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Expressive Modifiers & Mixed Expressives

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Abstract

In his work on expressives and conventional implicatures, Potts (2005, 2007b) develops the multidimensional logic $\mathscr{L}_{\text{CI}}$ to formalize their main properties. In the type system of $\mathscr{L}_{\text{CI}}$, Potts implements two empirical claims. *(i)* There are no expressive modifiers, that is, expressions that have expressive type terms as their argument. *(ii)* There are no mixed expressives that contribute both descriptive and expressive content. I challenge both prohibitions by presenting data that speak in favor of the existence of expressive modifiers and mixed expressives. To overcome the restrictions built into $\mathscr{L}_{\text{CI}}$ and to accommodate these cases, I extend the logic by adding new type definitions and corresponding composition rules.

1 Introduction

In his influential work on the logic of conventional implicatures, Potts (2005) develops a multidimensional logic $\mathscr{L}_{\text{CI}}$ for dealing with *conventional implicatures* (CIs). In that work, he deals with two big classes of expressions which he regards as conveying conventionally implicated content. First, he addresses phenomena he calls *supplements* and which include non-restrictive relative clauses (1a), *as*-parentheticals (1b), nominal appositives (1c), evaluative adverbs (1d), or utterance modifiers (1e).

(1) a. Ames, **who was a successful spy**, is now behind bars. (Potts, 2005, 90)
b. Ames was, **as the press reported**, a successful spy.
c. Ames, **a successful spy**, is now behind bars.
d. **Luckily**, Ames is now behind bars.
e. **Confidentially**, Ames is a successful spy.

The second phenomenon, studied by Potts (2005) is expressives, a class that encompasses many different expressions whose main function is to display some kind of evaluative attitude or emotion, mostly of the speaker. Examples for expressives are expressive attributive adjectives (2a), epithets (2b).

(2) a. I have to mow the **damn** lawn. (Potts, 2005, 7)
b. That **bastard** Kaplan was promoted. (Kaplan, 1999, 9)

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Expressives display a set of specific properties which seem to set them apart from all other kinds of meaning (Potts, 2005, § 2.4). First of all, the meaning they convey is independent of the descriptive content ("at-issue content" in Potts' older terminology). This meaning is contributed by the conventional meaning of the expressive items, and the attitude or emotion expressives display is mostly speaker oriented (but see Harris and Potts, 2009a,b; Amaral et al., 2007).

To give a compositional semantics to these intriguing phenomena, Potts (2005) develops the multidimensional, type driven semantics $\mathcal{L}_{\mathrm{CI}}$ that is able to formalize the main properties obeyed by expressives and supplements. In Potts' later work (Potts, 2007b,a), expressives receive a different interpretation than supplements, but from a type theoretic perspective and combinatorial perspective, the analysis remains essentially the same.

Although $\mathcal{L}_{\mathrm{CI}}$ is a great tool for studying and analyzing non-descriptive kinds of meaning, I will show in this paper that it still has some problems. These problems are raised by what I call *expressive modifiers* and *mixed expressives*. The former are expressions that modify expressive content, that is, functions from expressives to expressives, while the latter are expressions that contribute both expressive as well as descriptive content.

(3) That [**fucking** bastard] Burns got promoted!

(4) Lessing was a **Boche**. (Williamson, 2009, 146)

However, the problems they raise for $\mathcal{L}_{\mathrm{CI}}$ are not merely technical problems, as Potts is very insistent to claim that such expressions do not exist. In various places of his work, he makes the two following two claims:

(5) **Claim (1)**
Expressive types are only output types, i.e.: (Potts, 2007b, 169)
  a. At-issue content never applies to expressive content.
     (Potts, 2005, §3.5.1)
  b. Expressive content never applies to expressive content.
     (Potts, 2005, §3.5.2)

(6) **Claim (2)**
No lexical item contributes both an at-issue and a CI-meaning.
(Potts, 2005, 7)

Potts (2005) has built these restrictions directly into $\mathcal{L}_{\mathrm{CI}}$ in order to give a proper formalization to these claims, which is good, since then the claims as well as the formal system can directly be tested against linguistic data.

In this paper, I will show that both claims are invalid in face of the empirical data, as both expressives modifiers and mixed expressives do exist in various languages. The paper is structured as follows. In § 2, I will briefly sketch the main components of $\mathcal{L}_{\mathrm{CI}}$ and how they implement the two claims. Claim 1 is challenged in § 3, where I present data about expressive modifiers to argue that they should receive an intuitive semantic analysis instead of the one Potts (2007b) has to adopt. The other problem for $\mathcal{L}_{\mathrm{CI}}$ is posed by mixed expressives, which are dealt with in § 4. To overcome these problems, the type of $\mathcal{L}_{\mathrm{CI}}$ system must be extended. This is what I do in § 5, where I present two enhancements of $\mathscr{L}_{\text{CI}}$, which I call $\mathscr{L}_{\text{+CI+EM}}$ and $\mathscr{L}_{\text{+CI+EM+ME}}$ respectively. I end with a short conclusion and mention remaining problems in § 6.

2 Potts' Logic of Conventional Implicature

Before I will present empirical data against Potts' two main claims, I will sketch the formal logic $\mathscr{L}_{\text{CI}}$ he uses to describe and analyze conventional implicature triggering expressions in more detail in order to illustrate how these claims are directly wired into the logic of conventional implicatures.

The logic $\mathscr{L}_{\text{CI}}$ is a variant of type-driven translation (Klein and Sag, 1985) and differs in three respects from a more traditional model-theoretic semantics like Montague's (1974) intensional semantics. First, it introduces a new basic type for conventional implicatures/expressives and new construction rules for complex types together with appropriate denotation domains. Secondly, $\mathscr{L}_{\text{CI}}$ makes use of so-called tree-admissibility conditions that regulate how expressions of the various types are combined with each other during the semantic derivation. The last new ingredient of $\mathscr{L}_{\text{CI}}$ is a process called parse-tree interpretation according to which the denotation of a sentence is given by the interpretation of an entire semantic tree instead of just a single formula. While the third innovation is very important for $\mathscr{L}_{\text{CI}}$ from a technical and theoretical point of view, it could in principle be substituted by a non-representational variant while keeping the empirical predictions made by $\mathscr{L}_{\text{CI}}$, as these are implemented in the type system and the tree-admissibility conditions.[1] By the former, the empirical claims in (5) and (6) are implemented, while the latter is used to model the independence of expressive content.

2.1 The type system

The core of $\mathscr{L}_{\text{CI}}$ is its type system where the restrictions for expressive expressions are formulated. In addition to the ordinary recursive type definitions, we have two new clauses. (7b) defines that there is a new basic type ε for expressive. Clause (7d) regulates how this new basic type can be combined with other types to form complex expressives types.

(7) **Types for $\mathscr{L}_{\text{CI}}$**
   a. e and t are descriptive types.
   b. ε is an expressive type.
   c. If σ and τ are descriptive types, then $\langle\sigma,\tau\rangle$ is a descriptive type.
   d. If σ is a descriptive type, then $\langle\sigma,\varepsilon\rangle$ is an expressive type.
   e. The set of types is the union of the descriptive and expressive types.

To see how the claims in (5) are formalized by this type system, first note that a simple recursive formation rule for complex types like (8) is missing in the definitions.

[1] That semantic parsetrees become a crucial part of the formal system via the mechanism of parse-tree interpretation is the source of strong criticism against Potts' system, since it leads to compositionality problems (cf. e.g. Amaral et al. (2007); Bonami and Godard (2007), and the articles in *Theoretical Linguistics* 33).

(8) If σ, τ are types, the $\langle \sigma, \tau \rangle$ is a type.

Such a formation rule would allow for every combination of descriptive and expressive types. But the type system of $\mathscr{L}_{\text{CI}}$ is much more constrained. Instead of having (8) in its pure form, it is restricted to descriptive types only in (7c). That is, we can only combine descriptive types in every combination but not if expressive types are involved. Furthermore, note that sentence (7d) which defines complex expressives types is only defined for complex types that have expressive types within its domain but not in its range. Of course, these gaps are intended by Potts' since they implement directly his main claims, namely that there are neither expressive expressions applying to descriptive content nor expressives that apply to other expressives. In addition, there are no types that have an output type that is both descriptive and expressive, a fact that corresponds to Potts' claim (6) that there are no expressions that contribute to both dimensions of meaning.

2.2 Tree-admissibility conditions

Special tree-admissibility conditions regulate how expressive and descriptive expressions combine with each other. To account for the independence of expressive content (Potts, 2007b, 166), which means that expressive content does not affect the descriptive content, a special derivation rule for expressives is used, which I called *expressive application.*[2] In contrast to ordinary functional application (9b), this rule ensures that expressive content is isolated during the derivation and does not get integrated into ordinary truth-conditional expression.

(9) **Expressive application**

$\beta : \sigma$
$\bullet$
$\alpha(\beta) : \varepsilon$

$\alpha : \langle \sigma, \varepsilon \rangle \quad \beta : \sigma$

(10) **Functional application**

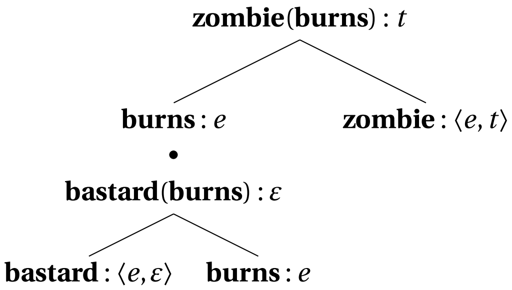
$\alpha(\beta) : \tau$

$\alpha : \langle \sigma, \tau \rangle \quad \beta : \sigma$

According to (9), we can combine an expressive with a descriptive expression if the former is the functor and the latter is an argument of the appropriate type. The way the two expressions are combined is the functional application of the expressive term to its argument. But the derivation does not end here. After being plugged into the expressive function, the descriptive argument is returned and passed up the semantic parsetree unmodified. The expressive content is also passed up but is isolated from the at-issue expression by means of the metalogical bullet "•" that is used to distinguish independent expression at the same node. A sample derivation that makes use of (9) beside the basic functional application of descriptive terms is given in the following example.

(11) That bastard Burns is a zombie.

[2] This is called *CI-application* in Potts (2005).



In this example, the expressive **bastard** applies to its entity-type argument **burns** to yield the expressive proposition **bastard**(**burns**) : ε. The descriptive expressive **burns** is then passed up the tree, where it could take part in the further derivations of the proposition that Burns is a zombie.

Since it is the descriptive expression at the root node of the semantic parsetree (that is, the topmost expression) that corresponds to the descriptive content of a sentence, the tree-admissibility condition in (9) formalizes the idea that expressive content does not affect the descriptive content of a sentence, as it ensures that expressive content never shows up at the descriptive part of the root node.

2.3 Parsetree interpretation

The tree-admissibility condition for CI-application captures the fact that expressive content is independent of descriptive content. However, expressive content should receive an interpretation, too. To enable this, Potts (2005) employs a mechanism which he calls *parsetree interpretation*.[3]

(12) **Parsetree interpretation**
Let $\mathcal{T}$ be a semantic parsetree with the descriptive term $\alpha : \sigma$ on its root node, and distinct expressive terms $\beta_1 : \varepsilon, \ldots, \beta_n : \varepsilon$ on nodes in it (intentionally, $\beta_1 : \langle s, \varepsilon\rangle, \ldots, \beta_n : \langle s, \varepsilon\rangle$). Then the interpretation of $\mathcal{T}$ is the tuple:

$$\langle [\![\alpha : \sigma]\!], [\![\beta_1 : \varepsilon]\!], \ldots, [\![\beta_n : \varepsilon]\!]\rangle$$

As controversial as it may be conceptually, technically it is very simple way to ensure the separation of truth-conditional and expressive content. In order to get the entire meaning of a sentence, we interpret the entire tree instead of just the root node. The mechanism (12) then distributes the different types of meaning found in the parsetree into two dimensions of meaning. The descriptive dimension (the first member of the tuple) is given by the interpretation of the descriptive expression at the root node of the semantic parsetree. To get the expressive meaning of a sentence, we have to collect all expressive expressions of type ε that have been isolated by the tree-admissibility condition for expressive application and interpret them in the second dimension. In

[3] I have adjusted Potts' orginal definition of parsetree-interpretation (cf. Potts, 2005, 68) to the type conventions used in this paper. Instead of descriptive and expressive types – with ε as the basic expressive type – Potts (2005) speaks of *at-issue* and *conventional implicature* types respectively. Besides the truth-functional types t^a and t^c, he introduces entity types for both dimension, namely e^a and e^c. However, the latter plays no role in his book. The conventions used here are more in line with his more recent approach (Potts, 2007b).

this way, the rule for parsetree interpretation allows that expressive content can be set aside during the derivation of a semantic parsetree while at the same time ensuring that expressive content nevertheless gets interpreted.

3 Expressive modifiers

Having sketched the logic of conventional implicatures, I will now come to the problems it faces when it comes to the two major predictions that can be derived from the way it computes expressive content. The first one that concerns what I like to call *expressive content* is dealt with in this section. The other one, referred to as *mixed expressives*, will be the topic of the next section.

Recall that Potts (2005) designed the type system of $\mathscr{L}_{\text{CI}}$ in such a way that it contains a major gap. There are no expressions that take expressive content as an argument. Therefore, the following two possible definition are absent from the type definition of $\mathscr{L}_{\text{CI}}$ as given in (7).

(13) **Gaps in the type system**

a. If σ is a descriptive type, then $\langle \varepsilon, \sigma \rangle \ldots$
b. If σ and τ are *expressive* types, then $\langle \sigma, \tau \rangle \ldots$

Therefore, there are neither expressions mapping expressive content to descriptive content nor expressions that apply to expressive content to yield expressive content. This is captured by Potts' first empirical claim already mentioned in the introduction and repeated here.

(14) **Claim (1)**
Expressive types are only output types, i.e.: (Potts, 2007b, 169)

a. At-issue content never applies to expressive content. (Potts, 2005, §3.5.1)
b. Expressive content never applies to expressive content. (Potts, 2005, §3.5.2)

The first subthesis of the general claim seems valid to me. At least I am not aware of any good example of an expression that takes expressive content as its argument to deliver non-expressive descriptive content. However, the type system of $\mathscr{L}_{\text{CI}}$ also predicts that there are no expressions mapping expressive content to expressive content. That means that in $\mathscr{L}_{\text{CI}}$ we will never have that kind of expressions that I like to call *expressive modifiers*, that is, expression that somehow modify or alter expressive content, e.g. by strengthening it.

This claim, however, does not seem to be supported by empirical data, as already shown by Geurts (2007). While it may be suitable for the other major class of expressions Potts (2005) deals with in his book – appositives – it seems to be implausible for expressives. Prima facie, *fucking* in (15a) seems to modify the expressive *bastard*, and *holy* seems to modify the expressive *shit* in (15b). Furthermore, *fucking* is modified by *really* in (15c).

(15) **Expressive modifiers**

a. That fucking bastard Burns got promoted!
b. Holy shit, my bike tire is flat again!
c. I feel really fucking brilliant.

The intuitive semantic structure for a sentence like *fucking bastard Burns* is one in which **fucking** modifies **bastard**. The new complex expressive term should then apply to **burns**. This structure is depicted in (18). However, such a structure is not possible in $\mathscr{L}_{\text{CI}}$ since **fucking** cannot modify **bastard** directly because in order to do so, it would have to have an expressive type in its domain which is not defined in the first place.

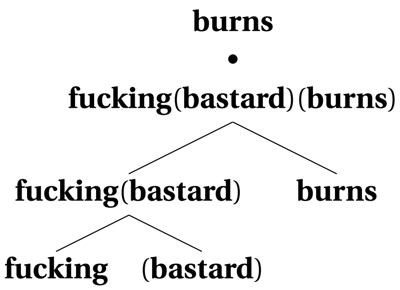
Potts (2007a,b) presents as work-around to solve the problem raised for his type definition by cases like the one in (15a). Instead of assigning an intuitive structure like (18) to (15a), Potts (2007a,b) presents an analysis along the lines of (19), where each expressive item applies to **burns** one after the other.

(16) Intuitive structure: (cf. e.g. Geurts, 2007)
That (fucking(bastard))(Burns) got promoted!

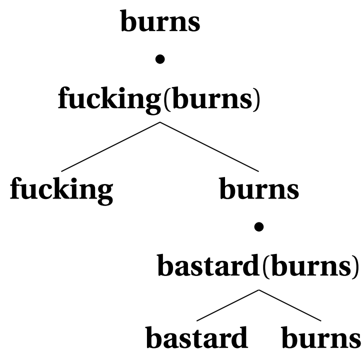
(17) Structure assigned by $\mathscr{L}_{\text{CI}}$:
That fucking(Burns) • bastard(Burns) got promoted!

That is, they are treated like non-restrictive modifiers on the same argument instead of one expressive modifying the other.

(18) Intuitive structure



(19) Structure assigned by $\mathscr{L}_{\text{CI}}$



Potts (2007b) then defines the meaning of expressive items in such a way that it somehow models the superficial observation that *fucking* intensifies the expressive meaning of *bastard.* However, there are some problems with this way of handling expressive modifiers. First, Potts has to resort to pure syntactic arguments to explain why (20) is not possible.

(20) *That bastard fucking Burns got promoted!

This is of course not such a big problem. More problematic are cases like (15b) in which a treatment along the lines of (19) seems highly implausible. In the case of *fucking bastard Burns,* each expressive could be dropped, and hence it could at least be argued that in the semantics, both expressives are modifying **burns**. However, this does not hold for *holy shit* because only *holy* may be dropped but not *shit.*

(21) a. Shit, my bike tire is flat again!

b. *Holy, my bike tire is flat again!

Even if it is clear from a syntactic point of view why *holy* cannot modify a sentence – it is an adjective not a sentence adverb – according to an analysis within $\mathscr{L}_{\mathrm{CI}}$, it still needs a propositional argument in the semantics. However, it is far from clear why an expression that needs a propositional argument must be combined with an NP in the syntax to be able to apply to its argument in the semantics, where it does not even interact with the NP.

Further examples of this kind are provided in constructions that include intensifiers (Schwager and McCready, 2009) like *absolutely* or Germ. *voll* 'totally' that clearly modifies the expressive and not the noun that is modified by the expressive.

(22) a. That absolutely fucking bastard Burns got promoted!
b. *That absolutely Burns got promoted!

(23) a. Dieser voll bescheuerte Idiot Peter ist zu spät!
"This totally daft idiot Peter is too late!"
b. *Dieser voll Peter ist zu spät!

A further argument for a structure like (18) in which the expressive modifiers are modifying the expressive is provided by case marking in languages like German.

(24) a. Verdammt-*e* Scheiße, mein Fahrrad hat wieder einen Platten!
damn.fem shit.fem my bike has again a flat
b. Verdammt-*er* Mist, mein Fahrrad hat wieder einen Platten!
damn.masc shit.masc my bike has again a flat
"Damn shit, my bike tire is flat again!"
c. Verdammt, mein Fahrrad hat wieder einen Platten!
damn my bike has again a flat
"Damn, my bike tire is flat again!"

Depending on the gender of the expressive that is modified, the expressive adjective *verdammt* 'damn' shows different inflection since in German, there is gender concord within an NP. Accordingly, *verdammt* is inflected differently when combined with the feminine *Scheiß* 'shit' as when it modifies the masculine *Mist* 'crap'. This could not be easily explained if a structure in which *verdammt* 'damn' also modifies the proposition that the speaker's bike tire is flat instead of the expressive. Furthermore, if *verdammt* would really apply to the proposition, it should appear as an uninflected adverb, as in (24c) where it is used without any other expressive and comments the proposition.

A third argument based on inflectional data is provided with the following example. If *verdammt* 'damn' would be a modifier of *Peter*, it should show masculine gender marking. However, it agrees with the neuter *Arschloch* 'asshole'.

(25) a. Das verdammt-*e* Arschloch Peter hat mich abgezockt!
*the damn.*NEUT *asshole.*NEUT *Peter.*MASC *has me off-ripped*
"That damn asshole Peter ripped me off!"
b. *Das verdammt-*er* Arschloch Peter hat mich abgezockt!
*the damn.*MASC *asshole.*NEUT *Peter.*MASC *has me off-ripped*

I do not see how all this data could be accounted for within $\mathscr{L}_{CI}$ or Potts' (2007b) modified system. Instead, I take it as empirically well founded, that there are at least some expressions in natural language that take expressive content as their argument. The type system of $\mathscr{L}_{CI}$ should therefore be extended to deal with these cases, too. Before this will be done in § 5, I will discuss another problem for $\mathscr{L}_{CI}$ first.

4 Mixed expressives

Beside not defining complex types with an expressive argument type, Potts' logic $\mathscr{L}_{CI}$ also lacks types for expressions that contribute to both dimensions of meaning. This is formulated by Potts' second empirical claim.

(26) **Claim (2)**
No lexical item contributes both an at-issue and a CI-meaning.
(Potts, 2005, 7)

This is a prohibition against what I call *mixed expressives*, following McCready (2010). Just as the prohibition states, mixed expressives are expressions that convey simultaneously descriptive and expressive meaning.

There is even more empirical evidence to find against this claim than for the prohibition against expressive modifiers. Even more so, some of the most prominent classes of expressives are expressions that come with both dimensions of meaning.

On the one hand, there are what could be called *colored expressives* after Frege (1892).[4] A classical example is provided by Frege himself.

(27) a. This **dog** howled the whole night.
b. This **cur** howled the whole night.

Utterances of both (27a) and (27b) are true in exactly the same situations, namely in those in which the dog in question howled the whole night. This shows that they have the same descriptive content. But obviously, they do not have the same overall meaning due to the difference between the neutral *dog* and the expressively laden *cur* which conveys a negative attitude of the speaker towards the dog, or dogs in general.

In principle, each expression that has a descriptive denotation but comes with an additional expressive evaluating denotation can be regarded as a mixed expressive. Just like the pair *cur/dog*, many mixed expressives come with a neutral only-descriptive alternative, which is equivalent to the descriptive dimension of the mixed expressive. For instance, consider the following mixed expressives in German and their composition into descriptive and expressive meaning.

(28) a. *Köter* 'cur' $\rightsquigarrow$ dog + expressing a negative attitude
b. *Bulle* 'cop' $\rightsquigarrow$ policeman + expressing a negative attitude
c. *Tussi* 'bimbo' $\rightsquigarrow$ girl + expressing a negative attitude

[4] For discussions of Frege's notion of *coloring* and how it relates to expressive content, cf. e.g. Horn (2008); Picardi (2006); Neale (1999, 2001); Dummett (1978).

A special case is provided by pronouns in languages like French or German that distinguish between familiar and formal uses of pronouns. For instance, the German pronoun *Sie* – formally the pronoun of the 3rd person plural, except for its capital – directly picks up c_A, that is, the addressee or addressees of the utterance context. Additionally, it expresses a formal relationship between the speaker and addressee. The formal *Sie* contrasts with the "real" second person pronoun *du* which expresses a familiar relationship in addition to referring to the addressee.

(29) a. *Sie* 'you' $\rightsquigarrow c_A$ + expressing a formal relationship between c_S and c_A
b. *du* 'you' $\rightsquigarrow c_A$ + expressing a familiar relationship between c_S and c_A

Such pronouns can be regarded as honorifics. And indeed, honorifics may be analyzed as expressives items as well. However, many honorifics, like the subject orientated honorifics in Japanese (Potts and Kawahara, 2004) are not mixed expressives, since they do not contribute anything to the descriptive content of a sentence.

Beside these kinds of expressions, there are many more cases of mixed expressives that can be found across different languages. For instance, Schwager and McCready (2009) treat German *voll* 'totally' as a mixed expressive, while McCready (2010) presents a lot of evidence for mixed expressives in Japanese.

Another class of mixed expressives that has a prominent place in the literature, are racist slurs. During the following discussion, I will stick to the following somewhat outdated swear words for Germans to provide evidence against Potts' claim 2. However, the argument applies to the other classes of mixed expressives as well.

(30) **Rascist swear words**
a. Lessing was a **Boche**. (Williamson, 2009, 146)
b. Hitler was a **Kraut**. (Saka, 2007, 39)

Actually, racist slurs are a subclass of colored expressives, as they have a neutral descriptive meaning beside expressing a negative, derogatory attitude. With respect to truth conditions, (30a+b) are equivalent to the following neutral formulations in which the racist terminology is substituted by its neutral alternative, but express an additional racist attitude towards Germans.

(31) a. Lessing was a German.
b. Hitler was a German.

If the racist slur is substituted by a neutral term, the negative attitude is not expressed any longer. The meaning of *Boche* or *Kraut* can therefore be distributed over the two dimensions of meaning.

(32) Lessing was a Boche.
a. *Descriptive content:*
Lessing was a German.
b. *Expressive content:*
The speaker has a negative attitude towards Germans.

That mixed expressives cannot be reduced to one or the other dimension of meaning is shown by the various facts about their behavior. First, as we have already seen, pairs like *German* and *Boche* are truth-conditionally equivalent. Hence, it is hard to see how the negative attitude could be part of the descriptive meaning. A further argument against an one-dimensional descriptive analysis is provided by the fact that expressive meaning is mostly nondisplaceable.[5] This is noted for instance by Cruse (1986).[6]

> "Another characteristic distinguishing expressive meaning from propositional meaning is that it is valid only for the utterer, at the time and place of utterance. This limitation it shares with, for instance, a smile, a frown, a gesture of impatience [...]." (Cruse, 1986, 272)

For instance, the contribution of the past tense in *Lessing was a Boche* applies only to the descriptive component while the expressive component is not shifted to the past. A speaker who utters that sentence has still to be taken as being committed to the negative attitude at the utterance time even if the predication that Lessing is German is interpreted with respect to the past:

(33) Daniel was a Boche. #But today, I like Germans.

However, if the expressive part of a mixed expressive were encode in the descriptive domain, it should be expected to be shifted to the past as well. The expressive component of mixed expressives shows similar behavior with regards to other truth-conditional operators. Take for instance their behavior in conditionals, as illustrated by the following example:

(34) If Lessing was a Boche, he was an American.

The negative attitudes towards Germans expressed *Boche* is not a proper part of the antecedent of the conditional. Even a speaker who does not bear any negative attitude towards Germans would judge (34) to be false. However, if the expressive attitude would part of the descriptive content, the antecedent would be false for such a speaker and therefore, the entire conditional should be true.

Another test that can be used to show that the expressive component is not part of the descriptive layer is denial in dialogue (cf. e.g. Jayez and Rossari, 2004).[7] The descriptive content of a mixed expressive can denied directlty as in (35B).

(35) A: Lessing was a Boche.
B: No, he was not a German.

In contrast, denial is not felicitous if only the expressive component should be rejected.

(36) A: Lessing was a Boche.
B′: #No, I don't approve this way of speaking.
B″:#No, I like Germans.

However, this should be possible if the negative attitude were active at the same dimension of meaning as the descriptive one. All these facts show that is highly implausible

[5]Exceptions are provided by some attitude predicates in special contexts. Cf. for instance, Harris and Potts (2009a,b).

[6]Also cited by Potts (2007b, 169).

[7]Thanks to Olivier Bonami for reminding me of this test.

to subsume the evaluative component conveyed by mixed expressives under the descriptive dimension.

To shift the descriptive part to the expressive dimension is also not a valid solution to protect Potts' claim 2 against the empirical evidence. If we tried to analyze an expression like *Boche* within $\mathscr{L}_{\text{CI}}$, it makes the wrong predictions, even if the predicate *German* is also plugged into the expressive dimension. Using $\mathscr{L}_{\text{CI}}$, *Boche* has to be translated into a predicate that maps descriptive arguments onto expressive propositions (the negative attitude), that is, as an expression of type $\langle e, \varepsilon \rangle$.

(37)

$$\textbf{lessing} : e$$
$$\bullet$$
$$\textbf{boche}(\textbf{lessing}) : \varepsilon$$
$$\textbf{lessing} : e \quad \textbf{boche} : \langle e, \varepsilon \rangle$$

This derivation would predict that the meaning of *Lessing was a Boche* is an entity, which is of course not the case. On the other hand, if we changed the type for **boche** such that it could capture the descriptive meaning component, the expressive part would be lost. With the tools provided by $\mathscr{L}_{\text{CI}}$ we thus can only get one dimension of a mixed expressive right. Of course, this is what is to be expected from a system that is built in such a way to implement the claim that there are no mixed expressives in the first place.

In face of the evidence presented in this section, I conclude that Potts' claim that there are no such expressions as mixed expressives is not valid.[8]

5 Extending the system

In this section I will extend the type system of $\mathscr{L}_{\text{CI}}$ in order to accommodate mixed expressives as well as expressive modifiers. To allow for expressive modifiers, we need complex types that have an expressive type as their argument. However, I will stick to the prohibition against expressions that map from expressive to descriptive content. Therefore, in addition to the functional types from descriptive to expressive content that are already defined in $\mathscr{L}_{\text{CI}}$, we need a definition for types that have an expressive type both in its range and in its domain. Clause (38e) provides thus just such a definition. I call these types *pure* expressive types to distinguish them from the old ones, that are now called *hybrid* expressive types. I call the new logic $\mathscr{L}_{\text{CI+EM}}$.

(38) **Types for $\mathscr{L}_{\text{CI+EM}}$**

a. e and t are descriptive types.
b. ε is an expressive type.
c. If σ and τ are descriptive types, then $\langle \sigma, \tau \rangle$ is a descriptive type.
d. If σ is a descriptive type and τ is a (hybrid or pure) expressive type, then $\langle \sigma, \tau \rangle$ is a hybrid expressive type.

[8]That he makes this claim in the first place, is even more surprising as Potts (2007b) also discusses the German pronoun system and mentions ethnical swear words.

e. If σ and τ are (hybrid or pure) expressive types, then $\langle \sigma, \tau \rangle$ is a pure expressive type.

Since this type definition is rather complex, it is useful to have a table that shows how the different types can be put together. In table 1, T and E stand for descriptive and pure expressive types respectively, whereas E' denotes hybrid expressive types.[9]

	T	E	E'
T	T	E'	E'
E		E	E
E'		E	E

Table 1: The type system of $\mathscr{L}_{\text{CI+EM}}$

The types in the leftmost column of table 1 give the domain of a complex type, while the types in the first row provide its range. If we have a complex type that has a descriptive type in both its domain and range, the result is a descriptive type (cf. the white cell in the upper left) like in $\mathscr{L}_{\text{CI}}$. If we have a complex type that has a descriptive type in its domain and a pure or hybrid expressive type in its range, the result is a hybrid expressive type (cf. the two light-gray cells). Note, that the construction of hybrid use-conditional types works only in one way: we can have $\langle T, E\rangle$ and $\langle T, E'\rangle$ but neither $*\langle E, T\rangle$ nor $*\langle E', T\rangle$ (cf. the two black cells). That is, there are functional types mapping descriptive content to hybrid or pure expressive content, but there is nothing mapping from expressive content (neither pure nor hybrid) to ordinary descriptive content. This is the same restriction as the one that Potts (2005) has build into his type system. In $\mathscr{L}_{\text{CI}}$, we find only functional types from descriptive to expressive types but not the other way round. As we have seen in § 3, $\mathscr{L}_{\text{CI}}$ has no types with an expressive type in its domain. Accordingly, the type system of $\mathscr{L}_{\text{CI}}$ looks like in the following table.

	T		E'
T	T		E'

Table 2: The type system of $\mathscr{L}_{\text{CI}}$

Now that I have defined new types for expressive modifiers for $\mathscr{L}_{\text{CI+EM}}$, it must be defined how they combine with each other. The combination of descriptive types is plain functional application and hybrid expressive expressions apply to descriptive ones according to CI-application (9) just as in $\mathscr{L}_{\text{CI}}$. For the combination of two expressive types, I define a new tree-admissibility condition.

(39) **Pure expressive application**

$$\alpha(\beta) : \tau^{\varepsilon}$$

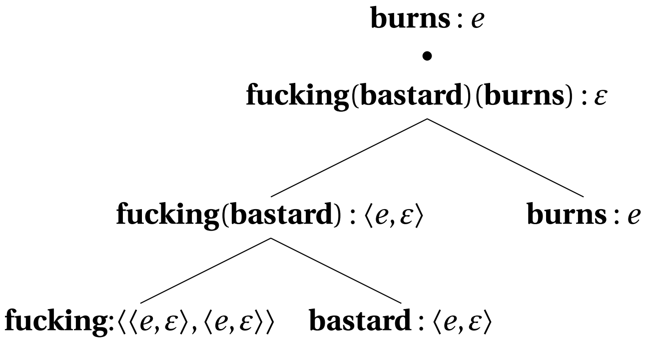
$$\alpha : \langle \sigma^{\varepsilon}, \tau^{\varepsilon} \rangle \qquad \beta : \tau^{\varepsilon}$$

[9] Thanks to Hans-Martin Gärtner for the inspiration to present the type system of $\mathscr{L}_{\text{CI+EM}}$ by means of such a table.

Obviously, this is just functional application restricted to expressive types. This rule allows that two expressives can combine with each other without one of them being isolated as would be the case with CI-application.

Equipped with these types and rules, we can provide an intuitive semantic structure as in (18) for expressive modifiers. In $\mathscr{L}_{\text{CI+EM}}$, an expressive modifiers like *fucking* can be treated as being of $\langle\langle e,\varepsilon\rangle,\langle e,\varepsilon\rangle\rangle$ taking the expressive *bastard* as its argument. The complex expressive **fucking**(**bastard**) : $\langle e,\varepsilon\rangle$ can then be applied to an entity type argument. Only then the entire expressive proposition is isolated by CI-application. The semantic parsetree for the DP *that fucking bastard Burns* may look like this.

(40) that fucking bastard Burns



The descriptive expression **burns** : e could take part in further derivation, for instance, being predicated over to yield a proposition.

To account for mixed expressives, I adopt a type definition from McCready (2010), who deals with different mixed expressives in Japanese. I slightly modify his type definition to better fit into the system already employed here. The new logic is called $\mathscr{L}_{\text{CI+EM+ME}}$ and its type definition is given by the following set of construction rules.

(41) **Types for $\mathscr{L}_{\textbf{+CI+EM+ME}}$**

a. e and t are descriptive types.
b. ε is an expressive type.
c. If σ and τ are descriptive types, then $\langle\sigma,\tau\rangle$ is a descriptive type.
d. If σ is a descriptive type and τ is a (hybrid or pure) expressive type, then $\langle\sigma,\tau\rangle$ is a hybrid expressive type.
e. If σ and τ are (hybrid or pure) expressive types, then $\langle\sigma,\tau\rangle$ is a pure expressive type.
f. If σ and τ are descriptive type and υ is a pure expressive type, then $\langle\sigma,\tau\rangle \diamond \langle\sigma,\upsilon\rangle$ is a mixed type.

A type for mixed expressive consists of two independent parts. First, we have a complex type that takes a descriptive type σ as its argument to yield a descriptive type. Secondly, we have a hybrid expressive type taking also the descriptive type σ as its argument and returns an expressive expression of type υ. A mixed expressive therefore has two types in some sense, one for each dimension of meaning. It combines with one descriptive argument to convey meaning in both dimension. A corresponding tree-admissibility condition distributes one argument to both parts of a mixed expressive, isolates the expressive content, and passes the descriptive content up the tree.

(42) **Mixed application**

$$\alpha(\gamma):\tau$$
$$\bullet$$
$$\beta(\gamma):\upsilon$$
$$\alpha:\langle\sigma,\tau\rangle \diamond \beta:\langle\sigma,\upsilon\rangle \qquad \gamma:\sigma$$

Equipped with these rules and types, we can provide an adequate semantics for mixed expressives. All that is needed in addition to the new types and tree-admissibility condition, is a translation function for mixed expressives that maps them to appropriate descriptive and expressive components. For instance, *Boche* means *German* in the descriptive dimension, while expressing a negative attitude in the expressive dimension.

(43) *Boche* $\rightsquigarrow$ $\mathbf{german}:\langle e,t\rangle \diamond \mathbf{neg\text{-}att}(c_S):\langle e,\varepsilon\rangle$

Given this translation, we can provide the following semantic structure for the sentence *Lessing was a Boche* that I have already discussed in § 4.

(44) Lessing was a Boche.

$$\mathbf{german}(\mathbf{lessing}):t$$
$$\bullet$$
$$\mathbf{neg\text{-}att}(c_S)(\mathbf{lessing}):\varepsilon$$
$$\mathbf{german}:\langle e,t\rangle \diamond \mathbf{neg\text{-}att}(c_S):\langle e,\varepsilon\rangle \qquad \mathbf{lessing}:e$$

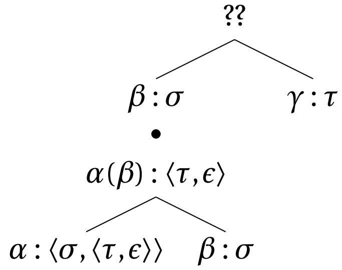
With the new types introduced in this section together with the corresponding tree-admissibility conditions, the new logic is able to deal with expressive modifiers and mixed expressives, while keeping intact the core ideas of $\mathcal{L}_{\text{CI}}$.

6 Conclusion

In this paper, I have challenged two strong claims that Potts (2005, 2007b) has made in his work on expressives and the logic of conventional implicatures. These claims come down to prohibitions against what I have dubbed expressive modifiers and mixed expressives. I have presented that, contrary to these prohibitions, examples of both kinds of expression can easily be attested in natural languages. To overcome the limitations directly implemented in $\mathcal{L}_{\text{CI}}$, I extended the type system of $\mathcal{L}_{\text{CI}}$ and added new tree-admissibility conditions. The new logic $\mathcal{L}_{\text{+CI+EM+ME}}$ thereby built is able to assign a prima facie intuitive semantic to sentences involving expressive modifiers or mixed expressives.

Before I end this paper, let me mention a remaining problem for $\mathcal{L}_{\text{CI}}$ that also holds for the variant developed here. Neither logic is able to deal with what could be called *two-place expressives*, that is, expressives that need two arguments in order to yield a expressive proposition. Note that such expressions are allowed in $\mathcal{L}_{\text{CI}}$ and its extensions, since types like, for instance, $\langle e,\langle e,\varepsilon\rangle\rangle$ are defined by their respective type systems. However, even if they are well formed expressions, they cannot be computed correctly. The general problem can be illustrated by the following scheme. Let α be a two-place expressive that needs an argument of type σ and one of type τ to yield an expressive proposition of type ε. Let β and γ be expressions of the appropriate argument types for α. The following parsetree illustrates why such an expression cannot be computed by $\mathscr{L}_{\text{CI}}$ or $\mathscr{L}_{\text{+CI+EM+ME}}$.

(45)



The problem is that α is isolated from the parsetree according to expressive application as soon as its is combined with its first argument β, while β is returned unmodified. After that, there is now way to get the second argument γ into $\alpha(\beta)$, since γ has only access to β with which it cannot be combined.

For sake of illustration, let me assume that the German speech repot verb *nörgeln* ‘to noodge’ is such two-place expressive, but a mixed one. Assuming that it is truth-conditionally equivalent to *to complain*, it can be used to convey expressively that the speaker regards that the reported subject is not justified with his complain or is too sensitive.

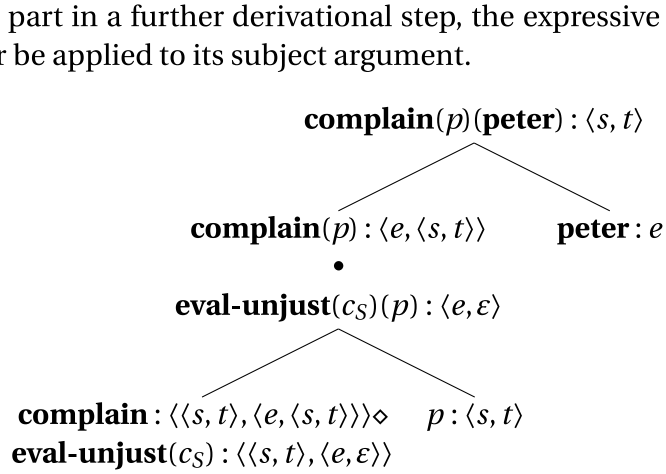
(46) *nörgeln* ‘to gouch’ $\rightsquigarrow$ *to complain* + speaker evaluation of the complaint

Just as its neutral counterpart, *nörgeln* needs an entity-type subject argument and a propositional object to yield a speech report and, in addition, a expressive proposition. Therefore, *nörgeln* is a two-place mixed expressive.

(47) *nörgeln* $\rightsquigarrow$ $\textbf{complain} : \langle\langle s,t\rangle, \langle e, \langle s,t\rangle\rangle\rangle \diamond \textbf{eval-unjust}(c_S) : \langle\langle s,t\rangle, \langle e, \varepsilon\rangle\rangle$

If this expression is combined with an proposition, both its descriptive as well as its expressive content are applied to the propositional argument. But even if the descriptive content can take part in a further derivational step, the expressive content is left behind and can never be applied to its subject argument.

(48)



Another example of a 2-place expressive is provided by Kubota and Uegaki (2010), who develop a different solution to the problem of mixed expressives by using the continuation based semantics developed by Barker and Shan (2008) instead of a variant of $\mathscr{L}_{\mathrm{CI}}$. They discuss the Japanese benefactive verb *morau* – actually a 3-place mixed expressive – which takes another verb as an argument as well as an dative object and a subject. Its dative object is identified as the logical subject of the embedded verb. A sentence with *morau* than expresses the descriptive proposition that the matrix subject is involved in the action expressed by the embedded verb. In addition, it conveys the CI that that action is in some way beneficial for the matrix subject.

(49) Taroo-ga Hanako-ni piano-o hii-te **morat**-ta.
Taro-NOM *Hanako*-DAT *piano*-ACC *play* *BENEF*-PAST

a. *Descriptive content:*
"Taro had Hanako play the piano."

b. *Expressive content:*
"Hanako's playing the piano was for the benefit of Taro."

The problem posed by *morau* for all variants of $\mathscr{L}_{\mathrm{CI}}$ presented here is the same as for *nörgeln*. As soon as *morau* is applied to its first argument (probably the embedded verb), it is isolated from the semantic parsetree and cannot be combined with its other arguments.

To account for such problems, no simple type definition would suffice as the problem goes back to the core of $\mathscr{L}_{\mathrm{CI}}$, namely the idea that expressive items are removed from the parsetree after they have combined with their descriptive argument. In the end, a more extensive revision of $\mathscr{L}_{\mathrm{CI}}$ in the direction to logic employing complete, overall multidimensionality may be needed to accommodate such cases.

Even if the new logic $\mathscr{L}_{\mathrm{CI}}$ may not be considered as being satisfactory and suffers from some of the main problems of $\mathscr{L}_{\mathrm{CI}}$.[10] I think that it is a first improvement that helps Potts' logic to cover a broader range of data correctly. At least, I hope to have shown that both expressive modifiers and mixed expressives should be taken seriously as an empirical phenomenon.

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[10]To mention just two of them, note that also the new logics predict that expressives have always widest scope. But this does not seem to be the case (cf., e.g. Anand, 2007; Amaral et al., 2007; Bonami and Godard, 2007). Furthermore, as already mentioned in footnote 1, the representational way in which the parsetrees are used in $\mathscr{L}_{\mathrm{CI}}$ raises worries about compositionality.

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