Composure and composition[*]

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Abstract This paper focuses on the ability of expressives integrated into larger utterances to convey the speaker's feelings that are not linked to anything in those utterances. Such apparently non-compositional uses of expressives raise the questions of (i) how these expressives integrate into the host utterance at various levels of representation, and (ii) what licenses this apparent non-compositionality. Regarding (i), I develop a typology of attitudinal expressions and their meaning components based on how they integrate into larger utterances that includes spoken expressions from English and Russian as well as various "secondary modality" ways of conveying feelings, namely, facial expressions, gestures, and prosody. Regarding (ii), I propose that apparent non-compositionality of expressives is linked to immediacy of the emotional experience they serve as an outlet for. I also show how the different integration patterns of attitudinal expressions as well as the link between immediacy and apparent non-compositionality can be captured in Potts's (2007) expressive semantics.

Keywords: composition, expressives, attitudinal expressions, non-restricting modifiers, supplements, degree modifiers, facial expressions, gestures, prosody

1 Introduction

Lexical items like *fucking*, *bloody*, or *(god)damn*, used as in (1), are usually referred to as *expressives*.

(1)   Lea is bringing her {fucking, bloody, (god)damn} dog to the party.

The category of expressives is rarely precisely defined, however, and many attitudinal items, including those in (2), have been referred to as expressives (for example, Potts (2005) treats adjectives like *lovely* as positive-by-default counterparts of negative-by-default items like *fucking*).

(2)   Lea is bringing her {lovely, awesome, obnoxious, disgusting} dog to the party.

Indeed, at first glance, (1) and (2) seem to be similar in that, as shown in (3), (i) the contribution of the target items is truth-conditionally vacuous, i.e., they can be dropped without affecting the truth conditions of the utterance, and (ii) they give rise to a projecting inference about the speaker's attitudes.

(3)   If Lea brings her {fucking, bloody, (god)damn, lovely, awesome, obnoxious, disgusting} dog to the party, Mia will be happy.
        → If Lea brings her dog to the party, Mia will be happy.   *truth-conditional vacuity*
        → The speaker has a certain attitude towards Lea's dog.   *projecting inference*

On closer inspection, however, this apparent equivalence falls apart pretty quickly, since items like *lovely* (hf. *l-type items*) don't exhibit the property of items like *fucking* (hf. *f-type items*) that this paper will focus on, namely, the potential to have apparently non-compositional (hf. "non-compositional") interpretations. That f-type items don't have to convey the speaker's attitude about the denotation of the expression they combine with in the syntax (or, rather, seem to combine with in the syntax, based on their surface position) was noted at least as early as in Potts 2005. Potts (2005) adduces examples like (4) and proposes that expressives contribute conventional implicatures, like appositives and other supplements, but can compose with any constituent at LF, regardless of their position in the syntax. Specifically in (4), as Potts (2005) argues, *damn* actually composes with the proposition that the machine didn't come with an electric plug.

(4)   Nowhere did the instructions say that the damn machine didn't come with an electric plug!

Setting aside the obvious point that unleashing such powerful LF magic is not without consequence and needs to be constrained lest it destroys the principle of compositionality as we know it, the LF-based story in Potts 2005 is still too compositional in some sense, as f-type items can be used to signal the speaker's emotional state that isn't directly linked to anything in the sentence. Thus, in (5a), the f-type items don't necessarily convey that the speaker hates pens in general, this specific pen, pen-giving events, etc., but can simply signal that the speaker is angry. However, as originally observed in Esipova et al. 2019, the l-type items in (5b) cannot simply signal that the speaker is in a certain mood—even if they are, it has to translate into a positive evaluation of their pen.

(5)   a.   Where is my {fucking, bloody, (god)damn} pen?!
              ↛ The speaker has a certain attitude towards their pen.
        b.   Where is my {lovely, awesome, obnoxious, disgusting} pen?!
              → The speaker has a certain attitude towards their pen.

Relatedly, as was also noted in Esipova et al. 2019, f-type items can be inserted into an utterance without ostensibly being part of its syntactic—and, thus, compositional—structure at all, but l-type items cannot:

(6)   Will you please (never) {fucking, bloody, goddamn, *lovely, *awesome, *obnoxious, *disgusting} stop?!¹

In other words, f-type items are different from l-type items in that only the former can be used purely expressively, i.e., to express the speaker's feelings without any apparent compositional effect whatsoever. This typological picture that we have so far is summarized in Table 1.²

The "non-compositional" uses of expressives raise two major questions:

Question 1: How do we operationalize these uses in the architecture of grammar, via
             Strategy 1 (S1): actual lack of compositional integration, or
             Strategy 2 (S2): vacuous compositional integration?
Question 2: What licenses "non-compositionality" of attitudinal items, and how does it connect, if at all, to their truth-conditional vacuity?

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¹*Goddamn* seems to work much better than *damn* here for rhythmic reasons.
²The question mark for compositional f-type items reflects the fact that once we allow for "non-compositional" uses for a given item, it is unclear how we can pinpoint compositional uses thereof.

compositional	*"non-compositional"*
• Eng. l-type items: *lovely* • ?seemingly compositional Eng. f-type items: *fucking* in (1)	• purely expressive Eng. f-type items: *fucking* in (5a) and (6)

Table 1: Typology of attitudinal expressions that occur within other expressions: version 1.

This paper is an attempt, to my knowledge the first one, to classify attitudinal items that occur within larger utterances based on how they integrate with those utterances at various levels of representation. I start by exploring novel data from Russian that, regarding Q1, show that both S1 and S2 exist in natural language and are instantiated, respectively, by Russian expressive particles and suffixes (Section 2), and, regarding Q2, establish a link between "non-compositionality" and immediacy (and possibly intensity) of the emotional experience, which echoes similar intuitions based on English data (Section 3). In Section 4, I show that both S1 and S2 expressives can be analyzed using Potts's (2007) semantics in a way that sets them apart from l-type items. There I also discuss how we can capture the link between the immediacy of such expressives, the non-truth-conditional nature of the contributions that they make, and their "non-compositionality". In Section 5, I show that "secondary modality" ways of expressing emotions and attitudes, such as facial expressions, hand gestures, and prosody, exhibit some of the same contrasts as spoken expressions and furthermore expand our understanding of how attitudinal items integrate into utterances at various levels of representation. In Section 6, I discuss what degree modifiers with an attitudinal component add to the picture. Section 7 summarizes the main points of this paper and outlines directions for future research.

This paper is accompanied with a .zip file containing videos and other supplementary files for some of the examples, which can be found at https://osf.io/7rkj2/.

2 The two types of expressives in Russian

2.1 The two types of "non-compositionality"

A priori, there are two major ways in which the "non-compositional" interpretations of English expressives that we saw in (5a) and (6) could arise: actual lack of semantic composition or vacuous semantic composition. In some cases, such as, perhaps, (4), we could also resort to semantic composition that is not vacuous, but ignores the syntax, a lá Potts 2005. However, I don't think it is necessary, as the same results can be achieved by either of the two options outlined here, and it is clearly not sufficient. Also, as said before, such a mechanism blatantly violates the assumption that semantic composition follows the output of the syntax, which I take to be at the core of the principle of compositionality and would prefer not to mess with, unless it is absolutely necessary and unless it can be constrained in a clear and well-motivated way.

Under the 'no composition' strategy, S1, expressives with apparently non-compositional interpretations indeed aren't compositionally integrated with the host utterance, i.e., they are not part of the same syntactic—and, therefore, compositional—structure and only integrate with the host utterance phonologically. On the surface, we expect S1 expressives to be able to be freely sprinkled over the utterance, as long as they land in prosodically appropriate positions. Semantically, S1

expressives constitute independent speech acts, akin to standalone interjections like *Fuck!*. From the composition perspective, this would make S1 expressives not unlike full-sentence parentheticals linearly interrupting other utterances, such as in (7), although their prosodic integration is, of course, very different.

(7)   This neighbors' dog—
     a.   and, by the way, I hate dogs!
     b.   and, just to be clear, I love dogs!
   —was barking all night again.

Under the 'vacuous composition' strategy, S2, "non-compositional" expressives are in fact part of the same compositional structure as the host utterance, however, their lexical semantics is such that this compositional integration ends up being vacuous in that the meaning of the expressive doesn't actually interact with the meaining of the expression it combines with in the syntax.

As I will show in Section 4, we can maintain that the difference between the two strategies is primarily morphosyntactic, and both S1 and S2 expressives can be given the expressive semantics from Potts 2007. We will also see in Section 5 that the constraints on what kind of content can integrate via S1 vs. S2 are also distinct, at least when we look at secondary modality expressions.

The two strategies of achieving "non-compositional" interpretations are not mutually exclusive in that both can in principle be available in natural language. However, while it is tempting to say that instances of English f-type items in cases like (5a) employ S1 and those in cases like (6) employ S2, English f-type items are not the clearest case study when it comes to determining which of the two strategies are, in fact, attested. While there are constraints on where English f-type items can be inserted into an utterance, it is not immediately obvious whether these constraints are syntactic or prosodic. In the rest of this section, I show that Russian, a language with a much more transparent morphology, clearly exhibits both S1 and S2 via expressive particles and suffixes, respectively.

2.2 Russian expressive particles as S1 expressives

Russian obscene particle *bljad'*, its shortened version *blja*, and its euphemism *blin*, all illustrated in (8) (the target items are bolded and uniformly glossed as EXPR$_{prt}$), are used to signal the speaker's heightened emotions, often negative, and are good candidates for S1 expressives. They can be fairly freely sprinkled over an utterance; they are morphologically inert and only integrate with the host utterance prosodically (often, but not necessarily as a clitic on the preceding word);[3] and they can be used as standalone interjections.

(8)   a.   Gde   ($\langle$**blja(d')**, **blin**$\rangle$) moja ($\langle$**blja(d')**, **blin**$\rangle$) ručka ($\langle$**blja(d')**, **blin**$\rangle$)?!
        where **EXPR$_{prt}$**   my **EXPR$_{prt}$**   pen **EXPR$_{prt}$**
        ≈'Where is my $\langle$fucking, freaking$\rangle$ pen?!'
   b. $\langle$Blja(d'), Blin$\rangle$!
        ≈'$\langle$Fuck, Shoot$\rangle$!'

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[3]The shortened version *blja* is more likely to be a clitic, but it can still be used as a standalone interjection. Its expressive effect is also weaker.

Some Russian speakers can also use *suka* 'bitch' (also obscene) in a similar way, except due to its larger prosodic weight, *suka* seems to be hard to integrate as a clitic when it occurs at the right edge of a prosodic phrase, so it has to be packaged into its own prosodic unit of some size,[4] in which case it might be misinterpreted as a vocative.

(9)   a.   Gde   (**suka**)   moja (**suka**)   ručka (?#**suka**)?!
            where **EXPR_prt** my   **EXPR_prt** pen   **EXPR_prt**
            ≈'Where is my fucking pen?!'
       b.   Suka!
            ≈'Fuck!'

The two particles can also be combined into an even heavier *sukabljad'* amalgam, possibly with a higher expressive effect. This and other extra-heavy expressives, like *mat'-tvoju* (mother.ACC-your.SG.ACC) or *mat'-vašu* (mother.ACC-your.PL.ACC),[5] can also be used as S1 expressives, as shown in (10), but they exhibit more complex prosodic integration patterns (for one, I don't think they ever integrate as clitics, except maybe in second positions, where they can be fairly reduced).

(10)   a.   Gde   ({**sukabljad'**, **mat'tvoju**, **mat'vašu**}) moja
            where **EXPR_prt**   my
            ({**sukabljad'**, **mat'tvoju**, **mat'vašu**}) ručka
            EXPR_prt   pen
            ({**sukabljad'**, **mat'tvoju**, **mat'vašu**})?!
            EXPR_prt
            ≈'Where is my fucking pen?!'
       b.   {Sukabljad', Mat'tvoju, Mat'vašu}!
            ≈'Fuck!'

Various combinations of the expressives above within one utterance are also possible in a way that only seems to be constrained by prosodic considerations.

2.3   Russian expressive suffixes as S2 expressives

Russian has a range of suffixes that are typically truth-conditionally vacuous and give rise to projecting inferences about the speaker's attitudes. For example, instead of encoding anything about the object's size, diminutives can often be used to signal affection. Augmentatives are sometimes used to express derogation (while typically still preserving the augmentative meaning component). Some other suffixes only have attitudinal uses and can be used to signal a range of attitudes from, once again, affection to derogation. These attitudinal suffixes can also be stacked in various ways, which is is not unconstrained, but still fairly productive. A few examples are given in (11), with all the attitudinal suffixes glossed as ATT for now; the typical attitude associated with the (given

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[4]The full prosodic hierarchy of Russian is yet to be established.

[5]I write these as a single orthorgraphic word to reflect the fact that in the target pronunication they form a single prosodic word; this spelling can also be sometimes found in the wild, especially in online communication. Also, despite the internal composition of these expressives, they don't have to be directed at the addressee—in contrast to the uninverted, two-prosodic-word versions (*tvoju mat'* and *vašu mat'*), which can often be perceived as more personal when they are not used as standalone interjections.

instance of the) bolded suffix is given in parentheses, although the specific flavor and the degree of the effect will vary across suffixes, expressions they combine with, speakers, contexts of use, etc.[6]

(11) a. mam-**očk**-a
mother-ATT-NOM.SG
(affectionate)

b. mam-**ul'**-a
mother-ATT-NOM.SG
(affectionate)

c. mam-**ul'**-**ečk**-a
mother-ATT-ATT-NOM.SG
(affectionate)

d. mam-**ul'**-**en'k**-a
mother-ATT-ATT-NOM.SG
(affectionate)

e. kot-**ik**
cat-ATT
(affectionate)

f. kot-**ič**-**ek**
cat-ATT-ATT
(affectionate)

g. kot-**in'k**-a
cat-ATT-NOM.SG
(affectionate)

h. koš-**ak**
cat-ATT
(derogatory)

i. sobač-**k**-a
dog-ATT-NOM.SG
(affectionate)

j. sobač-**en'k**-a
dog-ATT-NOM.SG
(affectionate)

k. sobač-**ar**-a
dog-ATT-NOM.SG
(augmentative + derogatory)

l. sobač-**enci**-ja
dog-ATT-NOM.SG
(pejorative)

m. starič-**ok**
old.man-ATT
'old man' (affectionate)

n. starik-**an**
old.man-ATT
'old man' (derogatory)

o. starik-**ašk**-a
old.man-ATT-NOM.SG
'old man' (pejorative)

p. zver'-**ug**-a
animal-ATT-NOM.SG
(augmentative + derogatory)

q. zmej-**uk**-a
snake-ATT-NOM.SG
(derogatory)

r. dev-**ax**-a
girl-ATT-NOM.SG
(augmentative + derogatory)

For the most part, such attitudinal suffixes are nominal suffixes, i.e., they either modify existing nouns or act as original nominalizers. One exception is *-Vn'k-*, which also shows up in adjectives, adverbs, and infinitives, as we will see in the next subsection. The inventory of Russian attitudinal suffixes and their morphosyntactic behavior are described in great detail in Steriopolo 2008, which the reader is referred to for a full overview. What matters for the purposes of this paper is that these suffixes are bound morphemes (in particular, they cannot be used as standalone interjections) that are fully morphologically integrated with the rest of the utterance (e.g., they are subject to constraints on linear order, exhibit lexical idiosyncrasy, trigger and are subject to allomorphy, etc.).

Steriopolo (2008) also discusses the semantics of Russian attitudinal suffixes and concludes that they are expressives in the Pottsian (2005, 2007) sense; in fact, she refers to these suffixes as "expressive suffixes". Steriopolo assumes that these suffixes always signal the speaker's attitude towards

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[6]Many of the suffixes in (11) are, in fact, morphologically complex. For instance, in *-Vč-k-*, the two parts *-Vč-* and *-k-* are allomorphs of the same diminutive suffix. However, I only split such suffix clusters in cases when I believe that they are internally compositional in a transparent way. This internal compositionality or lack thereof eventually needs to be studied in greater detail, but the simplified picture will suffice for the purposes of this paper.

the denotation of the expression they combine with, i.e., that they are always interpreted strictly compositionally. However, affection-signalling suffixes in Russian can have "non-compositional" uses. A typical example of that is given in (12), where the target suffixes are now glossed as EXPR$_{\text{suff}}$ to reflect the fact that they are used purely expressively.

(12)   *Context: The speaker is talking to their dog.*

Ja   sejčas nal'ju   tebe   svež-**en'k**-oj   vod-**ičk**-i
I.NOM now   pour.1SG.FUT you.DAT fresh-**EXPR$_{\text{suff}}$**-PTV.SG.F water-**EXPR$_{\text{suff}}$**-PTV.SG
v mis-**očk**-u,   a   potom my bystr-**en'k**-o   pojdëm
in bowl-**EXPR$_{\text{suff}}$**-ACC.SG, and then   we quick-**EXPR$_{\text{suff}}$**-ADV go.FUT.1PL
guljat-**en'k**-i.
walk.INF-**EXPR$_{\text{suff}}$**-INF
≈'I will now pour fresh water into a bowl for you, and then we will quickly go for a walk.'

In (12), the affection signalled by the diminutives is not towards fresh things, water, bowls, quick events, or walking events, but towards the dog. Instances of Russian affection-signalling suffixes such as in (12) are, thus, good candidates for S2 expressives. Of course, the claim here isn't that instances of such diminutives are never strictly compositional, only that they don't have to be.

Now, it might be tempting to think that in cases like (12) we are dealing with some sort of "affection spreading" by adjacency, when the speaker is so overwhelmed by their dog's cuteness that they project their affection onto everything around them. This process would have to be extremely abstract, however, considering that it would have to extend not just to individuals, but to properties of individuals and events. Even if something like this is in fact happening cognitively at some level, there is still a question of how we should model this type of linguistic behavior and constraints thereupon as linguists. An argument for a more linguistic approach to modeling this phenomenon will be presented in the next section.

In Table 2, I provide the updated typology of attitudinal expressions.

| *compositional* | *"non-compositional"* | |
	S1 (no composition)	S2 (vacuous composition)
• Eng. l-type items: *lovely* • ?seemingly compositional Eng. f-type items and Rus. suffixes: *fucking* in (1); *-Vn'k-* in (11)	• ?purely expressive Eng. f-type items: *fucking* in (6) • Rus. expressive particles: *bljad'* in (8)	• ?purely expressive Eng. f-type items: *fucking* in (5a) • Rus. affectionate suffixes: *-Vn'k-* in (12)

Table 2: Typology of attitudinal expressions that occur within other expressions: version 2.

3   Licensing "non-compositional" expressives

In Esipova et al. 2019, we speculate that the contrast between f-type items and l-type items regarding the potential for "non-compositionality" has something to do with the default polarity of the feeling they express. In particular, we make a tentative generalization that positive-by-default "non-compositional" expressives are hard, if not impossible, to come by cross-linguistically.

First, let us unpack the notion of default polarity. Of course, human emotions are complex and don't always fit into a 'positive–negative' binary. That said, when used as standalone interjections (which not all of such items can be), English f-type items do seem to come with a negative flavor. Thus, both responses in (13-i) signal that the speaker is not thrilled about the perspective of Mia coming to the party, in contrast to (13-ii). While, as pointed out by Alicia Parrish (p.c.), *Fuck!* and the like can come with additional flavors, such as of a very strong surprise, in contexts like in (13), they contrast with more neutral expression of surprisal, such as in (13-iii).[7]

(13)   A: Mia is coming to the party.
       B: (i)   {Fuck, Damn}!   *negative*
            (ii)   {Great, Excellent, Awesome, Lovely, Wicked}!   *positive*
            (iii) {What a surprise, Wow}!   *plain mirative*

These contrasts do seem to suggest that there is a default polarity associated with certain expressive roots, and for items like *fuck* and *damn*, said polarity is negative. However, negative-by-default expressives can be used when the speaker is experiencing strong positive feelings (elation, awe, pleasure, etc.), as in (14). Of course, there is a question of whether all the instances of f-type items in (14) are "non-compositional". With enough flexibility, one could maybe argue that (14a) and (14b) are, in fact, compositional, but I believe it would be hard to argue that for (14c).

(14)   a.   We {fucking, bloody, goddamn} won!
       b.   What a {fucking, bloody, goddamn} view!
       c.   May this music never {fucking, bloody, goddamn} stop!

Furthermore, the "non-compositional" uses of affection-signalling Russian suffixes as in (12) show that affection, which is arguably a positive feeling, can be signalled "non-compositionally" as well.[8]

Thus, I conclude that while there might be polarity-related asymmetries in how expressives lexicalize, polarity doesn't seem to directly license "non-compositional" uses. Instead, I put forward an intuition that the less control one has over a given feeling at the moment of utterance, the more likely said feeling is to be expressed "non-compositionally". I furthermore conjecture that two conditions for lessened control are immediacy and, perhaps to a lesser extent, sufficiently high intensity of the emotional experience. Of course, other factors will be at play as well; for instance, the control threshold for licensing "non-compositional" expressives might vary across individuals and situations. Furthermore, expressives, especially obscene ones, can serve various social functions (which I briefly mention in Section 7), in which case they might be "non-compositional" without necessarily being linked to any strong emotion.

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[7]A standalone *Damn!* seems to be able to have mirative uses without a negative flavor and can, in fact, convey being positively impressed. The phonetic properties of such instances of *Damn!* seem to be very close to the properties of the prosodic degree modifier and/or mirative morpheme discussed in Esipova 2019c. More needs to be said eventually about such uses and the compositionality behind them.

[8]Apart from polarity, another obvious difference between negative-by-default English expressives and Russian affection-signalling suffixes is that the former are considered "swear words", "obscenities", words that are generally unacceptable in many social situations. While Russian attitudinal suffixes can be stylistically inappropriate in certain contexts, none of them are obscene. For example, one might roll their eyes at someone "overusing" diminutives or think that using derogatory suffixes is not appropriate in a journal paper, but none of these suffixes would be bleeped out on TV. Of course, there seems to be a correlation between the obscene status of an attitudinal expression and its default polarity, however, the link might be indirect, as Russian words derived from obscene roots can easily have a positive meaning (e.g., *xuёvyj* 'terrible' and *oxuennyj* 'excellent' are both adjectives derived from the obscene root *xuj* 'penis').

This conjecture is further supported by the fact that, as far as I can tell, only affection-signalling attitudinal suffixes in Russian can have "non-compositional" uses. In particular, one cannot express derogation or pejorative attitude towards the addressee or some other salient individual in the context by sprinkling derogatory/pejorative suffixes over one's utterance; thus, in (15), all the suffixes are interpreted compositionally.

(15) Vygonite   ètogo   ⟨starik-**an**-a,   starik-**ašk**-u⟩
      kick-out.IMP.PL this.ACC.SG.M ⟨old.man-DEROG-ACC.SG, old.man-PEJOR-ACC.SG⟩
      i   ego ⟨sobač-**ar**-u,   sobač-**enc**-iju⟩   von.
      and his ⟨dog-DEROG-ACC.SG, dog-PEJOR-ACC.SG⟩ out
      ≈'Kick out this ⟨stupid, pathetic⟩ old man and his ⟨stupid, pathetic⟩ dog.'

Under the conjecture above, this contrast is to be expected, as derogatory and pejorative attitudes don't seem to come in intense bursts that need an immediate outlet;[9] also, Russian derogatory/pejorative suffixes tend to be quite mild.

Note that it is in principle possible that the speaker of (15) is simply fed up with the entire situation at hand and is "taking it out" on the salient individuals in the situation by belittling and disparaging them. Such derogation by adjacency would be much more obvious and plausible in (15) than the hypothetical affection-spreading in (12). Furthermore, while Russian has lexicalized affection-signalling diminutives to go on adjectives, adverbs, and infinitives (the instances of which we have seen in (12)), no derogation-expressing suffixes can do that. Thus, whatever we think about the cognitive process of projecting feelings onto things other than the actual source of those feelings, there seem to be tangible linguistic consequences of the contrasts between different emotion types within the otherwise fairly homogeneous morphosyntactic class of Russian attitudinal suffixes, which we as linguists should deal with.

Another update to the typology of attitudinal expressions is given in Table 3.

| *compositional* | *"non-compositional"* | |
	S1 (no composition)	S2 (vacuous composition)
• Eng. l-type items: *lovely* • ?seemingly compositional Eng. f-type items and Rus. affectionate suffixes: *fucking* in (1); *-Vn'k-* in (11) • Rus. derogatory/pejorative suffixes: *-ašk-*	• ?purely expressive Eng. f-type items: *fucking* in (6) • Rus. expressive particles: *bljad'* in (8)	• ?purely expressive Eng. f-type items: *fucking* in (5a) • Rus. affectionate suffixes: *-Vn'k-* in (12)

Table 3: Typology of attitudinal expressions that occur within other expressions: version 3.

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[9]Now, it is possible to express immediate derision towards some individual in the extralinguistic situation via facial expressions and prosody throughout the utterance (such undocked facial expressions and prosodic modulations are dicsussed in Section 5). So, the point here is more like that expressing such attitudes in an immediate fashion doesn't constitute an urgent enough need to warrant lexicalizing primary modality morphemes that would allow doing so—at least not in Russian.

4 Semantics for "non-compositional" expressives

4.1 S1 and S2 expressives in Pottsian semantics

Potts (2007) recognizes the role of immediacy in expressives, but he doesn't explicitly link it to their "non-compositionality". Below I present a vastly simplified version of Potts's (2007) expressive semantics (which will suffice for the purposes of this paper), and in the next subsection I discuss how this link between immediacy and "non-compositionality" can be introduced.

Let's start with the intuition, which I believe is present at the core of Potts 2007, that people use language for various purposes. One major function of language is exchanging information with the goal of figuring out what the world we inhabit is like; this function corresponds to the truth-conditional semantics of our utterances as well as such discourse moves as raising and resolving issues (however they are modeled). However, language can be used for entirely different purposes that have nothing to do with communicating or negotiating beliefs about the world, one of which is to perform the expressive function, i.e., to serve as an outlet for the speaker's immediate emotions.

The truth-conditional content of an utterance can, of course, be further packaged in various ways; in particular, some of it can be backgrounded (as is typically the case with supplements) or presupposed (in the classical sense of the word)—which will, of course, have consequences for such phenomena as projection from under semantic operators, targetability by direct responses in the discourse, ability to address questions under discussion, etc. Yet, backgrounded or presupposed content is truth-conditional, however we implement its distinction from "at-issue" (i.e., non-backgrounded and non-presupposed) content. The invisibility of non-truth-conditional expressions such as expressives to semantic operators such as negation, modals, conditional and question operators, etc., as well as the unfaltering non-negotiability of their contributions (modulo, of course, metalinguistic discourse), is absolute, which is not the case for supplements (see, e.g., Koev 2013, AnderBois et al. 2013, Syrett & Koev 2015).

In Potts 2007, the intuition that expressives make immediate, non-truth-conditional contributions is implemented by having expressives pass the expression they compose with unchanged in the truth-conditional dimension, but alter the expressive index c_ε that tracks the emotional states of the conversation participants of the context of interpretation c, outputting a new context in which the speaker c_s is experiencing the relevant feeling. In the general case, I will simplify this effect as feels(c_s, c_ε). This composition is performed by the bullet operator •, whose precise semantics I will not unpack; the reader is referred to Potts 2007 for the technicalities.[10] I will systematically write the truth-conditional contribution of a given expression on the left of the bullet operator and the non-truth-conditional contribution on the right, and I will refer to the two parts of a lambda expression thus divided as the truth-conditional and the non-truth-conditional dimensions, respectively.

S2 expressives, whose general type-flexible semantics is given in (16) and exemplified in (17), compose with the α they syntactically merge with, but this composition is (i) truth-conditionally vacuous, since the denotation of α is passed unchanged in the truth-conditional dimension, and (ii) compositionally vacuous, since the non-truth-conditional dimension does not interact with any of the arguments of α.

(16) $[\![\text{EXPR}_{S2} [\alpha_{\langle \tau_1 \ldots \tau_n, t \rangle}]]\!]^c = \lambda X^1_{\tau_1} \ldots X^n_{\tau_n}. [\![\alpha]\!]^c (X^1) \ldots (X^n) \bullet \text{feels}(c_s, c_\varepsilon)$

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[10]Potts (2005) uses the bullet notation as well, but the semantics of the bullet operator in Potts 2007 is vastly different from that in Potts 2005.

(17) a. $[\![-o\check{c}k\text{-}]\!]^c = \lambda P_{\langle e,st\rangle}\lambda x\lambda w.P(x)(w) \bullet \mathsf{affectionate}(c_s,c_{\mathcal{E}})$
      b. $[\![mis\text{-}o\check{c}k\text{-}a]\!]^c = \lambda x\lambda w.\mathsf{bowl}(x)(w) \bullet \mathsf{affectionate}(c_s,c_{\mathcal{E}})$

S1 expressives are independent speech acts that don't combine with anything, so they just have the general semantics in (18).

(18) $[\![\mathrm{EXPR}_{S1}]\!]^c = \lambda w.\mathsf{T} \bullet \mathsf{feels}(c_s,c_{\mathcal{E}})$

In other words, S2 expressives are obligatorily truth-conditionally vacuous modifiers and S1 expressives are obligatorily truth-conditionally vacuous context updates.

   L-type items differ from S2 expressives in that they link the speaker's feelings to the denotation of the expression they merge with in the truth-conditional dimension:

(19) $[\![lovely]\!]^c = \lambda P_{\langle e,st\rangle}\lambda x\lambda w.P(x)(w) \wedge \mathsf{likes}(c_s,x,w)$

L-type items are, thus, compositionally non-vacuous and potentially truth-conditionally non-vacuous. Both consequences are borne out empirically. We have seen before that l-type items are always strictly compositional. Furthermore, l-type items can be *restricting modifiers* without losing their attitudinal meaning, i.e., they can be subsective modifiers that pick out a (potentially) smaller, (potentially) non-empty subpart of the denotation of the expression they combine with, which makes them truth-conditionally non-vacuous. Now, there might be a pragmatic preference for specific instances of l-type items to be *non-restricting* in the sense of Esipova 2019a, i.e., situationally truth-conditionally vacuous in the context of a specific utterance.[11] As I discuss in Esipova 2019a, the reason for this preference is that, on the one hand, due to their highly subjective nature, l-type items don't make very good restricting modifiers, and, on the other hand, they are always licensed as non-restricting modifiers, as they always contribute some relevant information, namely, that about the speaker's attitudes. However, l-type items are distinct from f-type items, which can never be restricting under their attitudinal meaning. Thus, in (20), the l-type items might not constitute the best strategy to help the addressee identify the referent, but they are still acceptable under their attiudinal meaning, while the f-type items can only have their non-attitudinal meaning.[12]

(20) A: Which of her dogs is Lea bringing?
      B: The {lovely, awesome, obnoxious, disgusting, #fucking, #bloody, #(god)damn} one.

This difference between f-type and l-type items is uncaptured under Schlenker's (2007) reductionist response to Potts 2007, whereby both f-type items and non-restricting l-type items trigger informative presuppositions that are easy to globally accommodate due to the speaker being "an authority on [their] own mental states". Even if we attach the label "presuppositions" to expressions that perform a purely expressive function,[13] we would still need to maintain that these expressive "presuppositions" are at the very least distinct from the pragmatic inferences contributed by non-restricting l-type items. Similarly, Potts's (2005) analysis of f-type items as always contributing conventional implicatures (which are, furthermore, the same type of content that supplements contribute) and

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[11] See also Leffel 2014 for an earlier discussion of non-restricting modifiers.

[12] I come back to degree modifier uses of words like *fucking*, which have a truth-conditionally non-vacuous meaning component, in Section 6.

[13] Which I would prefer not to do, as I would like to reserve the term *presupposition* for content that can actually be presupposed in the intuitive sense of this word, i.e., for truth-conditional content.

l-type items as being able to either make at-issue contributions or trigger conventional implicatures is not sufficiently explanatory. The view I advocate for, whereby f-type items are non-truth-conditional and, thus, obligatorily truth-conditionally vacuous, and l-type items are truth-conditional, but often non-restricting, i.e., situationally truth-conditionally vacuous, captures the distinction in an intuitive, explanatory way.

4.2 Capturing the link between immediacy and "non-compositionality"

Now, while the expressive semantics above might seem clean and intuitive, it doesn't actually capture the link between immediacy and "non-compositionality" observed in the previous section, because, as things stand, an expression's non-truth-conditional nature and its compositional vacuity are independent of one another. In particular, nothing rules out hypothetical attitudinal expressions such as, for instance, ATT_{S3}, whose contribution is vacuous compositionally, but not truth-conditionally.

(21) $[\![[\text{ATT}_{S3}[\alpha_{\langle\tau_1...\tau_n,t\rangle}]]\!]]^c = \lambda X^1_{\tau_1}...X^n_{\tau_n}.[\![\alpha]\!]^c(X^1)...(X^n) \wedge \text{feels}(c_s, c_\varepsilon)$

Now, we probably want to rule out any expressions, attitudinal or not, that compose with another expression, pass it completely unchanged and make a completely independent, but locally truth-conditionally non-vacuous (i.e., one that would interact with all the semantic operators in the scope of which it will end up) contribution. Such expressions don't seem to be attested in natural language. Whatever "compositionally parasitic" expressions we do have seem to at least have the decency to make their contribution in the non-truth-conditional dimension. Thus, a ban on truth-conditionally non-vacuous compositional parasites seems empirically motivated. To link immediacy to "non-compositionality", we would then want to maintain that immediacy is the pre-requisite for being able to operate in the non-truth-conditional dimension. Thus, compositional vacuity is licensed when an expression makes its contribution in the non-truth-conditional dimension, which it only does if it signals something immediate about the context of utterance.

However, if that's what we want to maintain, we need to be very prudent about what expressions we admit into the non-truth-conditional dimension. In particular, if we want to use the immediacy-based explanation for why Russian derogatory/pejorative suffixes do not allow for "non-compositional" uses, we cannot explain their truth-conditional vacuity by saying that they make their contribution in the non-truth-conditional dimension. In other words, we want to avoid positing hypothetical S4 expressives like the one in (22) that are always strictly compositional.[14]

(22) $[\![\text{EXPR}_{S4}]\!]^c = \lambda P_{\langle e,st\rangle}\lambda x\lambda w.P(x)(w) \bullet \text{feels}(c_s, x, c_\varepsilon)$

However, if Russian derogatory/pejorative suffixes are always truth-conditionally vacuous, i.e., if they can never be restricting modifiers under their attitudinal reading, we want to explain how they are different from l-type items. Are they? Admittedly, the empirical picture is far from clear.

One thing that complicates it is that these suffixes often come with an additional augmentative or diminutive meaning component, which seems to be truth-conditional and is often hard to fully

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[14]Whether we want to completely seal off the non-truth-conditional dimension to compositional interaction with the truth-conditional dimension is an open question. As mentioned before, some instances of English f-type items look like they can be compositionally non-vacuous in the expressive dimension, as is the case in (1). This is not enough, however, as we could always say that in such cases there is no true interaction between the f-type item and the expression it composes with, and the source of the feeling is still determined purely pragmatically.

suppress. Thus, if we try to force restricting uses of derogatory/pejorative suffixes, it's hard to be sure that we are not getting a restricting reading of the truth-conditional component of their meaning, with the attitudinal one coming along for the ride but remaining truth-conditionally vacuous.[15] This additional meaning component is also the reason why it is hard to come up with contexts in which two proper subparts of the denotation of the expression a derogatory/pejorative suffix combines with are only distinguished by the speaker's attitude.

Another complication arises from the fact that these suffixes are bound morphemes and, thus, cannot be used as standalone fragment answers (full answers in such cases feel stilted), derived by moving the focused part of the answer up the tree and eliding the rest of the sentence (Gribanova 2017), as shown in B1's responses in (23). It might also be the case that suffixes in general are hard to focus,[16] which is required in examples in which the target expression directly addresses a salient question under discussion and which bring out the restricting reading of this expression in the most obvious way (this is not to say, of course, that all restricting modifiers require focus). In this respect, attitudinal suffixes are not much different from truth-conditional diminutive/augmentative suffixes,[17] as shown in B2's responses in (23).

(23) A: Kakuju iz svoix sobak Nina privela na večerinku?
          which of her   dogs Nina brought to party
          'Which of her dogs did Nina bring to the party?'
      B1: (i)   {Ničtožnuju, Žalkuju}.
                  pathetic.ACC.F.SG
           (ii) ??Sobač-enci-ju.
                  dog-PEJOR-ACC.SG
           (iii) *Enci.
                  -PEJOR-
           'The pathetic one.'
      B2: (i)   ⟨Malen'kuju, Bol'šuju⟩.
                  ⟨small, big⟩
           (ii)   ⟨??Sobač-k-u, ?Sobač-iŝ-u⟩.
                  ⟨dog-DIM-ACC.SG, dog-AUG-ACC.SG⟩
           (iii) *⟨K, Iŝ⟩.
                  ⟨-DIM-, -AUG-⟩
           'The ⟨small, big⟩ one.'

That said, the response in (24) looks like an instance of a restricting use of a pejorative suffix, as the answer without said suffix would not be informative (however, all the caveats above still apply).

(24) A: Čto za   starik   k tebe prixodil?
          what.kind old.man to you came
          'Who was that old man who visited you?'

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[15]Note that there is nothing problematic in having a single expression make its contribution in both the truth-conditional and the non-truth-conditional dimensions, one of which is strictly compositional and the other one compositionally vacuous, and we will see an example of such a split in Section 6.

[16]I am, of course, disregarding instances of metalinguistic focus.

[17]These can still have an attitudinal component, but so can English adjectives like *tiny* or *ginormous*, which are perfectly fine as restricting modifiers.

> B: Da   tak, starik??(-ašk-a).
>   CONJ.ADVERS so   old.man-ATT-NOM.SG
>   ≈'Nothing important, a pathetic old man.'

It is, thus, possible that Russian derogatory/pejorative suffixes do have the same semantics as English l-type items, i.e., they are regular modifiers that make their contribution in the truth-conditional dimension, but due to their morphosyntactic properties, they resist restricting interpretations more vehemently than l-type items.

Another potentially problematic case is *wicked*, used in some varieties of English as a positive attitudinal adjective, which was argued in Esipova et al. 2019 to be strictly compositional, as shown in (25), but obligatorily non-restricting under the positive attitudinal reading, as shown in (26).

(25)   a. Where is my wicked pen?
            → The speaker has a certain attitude towards their pen.
        b. ??May this music never wicked stop!

(26)   A: Which of her dogs is Lea bringing?
        B: #The wicked one.

However, the empirical picture concerning *wicked* is not very clear. The data in Esipova et al. 2019 come from speakers who, while being native speakers of the varieties of English that do have it, don't actively use the attitudinal *wicked* themselves. Furthermore, examples like (27) are not completely unattested in Google (this is not to say that isolated online examples are a very reliable source of data).

(27)   We wicked won!

It is possible that *wicked* is on its way of becoming an f-type item at least for some speakers, which explains its mixed profile. This would be further indirectly supported by the fact that *wicked* has also re-lexicalized as a degree modifier, as in (28), which English f-type items do regularly, but l-type items don't.

(28)   Pam is {wicked, fucking, bloody, (god)damn, *lovely, *awesome, *obnoxious, *disgusting} {smart, stupid}.

In other words, building a case for S4 expressives based on *wicked* only would be imprudent.

While these empirical subtleties across different types of attitudinal items should not be ignored, it seems that we can establish a link between immediacy and "non-compositionality", if we maintain that (i) only expressions that perform an immediate function in the context are allowed to operate in the non-truth-conditional dimension, and (ii) compositionally vacuous contributions are only allowed in the non-truth-conditional dimension (a ban on truth-conditional compositional parasites).

4.3   Tying up some loose ends

The discussion in the previous section centered around compositional vacuity, which is the property of S2 expressives. S1 expressives are not compositionally vacuous, they are trully non-compositional in that they are not part of the same syntactic and, thus, compositional structure as their host utterance. This, of course, assures their truth-conditional vacuity, as they will not be in the scope

of any operators that are part of the host utterance. However, something additional needs to be said about licensing non-compositionality for S1 expressives. If they do not compose with the expressions they are linearly adjacent to, the ban on vacuous composition in the truth-conditional dimension doesn't apply to them. As posited in (18), S1 expressives are truth-conditionally vacuous discourse updates, and we certainly want to allow those, at least for standalone interjections like *Fuck!* or *Ouch!*. However, it stands to reason that there exist constraints on discourse updates that prosodically parasitize on other discourse updates. A natural counterpart of the ban on truth-conditional compositional parasites would be a ban on truth-conditional prosodic parasites, under which only non-truth-conditional discourse updates would be allowed to integrate with a truth-conditional discourse update prosodically, but not compositionally. It seems that a categorical ban like this might be too strong, however, and might need to be weakened, at least in the case of secondary modality expressions, which I will come back to in the next section.

Another addition that needs to be made to the semantics that we have so far is defining rules of incremental dynamic context update[18] and relativizing non-truth-conditional contributions to the exact time of when the expressions that make them are uttered. The latter will allow for multiple emotions, including conflicting ones, to be expressed non-compositionally over the course of an utterance and will help us explain why it is not very likely that a speaker will attach, say, an affection-signalling compositionally vacuous suffix to a noun whose denotation they view extremely negatively. Assuming that even mentioning something that the speaker finds extremely repulsive changes their momentary emotional state, this change would clash with that of an affection-signalling suffix. This effect is, of course, extremely gradient and prone to variation, which is why it is natural to have a highly pragmatic explanation for it.

Furthermore, relativizing the contributions in the non-truth-conditional dimension to exact time points will allow capturing the cumulative effect of multiple instances of expressions performing roughly the same function over the course of an utterance without hardcoding any mechanism of doing so into the system. The effect will arise naturally, as an inference that an emotion signalled at consecutive times t_1, t_2, and t_3 over the course of an utterance is stronger than one that was only signalled at t_1, as the need to express the former persisted over a longer course of time.

Following the discussion in this section, another update to the typology of attitudinal expressions is given in Table 4.

5 Beyond words

Speakers of spoken languages can convey their immediate and non-immediate feelings through means other than lexicalized spoken expressions, namely, through body movements (facial expressions, hand gestures, head gestures, etc.) and prosody.[19] In this section, I argue that (i) secondary modality ways of conveying feelings exhibit some of the same contrasts as spoken attitudinal items, and (ii) studying secondary modality ways of expressing feelings in a properly linguistic way enriches our understanding of how we integrate truth-conditional and non-truth-conditional content in our utterances at various levels of representation.

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[18]The need for this is acknowledged, but not implemented in Potts 2007. I will not implement it in any specific way either, especially because I believe that doing so in a rigorous fashion would require input from cognitive scientists who work on human emotion and, in particular, on how emotional experiences unfold in real time.

[19]I use the term *prosody* (as opposed to *intonation*, which is sometimes understood more narrowly) to refer to anything suprasegmental, including accenting, phrasing, non-phonemic duration, non-phonemic voice quality, etc.

| compositional | | "non-compositional" | | | |
| | | S1 (no composition) | | S2 (vacuous composition) | |
TC	NTC	TC	NTC	TC	NTC
preferably non-restricting (TC vacuous) modifiers: • Eng. l-type items: *lovely* • Rus. derogatory/pejorative suffixes: *-ašk-*	• ?seemingly compositional Eng. f-type items and Rus. affectionate suffixes: *fucking* in (1); *-Vn'k-* in (11)	??	• ?purely expressive Eng. f-type items: *fucking* in (6) • Rus. expressive particles: *bljad'* in (8)	predicted unattested (ban on compositionally vacuous TC expressions)	• ?purely expressive Eng. f-type items: *fucking* in (5a) • Rus. affectionate suffixes: *-Vn'k-* in (12)

Table 4: Typology of attitudinal expressions that occur within other expressions: version 4.
TC = truth-conditional; NTC = non-truth-conditional
compositional: interacts with the expression it composes with
"non-compositional": integrates prosodically, but not syntactically/compositionally ("prosodic parasite", S1); or integrates syntactically/compositionally, but doesn't interact with the expression it composes with ("compositional parasite", S2)

To illustrate the first point, I will start by looking at the facial expression conveying surprisal, whose main properties are eyes wide open, which I will label as *OO*. The accompanying .zip file contains some video examples of an integrated *OO* produced by (non-naïve) native speakers of English for a related project (joint work with Zoe Kahana and Reis White); the speakers were asked to express the target meaning with prosodic means, but without suppressing their facial expressions.[20] There are many other gestures (broadly construed, i.e., movements of the face, head, upper body, hands, etc.) that can accompany *OO* and add to the mirative effect. For instance, speakers can shake their head in disbelief (e.g., good.mp4), shrug to convey the 'I don't know why, but' message (e.g., loves.mp4), or blink repeatedly (e.g., drove.mp4). Speakers can also add an additional evaluative component—for instance, by pursing their lips and/or shaking their head to convey disapproval, by protruding their lips to convey being positively impressed, by adding a smirk to convey being amused, etc. However, eyes wide open seems to be the most robust and sometimes the only ostensible component of *OO* (lily.mp4).

OO can locally interact with spoken content in a way that suggests compositional integration. In particular, as shown in (29) below, it can be focus-sensitive in the same way as spoken mirative expressions such as *surprisingly*, which affects the truth conditions of the utterance.[21]

(29) a. *Context: Everyone brought something they made themselves to the Friendsgiving party, but it's not always obvious who made what. Lily, who's known to be a terrible cook, made that marmalade everyone liked. A: Who made the marmalade? B:*
     (i) Surprisingly, Líly made the marmalade.

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[20]The phonetic differences between regular contrastive focus and contrastive focus combined with mirative prosody are ostensible and worth studying in their own right, especially in comparison to degree modifier uses of prosody (see Esipova 2019c for a discussion of the latter). Here I will focus solely on mirative facial expressions, however.

[21]Nuclear pitch accents are marked by an accute accent on the stressed vowel, $\acute{V}$, without indicating the type of the pitch accent or any other prosodic properties of the prominent word (such as extra segment lengthening). Facial expressions are written as superscripts, with overlining roughly indicating the temporal alignment of the main stroke (for *OO* that would be any time when the speaker's eyes are open wider than normal). When provided, illustrations are placed at the approximate onset of the target item.

(ii) $\overline{\text{Líly}}^{OO}$ made the marmalade.

b.   *Context: Everyone brought something they made themselves or bought to the Friends-giving party. Lily, who's known to be a terrible cook, brought that marmalade everyone liked. A: Where did Lily get the marmalade? B:*

(i)   Surprisingly, Lily máde the marmalade.

(ii)   Lily $\overline{\text{máde}}^{OO}$ the marmalade.

c.   *Context: Everyone brought something they made themselves to the Friendsgiving party, but it's not always obvious who made what. Lily, who always says that she hates sweets, made that marmalade everyone liked. A: What did Lily make? B:*

(i)   Surprisingly, Lily made the mármalade.

(ii)   Lily made the $\overline{\text{mármalade}}^{OO}$.

In other words, *OO* can act as a sentence-level supplement that makes a truth-conditional, albeit backgrounded, contribution.[22] In such cases, its temporal alignment is usually more constrained in that at least its main stroke seems to dock to the accented syllable (however, its other alignment properties seem to vary a lot).

Note that in (29), *OO* is not expressing any immediate intense surprisal on the part of the speaker. However, *OO* can co-occur with speech while expressing immediate surprisal at something external to the spoken utterance, as in (30), in which case it is not ostensibly docked to anything in that utterance.

(30)   *Context: The speaker just learnt that Lily, who always says how much she hates cooking, made that marmalade they were about to taste.*
        $\overline{\text{Not sure I want to taste this marmalade anymore!}}^{OO}$

In cases like (30), *OO* is not compositionally integrated with the spoken utterance it co-occurs with and constitutes its own speech act. In this respect, it is not unlike spoken S1 expressives. However, it does not seem to be prosodically integrated with the spoken utterance it co-occurs with. Thus, the immediacy-based contrast between the truth-conditional *OO* in (29) and the non-truth-conditional one in (30) mirrors the similar contrasts we have observed for spoken expressions, strengthening the typological generalizations we have made so far. But we don't seem to learn anything new about constraints on prosodic parasites by looking at *OO*: in cases like (29), it is not a parasite, because it is compositionally integrated with the rest of the utterance, and in cases like (30), it is not a parasite, because it is not part of the same prosodic structure as the utterance it temporally co-occurs with.

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[22]See Esipova 2019a for an extensive discussion about the difference between supplements and modifiers. For the purposes of this paper, it suffices to say that modifiers are expressions that combine with an expression of type τ yileding the result of the same type, and specific instances of modifiers can be restricting (truth-conditionally non-vacuous) or non-restricting (situationally truth-conditionally vacuous). Supplements, of which sentence-level adverbs are a subtype, combine with expressions and yield backgrounded propositions about those expressions, which are typically truth-conditionally vacuous. Appositive relative clauses, which is another subtype of supplements, aren't always truth-conditionally vacuous (see Schlenker To appear, Jasinskaja & Poschmann 2018), but such exceptional behavior is unknown to supplement adverbs or *OO*.

Prosody and hand gestures can prove more helpful in this latter endeavor, however. Spoken utterances can be produced with a choppy meter and accompanied with punctuated gestures aligned with prominent vocal prosodic events to convey an expressive meaning.[23] Thus, the choppy meter and backhand claps in (31b) signal a heightened emotional state as compared to (31a).

(31)   a.   Will you please stóp?
       b.   Wíll$_{\text{CLAP}}$ yóu$_{\text{CLAP}}$ pléase$_{\text{CLAP}}$ stóp$_{\text{CLAP}}$?!

Snapping fingers to the meter of the utterance can be used to convey a sense of irritated impatience on the part of the speaker, but also to tell the addressee to hurry up:

(32)   Wé$_{\text{SNAP}}$ háve$_{\text{SNAP}}$ fíve$_{\text{SNAP}}$ mínutes$_{\text{SNAP}}$!

In both these cases, the gestures are integrated with the host utterance prosodically, but not compositionally. However, at least in (32), the gestures seem to have a truth-conditional component (possibly, in addition to the expressive one). That this meaning component is not due solely to further reasoning about the source of the speaker's impatience is evidenced by the fact that a standalone snapping gesture can be used as an imperative meaning 'Hurry up!'. Also, such a snapping gesture can compositionally integrate as a regular VP into an otherwise spoken utterance,[24] as in the naturally-occurring example in (33) from the mini-corpus in Harris 2020.

(33)   I've got twenty minutes, so can we SNAP-SNAP?
                              ('Drew Lynch' YouTube channel, cited from Harris 2020, snap.mp4)

Thus, the ban on truth-conditional prosodic parasites hypothesized in subsection 4.3, if real, at the very least cannot apply to co-speech secondary modality content.

Similar phenomena emerge in written communication as well. In particular, choppy meter like in (31b) can be indicated in written communication with periods:

(34)   Will. You. Please. Stop.

In written online communication, clapping emoji placed between words throughout the string, as in (35), are now broadly used to add extra emphasis, i.e., to perform an expressive function.[25]

(35)

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[23]I write labels of gestures in all caps; co-speech gestures are written as subscripts, and docked gestures like in (31b) are attached to the word whose stressed syllable they dock their stroke to.

[24]In which case it is an instance of what is called a *pro-speech gesture* in Schlenker 2018a, more precisely defined in Esipova 2019a and Harris 2020.

[25]These have been claimed to imitate a gesture that is widely used in the speech of Black people (especially women): https://www.vice.com/en_us/article/jpyajg/the-clap-and-the-clap-back-how-twitter-erased-black-culture-from-an-emoji (the example in (35) comes from this article).

There even exist instances of other emoji used for a similar purpose, but seemingly with an additional truth-conditional meaning component:[26]

(36)   THIS 🇺🇸 IS 🇺🇸 NOT 🇺🇸 A 🇺🇸 FUCKING 🇺🇸 MONARCHY 🇺🇸
         https://t.co/Vg85LGcaLd

         — Sarah Lerner (@SarahLerner) July 8, 2017

Finally, counterparts of l-type items exist in the secondary modality as well. For instance, a docked eyeroll, written below as *99*, seems to be strictly compositional, i.e., it necessarily conveys the speaker's attitude about the spoken constituent it docks to (though, of course, there might be some amount of syntactic ambiguity involved), as illustrated in (37).

(37)   a.   Lea is bringing $\overline{\text{her dog}}^{99}$ to Kim's party.
               → The speaker has a certain attitude towards Lea's dog.
         b.   Lea is bringing her dog to $\overline{\text{Kim's party}}^{99}$.
               → The speaker has a certain attitude towards Kim's party.

A docked disgusted facial expression, *:(*, discussed in Schlenker 2018b, such as in (38), also seems to behave as an l-type item and, thus, should, too, be analyzed as a modifier that is preferably non-restricting, due to its attitudinal nature (and possibly co-speech status).[27]

(38)   Sam went $\overline{\text{skiing with his parents}}^{:(}$.

While both *EYEROLL* and *:(* seem to very strongly prefer to be non-restricting, they can marginally be used as restricting modifiers. Forcing restricting interpretations is harder for them than for spoken l-type items because of their co-speech status (see the data and discussion for restricting modifier interpretations of co-speech hand gestures in Esipova 2019a,b), but seemingly not impossible:

(39)   A: Which of her dogs is Lea bringing?
         B: (i)   ?$\overline{\text{The dog}}^{99}$.
               (ii)   ?$\overline{\text{The dog}}^{:(}$.[28]

Similarly, it seems that we can use localized prosodic modulations like changes in voice quality or pitch range, hyperarticulation, etc. targeting specific constituents to express our attitudes towards

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[26]The example in (36) comes from this blog post, which also discusses where such emoji go in the written string: https://makingnoiseandhearingthings.com/2017/07/13/.

[27]See the discussion in Esipova 2019a,c on why Schlenker's (2018b) theory that is meant to account for the various semantic properties of such facial expressions and other secondary modality content is incorrect.

[28]Once again, the precise alignment of the facial expression—or any gestural expression—should not be taken to precisely indicate its level of syntactic attachment. Various articulatory and prosodic considerations affect the alignment of various parts of facial expressions and other gestural content, and various mismatches are expected between the hierarchical syntactic structure and the linearized surface output.

their denotations.[29] For instance, the speaker can locally employ harsh voice and/or hyperarticulation on the same constituents *OO* docks to in (37) and (38). A naturally occurring example of such modulations is given in (40);[30] the speaker conveys his contempt for the Morgan family by producing the target constituent with less modal phonation, hyperarticulation, increased onset duration of the stressed syllalbles, pitch expansion, etc.[31]

(40) And while you were being raised by the... $\overline{\text{Morgan family}}^{\text{CONTEMPT}}$, I only had a memory of a family. ('Dexter', S01E12, morgan.mp4)
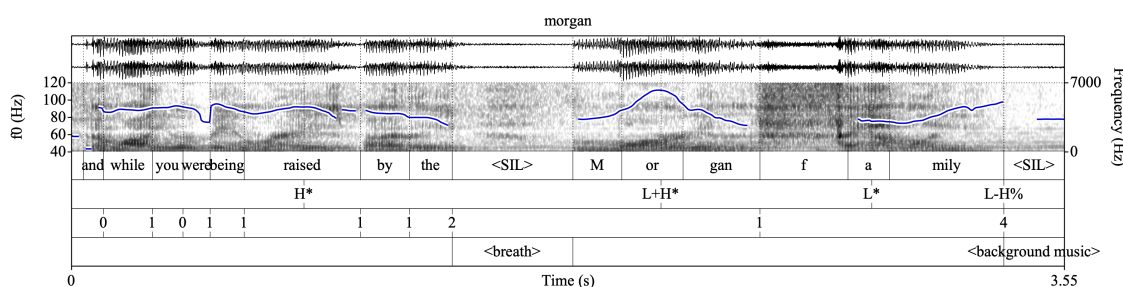
Such truth-conditional and compositional uses of prosodic modulations are distinct from cases when similar prosodic processes occur throughout longer stretches of speech and reflect the speaker's immediate emotional state caused by something external to the utterance (or perform other immediate non-truth-conditional functions). While the latter do affect the prosody of the utterance they occur on, it seems incorrect to say that they integrate into the prosodic structure of those utterances in the same way as, say, choppy meter does. If anything, they seem to have more in common with undocked facial expressions, even though they do seem more parasitic than those. Thus, moving forward, we would probably need to introduce even more fine-grained distinctions into our typology.

Now, can unintegrated attitudinal expressions that exist in a secondary modality and simply happen to co-occur with spoken utterances be truth-conditional? That would amount to having an undocked facial expression, gesture, or prosodic modulation that co-occurs with a spoken utterance, but conveys the speaker's non-immediate attitude towards something utterance-external. In Esipova 2019a, I discuss examples of two independent utterances produced simultaneously in two different modalities, such as beckoning someone or sending someone off with a gesture while talking to someone else or acknowledging that you see the sign '10 minutes left' by a nod and/or a thumbs-up

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[29]Of course, it would be really hard to use such prosodic morphemes as restricting modifiers, due to their lower salience and higher ambiguity.

[30]The notation for prosodic modulations is like for facial expressions. The drawing in (40) was generated using a Praat (Boersma & Weenink 2020) script obtained from Byron Ahn.

[31]Note also the increased juncture (pausing, lengthening of the preceding syllable) before *Morgan family*. Such increased juncture is also often observed before mirative and degree modifier prosodic modulations as well as before pro-speech gestures packaged into the same prosodic phrase as the preceding spoken material. It's possible that increased juncture is used to draw attention to the secondary modality expression (which was speculated to be one of the functions of vocalizations on pro-speech gestures in Harris 2020), but it is also possible that speakers need it for physiological reasons, to effectively exert the increased articulatory effort associated with such prosodic modulations (e.g., in (40), the speaker takes a breath during the juncture) or to prepare themselves for the transition between the two modalities in the case of pro-speech gestures. See also some potentially relevant observations about pauses after what the authors describe as mirative uses of *like* in Beltrama & Hanink 2019 (I suspect some of their examples also involve prosodic degree modification on the expression following *like*).

gesture directed at a conference chair session without interrupting your talk. These examples are not attitudinal, however. When discussing such examples in Esipova 2019a, I also speculate that there are probably severe limits on how much information can be transferred in such a way due to the high cognitive load for both the speaker and the addressee(s). I, therefore, highly doubt that speakers produce two simultaneous truth-conditional utterances with one of them conveying the speaker's non-immediate attitude towards something utterance-external on a regular basis, although I wouldn't want to claim that such productions absolutely never occur in the wild. (Unintegrated non-truth-conditional facial expressions or prosodic modulations that express the speaker's immediate emotional state, of course, are typically produced (semi-)subconsciously.)

To sum up, given the diversity and complexity of the attitudinal meanings that can be expressed in secondary modalities as well as the non-trivial cross-modal parallels, I believe that we should resist the urge to throw all secondary modality means of expressing feelings into a "paralinguistic" basket[32] and should instead study them on a par with primary modality attitudinal expressions.

Following the discussion in this section, the updated typology of attitudinal expressions and their meaning components is given in Table 5.

6 Degree modifiers with an attitudinal component

English attitudinal expressions, and, in particular, f-type items, routinely re-lexicalize as degree modifiers:[33]

(41)   Pam is {fucking, bloody, (god)damn} smart.

Next, spoken attitudinal adverbs, which can be used as sentence-level supplements, can also be used as degree modifiers:

(42)   Mia got {surpisingly, impressively, unfortunately} drunk.
         $\neq$ The fact that Mia got drunk is {surprising, impressive, unfortunate}.
         $=$ The degree to which Mia got drunk is {surprising, impressive, unfortunate}.
         (Cf. *{Surprisingly, impressively, unfortunately}, Mia got drunk.*)

As originally observed in Esipova 2019a, the mirative facial expression *OO*, too, can be used as a degree modifier. In (43), the predicates *good* and *drunk* will also carry a prosodic degree modifier morpheme, which I will not discuss here, as it is unclear whether it has an attitudinal component, nor how it relates to the mirative prosody we observe in examples like (29).[34] Crucially, *OO* can make a degree modifier contribution in the absence of any vocal prosody, as shown in (44),

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[32]As is often the case, for instance, for attitudinal meanings conveyed via prosody (see, e.g., Ladd 2008).

[33]The process is much less productive in Russian. Some obscene Russian words (such as *ebat'* 'fuck.INF' and *pizdec* 'unpleasant.situation.SG.NOM', which cannot be used as S1 or S2 expressives) have re-lexicalized as degree modifier adverbs, but not the ones mentioned in section 2, with the possible exception of *suka* 'bitch', which might be on its way to becoming a degree modifier. It's a bit unclear to me whether in examples like (i) *suka* is a pure expressive or both an expressive and a degree modifier, but either way, I believe it still preserves a pretty strong expressive component.

(i)   putešestvie po   ètomu   bespoleznomu,   no suka krasivomu   miru
        trip.SG.NOM across this.SG.M.DAT useless.SG.M.DAT but EXPR_prt beautiful.SG.M.DAT world.SG.DAT
        'a trip across this useless, but fucking beautiful world'   (Google, minor spelling edit)

[34]See Esipova 2019c for a more extensive discussion of the prosodic degree modifier.

non-integrated		integrated at some level					
		compositional		"non-compositional"			
				S1 (no composition)		S2 (vacuous composition)	
TC	NTC	TC	NTC	TC	NTC	TC	NTC
??	• undocked co-speech facial expressions expressing immediate emotions: *OO* in (30) • ?undocked prosodic modulations of voice quality, pitch range, etc. expressing immediate emotions	supplements (always TC vacuous): • sentence-level mirative spoken adverbs/facial expressions: *surprisingly/OO* in (29) preferably non-restricting (TC vacuous) modifiers: • Eng. l-type items: *lovely* • Rus. derogatory/pejorative suffixes: *-ašk-* • l-type facial expressions and prosodic modulations: docked eyeroll, docked disgusted face, docked prosodic expression of contempt	• ?seemingly compositional Eng. f-type items and Rus. affectionate suffixes: *fucking* in (1); *-Vn'k-* in (11)	• [non-att.] TC component of punctuated gestures/emoji: 'hurry up' in (32); 'USA' in (36)	• ?purely expressive Eng. f-type items: *fucking* in (6) • Rus. expressive particles: *bljad'* in (8) • choppy meter/punctuation marks: (31b); (34) • expressive (component of punctuated gestures/emoji: clapping gesture/emoji in (31b); (35)	predicted unattested (ban on compositionally vacuous TC expressions)	• ?purely expressive Eng. f-type items: *fucking* in (5a) • Rus. affectionate suffixes: *-Vn'k-* in (12)

Table 5: Typology of attitudinal expressions and their meaning components that co-occur with or occur within other expressions: version 5.
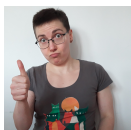TC = truth-conditional; NTC = non-truth-conditional
compositional: interacts with the expression it composes with
"non-compositional": integrates prosodically, but not syntactically/compositionally ("prosodic parasite", S1); or integrates syntactically/compositionally, but doesn't interact with the expression it composes with ("compositional parasite", S2)
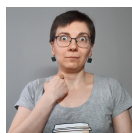
where *OO* modifies conventionalized gestures *THUMBS-UP* and *DRUNK* (the latter is a Russian conventionalized gesture consisting of flicking a finger on one's neck or tapping one's neck with the back of a hand).

(43)   a.   The movie was $\overline{good}^{OO}$.
         b.   Mia got $\overline{drunk}^{OO}$.

(44)   a.   A: How was the movie?

               B: $\overline{THUMBS\text{-}UP}^{OO}$.

         b.   Yesterday, there was a party, and Mia got $\overline{DRUNK}^{OO}$.   (drunk.mp4)

The degree modifier component of all degree modifiers is truth-conditional (and, therefore, compositional) and, by default, restricting:

(45)   If the movie is {very good, fucking good, surprisingly good, $\overline{good}^{OO}$}, I'll stay till the end of the credits.
       $\nrightarrow$ If the movie is good, I'll stay till the end of the credits.

A uniform cross-modal semantics for the degree modifier component of attitudinal or non-attitudinal expressions is provided in Esipova 2019c. For the purposes of this paper, we are interested in what happens to the attitudinal component of attitudinal expressions used as degree modifiers.

It seems that the expressive component of English f-type items used as degree modifiers is often toned down; for one thing, it loses its default negative polarity. However, this is not always the case. In fact, as suggested by the naturally occurring example in (46), English f-type items can simultaneously make a truth-conditional contribution compositionally and serve as an outlet for the speaker's immediate emotions non-compositionally; the latter is particularly obvious in the second instance of *fucking*, whereby the speaker's anger clearly isn't directed at great things, nor anything else in the sentence.

(46)   *Context: Daniel Craig, in an interview, when asked if Phoebe Waller-Bridge was a "diversity hire" for 'Bond':*
       Look, we're having a conversation about Phoebe's gender here, which is fucking ridiculous. She's a great writer. Why shouldn't we get Phoebe onto Bond? (...) I know where you're going, but I don't actually want to have that conversation. I know what you're trying to do, but it's wrong. It's absolutely wrong. She's a fucking great writer. One of the best English writers around.[35]

There is, of course, nothing wrong with having two sublexical components within a single item, one of which is truth-conditional and compositional, and the other is non-truth-conditional and compositionally vacuous, as in (47) (following Esipova 2019a,c, I am assuming the degree modifier

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[35]https://www.esquire.com/entertainment/movies/a29696991/daniel-craig-phoebe-waller-bridge-james-bond-diversity-hire/

semantics from Kennedy & McNally 2005, but with the existential closure of the degree variable separated out from degree modification proper; also, for simplicity, I am giving a non-type-flexible entry for modifiers of properties of individuals only, but it is easily generalizable to other cases).

(47) $[\![\text{EXPR}_{deg}]\!] = \lambda G_{\langle d,\langle e,st\rangle\rangle}\lambda d\lambda x\lambda w.G(d)(x)(w) \wedge \text{high}_G(d)(w) \bullet \text{feels}(c_s,c_\varepsilon)$

Such split uses of English f-type items are of special interest to us, because in these cases the "non-compositionality" of the expressive component has to be of the S2 type, i.e., the target item has to be part of the same syntactic/compositional structure as its host utterance—something that we could not previously establish for sure for purely expressive instances of English f-type items.

Now, what about the attitudinal component of spoken adverbs like *surprisingly* or *unfortunately* or the *OO* facial expression? An anonymous reviewer for Esipova 2019c asked whether this component can be truth-conditionally vacuous independently of the 'high degree' component. I am not sure what the empirical picture is like. In the case of *OO*, the additional gestural movements expressing (dis)approval, amusement, etc. certainly can be (and probably usually are) truth-conditionally vacuous, but there is no reason to view them as sublexical parts of *OO*—we can and probably should maintain that they make their attitudinal contributions independently. As for the clearly sublexical attitudinal component of spoken adverbs like *suprisingly* and *unfortunately*, one things is certain: it is not used to express an immediate feeling, therefore, it does not belong in the non-truth-conditional dimension. Whether it needs to be separated into its own conjunct so that we can have both 'that degree is high' and 'that degree is surprising/unfortunate', either of which can in principle be restricting or non-restricting, is an open question, which requires more empirical work (as far as I can tell, the judgements become extremely subtle). But nothing prevents us from doing so, should the need arise.

The sixth and final (for the purposes of this paper) version of the typology of attitudinal expressions and their meaning components is given in Table 6.

7 Conclusion

In this paper I have made an attempt, to my knowledge, the first one, to outline a typology of attitudinal expressions exponed in various modalities based on how they integrate with the utterances they linearly occur within or co-occur with. This typology is summarized in Table 6.

I have shown that some attitudinal items have the potential to express the speaker's emotions that are not compositionally linked to anything in the utterance they occur within or co-occur with. I have furthermore argued that there are several ways in which this can happen architecturally. First, an item can be completely unintegrated with the utterance it linearly co-occurs with, as is the case with undocked facial expressions that co-occur with speech, but express the speaker's immediate emotional state caused by something utterance-external. Second, an item can be integrated with the host utterance in the prosody, but not in the syntax, and, thus, not in the compositional semantics; in this paper, I have been referring to such items as S1 expressives and prosodic parasites. Semantically, S1 expressives are independent speech acts. They are exemplified by Russian expressive particles, choppy meter or punctuation marks, and the expressive component of punctuated gestures and/or emoji anchored to certain positions in the prosodic structure of the host utterance. Finally, an item can integrate with the host utterance in the syntax, and, thus, in the compositional semantics, but this composition is vacuous in that the target item does not actually interact with the expression it composes with; I have been referring to such items as S2 expressives and compositional parasites.

	non-integrated		integrated at some level					
			compositional		"non-compositional"			
					S1 (no composition)		S2 (vacuous composition)	
	TC	NTC	TC	NTC	TC	NTC	TC	NTC

??		• undocked co-speech facial expressions and prosody expressing immediate emotions: *OO* in (30)
		• ?undocked prosodic modulations of voice quality, pitch range, etc. expressing immediate emotions
			supplements (always TC vacuous):
			• sentence-level mirative spoken adverbs/facial expressions: *surprisingly/OO* in (29)
			• modifiers (TC vacuous if non-restricting):
			 • preferably non-restricting:
			  – Eng. l-type items: *lovely*
			  – Rus. derogatory/pejorative suffixes: *-ašk-*
			  – l-type facial expressions and prosodic modulations: docked eyeroll, docked disgusted face, docked prosodic expression of contempt
			 • restricting by default:
			  – [non-att.] degree modifier component of (i) degree modifier uses of Eng. f-type items: 'high degree' in *fucking great* in (46); (ii) degree modifier uses of miratives: 'high degree' in *surprisingly drunk/drunk^OO* in (42)/(43)
			• ?attitudinal component of degree modifier uses of miratives: 'the degree is surprising' in *surprisingly drunk/drunk^OO* in (42)/(43)
				• ?seemingly compositional Eng. f-type items and Rus. affectionate suffixes: *fucking* in (1); *-Vn'k-* in (11)	• [non-att.] TC component of punctuated gestures/emoji: 'hurry up' in (32); 'USA' in (36)	• ?purely expressive Eng. f-type items: *fucking* in (6)
						• Rus. expressive particles: *bljad'* in (8)
						• choppy meter/punctuation marks: (31b); (34)
						• expressive (component of) punctuated gestures/emoji: clapping gesture/emoji in (31b); (35)
							predicted unattested (ban on compositionally vacuous TC expressions)	• ?purely expressive Eng. f-type items: *fucking* in (5a)
								• Rus. affectionate suffixes: *-Vn'k-* in (12)
								• expressive component of degree modifier uses of Eng. f-type items: 'speaker is angry' in *fucking great* in (46)

Table 6: Typology of attitudinal expressions and their meaning components that co-occur with or occur within other expressions: final version.
TC = truth-conditional; NTC = non-truth-conditional
compositional: interacts with the expression it composes with
"non-compositional": integrates prosodically, but not syntactically/compositionally ("prosodic parasite", S1); or integrates syntactically/compositionally, but doesn't interact with the expression it composes with ("compositional parasite", S2)

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S2 expressives are exemplified by Russian affectionate suffixes and the expressive component of English words like *fucking* used simultaneously as both a degree modifier and an expressive.

I have furthermore argued that immediacy of emotional experience correlates with the potential to express these emotions non-compositionally. The way this correlation is cashed out for S2 expressives is as follows: immediacy is required for establishing that an expression is making a non-truth-conditional contribution (the truth-conditional vs. non-truth-conditional split is operationalized in this paper using the expressive semantics from Potts 2007), and only non-truth-conditional contributions are allowed to be compositionally vacuous. These considerations do not apply to S1 expressives, which do not semantically compose with the host material they are surrounded by to begin with. Instead, S1 expressives are truth-conditionally vacuous discourse updates that prosodically integrate into other discourse updates. While there might be constraints on such prosodic parasitism, we probably can't maintain a strong view whereby only non-truth-conditional discourse updates can parasitize on the prosodic structure of other discourse updates, at least not in all modalities, because punctuated gestures/emoji integrated into the prosodic structure of spoken/written utterances seem to be able to make (non-attitudinal) truth-conditional contributions in addition to their expressive component.

Attitudinal items that do not serve as an immediate emotional outlet, but rather convey a non-immediate attitude make truth-conditional contributions and are, thus, strictly compositional. They can be supplements, which is the case for sentence-level mirative adverbs (*suprisingly* and its kin) and facial expressions (*OO*), or modifiers, which is the case for English adjectives like *lovely*, Russian derogative/pejorative suffixes, and certain facial expressions (e.g., eyeroll) and prosodic modulations (e.g., prosodic expression of contempt) that target specific constituents of the host utterance. Truth-conditional attitudinal items are still typically truth-conditionally vacuous, but their truth-conditional vacuity is assured through other means than for non-truth-conditional items. Supplements are typically backgrounded across the board, which explains the truth-conditional vacuity of attitudinal supplements. Attitudinal modifiers are preferably non-restricting (in the sense of Esipova 2019a), i.e., situationally truth-conditionally vacuous, because they don't make good restricting modifiers due to their highly subjective nature, and they are always licensed as non-restricting modifiers, because they always satisfy the relevance constraint on non-restricting modification. By default, attitudinal modifiers can in principle be restricting, but their potential to be restricting is further constrained by various morphosyntactic and modality-specific considerations.

I have furthermore established that a single expression can sublexically make independent contributions both in the truth-conditional and in the non-truth-conditional dimensions. This is the case, for example, for some instances of English words like *fucking* used simultaneously as a truth-conditional, strictly compositional, and by default restricting (i.e., truth-conditionally non-vacuous) degree modifier and a non-truth-conditional, compositionally vacuous emotional outlet. Similarly, punctuated snapping gestures throughout the course of an utterance (integrated with said utterance prosodically, but not compositionally) can both non-truth-conditionally express the speaker's irritatied impatience and truth-conditionally tell the addressee to hurry up.

An important broad picture question that I have not discussed so far is whether the immediacy-based considerations apply situationally to specific instances of a given item and make it either truth-conditional or non-truth conditional (with corresponding consequences for truth-conditional and compositional vacuity), or whether these considerations determine lexical choice among the items that are already lexicalized as either truth-conditional or non-truth-conditional. It would seem that for the spoken expressions I have looked at in this paper the latter is the case. However, at

least some facial expressions and prosodic modulations can be used either truth-conditionally or non-truth-conditionally, suggesting that they are not as rigidly lexicalized as spoken expressions.

It is possible, of course, that we might find spoken expressions that exhibit such fluid behavior as well, especially as we start looking at languages other than English and Russian, which is one of the natural next steps for this research project. Another step, as mentioned before in footnote 18, would involve cross-disciplinary collaboration with cognitive scientists working on human emotion to make our formal modeling of expressing emotion more cognitively accurate. One final direction for future research that I will mention would involve applying the same cross-modal, typological approach adopted in this paper to other immediate, non-truth-conditional functions of linguistic behavior, such as various social functions like indexing an identity or a persona, building rapport, etc.[36] There, too, we expect to find a diversity of integration strategies, including hijacking the intonational contour of an utterance exclusively for social purposes, as, for example, in some instances of "uptalk" (see Jeong 2018 for an overview of truth-conditional and non-truth-conditional rising declaratives), or piggybacking on an expression that does have a truth-conditional component, as, for example, in dogwhistles, which have been argued to signal two different personae to two different audiences, in addition to their truth-conditional meaning, in Henderson & McCready 2019. The ultimate goal of this research endeavor is, thus, to gain a better understanding of the many ways in which various functions of linguistic behavior can come together within multi-modal utterances at various levels of representation—and the ways in which they cannot.

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