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The study of language and emotion in a new key

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Abstract. In this discussion note on Martina Wiltschko's target article entitled 'Emotions do not enter grammar because they are constructed (by grammar)', I reflect on the following issues: (i) the absence of (basic) emotions in the structure of language, (ii) the usefulness of the notion of 'basic emotion' in the study of emotion, (iii) the structural organization of linguistic expressions and emotions, (iv) the way in which functional information (spinal properties) is realized in expressive language (specifically, in Dutch). Finally, as a note from a more historical perspective, I draw the reader's attention to Susanne K. Langer's seminal study *Philosophy in a New Key* ([1942] 1957), which emphasizes the symbolic nature of both language and emotion.

Keywords: (basic) emotion, grammatical dependency, structural property, expressive interjection, expressive cues, symbolism

1. Introduction

In the "Final words" (section 6.3) of her focus article, entitled "Emotions do not enter grammar because they are constructed (by grammar)," Martina Wiltschko reaffirms the core goal of her article: "to emphasize the value of interdisciplinarity, especially when considering the interplay between two capacities, such as language and emotions, which are traditionally studied in different fields" (p. 48). With these words, she strikes a new key in the study of language and of emotions, one which has recently also been struck by others (see, for example, Dukes *et al* 2021). Thinking in terms of this new interdisciplinary theme, she raises two important questions: firstly, how are emotions expressed in the languages of the world, and secondly, what is the cognitive architecture that regulates the relation between language and emotions? Her reply to the first question is that "[…] emotions can be expressed across all levels of language, though not with dedicated grammatical means" (p. 44). As for the second question, she proposes "that there is a

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profound relation between our linguisticality and our emotionality in that the same system [NC: that is, grammar] is responsible for the construction of linguistic output (individual utterances) and emotional output (individual emotions)" (p. 44). In this contribution, I briefly reflect on the following issues addressed in Wiltschko's article: (i) the absence of (basic) emotions in the structure of language (section 2), (ii) the usefulness of the notion of 'basic emotion' in the study of language and emotion (also section 2), (iii) the structural organization of linguistic expressions and emotions (section 3), (iv) the manifestation of spinal properties in the formal build of expressive language (section 4). Section 5 is added as a note from a more historical perspective and aims to draw attention to Susanne K. Langer's seminal study *Philosophy in a New Key* (1942), which emphasizes the symbolic nature of both language and emotion.

2. Emotions do not enter grammar: Evidence from syntactic dependencies.

Martina Wiltschko's focus article opens with the challenging statement that "Emotions do not enter grammar", which forms the first part of the article's title. 'Emotions' should be understood here as 'basic emotions' (see Wiltschko 2024: section 4.1) in the sense of Ekman's (1972; 1992) theory of basic or primary emotions (see also Arnold 1960, Plutchik 1980, and Tomkins 1984). According to this theory, human beings are innately equipped with a limited set of primitive emotions including, for example, sadness, happiness/joy, fear, anger, surprise and disgust. Wiltschko gives substance to her statement by pointing out that these basic emotions are not represented in any way by one of the core components of human language, namely the system of grammatical categories (also known as functional categories or grammatical formatives); see also Cinque (2013: 50). This system includes categories that represent abstract cognitive concepts such as tense, aspect, person, number, degree, (in)transitivity, reciprocity, *et cetera*. Such a grammatical category as 'tense', as Wiltschko (p. 30) points out, "is used to relate the time of an event to the utterance time (*present* or *past*)", and "[I]n a similar vein one might expect a category that relates an event or proposition to the speaker's emotional state". She illustrates this with her hypothetical example (24), presented here as (1), where 'HAPPY/SAD' stands for a grammatical marker encoding an emotional state:

(1) a *[I live in Barcelona]-HAPPY

b. *[I live in Barcelona]-SAD

If basic emotions were hardwired constituents of our minds, we would expect them to be represented linguistically in the form of designated grammatical categories. But they are not, according to Wiltschko.

I support Wiltschko's conclusion that *basic emotions* are not structurally encoded in the formal build of human language (see also Corver 2016: 236). In addition to their absence at the level of grammatical categories, I would like to point out that basic emotions also do not seem to enter grammar at the level of *grammatical dependencies*, that is, relations of some sort between an antecedent α and a dependent element δ. Take, for example, anaphoric dependencies such as *I hate myself* or *I love myself*, where the subject-pronoun *I* is the antecedent and the element *myself* is a complex (i.e., composite) anaphor that features SELF as an additional element. There are languages in which the formation of complex anaphors features a body part (e.g., HEAD, SPIRIT, SOUL, BONE) rather than SELF; see Reuland (2011), König, Siemund and Töpper

(2013), Schladt (2000). Basque, for example, uses the complex anaphor *bere burua* 'his head' in (2); example drawn from Ortiz de Urbina (2003).

(2) Jonek [bere burua] gorroto du (Basque, isolate)
John.ERG his head hate aux.tr
'John hates himself.'

To my knowledge, the agent's emotional state (e.g., anger) or the speaker's emotional state is never reflected in the choice of the body part that is part of the complex anaphor. For example, we don't find languages in which the contrast 'anger' versus 'joy' is reflected in the anaphoric dependency relation by the choice of a body part noun:[1]

(3) a. I hate [my ass]. (intended meaning: 'I hate myself')
b. I love [my heart]. (intended meaning: 'I love myself')

A second illustration that basic emotions do not enter grammar comes from agreement (in number, grammatical gender, etc.), another core dependency of human language. As shown in (4), there are languages in which the position of the agreement controller within the clause affects the possible agreement forms (see Clem & Norris 2025). As example (4) from Standard Arabic, for instance, shows, agreement on the verb differs when the subject is preverbal versus postverbal (Fassi Fehri 1988: 118):

(4) a. al-bana:tu ji?-**na**
the-girls came-F.PL
'As for the girls, they came.'

b. ja:?-**ati** l-bana:tu
came-F.SG the-girls
'The girls came.'

In example (4a), the subject appears before the verb and it determines *full* agreement on the verb (*ji?-na*). In example (4b), on the contrary, the subject appears after the verb and controls gender but not number agreement (*ja:?-ati*). In other words, (4b) displays *partial* agreement. One could imagine a language in which the co-existence of two agreement strategies is used as a way to grammatically encode different emotional states; for example, the emotional state of fearlessness (say, full agreement) versus the emotional state of fear (say, partial agreement). To

[1] Importantly, my statement is about the use of body part nouns as a formal means of indexing an emotional state (e.g., of the speaker) in a syntactic dependency relationship (e.g., an anaphoric dependency). It should be noted that body part nouns can be used to express certain emotions in fixed (idiomatic) expressions, as in the following Dutch examples: (i) *Dat gaat mij aan het hart* (lit.: 'that goes me to the heart,' 'That touches me deeply.'; (ii) *Ik heb daar de buik van vol* (lit.: 'I have there the belly of full,' 'I'm fed up with that.'; (iii) *Dat stuit me tegen de borst* (lit.: 'that bounces me against the chest,' 'I have an aversion to that.'; (iv) *Hij heeft iets op zijn lever* (lit.: 'he has something on his liver;' 'There is something bothering or occupying him.'). These sentences, in which the body part noun is associated with a certain emotion, are (propositional) descriptions of a speaker's (*ik*, 'I') or another person's (*hij*, 'he') emotional state. In other words, they carry *descriptive* meaning. Importantly, these sentences do not formally encode or index the speaker's (or someone else's) emotional state at the moment s/he utters those sentences. Put differently, they don't carry *expressive* meaning; see Corver (to appear).

my knowledge, however, there is no language that uses the contrast between full agreement versus partial agreement as a grammatical means to encode the contrast between one emotional state and the other. Hypothetically:

(5) a. **The girls** came-F.PL to me. (Full agreement)
Intended meaning: 'As for the girls, they came to me, and I (the speaker) was in a fearless emotional state.'

b. Came-F.SG **the girls** to me. (Partial agreement)
Intended meaning: 'As for the girls, they came to me, and I (the speaker) was in a fearful emotional state.'

A third and final illustration that suggests that basic emotions do not enter grammatical dependencies comes from the contrast between split wh-dependencies and non-split ones. Compare, for example, the Dutch non-split wh-exclamative pattern in (6a) and the split wh-exclamative pattern in (6b); see Corver (1990).

(6) a. **Wat een boeken** heeft Jan gekocht!
what a books has Jan bought
'How many books Jan bought!'

b. **Wat** heeft Jan **een boeken** gekocht!
what has Jan a books bought
'How many books Jan bought!'

Given the availability of these two strategies for forming (exclamative) wh-dependencies, one might raise the question as to whether there are languages in which this split versus non-split contrast is ever used to formally encode a contrast in the emotional state of a speaker. Hypothetically:

(7) a. **Wat een mooie verhalen** staan er in dit boek! (non-split)
what a beautiful stories stand there in this book
Intended meaning: 'What beautiful stories there are in this book! And I [the speaker] am in a state of happiness.'

b. **Wat** staan er **een domme fouten** in dit boek! (split)
what stand there a stupid mistakes in this book
Intended meaning: 'What stupid mistakes there are in this book! And I [the speaker] am in a state of anger.'

I don't know of any language in which a contrast between two emotions is reflected in the choice of a wh-dependency pattern, specifically a split pattern versus a non-split one.

In short, basic emotions do not seem to be reflected in the structural build of human language, neither at the level of grammatical categories nor at the level of grammatical dependencies. It does not seem implausible then to question their status as 'demarcated' mental constructs of our cognitive architecture. Wiltschko draws the conclusion, correctly in my opinion, that basic emotions are not to be considered primitives. Rather, they are constructed, which means that

they result from the arrangement and interaction of smaller components (e.g., valence, intensity); see also Scherer (1984), Ortony et al (1988: 29), and Feldman-Barrett (2017).

3. Basic emotions as useful concepts in the study of emotion (and language)

This view of basic emotions (e.g., anger, joy, frustration) as epiphenomena is reminiscent of the step made in Generative Grammar to assign no cognitive status to the notion of syntactic construction (Chomsky 1977, 1981). Constructions—such as passive, relative clause, cleft, right node raising, topicalization—are not demarcated mental constructs that are part of our cognitive architecture. They rather constitute arrangements of grammatical properties (syntactic components) which are attested also in other syntactic constructions of the language. For example, the agentive *by*-phrase can be found in a passive construction like (8a) but also in a nominal construction like (8b), and movement of a noun phrase (*John*) to the subject position of a clause is a property that is found not only in passive constructions, as exemplified in (9a), but also, for example, in subject-to-subject raising constructions, as in (9b). The element ~~*John*~~ in (9) indicates the original position of the displaced noun phrase *John*; strikethrough indicates that the noun phrase is not pronounced in this position.

(8) a. All these pictures were painted **by van Gogh**.
b. a painting **by Van Gogh**.

(9) a. **John** was welcomed ~~John~~ (by the committee).
b. **John** seems [~~John~~ to be unhappy].

If emotions, just like linguistic expressions (e.g., sentences), constitute arrangements of smaller affective components, one would expect to find shared properties across different types of surface emotions also in this domain of our cognitive architecture; see Scherer (2001: 114–115) for an overview of shared and unshared properties of different types of emotions.

Even if emotions, such as anger and fear, are epiphenomena, that does not mean in my opinion that corresponding notions have no value in science. Such notions may help us in organizing and sharing our knowledge about a certain phenomenon (e.g., the passive, fear); for example, in handbooks or textbooks for students. Furthermore, they may help us in identifying characteristic properties of a certain phenomenon and taking them as a point of departure for searching for other possibly significant properties. As for this quest for other significant properties, our knowledge and understanding of the properties of the canonical passive construction—that is, the syntactic structure in which the object of a transitive verb becomes the subject of the sentence, as in *John was killed* ~~*John*~~—helped us in identifying and understanding other types of passives, such as impersonal passives (10a), which are based on intransitive verbs, and long-distance passives (10b).

(10) a. Er werd gedanst. (Dutch)
there was danced
'There was dancing/People were dancing.'

b. John was believed to be killed. (English)

Along the same lines, one might expect that knowledge of the affective properties of the canonical emotion 'fear' may lead to the identification of varieties of fear constructions. Let me emphasize that I agree with Wiltschko's (p. 45) statement that words for emotion concepts (e.g., fear, anger) "are—at best—approximations of a common human experience and—at worst—utterly misleading". From her remark (p. 45) that "we should not rely on words to identify them [NC: emotional experiences], at least *not exclusively* […]" [italicization by NC], I draw the conclusion that she acknowledges that emotion concepts such as fear and anger can still be useful notions in the broader scientific study of emotion.[2]

4. Reflecting on some structural properties of emotions through a linguistic lens

If emotions are constructed, the question obviously arises as to how they are constructed. Wiltschko (2024: 34) addresses this important question in section 5.1 and states that she will explore this question "from a decidedly linguistic perspective". Specifically, she proposes that emotions, just like linguistic expressions (sentences, phrases), are organized structures that result from the application of (binary) *merge*, the computational operation that combines two constituents/units to form a new constituent/unit. Adopting Wiltschko's "decidedly linguistic perspective", one could raise a number of questions that are inspired by our knowledge of the structural organization of linguistic expressions. Firstly, to what extent are computational operations that are active within an emotion structure-dependent; that is, to what extent do they rely on the hierarchical arrangement of elements rather than the linear sequence of elements? Secondly, what is the inner organization (say, constituent structure) of complex emotions, i.e., emotive expressions in which two (or more) emotions (e.g., anger and disgust) are combined; see also Wiltschko (2024: 36–37)? Thirdly, to what extent do we find the phenomenon of displacement in emotional expressions? The notion of displacement stands here for the movement or reordering of an element from its canonical position to a different (i.e., derived) position in the hierarchical structure.[3] Is it possible, for example, to reorder an element contained within the Anchoring layer (see Wiltschko 2024: Figure 4, p. 38) to another position within the emotional spine?[4] One could imagine, for example, that familiarity (givenness) versus unfamiliarity (newness) with the spatial location (e.g., a mountain top that is situationally present in the 'here') of an ongoing event (e.g., a hike to that mountain top) has an effect on the emotional experience and consequently on the structural placement of the spatial-anchoring information within the emotional spine. Fourthly, to what extent can meaning ambiguities (for language, see, for example: *Flying planes can be dangerous*) be used for identifying structural ambiguity (i.e., different hierarchical organizations) in emotions that are superficially (i.e., at the level of externalization) similar?[5] Of course, I don't and didn't expect all these kinds of questions to be addressed in Wiltschko's insightful article, but these are questions that come to mind if one assigns similar hierarchical structures to lingu-

[2] See Van Riemsdijk (2018) for a plea for the usefulness of the notion of construction in the study of language. According to him, 'constructions' are relevant at two levels: (i) archiving, (ii) heuristics.

[3] In the Minimalist Program (Chomsky 1995), the term *I(nternal) Merge* is used for the operation of displacement. In a sentence like *Who did the girl see?*, the wh-phrase *who* has undergone I-Merge; it has been moved from the direct object position associated with the verb *see* to the leftmost position of the clause. The term *E(xternal) Merge* is used for the operation that combines two disjoint elements (e.g., words or phrases). For example, the noun phrase *the girl* results from combining the definite article *the* and the noun *girl*.

[4] According to Wiltschko's proposal, the Anchoring-layer is the structural layer in which the emotional experience can be anchored relative to the here and now; see Wiltschko (2024: p. 43).

[5] On the ambiguity of emotions, see, among others, Hassin et al (2013) and Neta et al (2020).

istic expressions (the linguistic spine), on the one hand, and emotion expressions (the emotional spine), on the other hand.

Expressive interjections such as English *gee!*, *yuck!* and *wow!* may be helpful in exploring such questions about the structural properties of (and relations between) emotive expressions. As Wiltschko (section 3.3.7) correctly points out, not all interjections express an emotional state (see also Ameka 1992); those which do, however, may help us in reflecting on the structural properties of emotions. In what follows, I will briefly examine some structural properties of the Dutch expressive interjections *godverdomme* ('goddammit') and *gadverdamme* ('yuck').[6] The former is often used to express an emotional state of anger or frustration, the latter to express disgust.[7] Importantly, the structural properties of these interjections regard their *linguistic* behavior and are, consequently, about *linguistic* (specifically, syntactic) representations. So, they don't give any direct insights into the structural properties of emotions themselves. But perhaps we can draw inspiration from the structural behavior of expressive interjections to aid our exploration of the structural properties of emotions.

I will start my discussion with the structure-dependence of expressive interjections. As noted in James (1973: chapter 4), interjections typically refer to a string of words that form a constituent; they do not refer to a linear sequence of words that forms a non-constituent. Evidence in support of the structure-dependent nature of interjections comes from an example such as (11a), which contains what James calls the hesitation marker *oh*;[8] boldfacing in (11) indicates scope.

(11) a. Princess Anne, *oh*, launched a ship and Prince Charles went to a reception.

b. Princess Anne, **oh**, **launched a ship** and Prince Charles went to a reception.

c. #Princess Anne, **oh**, **launched a ship and Prince Charles went to a reception**.

The natural interpretation of sentence (11a) is that the speaker is trying to recall something that Princess Anne did, as represented in (11b), where *oh* goes together with, and has scope over, the VP-constituent *launched a ship*. As indicated by the #-symbol (i.e., infelicitous reading) in (11c), the speaker cannot be hesitating whether to say "launched a ship and Prince Charles went to the reception" or "opened an agricultural show and the Queen Mother reviewed the Twelfth Hussars"; see James (1973: 115). The reason is that the sequence "launched …. a reception" is a non-constituent.

The property of structure-dependence also holds for an expressive interjection like the Dutch *gadverdamme* ('yuck'). Consider for example (12a); boldfacing indicates scope of the interjection.

[6] See López and Trotzke (2021) for an insightful discussion of the structural and scopal properties of the Spanish phatic particle *mira* (lit. 'look'). According to their analysis, the verb-based attention-getter *mira* is a phrasal parenthetical which forms an integral part of the syntactic structure of its host clause. Information-structurally, it partitions the clause into information belonging to topic and to focus.

[7] *Gadverdamme* 'yuck' is a formal (specifically, phonological) variant of the 'underlying' form *godverdomme* 'goddammit'. Besides these two phonological forms, Dutch also has the variant *gedverdemme* 'yuck'. Note that these interjective expressions display the phenomenon of vowel harmony: the vowel of the first part of the expression (e.g., *god*) and the vowel in the second part of the expression (e.g., *domme*) match (i.e., harmonize) in vowel quality; see Corver (2016: 264).

[8] The hesitation marker is typically transcribed as *uh*, not *oh*. In example (11), I stick to James's use of *oh* in her original example.

(12) a. Jan heeft gadverdamme naast de wc-pot gekotst en Piet heeft in bed gepist.
Jan has yuck beside the toilet-bowl puked and Piet has in bed peed
'Jan, for goodness sake, puked next to the toilet and Piet peed in the bed.'

b. Jan heeft **gadverdamme naast de wc-pot gekotst** en Piet heeft in bed gepist.

c. #Jan heeft **gadverdamme naast de wc-pot gekotst en Piet heeft in bed gepist**.

The expressive interjection *gadverdamme* ('yuck') only applies to the (eventive) VP *naast de wc-pot gekotst*, as represented in boldface in (12b), but not to the linear sequence and non-constituent *naast de wc-pot gekotst en Piet heeft in bed gepist*. For (12c) to become felicitous, *gadverdamme* must be repeated in the second conjunct: *…en Piet heeft gadverdamme in bed gepist*. Notice, finally, that *gadverdamme* can refer to both events (i.e., (Jan's) puking next to the toilet bowl and Piet's peeing in bed) when it occurs at the beginning of the sentence, as in *Gadverdamme, Jan heeft naast de wc-pot gekotst en Piet heeft in bed gepist*. In this example, a coordinate structure consisting of two clausal conjuncts forms the constituent to which the expressive interjection *gadverdamme* 'refers'.

Let's next turn to the question as to whether expressive interjections can enter into different kinds of hierarchical relationships. Consider for this the utterance of speaker B in the following conversation:

(13) A: Waarom kijk je zo vies?
why look you so disgusted
'Why are you looking so disgusted?'

B: Er ligt **gadverdamme** allemaal kots op de wc-vloer omdat Jan
there lies yuck all vomit on the toilet-floor because Jan
godverdomme te veel gezopen heeft!
goddammit too much drunk has
'Yuck, there is vomit all over the toilet floor because Jan, goddammit, has been drinking too much.'

Speaker B's utterance expresses two emotional states (disgust and anger), each of which applies at different levels of the hierarchical organization of the sentence. The matrix clause expresses a state of affairs (there being vomit on the toilet floor) that the speaker evaluates as being disgusting (*gadverdamme*, 'yuck'). This state of affairs is caused by an event (Jan's drinking too much) which triggers anger (*godverdomme*, 'goddammit') on the side of the speaker. The co-occurrence of the two expressive interjections in a single (complex) sentence supports the idea that we can have complex emotions (see Wiltschko 2024: 36–37). Each emotional state, as represented by the expressive interjection, holds at a different level in the hierarchical organization of the clause.

As shown by the discourse fragment in (14), the reverse situation is also possible:

(14) A: Waarom kijk je zo boos?
why look you so angrily
'Why do you look so angry?'

B: Ik moet **godverdomme** de wc weer poetsen omdat Jan er
I must goddammit the toilet again clean because Jan there
gadverdamme weer eens naast heeft gekotst.
yuck again once next.to has vomitted
'I have to clean the toilet again, goddammit, because Jan has puked next to it, yuck!'

In this example, there is a situation (the speaker having to clean the toilet) which triggers anger on the part of the speaker, and this event is caused by a preceding event (Jan's puking next to the toilet bowl) that is evaluated by the speaker as being disgusting.

Notice, finally, that simultaneous occurrence of two emotions can be expressed by means of coordinate structures. Consider for this the discourse fragment in (15):

(15) A: Wat is er met jou? Je ziet er niet gelukkig uit.
what is there with you you look there not happy PRT
'What's going on with you? You don't look happy?'

B: Jan heeft **godverdomme** naast de wc-pot gepist en hij heeft er
Jan has goddammit next.to the toilet-bowl peed and he has there
gadverdamme ook nog eens naast gekotst.
yuck also PRT PRT next.to puked
'Jan, goddamit, has been pissing next to the toilet and, yuck, he also vomited next to it'

In this example, speaker B's utterance expresses that there has been an event (Jan's having peed next to the toilet) which triggers anger on the side of the speaker, and that there has been another event (Jan's puking next to the toilet) which triggers disgust on the side of the speaker.

Let us next turn to the question as to whether the operation of displacement (I-merge) ever applies to an expressive interjection that represents an emotional state. My starting point is the observation in the linguistic literature that displacement to the clausal left periphery often has a discourse (i.e., information-structural) effect. For example, in many languages, focalized constituents can end up in the left periphery of the clause as a result of a focus fronting operation. If someone asks: "Did you meet John and Bill on the bus?", one could reply: "I met Bill on the bus. JOHN I met ~~John~~ at the party", where *JOHN* is the fronted focalized constituent, and ~~*John*~~ represents its original position. Expressive interjections such as *godverdomme* may also have different roles in a discourse. In (16), for example, the utterance *GOVDERDOMME* ('goddammit')—small capitals stand for an exclamative intonation—represents emotional information (anger) that is new in the discourse.

(16) [Context: in the morning, John and Bill's father goes to the toilet. He opens the door, sees vomit on the floor, and expresses the following utterance:]

Father: GODVERDOMME! Wie heeft er naast de wc-pot gekotst?!
goddammit who has there beside the toilet-bowl puked
'Goddammit! Who puked next to the toilet bowl?'

John: Ik was het niet.
I was it not
'It wasn't me!'

In the following discourse fragment, the expressive interjection *godverdomme* has a different informational status. The interjection *godverdomme* ('goddammit'), now pronounced without exclamative intonation, still represents an emotional state of the father but the informational state is known to the addressee (i.e., Bill, the son who puked).

(17) [Context: the father cleaned the toilet, calmed down a bit and says the following to his son Bill, the puker:]

Als je *godverdomme* weer eens naast de wc-pot kotst, ruim het
when you goddammit once more next.to the toilet puke, clean it
dan zelf op. OK?
then self PRT OK
'Next time you puke next to the toilet bowl, goddamit, please clean the floor yourself. OK?'

One might raise the question as to whether the expressive interjection *GODVERDOMME* in (16) has undergone fronting to the left periphery of the clause. At first sight, the involvement of fronting in the surface utterance *GODVERDOMME* seems unlikely, since there doesn't seem to be anything in relation to which it has changed position. It simply seems to be an isolated expression, also prosodically. It should be noted, however, that other superficially isolated expressions have been analyzed as elements that have undergone displacement to the left periphery of a clause.[9] For example, the superficially isolated constituents *waarom* ('why') in the Sluicing construction in (18B) and *Jan* in the Fragment Answer construction in (19B) have been analyzed as constituents that undergo displacement to the left periphery of the clause. Their superficially isolated status is caused by an ellipsis operation which deletes part of the clause except for the displaced constituent (see Merchant 2001 for Sluicing, and Temmerman 2013 for Fragment Answers):

(18) A: Jan heeft naast de wc-pot gepist. (Sluicing)
Jan has next.to the toilet-bowl pissed
'Jan peed next to the toilet-bowl.'

B: **Waarom?**
why (i.e., Why did he piss next to the toilet bowl?)
[$_{CP}$ Waarom$_i$ [$_{C'}$ C [~~$_{IP}$ Jan heeft t$_i$ naast de wc-pot gepist~~]]]?[10]

(19) A: Wie van de zonen heeft naast de wc-pot gepist?
who of the sons has next.to the toilet-bowl pissed
'Who of the two sons pissed next to the toilet-bowl?'

[9] See again López and Trotzke (2021) for discussion of similar questions regarding the Spanish phatic particle *mira*.

[10] 'CP' stands for Complementizer Phrase, 'C' for complementizer.

B: **Jan!** Wie anders? (Fragment answer)
Jan who else
'Jan! Who else could do this?!'
[$_{CP}$ Jan$_i$ [$_{C'}$ C [~~$_{IP}$ t$_i$ heeft naast de wc-pot gepist~~]]]

A reason for adopting a clausal analysis of *Waarom?* in (18B), and *Jan* in (19B), comes from the occurrence of sentence adverbs or discourse particles (e.g., *toch*, 'still/yet') that typically occur in clausal environments and add contrast or emphasis to the utterance. As shown in (20)-(21), these elements typically occur in a position that follows the fronted element:

(20) A: Jan heeft weer naast de wc-pot gepist.
Jan has again next.to the toilet-bowl pissed
'Jan peed next to the toilet-bowl again.'

B: **Waarom toch?!** Het kan toch niet zo moeilijk zijn om in de wc-pot te pissen?
why still it can still not so difficult be for in the toilet-bowl to pee
'Why?! It can't be that hard to pee in the toilet-bowl, can it?'

(21) A: Een van ons moet de wc schoonmaken.
one of us must the toilet clean
'One of us will have to clean the toilet.'

B: **Jij toch?!**
you still
'You, right?'

Interestingly, as shown in (22), discourse particles like *toch* can also be found right after emphatic *GODVERDOMME*:

(22) [Context: Bill promised his father that he wouldn't pee next to the toilet-bowl anymore. On Sunday morning, Bill's father opens the toilet door and sees urine all over the floor]

Father: **GODVERDOMME** **toch!** Nu heeft ie er wéér naast gepist!
goddammit still now has he there again next.to peed
'Goddammit! He peed next to it (i.e., the toilet) again!'

Patterns such as *GODVERDOMME toch* possibly hint at the existence of displacement operations that apply to units (e.g., interjections) that encode affective information.[11] I leave a more in-depth investigation of the pattern in (22) for future research.

In sum, Wiltschko formulates the interesting hypothesis that emotions, just like linguistic expressions (say, sentences), are hierarchically organized (cognitive) units. Furthermore, she

[11] At this point, the following quote from Bever & Montalbetti (2002: 1566) seems relevant: "Chomsky has suggested that recursion itself is instantiated in human language by the two mechanisms of narrow syntax: *merge* and *displacement*. It is displacement that seems to have no parallel manifestation either in nonhuman animals or in other cognitive domains. Thus, displacement might seem to be both unique to humans and unique to human language. But it is not totally unique to human theories of mind. Jakobson, the giant of mid-20th century linguistics, noted that these two main linguistic mechanisms also underlie cognitive behavior and *emotion* (9)." [italics added—NC]. See Jakobson (1956).

claims that their hierarchical organization follows from the same computational system (binary *merge*) that underlies the inner structure of linguistic expressions. The idea that the same grammar underlies the construction of linguistic expressions and emotions raises the question to what extent (abstract) structural properties that characterize linguistic expressions (e.g., structure-dependence) are also attested in emotions. On the basis of expressive interjections, I explored some of the structural properties of linguistic units that represent an emotional state. Possibly, these properties may help us in reaching a deeper understanding of the structural properties of emotions more in general.

5. In search of linguistic symbols that index spinal functions

In section 5.4, Wiltschko presents the hypothesis that the structural organization of linguistic expressions (what she calls 'the universal spine') and that of emotions ('the emotional spine') is similar in nature; that is, they display the same layers of information (spinal functions), namely *Classifying*, *Point-of-View*, *Anchoring* and *Linking*.[12] Given this similar organization between linguistic expressions and emotive expressions, one would expect to find linguistic cues that signal these spinal functions and play a role in the linguistic encoding of affective/expressive information. Since an in-depth discussion of the expressive role of these spinal functions falls beyond the scope of this article, I will confine myself to providing some examples from Dutch; see (23); see also Corver (to appear).

(23) a. Ik hoef morgen **lekker** niet naar school. (valence)
I need tomorrow nicely not to school
'Luckily, I don't have to go to school tomorrow.'

b. Donder **op**, man! (boundedness)
fuck off man
'Fuck off, man!'

c. Én maar **doorgaan** met dat geklier! (unboundedness)
and but to.go.on with that nagging
'You keep on nagging!'

d. Wat heb je **nóú/nú** weer gedaan?! (temporal deixis)
what have you now again done
'What have you done now!'

e. Kluns die je **d'r** bent! (spatial deixis)
idiot who you there are
'You are such an idiot!'

f. [Context: Johnny wants to pick a flower from the garden, which is not allowed. His father warns him by saying:]
Dát je het maar laat! (linking)
that you it but leave.alone
'You'd better not do this! (I warn you)'

[12] See Wiltschko (2024: Section 5.3) for a discussion of each layer in the linguistic spine, and see Section 5.4 for a discussion of these layers in the emotional spine.

In (23a), the evaluative adverbial *lekker* reveals the speaker's positive attitude (valence) towards the state of affairs 'I don't have to go to school tomorrow'. The imperative in (23b) expresses a command to the hearer, where the command involves a bounded, or telic, event (i.e., one that is known to come to an end). The particle/preposition *op* arguably indexes the boundedness of the event. Compare in this respect the verbs *eten* ('to eat') and *opeten* ('to eat up'). The former can be used to express an unbounded (i.e., atelic) event (e.g., *Jan at en at en at*, 'John ate and ate and ate'; i.e., John kept on eating), the latter cannot (e.g., *Jan at (*en at en at) de taart op*, 'John ate (*and ate and ate) the cake up'). The root infinitive in (23c) typically gets a reading in which the event (the addressee's nagging) does not come to an end. In short, this root infinitive construction has an unbounded (durative) reading. Consider next the exclamative-interrogative construction in (23d) and the exclamative relative construction in (23e). The former contains the temporal adverb *nou/nu* ('now'), and the latter the spatial adverb *d'r* ('there'). It does not seem unlikely that these adverbs anchor the event (the addressee's doing something in (23d)) or the state of affairs (the addressee's being something in (23e)) to the deictic center, i.e., the here-and-now of the utterance situation; see Wiltschko: p. 39. Consider, finally, example (23f), which exemplifies the phenomenon of insubordination, i.e., the independent use of a dependent clause; see Evans (2007). Possibly, this independent use of the *dat*-clause suggests that *dat* in (23f) has a demonstrative-like flavor. Being (like) a demonstrative, *dat* can refer deictically in a situational/discourse context; specifically, it establishes a relationship between the verbal warning (*Dát je het maar laat!*) and Johnny's intended action (in the situational context) to pick a flower. As an alternative analysis—one which is quite in the spirit of Rosenbaum (1967) and Kayne (2010)—one could propose that the *dat*-clause in (23f) is subordinate after all, namely by being part of a pronominal phrase which is headed by a silent (i.e., phonologically unrealized) pronoun *het* 'it'. Under such an analysis, the *dat*-clause in (23f) would have the following abstract structure, where PRON stands for the silent pronoun: *[PRON [dat je het maar laat]]* (litt.: that you it but leave.alone, 'You'd better not do this! (I warn you)'. Under this analysis, it would be the pronoun that establishes the deictic relationship with Johnny's intended action. I will leave an in-depth study of the phenomenon of insubordination for future investigation.

6. The study of language and emotion in a new key

In her book *Philosophy in a New Key* ([1942] 1957), the philosopher Susanne K. Langer suggested that philosophy (at the time the book was published) needed to move beyond a purely logical and linguistic approach to understand the full scope of human thought and experience. She struck a new key that recognized the importance of symbolic forms, not only in language, logic and mathematics but also in emotions, rituals and artistic expressions (visual art, music, dance, architecture, etc.).[13] According to Langer, symbolization (the mental action of transforming experience into symbolic representations) is what characterizes the human mind. According to the new key that she struck—an interdisciplinary one—a distinction should be made between two types of symbolism: discursive symbolism (e.g., language) and presentational symbolism (e.g., music, visual art). The former is linear (*the* > *cars*), analyzable into parts (the + car + s) and has

[13] Langer was strongly influenced by the ideas of the German philosopher Ernst Cassirer. At the heart of his philosophical work is the concept of symbolic forms. In his three-volume *Philosophy of Symbolic* Forms (1923-1929), he argued that human experience and understanding of the world are mediated through various symbolic systems, including language, art, science myth, and religion.

a (compositional) meaning that is paraphrasable; the latter is holistic, cannot be easily broken down, and has a meaning that is inseparable from form.

Langer took feeling and emotion to fall within the realm of presentational symbolism. It is not surprising then, as stated at the end of the following quote, that "The real nature of feeling is something language as such [...] cannot render" (see Langer 1966: 8).

> There is, however, an important part of reality that is quite inaccessible to the formative influence of language: that is the realm of so-called inner experience, the life of feeling and emotion. The reason why language is so powerless here is not, as many people suppose, that feeling and emotion are irrational; on the contrary, they seem irrational because language does not help to make them conceivable, and most people cannot conceive anything without the logical scaffolding of words. The unfitness of language to convey subjective experience is a somewhat technical subject, easier for logicians to understand than for artists; but the gist of it is that the form of language does not reflect the natural form of feeling, so we cannot shape any extensive concepts of feeling with the help of ordinary, discursive language. Therefore, the words whereby we refer to feeling only name very general kinds of inner experience—excitement, calm, joy, sorrow, love, hate, etc. But there is no language to describe just how one joy differs, sometimes radically, from another. The real nature of feeling is something language as such—as discursive symbolism—cannot render.

Importantly, even though feeling and emotion belong to a different type of (mental) symbolic representation than does language, Langer (1966) emphasizes that they do have an articulate representation. In her words (p. 9):

> But human feeling is a fabric, not a vague mass. It has an intricate dynamic pattern, possible combinations and new emergent phenomena. It is a pattern of organically interdependent and interdetermined tensions and resolutions; a pattern of almost infinitely complex activation and cadence. To it belongs the whole gamut of our sensibility, the sense of straining thought, all mental attitude and motor set. Those are the deeper reaches that underlie the surface waves of our emotion, and make human life a life of feeling instead of an unconscious metabolic existence interrupted by feelings.

The quest for the cognitive/mental nature of linguistic representations and affective representations is something which is shared by Langer's study and Wiltschko's study. The new key struck by Langer concerns the *symbolic* nature of feeling and emotion, and also other forms of expression (artful, musical, etc.). Crucially, symbolic forms are not restricted to language, logic and mathematical knowledge. The new key struck by Wiltschko concerns the cognitive *architecture* of linguistic symbolic representation and of affective symbolic representation. According to Wiltschko, these representations—the universal spine and the emotional spine—are fundamentally the same. They are hierarchically organized representations that consist of the same types of informational layers (spinal functions). As Wiltschko emphasizes on p. 34, her proposal "is not intended to present a definitive argument or conclusion" but "rather [...] it is meant to inspire future research across disciplines". Langer ends her book (p. 294) with similar words: "If there is any virtue in the theory of what I have called 'symbolic transformation', then this theory should elucidate not only the achievements of that function, but also its miscarriages, its limitations, and its byproducts of illusion and error". To this she adds the last line of her book: "For,

as Professor Whitehead has frankly and humbly declared: 'Error is the price we pay for progress'".[14]

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[14] Langer was a PhD student of the mathematician and philosopher Alfred North Whitehead at Radcliffe College.

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