, the meaning of *John* as a call in (16)a is something like (16)b:

- (16) a. John, your dinner is ready!
 b. “*I hereby request John’s attention.*”

It’s difficult to figure out whether the meaning of calls is associated with their intonation or their syntactic position. I will assume that the meaning ultimately comes from intonation, and that position plays a role only indirectly. This assumption may turn out to be in error, but it is not essential to the main claims of this paper. An interpretation like the following will achieve the correct results:

- (17) a. $\llbracket \text{CALL} \rrbracket_c^C = [\lambda x \lambda w . \text{speaker}(c) \text{ requests } x\text{’s attention in } w]$
 b. CALL is not in the domain of $\llbracket \rrbracket_c$.

The fact that $\llbracket \text{CALL} \rrbracket_c^C$ is defined, while $\llbracket \text{CALL} \rrbracket_c$ is not, marks the resulting proposition, which is the meaning of the vocative, for inclusion in C rather than A .

It was noted above that quantifiers cannot in general function as vocatives (except in those cases in which I proposed that they can be shifted to type e). This fact can be given an precise explanation in light of the expressive analysis. As noted by Potts (2003a), it is impossible to quantify “across dimensions” of meaning. For example, a quantifier which contributes to at-issue meaning cannot bind a variable which contributes to expressive meaning. Suppose we tried to use a quantifier as a call. Since the meaning in (17) takes a type e argument, the quantifier would have to scope out (e.g., undergo Quantifier Raising). This would place it in a position in which it would contribute to at-issue meaning, while its trace would serve as the argument to $\llbracket \text{CALL} \rrbracket_c^C$, and thereby contribute to expressive meaning. The trace would therefore not be semantically bound¹¹ (though the correct syntactic c -command structure might hold), and assuming that traces must be semantically bound, the sentence would be

¹¹That is, once we stop suppressing the variable assignment function g , $\llbracket S \rrbracket_{g,c}^C$ would not be the same for all choices of g which differ only on $g(i)$, where i is the index of the trace.

ungrammatical on these grounds. Similar explanations hold for the inability of quantifiers to function as other types of vocatives or sentence topics.

For reasons of space, I cannot discuss the other types of vocatives in any detail, but I include some initial thoughts below:

1. Tags

I suggest that the expressive meaning of *John*, used as a tag, is the separate performative in (18)b.

- (18) a. What are you doing, John?
b. “*I hereby reiterate that John is my addressee.*”

While on this view, tags only reiterate a proposition which is already presupposed, they could nevertheless have a communicative function. For example, in a situation in which the hearers might be unsure who is the intended addressee, or in one in which the possibility that someone else might have been the addressee is in the context, the use of a tag would ensure that the speaker’s and hearers’ contexts continue to be aligned. In light of this view of tags, the oddness of *you* would be due to the redundancy of *I hereby reiterate that you are my addressee*.

2. Addresses

I hypothesize that addresses are like tags, as in (19)b, and furthermore express the additional separate performative in (19)c:

- (19) a. I don’t know, my lord, if we have any potted meat in the house.
b. “*I hereby reiterate that my lord is my addressee.*”
c. “*I hereby address you as ‘my lord.’*”

An unusual aspect of the meaning in (19)c is that the vocative is both mentioned and used. In its favor is that it allows an explanation of the restrictions on addresses mentioned above. According to (19)c, only NPs which can be used as address terms will be felicitous.

We have seen in this section that the instructional meaning of vocatives can be represented as performatives. The technology of expressive meaning is an appropriate one for deriving such performative meanings. Moreover, it is possible to explain some of the restrictions on the kinds of NPs that can function as vocatives.

3 Topics

Topics can be thought of in a similar way to vocatives. The main idea would be that *Maria* in (20) introduces an expressive meaning:

(20) Maria, I like her very much.

The strategy of modeling the contribution of topics by means of a separate performative leaves open to a significant extent what the nature of that contribution is. We can draw ideas about how to formulate this expressive meaning from various intuitive ways of characterizing topics. Many theories of topics try to take account of the intuition that they refer to the thing which the sentence is “about”. Such a view can be labeled the **information structure theory of topics** (e.g., Reinhart 1981, Vallduvì 1992, Lambrecht 1996a, Portner & Yabushita 1998, Jacobs 2001). Some theories of this sort:

1. Reinhart attaches the propositional content of a sentence to the referent of its topic phrase. One can think of a sentence meaning as a pair of a thing and a proposition, and this expresses the idea that the proposition is about that thing.
2. Portner & Yabushita flesh out a Reinhart-style analysis within a dynamic semantics model. This allows for the case where the topic doesn’t refer to anything in reality. The idea is that the common ground is partitioned into cells, each of which is a proposition connected to a particular discourse referent. The context is the intersection of all of the cells. This analysis models aboutness as a relation between discourse referents and information.
3. Vallduvì proposes a new level of syntactic representation, **Information Structure**. IS is kind of like LF, but with notions like topic (link in his terminology) represented rather than purely semantic notions. These IS representations are translated into a representation of meaning based on Heim’s (1982) file card metaphor. The idea is that the way we store knowledge can be modeled as a set of file cards, with one card for each thing we know about. On each card, we write down what we know about that thing.

These theories of sentence topics propose structures to represent aboutness in a formal model of discourse (Reinhart, Portner & Yabushita) or memory (Vallduvì), but only rarely has actual data been offered in support of these structures. And when data has been offered, the grammaticality/acceptability judgments are not categorical and robust in the way we’d expect if these are linguistic structures on a par with other familiar ones. They are even much less robust than the presupposition data which motivates the common ground.

The following data from Portner & Yabushita (1998) were designed to provide concrete evidence in favor of the idea that a sentence topic structures the information conveyed by the sentence it is contained in:

- (21) Jon wa kafe de onna-no-hito ni aimashita. Kanojo wa pianisuto
John TOP cafe LOC woman DAT met she TOP pianist
deshita.
was
‘John met a woman at a cafe. She was a pianist.’

- (22) a. ??Kare ga kafe de atta onna-no-hito wa totemo omoshiroi hito
 he NOM cafe LOC met woman TOP very interesting person
 deshita.
 was
 ‘The woman he met in the cafe was a very interesting person.’
- b. Pianisuto no onna-no-hito wa totemo omoshiroi hito deshita.
 pianist of woman TOP very interesting person was
 ‘The woman who was a pianist was a very interesting person.’

The information that John met the woman at a cafe was introduced in (21) while John was the topic. This implies that it is recorded on “John’s file card”. Likewise, the second sentence of (21) adds the information that the woman is a pianist into the common ground on “the woman’s file card.” Topics have a familiarity presupposition which is sensitive to aboutness. The first continuation, (22)a, has the topic phrase *kare ga kafe de atta onna-no-hito wa* (‘the woman he met in the cafe’), and the presupposition of this phrase will be satisfied if the information that John met the woman at a cafe is on the woman’s file card. Because the information is not there – it’s present in the common ground, but on John’s card – the sentence is somewhat infelicitous. In contrast, (22)b is fine because the information which *pianisuto no onna-no-hito wa* (‘the woman who was a pianist’) presupposes, that the woman is a pianist, was recorded on the woman’s file card. The problem is that the judgments are quite uncertain and unstable, and if this structuring of information were really part of linguistic competence we’d expect the data to be less fuzzy.

In light of the weakness of evidence for the idea that aboutness has a formal representation within information structure, we should consider other possibilities. I would like to suggest that sentence topics be thought of as introducing expressive meaning. This approach will allow us to maintain the idea topics indicate what the sentence is about, without running into the difficulties which afflict existing information structure theories. The performative in (23) comes to mind as an initial possibility, because it more or less directly express the functionalist view of topics:

- (23) “*I request that you activate your mental representation of Maria.*”

However, considerations from embedded topics suggest that the following is better:

- (24) a. “*(I report that) my mental representation of Maria is active.*”
 b. $\llbracket \text{TOP} \rrbracket_c^C = [\lambda x \lambda w. \text{ speaker}(c)\text{'s mental representation of } x \text{ is active in } w]$

It is virtually guaranteed that the addressee’s mental representation of Maria will be activated just by the fact that he or she understands the topic, and so a topic can be used to activate the addressee’s mental representation right at the beginning of the sentence. However, the addressee and his or her mental representation play no explicit role in (24); such an effect is only indirect (i.e. merely perlocutionary, not illocutionary). One might think we’re mistargeting the analysis by not stating the intended effect on the addressee as the meaning of topics, but one should bear in mind that the most common function of an element may

be related to its meaning in an indirect way. The reason not to propose something like (23) as the meaning of topics comes from embedded topics. When a topic is embedded under an attitude verb like *think*, the attitude holder takes on the role of deictic center – in effect, the speaker – but there is no correlate of addressee for embedded topics.¹² Assuming that topics in embedded and root clauses have the same interpretation, this suggests that the addressee should not play an essential role in the interpretation of topics. See section 5 for more detailed discussion of the meaning of embedded topics.

A related point can be made with regard to another potential worry about this analysis. It seems that (24) does not add anything to what is conveyed by the sentence. If *Maria* were not topicalized, and I simply said “I like Maria very much”, it would be clear from the fact that I referred to Maria that my mental representation of her is active. So, it seems that the topic simply states something which is apparent from the speech act itself. However, there is an important difference between stating something explicitly and letting it be inferred. By making it explicit to the addressee that my mental representation of Maria is active prior to expressing the sentence’s main content, I can achieve such pragmatic effects as causing the addressee’s mental representation of her to be active as well. If I deem it useful to make my addressee’s mental representation of Maria active, starting of my utterance with a speech act like (24) will achieve that effect in a nearly minimal way.¹³

Handling aboutness by means of a separate performative as in (24) may be an improvement over existing information structure theories of topics because it does not require adding complexity to the simple model of discourse context introduced by Stalnaker (1974, 1978). In fact, the true nature of the mental representation would not be relevant to the language faculty. It could be an amorphous connectionist web of the kind favored by many cognitive scientists, rather than a file card-like structure. While the instruction to affect the hearer’s knowledge representation would be part of linguistic competence (part of grammar in the broad sense), the knowledge representation itself would not.¹⁴ This would explain why the elaborated common ground of Reinhart and Portner & Yabushita, or the file card structure of Vallduví, fails to show itself through robust linguistic facts.

4 Force Markers

I am by no means convinced that force markers exist (cf. Zanuttini & Portner 2003, Portner 2004). But in this section, I want to explore the consequence of the idea that they do, and that they introduce expressive meaning, i.e. separate performatives. Davidson (1979) suggests that force is expressed through a speech act separate from (but often simultaneous

¹²Some propositional attitude verbs will have a correlate of the addressee, *tell* for instance, but this is not the general case.

¹³An interesting idea pointed out by Chris Potts and Florian Schwarz (joint p.c.) is that topics involve the speech act of referring (Searle 1969), and so don’t have truth-conditional content at all. That would be an even more minimal way of analyzing topics, and is compatible with my overall agenda in this paper.

¹⁴This way of thinking does not require that we push information structure outside of grammar, of course. It just allows us to do so to whatever extent is appropriate given the facts.

with) the speech act associated with the sentence’s overt content:

The utterance of a non-indicative is thus always decomposable into the performance of two speech acts. (Davidson 1979: 18)

For example, (25)a is understood something like (25)b:

- (25) a. Put on your hat!
b. My next utterance is imperative. You will put on your hat.
(Davidson 1979: 19)

Notice that, according to Davidson, the first part of (25)b, what he calls the “mood-setter”, has truth conditions: it is true if and only if the utterance of the second part is imperative in force. However, because it is a performative, its truth is guaranteed by its being understood. Davidson takes the fact that this analysis is truth-conditional to be one of the major factors in its favor:

Finally, the theory [of sentence mood] should be semantically tractable. If the theory conforms to the standards of a theory of truth, then I would say all is well. And on the other hand if, as I believe Bar-Hillel held, a standard theory of truth can be shown to be incapable of explaining mood, then truth theory is inadequate as a general theory of language. (Davidson 1979: 15)

Davidson’s idea can be implemented through the same technology as vocatives and topics. The mood-setter, or “force marker”, has a meaning like the following:

- (26) a. “(I hereby assert that) the addressee is to make this sentence’s at-issue meaning true.”
b. $\llbracket \text{IMP} \rrbracket_c^C = [\lambda p \lambda w . \text{addressee}(c) \text{ is to make } p \text{ true in } w]$

We would like to express (26) in terms of a more precise theory of meaning in discourse. Portner (2004) proposes that the discourse context contains a To-do List Function and a Question Set, parallel to the Common Ground (cf. also Ginzburg 1995a,b, Roberts 1996, Han 1998, Portner & Zanuttini 2002, Potts 2003). The natures of these three components of the discourse context are as follows:

1. The Common Ground is a set of propositions.
2. The Question Set is a set of sets of propositions.¹⁵
3. The To-do List Function associates each participant in the conversation with a set of properties (his/her To-do List).

¹⁵I assume, following Hamblin (1973) and Karttunen (1977) that interrogatives denote sets of propositions, but the details of interrogative semantics don’t play a role in this discussion. If they denote meanings of another type, the Question Set denotes a set of those.

The role of the Common Ground is well-known, and that of the Question Set is discussed in detail by Ginzburg (1995a,b) and Roberts (1996). The role of a To-do List is to rank the worlds compatible with the Common Ground, and an agent is considered rational and cooperative to the extent that his/her actions tend to make the real world be among the set of worlds ranked maximally highly by his/her To-do List (Portner 2004).¹⁶

Assuming that the discourse context as discussed above, the following definition gives a more precise description of the meaning of declarative, interrogative, and imperative force markers, where variable p is the type of propositions, q is the type of sets of propositions, and P is the type of properties:

- (27) a. $\llbracket \text{DEC} \rrbracket_c^C = [\lambda p \lambda w . \text{speaker}(c) \text{ requests that } p \text{ is in the Common Ground in } w]$
 b. $\llbracket \text{INT} \rrbracket_c^C = [\lambda q \lambda w . \text{speaker}(c) \text{ requests that } q \text{ is in the Question Set in } w]$
 c. $\llbracket \text{IMP} \rrbracket_c^C = [\lambda P \lambda w . \text{speaker}(c) \text{ requests that } P \text{ is in To-Do List}(\text{addr}(c)) \text{ in } w]$

A root sentence will have the structure $[\text{FORCE-MARKER } S]$, and so the denotation of a simple sentence will have $\llbracket \text{FORCE-MARKER} \rrbracket_c^C(\llbracket S \rrbracket_c)$ in the set of expressive meanings, and $\llbracket S \rrbracket_c$ as the ordinary, at-issue meaning. For example, (25)a will have the meaning $\langle A, C \rangle$ as follows; note that ‘ A ’ is appears in the definition of C :

- (28) a. $A = [\lambda x \lambda w : x = \text{addr}(c) . x \text{ puts on } x\text{'s hat in } w]$
 b. $C = \{[\lambda w . \text{speaker}(c) \text{ requests that } A \text{ is in To-do List}(\text{addr}(c)) \text{ in } w]\}$

The expressive meaning in C guides the use of A , and thus if the speaker’s intention is successful, the property of putting on one’s hat will be added to the addressee’s To-do List.

5 Embedded Clauses

Embedded topics are possible, as in (29):

- (29) John said that, as for Maria, she is nice.

Embedded vocatives are not possible in English.¹⁷ There are claims that some verbs embed clauses containing force markers (Krifka 2001, 2002, McClosky to appear). In this paper, I’ll focus on topics as I explore the the treatment of embedded instructional meanings.

A topic embedded under *say*, as in (29), can be interpreted with respect to either the main utterance or the reported act of saying. On the former reading, the speaker is saying something “about Maria”, and this interpretation is easy to handle. According to the semantic

¹⁶This characterization of To-do lists differs somewhat from those given by Han (1998) and Potts (2003). (Han calls it the “plan set”.) This characterization makes explicit the connection between the Common Ground and the To-do List in a way that other analyses do not, and in doing so it may help us understand why imperatives are a universal clause type. See Portner (2004) for discussion.

¹⁷Kratzer (p.c., 10/29/04) suggests that they may be possible in German, but I have not investigated this yet.

rules in section 2.2.2, the topic’s expressive meaning will simply percolate up the tree. But the “embedded” reading is harder. On this interpretation, John is saying something “about Maria”, and to capture it, we will have to take care of two things:

1. The speaker identified in the topic’s semantics (cf. (24)b) will have to be shifted to the agent of the reported speech act.
2. The content of the topic’s semantics will have to be related to the world of the reported speech act rather than that of the speech act of the utterance itself.

Assume that a Context c is a pair $\langle speaker, world \rangle$ (cf. Schlenker 2003).¹⁸ The contribution of the topic phrase should not be a proposition, but rather a function from contexts to propositions:

$$(30) \quad \llbracket \text{TOP} \rrbracket_c^C = [\lambda x \lambda c \lambda w . \text{speaker}(c)\text{'s mental representation of } x \text{ is active in } w]$$

The embedding verb *say* has a semantics which is sensitive to both dimensions of meaning. It combines with a pair $\langle A, C \rangle$. It uses A in the way familiar within possible worlds semantics, stating that all of the worlds compatible with what the subject’s referent s says in w are in A . In addition, it takes all of the expressive meanings in C and relates them to the “embedded context” $\langle s, w \rangle$; in the case of the topic meaning (30), this amounts to adding the assertion that s ’s mental representation of the entity referred to by the topic is active. Such a meaning can be expressed formally as in (31):¹⁹

$$(31) \quad \text{a. } \llbracket \text{say} \rrbracket_c = [\lambda \langle A, C \rangle \lambda a \lambda s \lambda w .$$

1. $\forall w' [w' \text{ is compatible with what } s \text{ says to } a \text{ in } w \rightarrow w' \in A]$, and
2. $w \in \cap \{m(\langle s, w \rangle) : m \in D_{\langle c, t \rangle} \ \& \ m \in C\}$

$$\text{b. } \llbracket \text{say} \rrbracket_c^C = \emptyset$$

This meaning makes *say* absorb all of the complement clause’s expressive meanings. If we wanted it to absorb only some of them, it would be necessary to structure C in a way that would allow *say* to find those particular components. The context-shifting in (31) is similar to what has been proposed to account for logophoric elements and shifting indexicals (cf. the recent work by Schlenker 2003 and Sharvit 2004, for example), but as I’ve formulated the rules, it affects only the expressive meanings, not the ordinary at-issue meaning. I do this only to avoid becoming entangled in the many complexities surrounding the semantics of logophors and indexicals in *de se* contexts; however, it seems clear that the interpretation of embedded topics is closely tied in with these things, and I hope the present paper can make a contribution to this broader theoretical concern.

In the case of (29), we get the following (after \exists closure of the unexpressed addressee argument and assuming that the only expressive meaning introduced in the embedded clause comes from the topic):

¹⁸I suppress the time parameter for simplicity.

¹⁹Here, c is the type of contexts, i.e. $\langle speaker, world \rangle$ pairs.

(32) $\llbracket (29) \rrbracket_c = [\lambda w .$

1. $\exists a \forall w' [w' \text{ is compatible with what John says to } a \text{ in } w \rightarrow w' \text{ is a world in which Maria is nice}]$, and
2. John's mental representation of Maria is active in w .]

This proposition is true if and only if John was thinking about Maria and said something to someone which entails that she is nice. The same analysis can be applied to a topic embedded under *think*:

(33) a. John thinks that, as for Maria, she is nice.

b. $\llbracket (33)a \rrbracket_c = [\lambda w .$

1. $\forall w' [w' \text{ is compatible with what John thinks in } w \rightarrow w' \text{ is a world in which Maria is nice}]$, and
2. John's mental representation of Maria is active in w .]

Once we allow for expressive meanings to be interpreted with respect to “embedded contexts”, there are a few technical loose ends that need to be cleaned up:

1. The function application rules in section 2.2.2 won't apply to creatures like (31) which take pairs of an ordinary meaning and a set of expressive meanings as argument. The following rule must be added:

(34) **Expressive-Absorbing Function Application**

For all nodes N with daughters D_1 and D_2 ,

if $\langle \llbracket D_2 \rrbracket_c, \llbracket D_2 \rrbracket_c^C \rangle$ is in the domain of $\llbracket D_1 \rrbracket_c$, then

(a) $\llbracket N \rrbracket_c = \llbracket D_1 \rrbracket_c(\langle \llbracket D_2 \rrbracket_c, \llbracket D_2 \rrbracket_c^C \rangle)$, and

(b) $\llbracket N \rrbracket_c^C = \emptyset$.

2. Prior to this section, all of the expressive meanings were either functions from individuals to propositions or the propositions which resulted from applying those functions to an argument. These propositions represented the completed expressive content that was attached to the sentence. However, because we now want to allow (some or perhaps all) expressive meanings to be interpreted with respect to embedded contexts, we will replace these propositions with functions from contexts to propositions. For example, we replaced the meaning for topics in (24)b with (30). Given this change, we need a rule to discharge the context argument of expressive meanings that make it to the root level:²⁰

(35) **Root Node**

If N is a root node, then the two-dimensional meaning of N with respect to context c is the pair $\langle A, C \rangle$:

$\langle \llbracket N \rrbracket_c, \{m(c) : m \in \llbracket N \rrbracket_c^C\} \rangle$.

²⁰One could pursue various interesting ideas about how this operation of discharging the open context argument is realized in syntax, but for purposes of this paper, I'll just represent it as a semantic rule which is triggered by any root node.

3. The meaning for *say* in (31) relates embedded topics to the embedded context. Recall that (29) is ambiguous, however. On the other meaning, the embedded topic gets interpreted with respect to the real context of utterance (the “root context”). I assume that there is another meaning for *say* which only takes the at-issue meaning of the complement as its argument.

$$(36) \text{ a. } \llbracket \text{say}_2 \rrbracket_{w,c} = [\lambda p \lambda a \lambda s . \\ \forall w' [w' \text{ is compatible with what } s \text{ says to } a \text{ in } w \rightarrow w' \in p]] \\ \text{ b. } \llbracket \text{say}_2 \rrbracket_{w,c}^C = \emptyset.$$

This version of *say* will combine with its complement using Ordinary Function Application, not Expressive-Absorbing Function Application. The topic’s meaning will then percolate up the tree, and its context argument will be discharged by the Root Node rule in (35).

6 Conclusion

The central proposals of this paper are that instructional meanings should be thought of as separate performatives, and that the theory of expressive meaning is an appropriate framework in which to formalize them. Specifically I have argued that call vocatives request the addressee’s attention, topics report that the speaker’s mental representation of a particular entity is active, and force markers request that addressee incorporate the sentence’s at-issue content into the discourse context in a particular way. At the detailed level, these meanings for vocatives, topics, and calls are not particularly surprising (though the particular way of viewing topics is a bit different from related theories). What is novel is the overall framework for analyzing instructional meaning.

In terms of empirical adequacy, this approach to instructional meaning lets us account for some of the properties of vocatives and topics. The restrictions on what kinds of NPs can function as vocatives make sense in light of the meanings that are proposed here. In particular, we can explain the inability of certain quantifiers to function as vocatives as being due to the fact that it is impossible to bind across dimensions of meaning. With regard to topics, something that needs to be explained is the *lack* of firm data supporting the common intuition that topics say what the sentence is about. In terms of the present theory, this is because the concept of an individual’s mental representation of something being active is not a linguistic one, and so should not be given a formal representation within linguistic theory. It is an aspect of cognition which may give rise to psychological effects, but not to categorical linguistic ones.

While it is controversial whether illocutionary force is encoded within grammar, if such things as force markers exist, it is worth considering whether they should be treated as separate performatives as well. Such an approach contrasts with the rather different perspective of Krifka (2001, 2002); his analysis combines force and propositional content into a single, novel semantic object (**commitment change potentials**, a kind of “act”). In contrast, the analysis offered here – much along the lines of Davidson (1979) – treats force as separate

from at-issue content, though the one refers to the other. I do not claim any advantage for the present approach at this time; I simply offer it as an interesting alternative which fits into a more general theory of instructional meaning.

Topics can be embedded, and this means that any theory of them needs to have a way of letting them contribute to the content attributed to an attitude holder by such verbs as *say*, *think*, and *hope*. Other information structure theories of topics would have to attribute the complex structures which they postulate to the attitudinal state that *say*, *think*, or *hope* report. While this may be possible, the resulting meanings would be extremely complex. An alternative is to bleach the core semantic contribution of topichood of all discourse and cognitive meaning; this is more or less what the structured meaning approach to topic-focus structure does independently of the issue of embedded topics, treating a topic as a constituent at the level of the proposition (von Stechow 1991, Krifka 1991). The present analysis steers a middle course; it asserts that the core meaning of topics is cognitive, reporting on the speaker's mental state, but since it does no more than report on that state, it does not require adding too much complexity to the analysis of propositional attitudes. Moreover, since it is likely that other expressive meanings can be absorbed into at-issue semantics via an attitude operator (cf. Kratzer 2002), this extra complexity is probably needed anyway.

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