Expressivity and Emojis

Patrick G. Grosz

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1. Introduction

The goal of this chapter is to review the role of emojis as visual devices for encoding expressive meaning in written digital communication. Emojis are pictographs (😊, ♻️, ⚽) that are managed by the Unicode Consortium,[1] but customized for different platforms.[2] They were broadly introduced to an international market in 2011,[3] and have since gained far-reaching acceptance across different populations of internet users (see, e.g., Bai et al. 2019). This chapter focuses on emojis that classify as *expressive* (which will be treated as synonymous with terms such as *emotive* or *affective*), to probe their behavior from a theoretical linguistic perspective.

Before applying more technical definitions, we can informally define *expressivity* for the purpose of this chapter as 'the communication of feelings, affect, or emotions'. Let us start with a natural language example before we turn to emojis: Brenda Manning (1990), when presenting a study of children who were prompted to self-talk while working on assignments, cites the utterance (1). The word *yay* in (1) is traditionally classified as an *interjection*, as defined by Ameka (1992:105): a part of speech that can form an utterance by itself and generally cannot be syntactically integrated into another utterance (see also Norrick 2009, Goddard 2014, Riemer 2014, Sauter 2014, amongst others). Foolen (2016:479) summarizes the standard approach to the semantics of interjections with the following statement: "Emotional interjections are the prototype of expressive function words." Accordingly, *yay* in (1) serves to express a positive feeling, which we infer to be connected to the accompanying statement (i.e., *I am happy that there are only two more to go*). See also Chapter 24: Expressivity and Interjections.

(1) Yay, only two more to go!

In 2021, a reader may notice two things. First, (1) could easily be a message sent from one person (henceforth: the *author*) to another person (the *recipient*) by means of an instant messaging service. Second, and more importantly, when typing the word *yay*, the predictive text feature on the author's smartphone may suggest to replace *yay* with one of the three face emojis 😀, 😁 and 😃. This observation is anecdotal, yet important, since it reflects an intuitive equivalence of face emojis (😃) and interjections (*yay*), which many emoji users would agree on. This strongly suggests that face emojis serve an equally expressive purpose. Moreover, face emojis, like

[1] See https://home.unicode.org/emoji/about-emoji/ (last accessed on 1st October 2021)
[2] Emojipedia lists 42 different platforms as of 2nd December 2021: https://emojipedia.org
[3] Emojis originated in the 1990s, where a set of 176 emojis created by Shigetaka Kurita in 1999 marks an important milestone in their development and 'evolution'.

interjections, can serve as utterances in their own right, (2), and are typically not syntactically integrated into another utterance, which further strengthens the analogy.

(2) A: How are you doing?
B: 😔

Naturally, the same conclusion does not apply to all emojis, e.g., the bus emoji (🚌) is unlikely to have a similarly expressive meaning.[4] At the same time, the set of expressive emojis plausibly includes, and is not limited to, a range of body parts (👍, 💪), heart-related emojis (💖, 💔), and temperature-related emojis (🔥 for 'excellent', 🥶 for 'cool'). Looking at *emojitracker.com*, a website that monitors real-time emoji use on the microblogging platform Twitter, we notice that 19 of the 20 most frequent emojis (counted on 1st October 2021) are expressive (comprising 13 face emojis, 3 heart emojis, and 3 body part emojis); see Section 2.2 for proposed diagnostics.[5] This suggests that expressivity is a main motivating factor in emoji use.

In this chapter, we explore the nature of expressive emojis from a linguistic angle. Section 2 circumscribes the set of emojis that qualify as expressive. Section 3 probes expressive emojis from the perspective of Potts's (2007) seminal text. Section 4 addresses the current debate between lexicalist approaches to emojis (e.g., Grosz et al. 2021a, 2021b) and picture-based approaches to emojis (e.g., Maier 2021). Finally, Section 5 briefly addresses the projection behavior of emojis in light of a view where emojis are digital counterparts of gestures and facial expressions.

2. Types of emojis

In Section 1, we have already seen that there are expressive emojis (😀) and non-expressive emojis (🚌). Since this chapter is only concerned with the expressive variant, there are two questions that need to be asked. First, are there sub-classes of expressive emojis, and, second, how do we tease apart expressive emojis from non-expressive ones?

2.1 Sub-classes of expressive emojis

Much progress in classifying face emojis with regards to their emotive/affective impact has been made in food research, such as Jaeger et al. (2019) and Sick et al. (2020a, 2020b). Jaeger et al. classify 33 face emojis with regards to the valence-arousal model (see, e.g., Russell 1980); they determine, for instance, that 😀 and 😍 are at the positive extreme of the valence scale, while 😠 and 😩 are at its negative extreme; by contrast, emojis such as 😐 and 😑 are neutral in terms of valence. This crucially does not imply that, say, 😐 is non-expressive, as it can still be used to

[4] For a recent discussion of object-denoting emojis and how they relate to words that have a similar meaning, or sound like the meaning of the emoji ('in the 🌴 of her hand'), see Scheffler et al. (2022).

[5] The only non-expressive emoji among the 20 most frequent emojis is the recycling symbol (♻️), which is conventionally associated with *retweeting*, i.e., the forwarding of another user's message.

express mild irritation;[6] moreover, emojis of neutral valence may, once again, have a natural language counterpart in the interjection *meh* (see Section 2.2 on the relevance of an interjection counterpart). On the arousal axis (from 'calm' at one extreme to 'excited' at the other), Jaeger et al. establish that 😍 is the most excited positive face emoji in their sample (with 😱 the most excited negative one), whereas 😴 is the least excited of all face emojis that they surveyed.

A further relevant criterion in sub-classifying expressive emojis may be the distinction between 'mirative' surprise-related emojis (😯) and evaluative emojis (😀/😩). This distinction tracks the natural-language distinction between adverbs such as *surprisingly*, on the one hand, and *fortunately/unfortunately*, on the other. An interesting question with regards to surprise-related emojis concerns the differences between, say, the 'hushed face' 😯 and the 'astonished face' 😲. Do these highly similar emojis only differ in their degree of expressiveness, or are there different semantic nuances that are associated with them? (Note that labels such as 'hushed face' and 'astonished face' are the official Unicode labels as of 1st October 2021; these labels do not necessarily reflect the actual meaning or use of the emojis.)[7]

2.2 Diagnosing expressivity in emojis

At this point, a reader may have reached the conclusion that face emojis are expressive, while non-face emojis are not expressive. Crucially, however, there are face emojis that are not as clearly expressive, such as the 'face with medical mask' emoji 😷; prior to 2020, this emoji mostly communicated that the author was physically sick (e.g., 'I can't train today 😷'), which, in 2020, shifted to a use where it symbolizes the activity of wearing a face mask (e.g., 'be careful 😷'); both meanings may be non-expressive in the relevant sense. At the same time, the range of expressive emojis expands beyond face emojis, to include heart emojis (e.g., 💖) and body part emojis (e.g., 👍). Finally, some emojis may have a double function, exhibiting both an expressive use and a non-expressive use; an example of such an ambiguous emoji is the 'flexed biceps' 💪, which can have an expressive meaning (≈ 'cool, excellent') or a non-expressive meaning (≈ 'participating in strength training').

In this section, I sketch three initial tests for classifying an emoji as expressive; none of them are perfect, so false positives and false negatives are to be expected. However, they can be used as a first battery of tests to be applied to a given emoji.

(3) Classify an emoji as expressive if …
   a. *the interjection test:* its effect is preserved when it is switched with a suitable emotive interjection word.
   b. *the food-item test:* its combination with a food-denoting expression communicates an evaluation of the food item.

[6] See https://emojipedia.org/neutral-face/ (last accessed on 1st October 2021).
[7] For more information on the Unicode labels, see also https://emojipedia.org – Recent changes in the labels involve the relabeling of the 😡 emoji on *Emojipedia* from 'pouting face' to 'enraged face'.

c. *the intonation test:* its contribution resembles the contribution of emotive intonation in speech.

First, when we try to diagnose an emoji as expressive or non-expressive, the analogy to interjections can be used as an informal crutch, (3a): if an emoji conveys a meaning that is also found in an emotional interjection, then we can straightforwardly label it as expressive. For instance, the negatively valenced interjection *ouch* may have a counterpart in the 'persevering face' emoji 😣, and the surprised interjection *wow* can be mapped to the 'hushed face' emoji 😯. The semantics of interjections has recently been in focus of Rett (2021), who classifies *alas* as an 'emotive marker' and treats it on a par with *unfortunately* (see also Grosz et al. 2021b for discussion). Notably, interjections may not have a uniform semantic (and syntactic) behaviour, as demonstrated by McCready (2009), who shows that English *man* in its interjection use (*man it's hot!*) comes in two varieties, one of which is integrated into the accompanying sentence, whereas the other is not. This suggests that, while the identification of face emojis and interjections that is proposed as a test in (3a) serves as a useful heuristic, it does not hold explanatory value by itself. In Section 3.2.3, we see that the equivalence between emojis and interjections breaks down once we look at their behaviour more carefully.

As a second test, taking our cue from the food research literature, we observe that the combination of an expressive emoji with a food expression will often convey an evaluation of the food item, as illustrated in (4), which is not the case for non-expressive emojis, as shown in (5). This diagnostic, as stated in (3b), is presumably parasitic on the perspective dependence of expressive emojis (Section 3.2.2), i.e., they share properties with predicates of personal taste such as *tasty* and *disgusting* (see, e.g., Lasersohn 2005, Kaiser 2015, and Kaiser & Herron Lee 2017, 2018). What this diagnostic also shows is that expressivity is not 'absolute': non-expressive emojis can be coerced into an expressive reading, e.g., if a reader knows that the author absolutely loves football (⚽), or Italian food (🇮🇹), then the reader may draw inferences from these emojis that are similar to the ones in (4b), thus reinterpreting these emojis as expressive; similar observations have been made with regards to epithets (see Patel-Grosz 2014:91), where, for instance, the non-expressive word *teacher* can be construed expressively (cf. the German word *Oberlehrer* 'senior primary school teacher', which in the 20th century acquired the expressive reading 'smart-ass'). To outline some limitations of this diagnostic, we observe that it works for positively and negatively valenced emojis, but not necessarily for the more 'epistemic' ones (e.g., the surprise-related emojis 😮, 😯, or 😲).

(4) *expressive emojis*
   a. spinach dumplings 😁/💪/❤️ ⇝ the author likes spinach dumplings
   b. spinach dumplings 😠/👎/💔 ⇝ the author dislikes spinach dumplings

(5) *non-expressive emojis*
   spinach dumplings ⚽/🇮🇹/🚌/🍝 ↛ the author (dis)likes spinach dumplings

Finally, face emojis also seem to assume the role of non-segmental features of natural language, such as intonational tunes (see Pierrehumbert and Hirschberg 1990), which we can use as our third test, (3c). An explicit demonstration of intonation-like emoji use can be found in a popular science opinion piece by Alex Hern, published in the *Guardian* on 23rd July 2019, as cited in (6).[8] In Hern's examples, the face emoji seems to contribute meaning equivalent to that of an intonational tune, which not only adds affective 'tone' (e.g., whether the author feels negatively or positively about the recipient or the current situation), but also co-determines the speech act conveyed by the underspecified imperative (see Kaufmann 2012:169); in (6a), the emoji triggers a threatening interpretation of the imperative, whereas the emoji in (6b) rather amounts to an invitation; these two readings may correlate with what Kaufmann (2012) dubs a COMMAND (in (6a)) or a REQUEST (in (6b)). We can use minimal pairs of the type in (6ab) to detect expressivity in emojis; if a given emoji acts as a substitute for an emotive intonational tune, then we can classify it as expressive.

(6) a. Come here please 😠
b. Come here please 😍

The observed connection between face emojis and intonation is not entirely surprising, since face emojis are, after all, stylized pictures of facial expressions (see, e.g., Russell & Fernández-Dols 1997, Fernández-Dols & Russell 2017 for the rich literature on this topic). Facial expressions have been connected to intonation both in sign languages and in non-signed (spoken) languages. There is a particularly rich body of work on the realization of intonation by virtue of facial expressions in sign languages (e.g., Reilly et al. 1990, Nespor and Sandler 1999, Wilbur 2000, Sandler 2005, Dachkovsky and Sandler 2009). For a representative paper on facial expressions and intonation in two non-signed languages, Catalan and Dutch, see Sendra et al. (2013). See also Chapter 31: Expressivity and Sign Languages, and, on the topic of intonational tunes, Chapter 18: Expressivity and Prosody/Suprasegmental Phonology.[9]

3. Emojis through the lens of expressive semantics

As outlined by Potts (2007), Gutzmann (2013), Foolen (2016), and McCready (2021), among many others, a large body of work on expressivity originated with Kaplan (1999). We can now proceed by relating emojis to this research tradition, building in particular on Potts (2007) and Gutzmann (2013). In doing so, we will gloss over another view of expressivity, which goes back to Ogden & Richards (1923:125) and also subsumes predicates of personal taste under the the notion of expressives (see

[8] https://www.theguardian.com/commentisfree/2019/jul/23/emojis-happy-talking-face-tone-clarity-text-conversations (last accessed 5th Oct 2021)

[9] It is worth emphasizing that research on expressive meaning in digital communication also concerns features outside of emojis such as punctuation and capitalization, which often also assume a role similar to that of intonation in speech (see Dresner & Herring 2010:253, Vandergriff 2013, and Scott & Jackson 2020). An important question is how these other means of expression interact with emojis.

Riemer 2013:11). This choice may not be entirely innocent, since the food research literature, in particular, suggests that face emojis can be used quite similarly to predicates of personal taste such as *tasty* (😋) or *disgusting* (🤮) (see Sick et al. 2020a, 2020b), which also relates to our second diagnostic for expressivity in Section 2.2, (3b). However, it is justified by the fact that face emojis tend to be utterance-replacements, quite similar to interjections (see Section 1), whereas prototypical predicates of personal taste are syntactically integrated into sentences, often being adjectival or verbal in nature.[10]

3.1 Classifying emojis in the landscape of expressive meanings

Gutzmann (2012, 2013, 2015) views expressive meaning as part of a broader category that he describes as 'conventional non-truth-conditional meaning' and which he proceeds to label *use-conditional content* (building on Recanati 2004). A linguistic object that contributes such content is considered a *use-conditional item*, short: *UCI*. The range of UCIs is broader than the range of expressive items discussed by Potts (2007) in his seminal work, including UCIs at the word level (e.g., swearwords, interjections, slurs), above the word level (e.g., unexpectedness intonation, verum focus), and below the word level (e.g., expressive diminutive marking). Importantly, for our purposes, Gutzmann proposes five analytical classes of UCIs. As a preview for readers familiar with his work, we will find that expressive emojis cover at least two classes: while they can largely be classified as *expletive UCIs*, some of them are *isolated expletive UCIs*, while others are *functional expletive UCIs*. We now proceed by defining these terms.

Gutzmann's first criterion for classifying UCIs is dimensionality. UCIs that only contribute use-conditional meaning are labeled as *expletive* (a term due to Cruse 2004:57), which is illustrated by the epithet *idiot*. By contrast, UCIs that contribute both use-conditional and truth-conditional meaning are labeled as *mixed* (a term from McCready 2010); Gutzmann illustrates this for the ethnic slur *Kraut*, a historical insult for Germans, which is truth-conditionally synonymous to the noun *German*, while making the use-conditional contribution that the speaker dislikes Germans.

Expressive emojis that accompany the text in a message largely pattern like interjections, which are a prototypical case of expletive UCIs (see Gutzmann 2013:6). To illustrate, (7) is an emoji variant of (1); there is no evidence for any truth-conditional contribution made by the emoji.

(7) only two more to go 😀

Word-replacing (*rebus*) uses may differ, as an emoji that replaces a word will by default inherit the properties of that word (see also Scheffler et al. 2022). In example (8), the message-medial kissing face emoji 😘 replaces the noun *kiss*, and it is likely to just make the same meaning contribution that this noun would make. As discussed,

[10] See Na'aman et al. (2017) and Scheffler et al. (2022) for the discussion of emojis that have a *rebus* use, where they replace words in a sentence; such rebus uses are generally rare and do not reflect how emojis are generally used in digital communication; see Donato and Paggio (2017:122).

rebus uses are comparatively rare, and will thus be ignored for the rest of this chapter. Note that the message-final emoji 😊 in (8) falls in line with examples such as (7), where the emoji only makes a use-conditional contribution.

(8) A 😘 and hope to see you soon 😊 (Sampietro 2016:103)

The second criterion for classifying UCIs is functionality, i.e., whether they take an argument (in which case they are *functional*) or not (in which case they are *isolated*, a term from Potts 2005:65). Linguistic objects can be ambiguous between these two readings. For instance, Gutzmann (2013:5-6) argues that *damn* is a functional expletive UCI when used as an attributive adjective (e.g., *this damn town*), but an isolated expletive UCI when used as an interjection (e.g., *Oh, damn!*). In the attributive adjective case, *damn* operates on the modified noun phrase and conveys a negative attitude towards its referent; in the interjection case, *damn* use-conditionally conveys an emotive state without taking a truth-conditional argument. For (7), both analyses are possible, as discussed by Grosz et al. (2021b); to see this, let us review (7) in terms of Gutzmann's (2013:5) informal fraction notation (see also Maier 2021).

The fraction notation places use-conditional meaning above a horizontal line, whereas truth-conditional meaning is placed beneath it. An *isolated expletive* analysis in which face emojis lack an argument is illustrated in (9). This corresponds to Gutzmann's (2013:7) own analysis of an interjection like *ouch*, and it maps onto Grosz et al.'s (2021b) "independence" analysis of face emoji meanings.[11]

(9) *face emoji as isolated expletive UCI*

$$\text{only two more to go } 😀 = \frac{\text{I'm happy}}{\text{there's only two more to go}}$$

By contrast, (10) is an analysis where the emoji takes a propositional argument (here: the truth-conditional content of the accompanying text) and comments on this argument. This corresponds to Rett's (2021) analysis of an interjections like *alas*, and it maps onto Grosz et al.'s (2021b) "dependence" analysis of face emoji meanings. Gutzmann (2013:12,20) presents a similar *functional expletive* analysis, not for interjections, but for UCIs such as the German discourse particle *ja*, and for the contribution of verum focus.

(10) *face emoji as functional expletive UCI*

$$\text{only two more to go } 😀 = \frac{\text{I'm happy that there's only two more to go}}{\text{there's only two more to go}}$$

The analyses in (9) and (10) are two competing analyses for the same example, namely example (7). Grosz et al. (2021b) argue that there are good reasons to allow

[11] Grosz et al. (2021b) use the terms *independence* and *dependence* differently from Potts (2007) and Gutzmann (2013); in the remainder of this chapter, only the usage from Potts will be relevant.

for both analyses. On the one hand, there are some cases that only make sense with an independence analysis; one such example is given in (11) (a naturally occurring example from Twitter[12]), where a functional rendering would presumably predict the reading 'I'm sad that I hope you're ok', which is clearly deviant and not intended.

(11) *face emoji as isolated expletive UCI*

$$\text{I hope you're ok 😞} = \frac{\text{I'm sad}}{\text{I hope you're ok}}$$

On the other hand, there are cases that strongly favor a functional expletive analysis. While Grosz et al. (2021b) focus on positively and negatively valenced emojis (😀/☹️), the argument for an emoji commenting on truth-conditional content can be made most strongly for message-medial 'face with rolling eyes' emojis, as shown in (12), a naturally occurring example from Twitter that was first discussed in Grosz, Kaiser & Pierini (2020). Here, the emoji comments on the referent associated with the specific indefinite *somebody*; we will come back to such examples in Section 5.

(12) Somebody 🙄 has me watching Money Heist. [twitter]

(13) *face emoji as functional expletive UCI*

$$\text{Somebody 🙄 has me watching Money Heist.} = \frac{\text{I resent the person who has me watching M. H.}}{\text{somebody has me watching M. H.}}$$

We thus arrive at the interim conclusion that expressive emojis are best classified as expletive UCIs (and not mixed UCIs), but there is evidence that some of them are isolated expletive UCIs, (11), whereas others are functional expletive UCIs, (13).[13]

Linguists interested in the semantics of emojis will often raise the question of whether there are linguistic objects that count as natural language counterparts of emojis; in this chapter, a reader will by now be primed to view interjections (*yay*, *alas*, etc.) as those very objects. Interestingly, however, as mentioned in connection with example (6), emojis also relate to intonational tunes, plausibly due to the connection between facial expressions and intonation. This is not inconsequential,

[12] Research on social media text is relatively new, raising questions with regards to ethics and privacy (see, e.g., Ayers, Caputi, Nebeker and Dredze 2018, Tatman 2018). This chapter omits user names and URLs in order to ensure anonymity; the examples themselves are unmodified in order to preserve their linguistic integrity. The study obtained approval from the Norwegian Centre for Research Data (NSD), reference number 414881. Subsequent Twitter examples are marked with a [twitter] superscript.

[13] In addition to the four classes that emerge from crossing the *expletive/mixed* distinction with the *isolated/functional* distinction, Gutzmann (2013) introduces the fifth class of *shunting UCIs* (building on McCready 2010). Shunting UCIs are a sub-cass of functional UCIs, which take a truth-conditional argument and yield a meaning that is exclusively use-conditional. There no evident candidates of expressive emojis that classify as shunting UCIs. However, there is precedent for shunting UCIs in digital communication, as discussed by Bücking & Rau (2013), who discuss forms such as German `*schluck*` (the stem form of the verb *schlucken* 'gulp' surrounded by asterisks) in web-based chats; this construction conveys that *the author is acting as if performing the action gulping* at the level of use-conditions, while lacking any truth-conditional content (see Gutzmann 2013:25-26).

since intonational tunes themselves can be UCIs, as discussed by Gutzmann (2013:16-21), who (in fn. 20) highlights the idea, attributed to Dwight Bolinger by Ladd (1990:806), that intonation quite generally encodes emotion. In other words, the question of linguistic counterparts of emojis is far from settled: interjections are one candidate, but intonational tunes are another candidate. Possibly, both answers are partly right, in that the behavior of both interjections and intonational tunes overlaps with that of face emojis. Nevertheless, the most plausible approach is one where face emojis are simply a type of expressive in their own right, which neither fully correspond to interjections, nor to intonational tunes, or any other natural language expressive for that matter (see Section 3.2.3 for further discussion). This should not surprise a reader, since different types of expressives don't transparently map onto one another, and sets of expressives (such as the set of interjections) are often more heterogeneous internally than we may initially expect (as in the case of McCready's 2009 *man*, briefly discussed in Section 2.2, which has two uses that are not necessarily shared by all other interjections).

3.2 Exploration of the expressive properties of emojis

In his seminal paper on the 'expressive dimension', Potts (2007) proposes six properties associated with natural language expressions that encode expressive meaning. Given that expressives exhibit Potts's properties to a varying extent (see Gutzmann 2013, McCready 2021), it is crucial for a study of any given expressive emoji to inquire whether it shares some or all of these properties. Potts (2007:166-167) labels the six properties as follows: *independence*, *nondisplaceability*, *perspective dependence*, *descriptive ineffability*, *immediacy* and *repeatability*. Section 3.2.2 groups nondisplaceability, perspective dependence and immediacy together, since these three properties are connected in that they have overlapping effects.

Note, at this point, that the set of expressive emojis is highly heterogeneous; it would thus be unreasonable to propose properties that are meant to hold for *all* expressive emojis, including face emojis (🧐), hearts (💔), and body parts (👏). In fact, even the set of face emojis is heterogeneous enough (see Section 2.1) to make such a goal unattainable within the scope of a handbook article. Sections 3.2.1-3.2.4 will discuss different face emojis in connection with different properties; the selection of face emojis that are discussed derives from whichever emojis are understood better than others with regards to a particular property at the time of this chapter's writing. Section 3.2 should thus serve as a 'starter kit' for future emoji researchers, outlining the questions that need to be asked and which can be applied in the future study of a given face emoji to map out its basic properties.

3.2.1 Emojis and Pottsian independence

The first of Potts's (2007:166-169) properties is given in (14). While this property of expressives is often considered their most important one, it can also easily be misunderstood, since notions such as *dimension of meaning* and *separate* are underspecified. Gutzmann (2013) operationalizes *Independence* with the statements in (15), treating expressive content as a subset of use-conditional content. An important

caveat is that (15a-c) are properties that use-conditional items share with presupposition triggers; by contrast, (15d) is the single property that teases apart the two types of content.

(14) *Independence:* Expressive content contributes a dimension of meaning that is separate from the regular descriptive content. (Potts 2007:166)

(15) *Operationalizing Independence* (Gutzmann 2013:37)
   a. Use-conditional content cannot be negated by ordinary negation.
   b. Use-conditional content cannot be denied directly in dialogue.
   c. Use-conditional content is not part of what is questioned by an interrogative.
   d. Use-conditional content does not affect the truth-conditional content if not fulfilled.

We can now proceed to show that emojis share each of the properties in (15a-d) and thus exhibit the Pottsian *Independence* property.

3.2.1.1 Independence test 1: emoji content cannot be negated by ordinary negation

Let us start with property (15a): consider example (16); here, the adverb *disgustingly* in each of B's statements, (16bc), is negated by sentential negation.[14] This is entirely impossible for the 'nauseated face' emoji (🤢), as shown in (17bc), which is built on (16bc) by replacing the word *disgustingly* with the emoji.[15] (See also footnote 12 in Grosz et al. 2021a on expressive emojis and negation.) The emoji thus exhibits property (15a).

(16) a. A: Lex winked at me disgustingly.
   b. B_1: Lex didn't wink disgustingly - he winked knowingly.
   c. B_2: Lex winked at you, but he didn't wink disgustingly.

(17) a. A: Lex winked at me 🤢
   b. B_1: # Lex didn't wink 🤢 - he winked knowingly
   c. B_2: # Lex winked at you, but he didn't wink 🤢

3.2.1.2 Independence test 2: emoji content cannot be denied directly

Example (18) is modeled after an example in Gutzmann (2013:35) (who builds on Jayez & Rossari 2004), and documents (15b), i.e., that face emojis also cannot be directly denied in a conversation (by a response that starts with a simple *no*). While the truth-conditional content of (18a) can be denied by uttering (18b), it is impossible

[14] The example is based on the naturally occurring example of *wink disgustingly* found in the Corpus of Contemporary American English; FIC: Detroit Rock City, 1999.
[15] There is an overarching question of whether all face emojis behave uniformly, e.g., does the 'nauseated face' emoji (🤢) have exactly the same properties as the 'angry face' emoji (😠) or the 'face with rolling eyes' (🙄). None of the discussion in this chapter depends on uniformity of all face emoji, and the question of differences between emojis constitutes an interesting domain of research.

to utter (18c) in order to deny the use-conditional content that is contributed by the emoji. (See also Grosz et al. 2021b:48.)

(18) a. A: Webster is sleeping 😊
b. B_1: No, he isn't.
c. B_2: # No, you're not happy about it.

3.2.1.3 Independence test 3: emoji content is not questioned by an interrogative

For the inability of expressive emojis to be questioned, (15c), we contrast (19) and (20) (modeled after Gutzmann 2013:36). In (19a), the quality of singing (*badly*) is the main point of A's question; therefore, B can negate the quality of singing by answering *no* in (19b). This is impossible for emoji content, as shown in (20ab); emoji content can be challenged, but this has to be done indirectly, as given in (20c).

(19) a. A: Did Lex sing badly?
b. B_1: No, but he sang.
c. B_2: # Yes, however, it wasn't bad.

(20) a. A: Did Lex sing? 🤢
b. B_1: # No, but he sang.
c. B_2: Yes, however, it wasn't bad/disgusting.

3.2.1.4 Independence test 4: violated emoji content does not affect truth conditions

Finally, use conditional content does not affect truth conditions, (15d); this is the property of use-conditional content that differentiates it from presuppositonal content. If the presuppositions of a sentence are unmet, this generally affects the truth values of the sentence, e.g., by entailing that the sentence lacks a truth value (Frege 1892, see Beaver et al. 2021 for discussion). The claim in (15d) is that unsatisfied use-conditional content does not have such an effect. Take the verb *know* as a representative example, which usually presupposes its complement proposition to be true (Kiparsky & Kiparsky 1970; see Beaver et al. 2017 for recent discussion). In context (21a), the factive presupposition of (21b) is false; the general view on such examples is that A's statement in (21b) lacks a truth value due to its presupposition failure; this is made explicit in (21c).

(21) a. *Context C: the sky is solidly covered by rain clouds, there is no trace of sun*
b. A: Sam knows that it is sunny. (*presupposes:* it is sunny [= false in C])
c. truth conditions: undefined

The same issue does not arise in (22ab). Here, even though the contribution of the emoji is infelicitious, A's statement in (22b) is true if it is sunny, and false if it is not, as stated in (22c); the truth-conditions are unaffected by the falsity of the emoji content. This is the decisive difference between use-conditional content, as

represented by the emoji in (22b), and presuppositional content, as triggered by *know* in (21b).

(22) a. *Context C: everybody knows that, right now, A is happy that it is sunny*
b. A: it is sunny ☹ (*emoji content:* I am unhappy about it [= false in C])
c. truth conditions: true iff it is sunny

We can conclude that face emojis (or at least the subset of face emojis that we have looked at) exhibit all of the properties in (15) and thus exhibit Pottsian *Independence*.

3.2.2 Nondisplaceability, perspective dependence, and immediacy in emojis

This section addresses Potts's second, third and fifth property of expressives, as they turn out to be connected. Their definitions are given in (23)-(25), cited from Potts (2007:166-167). What unifies them is the intuition that a speaker/author (= (23)), *inflicts* expressive meaning onto the context (= (24)) simply by uttering it (= (25)).

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

(24) *Nondisplaceability:* Expressives predicate something of the utterance situation.

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

We can now turn to the manifestation of these properties in expressive emojis.

3.2.2.1 Nondisplaceability and immediacy in expressive emojis

Nondisplaceability, (24), is directly connected to immediacy, (25), and refers to the observation that expressive content is tied to the utterance situation even when it is surrounded by material that is in the scope of operators such as past tense, verbs of saying, attitude predicates or modal operators, or in a conditional antecedent.[16]

Example (26) shows that face emojis exhibit Potts's nondisplaceability (via (26b)) and immediacy (via (26c)). After sending the message in (26a), it seems decidedly odd to follow up with the message in (26b), as it contradicts the author having the emoji-related attitude in the here-and-now; this provides evidence for nondisplaceability, since the past tense marking in (26a) could be expected to give rise to a reading where the emoji meaning is shifted to a past evaluation time (see Potts 2005:159, Potts 2007:171). Moreover, adapting an example from Gutzmann (2013:45), the deviance of (26c) in connection with (26a) provides evidence for

[16] In terms of *projection behavior* (see, e.g., Beaver et al. 2017, Schlenker 2019, among many others), we can say that expressive content projects out of all embedded contexts, see also Section 5. In terms of the distinction between *holes*, *filters* and *plugs* (Karttunen 1973), expressive content is neither filtered nor plugged.

immediacy. While (26b) attempts to unsuccessfully *shift* the time of expressing negative feelings, (26c) attempts to (equally unsuccessfully) *deny* the expression of negative feelings altogether.

(26) a. I overslept yesterday 😡
b. *Nondisplaceability of emoji content*
… # But I'm not upset about it now, because I woke up on time today.
c. *Immediacy of emoji content*
… # But I {am not expressing / did not express} negative feelings towards oversleeping.

To see that this is due to the emoji, rather than some other confounding factor, consider (27a-c), which are entirely coherent; here, (27a) triggers the world-knowledge-based implicature that *oversleeping is upsetting*, which is then denied in (27b) and (27c).

(27) a. I overslept yesterday.
b. … But I'm not upset about it because I woke up on time today.
c. … But I {am not expressing / did not express} negative feelings towards oversleeping.

There are candidates for counterexamples to nondisplacement and immediacy. Example (28) is cited from a Twitter post, and seems to be a clear illustration of temporally displaced emoji content. The 'face screaming in fear' emoji (😱) is tied to a range of feelings related to excitement, and may well convey horror or fright in this particular example, in line with the description in its Emojipedia entry.[17] However, the context makes clear that the author does not experience (or pretend to experience) these emotions in the utterance context.

(28) I woke up my parents as a little kid because a tom cat outside was making those noises. I was convinced a lost kid was outside. 😱 [twitter]

So, (28) is a clear candidate for displacement and non-immediacy: the 😱 emoji seems to rather convey: "on that day, as a little kid, I was horrified and frightened". Of course, a type of quotative demonstration is quite plausible for the emoji use in example (28) (see also Harris & Potts 2009), where the author uses the 😱 emoji to re-enact/demonstrate the situation that they are describing; see Davidson (2014) for a recent analysis of quotative demonstration. From such a perspective, the properties of nondisplacement and immediacy could be maintained in light of (28).[18]

[17] https://emojipedia.org/face-screaming-in-fear/

[18] Another potential challenge for immediacy may emerge from mixed-emotion examples, such as (i.), where a negatively valenced emoji (😒) and a positively valenced emoji (😊) accompany the same text. This may seem to contradict a claim by Potts (2007:179), which he labels *expressive consistency*, and which states that expressive settings (i.e., a positive and a negative attitude towards someone or

3.2.2.2 Perspective dependence in expressive emojis

Turning to perspective dependence, the general intuition is that face emojis take the author as their perspective holder, as would be expected if they are expressives, based on the discussion in Potts (2007). In line with (23), we also expect that the perspective holder can shift under the same conditions that give rise to shifted perspective with other expressives. Kaiser & Grosz (2021) provide experimental evidence that corroborates these expectations; (29a-c) are cited from their stimuli. Example (29a) contains the object-experiencer verb *annoy*, whereas (29b) contains the subject-experiencer verb *admire*. In both cases, the experiencer (Adrian in (29a), Daniel in (29b)) can be understood to be the attitude holder of the face emoji. By contrast, (29c) lacks an experiencer, and the author is interpreted as the default attitude holder. This is in line with the findings of Amaral et al. (2007), Harris & Potts (2009), Lasersohn (2005), Kaiser (2015), and Kaiser & Herron Lee (2017, 2018) for other perspective-sensitive expressions. (See also Chapter 27: Expressivity and Perspectivity).

(29) a. richie annoyed adrian 😑 ⇝ attitude holder: Adrian
b. daniel admires aaron 😊 ⇝ attitude holder: Daniel
c. abigail brought dessert to emily 😏 ⇝ attitude holder: the author

We can thus conclude that face emojis exhibit Potts's properties of nondisplaceability and immediacy to a certain extent, (26), but that this may not be absolute, (28), unless we allow for quotative demonstration uses of emojis. Moreover, their perspective dependence closely mirrors that of expressives in natural language, (29).

3.2.3 Descriptive ineffability of emojis

We now turn to two properties of expressives that are generally considered controversial – or even wrong (see McCready 2021:2-6). The first of these is descriptive ineffability (this Section), followed by repeatability (Section 3.2.4). Descriptive ineffability was originally conceived of as the lack of satisfaction that native speakers experience when they attempt to paraphrase an expressive, (30).

(30) *Descriptive ineffability:* Speakers are never fully satisfied when they paraphrase expressive content using descriptive, i.e., nonexpressive, terms. (Potts 2007:166)

Geurts (2007:211) was the first to point out that this is simply not a property of expressives, but a property found widely in natural language, including simple nouns such as *house* (Gutzmann 2013:42), for which most native speakers would find a paraphrase such as 'a building for habitation' (Oxford English Dictionary [OED])[19] to

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something) cannot be mixed. There is little existing research on examples like (i.), but an explanatory analysis may assume either that the emojis communicate a rapid change in emotion (from worried to happy), or that they comment on different propositions (see Grosz et al. 2021b).

i. Going a bit grey on the hair now. 😟😊 [twitter]

[19] "house, n.1 and int.". OED Online. September 2021. OUP. (Accessed November 27, 2021.) https://www.oed.com/view/Entry/88886?rskey=xR4gvY&result=1&isAdvanced=false

be rather unsatisfactory. Gutzmann (2013:43-44) proposes to 'save' the underlying intuition behind descriptive ineffability by emphasizing that the way in which we communicate differs. Adapting a statement from Kaplan (1999), Gutzmann (2013:43) states that "use-conditional content *expresses* or *displays*, while truth-conditional content *describes*". He thus proposes the modified definition in (31). Turning to face emojis, we observe that these are, in fact, ineffable expressions *par excellence*.

(31) *Descriptive ineffability (Gutzmann's version):* It is impossible to paraphrase use-conditional content using only truth-conditional expressions without changing the modus of expressing. (Gutzmann 2013:44)

Since emojis are not natural language objects, but rather 'little pictures' (cf. Maier 2021), we are not only facing the question of whether there are satisfactory *descriptive* paraphrases for a given expressive emoji, but the broader question of whether there are *any* satisfactory natural-language counterparts for a given expressive emoji. It can be argued that the answer is 'no', i.e., there are no natural language counterparts of face emojis that fully capture their expressive impact, regardless of whether we look at descriptive or expressive language. As a first piece of evidence, Sick et al. (2020b:8) find that more than half of 254 pre-adolescent participants in a survey chose the following option to explain why they use emojis: "they express something that normally cannot be described in words" (see also Sick et al. 2020a:4 for a parallel observation). We now explore this intuition in more detail.

3.2.3.1 Expressive emojis are not pictorial interjections – the limits of an analogy

Moving beyond meta-linguistic evaluations of the type provided by Sick et al. (2020a, 2020b), we can review our initial hypothesis (Section 2.2) that expressive interjections are natural language counterparts of expressive emojis. This hypothesis was corroborated by the observation that it is quite generally possible to replace an emotive interjection, such as *yay* in (32a), with an emoji, e.g., 😁 in (32b). Semantically, such a comparison is also supported by the fact that emojis and interjections share a large level of semantic underspecification; the interjection *yay* is defined disjunctively as "an exclamation of triumph, approval, or encouragement" by the OED,[20] while the emoji 😁 is described as follows in the Emojipedia:[21] "Often expresses a radiant, gratified happiness. Tone varies, including warm, silly, amused, or proud."

(32) a. Summer is here. That means ice cream season, yay. (CoCA corpus)[22]
b. Summer is here. That means ice cream season 😁

[20] "yay, int.". OED Online. September 2021. OUP. (accessed November 27, 2021) https://www.oed.com/view/Entry/243591?rskey=VHQwL7&result=2&isAdvanced=false
[21] https://emojipedia.org/beaming-face-with-smiling-eyes/ (accessed November 27, 2021)
[22] CoCA source information: **SPOK:** ABC News: Good Morning America; 2018 (18-06-23)

If face emojis were to be pictorial counterparts of natural language interjections, as motivated by the equivalence in (32a-b), then we would suspect that all instances of 😄 could also be replaced with the interjection *yay*. The issue of Potts-style descriptive ineffability in emojis, (30)-(31), would subsequently reduce to the issue of descriptive ineffability in interjections.

However, the emoji-interjection equivalence breaks down as soon as we look at the full distribution of face emoji, including accompanying text that is non-declarative. A particularly revealing example (also discussed in Grosz to appear) is the case of emojis that accompany polar questions, (33a), or *wh*-questions, (33b). While this use of face emojis is frequent and natural, interjections generally (with some exceptions) fail to accompany questions (see also Rett 2021); this is shown in (34ab) for examples where the interjection is integrated into the question, and in (35ab) for examples where the interjection forms a separate utterance. Some of the versions in (35ab) are more acceptable than the variants in (34ab), as indicated by the parentheses. However, none of the variants in (34ab) and (35ab) are equivalent to (33ab) in terms of the content that they communicate; the more acceptable variants in (35ab) require a full detachment of the *Yay* utterance from the question, which is not intuitively the case in (34ab).

(33) a. Did you miss me? 😄 [twitter]
b. What did you buy? 😄 [twitter]

(34) a. # Did you miss me, yay? / # Yay, did you miss me?
b. # What did you buy, yay? / # Yay, what did you buy?

(35) a. (#) Did you miss me? Yay. / (#) Yay. Did you miss me?
b. # What did you buy? Yay. / (#) Yay. What did you buy?

3.2.3.2 Expressive emojis do not have natural language counterparts

A skeptical reader may now wonder if interjections were a "red herring" to begin with, but it is easy to show that other options do not fare any better (and typically fare worse). To see this, consider the 'enraged face' emoji 😡 in (36a); in addition to its rendering with an interjection (*grr/boo*) in (36b), there is also an intuition that the emoji may make a similar contribution to the expressive modifiers *fucking/damn* in (36c) (see Grosz, Kaiser & Pierini 2021a). Finally, (36d) also seems to carry some of the expressiveness of (36a).[23] While these are certainly good candidates for further exploration, there are also clear limits. For instance, while face emojis span both positive and negative emotions (see, e.g., Jaeger et al. 2019), expressive modifiers are typically negative, i.e., there is no evident positive counterpart of *fucking* or *damn*, in that, for instance, *Sam's darling dog* (positive) is not equally expressive as *Sam's*

[23] The examples in (36) stem from an earlier version Grosz, Greenberg, De Leon & Kaiser (2021b), not included in the final version; (36d) was originally suggested to the authors by Masha Esipova (p.c.).

damn dog (negative).[24] This issue does not arise for (36d), since there are positive counterparts of *it's upsetting* (e.g., *it's exciting*, or *it's great*). But (36d)-style verbalizations of the emoji meaning won't capture the impact of an emoji either, as they are intrinsically descriptive rather than expressive; while the contribution of the emoji and the expressives in (36a-c) cannot be directly denied, the contribution of *it's upsetting* in (36d) can be, as summarized in (37).

(36) a. my order never arrived 😡
b. my order never arrived, grr/boo *interjection paraphrase*
c. my fucking/damn order never arrived *swearword paraphrase*
d. my order never arrived, it's upsetting *descriptive paraphrase*

(37) No, you don't find this upsetting. (# after (36a-c) / OK after (36d))

We can thus conclude that emojis are subject to a type of ineffability that goes beyond the descriptive ineffability that Potts (2007) originally intended. It is quite plausible that there are no natural language expressions, expressive *or* descriptive, that are fully equivalent to expressive emojis in every respect.

3.2.4 Repeatability

While the role of descriptive ineffability (Section 3.2.3) has often been questioned, repeatability as a property of expressives largely counts as refuted (e.g., in Gutzmann 2013 and McCready 2021). Potts's original statement of repeatability is given in (38). (See also Chapter 25: Expressivity and Intensification.)

(38) *Repeatability:* If a speaker repeatedly uses an expressive item, the effect is generally one of strengthening the emotive content, rather than one of redundancy. (Potts 2007:167)

Potts (2007) uses example (39) to illustrate the repeatability of the expressive *damn*. However, Geurts (2007) challenges this property on the basis that repeatability is also found with descriptive truth-conditional content, as in (40). Even more strikingly, it can be observed that many (if not most) expressive expressions lack the repeatability property. This is illustrated by (41), where the 'classic' expressives *ouch* and *oops* (from Kaplan 1999) can, in fact, not be repeated. Gutzmann (2013:47) thus concludes that repeatability is neither necessary nor sufficient for classifying an element as expressive.

(39) Damn, I left my damn keys in the damn car. (Potts 2007:182)

(40) David is very very very large. (Gutzmann 2013:46)

[24] See Foolen (2016:480) for a discussion of Boucher and Osgood's (1969) *negativity bias*, which assumes that negative emotive states take priority over positive emotive states.

(41) a. # Ouch! I've hit my thumb. Ouch! It was the hammer. Ouch!
b. # Oops! I forgot my keys. Oops! They are in the car. Oops!
(Gutzmann 2013:47)

Once again, what is remarkable about this conclusion is that expressive emojis are in fact a prime example of repeatable expressions, just like they exhibit the ineffability property. Moreover, emoji repetition is an emerging research area in its own right, displaying a range of different parameters to investigate. Based on studies by McCulloch & Gawne (2018) and Medlock & McCulloch (2016), Gawne & McCulloch (2019) observe that most sequences of two or more emojis in a naturalistic corpus are repetitions; such a repetition is illustrated in (42).

(42) What did they do? 😡😡😡 [twitter]

Gawne & McCulloch (2019) also coin the term *beat-related* emojis for examples in which emojis are not clustered at the end of a sentence, but spread out across the sentence, illustrated in (43) (see also Tatman 2017).

(43) WHAT 👏 ARE 👏 YOU 👏 DOING 👏 (Gawne & McCulloch 2019)

More recently, Esipova (2021) introduces the term *expressive beats* for this construction, and shows that even non-expressive emojis can be repeated in a similar way, thereby triggering an expressive effect; this can be illustrated for the 'snowboarder' emoji 🏂 in (44).

(44) GET 🏂 ME 🏂 ON 🏂 THE 🏂 SLOPES [twitter]

Beat-related face emojis exhibit non-trivial restrictions on their distribution. For instance, Tatman (2017) observes that they tend to follow words rather than precede words, which is why (43) lacks an emoji before *what*. Similarly, Grosz, Kaiser & Pierini (2022) focus on beat-related face emojis that only span parts of a message, as in (45), and observe that they are nearly always aligned with the right edge of the message. Examples like (46), where the beat-related face emojis are not right-aligned, possibly violate rules that govern the use of such emojis. Here, we need to differentiate between multiple repetitions, (46), and single repetitions, (47); Kaiser (2021) shows that examples of the type in (47) are attested in corpora and seem to imply a prosodic focus on the text surrounded by the emojis, which in this example would be the word *might*. (See Grosz et al. 2021a:355 for focus-marking uses of pointing emojis, e.g., 'they 👉 might 👈 think I like them'.)

(45) I keep accidentally reacting to ppls IG stories.
They might think I 🤢 like 🤢 them 🤢 [twitter]

(46) ?# They 🤢 might 🤢 think 🤢 I like them

(47) They 🤢 might 🤢 think I like them

Finally, we observe that authors who use beat-related face emojis seem to conceptualize the face emojis in a way that transcends the medium of written text. The example in (48) is a slightly modified and shortened version of an example found on Twitter (leaving the emoji use intact). In this example (and others like it that can be found on Twitter), the emojis only occur between the quotation marks, which surround text that was originally said out aloud rather than typed in the written modality. This suggests that the authors of such tweets conceptualize the face emojis as equivalent to facial expressions, transcending the medium of written text.

(48) when we were kids my mum always used to make a salad for dinner on Sunday and we'd always be like "where's 😡 the 😡 stew 😡" and now I understand her.

So far, Section 2 introduced expressive emojis as a phenomenon, and Section 3 reviewed the established properties of expressives with regards to such emojis. We now review two theoretical issues that pertain to the analysis of expressive emojis: whether emojis are lexical items or pictures (Section 4), and how emojis compare to gestures and facial expressions with regards to emoji-text interactions (Section 5).

4. Emojis – lexemes or pictures?

We now turn to a foundational question that concerns all emojis, including the expressive emojis that this chapter discusses: Is their semantics partly or fully based on conventions that govern their use within a given community of emoji users, i.e., are they *lexemes*, similar to natural language expressions? (Section 4.1) Or is their semantics purely iconic (resemblance-based), i.e., are they in essence 'little pictures'? (Section 4.2) Neither of these views would entail that emojis are a part of language, but they differ in the division of labour between semantics and pragmatics. The convention-based (*lexicalist*) analysis (Section 4.1) assumes a more fleshed out semantics that entails a more restricted role of pragmatics (see Grosz et al. 2021b), whereas the purely iconic (*pictorial*) analysis (Section 4.2) assumes a minimal semantics with a rich pragmatics (see Maier 2021). Note that the lexicalist analysis can also incorporate an iconic semantics; therefore, the term *iconic* will not be used to designate the pictorial analysis.

The formal notation in this section builds on Gutzmann's (2015) approach to expressive meaning. Specifically, Gutzmann treats expressive content as use-conditional content, which denotes by virtue of its felicity conditions. For the interjection *yay*, we can posit the use condition in (49a),[25] modeled after Kaplan's (1999) rendering of the meaning of *oops* (as discussed by Gutzmann 2015:16, Maier 2021:24). Correspondingly, the formal rendering of *yay* in (49b) is based on Gutzmann's (2015:19) analysis of *oops*. What is important is that expressive

[25] This analysis builds on the Wiktionary description, which is more simplistic than the description in, say, the Oxford English Dictionary (fn. 20): https://en.wiktionary.org/wiki/yay#Interjection

meanings in such a view are modeled as use-conditional content, (49a), and not as truth-conditional content. They thus serve as descriptions of the utterance context *c*, (49b), as opposed to descriptions of the world (or situation) of evaluation *w*.

(49) a. use condition: a use of 'yay' is felicitously uttered in *c* iff the speaker is happy in *c*
b. ⟦yay⟧ = {c | $speaker_c$ is happy in w_c}

4.1 Lexicalist approaches to face emojis

A lexicalist (convention-based) view essentially posits a semantics for expressive emojis that resembles the semantics of natural language expressions such as emotive interjections. However, there are different degrees to which such an analysis can incorporate iconicity. Grosz et al. (2021a) explore two different lexicalist analyses of face emojis, one that classifies as iconic, (50), and one that is symbolic, (51).

The first version, (50), incorporates an iconic semantics in the spirit of Greenberg (2021b:2-3), who defines iconic semantics such that the *form* of the sign (here: 😶) also occurs in its denotation, to the right of the equals sign. An iconic semantics of this type is rule-based, in that the meaning of every face emoji can be derived by replacing both instances of the place-holder 😶 with, say, the 'angry face' 😠, or the 'crying face' 😢. Even though it is iconic, the lexical entry in (50) is also convention-based in that the inclusion of an emotional attitude towards a target proposition *p* in the lexical entry (see Section 3.1) does not derive trivially from the iconic resemblance between a face emoji and a facial expression.[26]

(50) *Iconic Semantics for Face Emoji (based on Grosz et al. 2021a:349)*
For any face emoji 😶 ('face without mouth' as a **place-holder** for face emoji), and for any target proposition p:
⟦😶⟧(*p*) = {c | $author_c$ has an emotional attitude towards p in w_c that corresponds to a facial expression that resembles 😶}

Grosz et al. (2021a) contrast (50) with (51ab), which is symbolic (i.e., purely convention based) and lacks a similar iconic component; the rendering of the denotations in (51ab) is a simplified version of the description on Emojipedia.[27]

(51) *Symbolic Semantics for Face Emoji (based on Grosz et al. 2021a:350)*
For any target proposition p:
a. ⟦😠⟧(*p*) = {c | $author_c$ is angry about p in w_c}
b. ⟦😢⟧(*p*) = {c | $author_c$ feels moderately sad about p in w_c}

[26] With a slightly different definition of iconic semantics, one may even argue that the lexical entry in (50) should be classified as *semi*-symbolic and only *semi*-iconic (see also Schlenker & Lamberton 2021 for mixed meanings of this type in American Sign Language).
[27] https://emojipedia.org/angry-face/ and https://emojipedia.org/crying-face/ respectively.

Crucially, from the perspective of Maier (2021), which we turn to in section 4.2, both (50) and (51ab) are *lexicalist* in that they assume that emotive meanings are conventionally encoded in the lexical entry. This is clear in (51ab), where the lexical entry contains predicates such as *angry* or *moderately sad*, but it is also the case in (50), since it semantically encodes that face emojis communicate some emotional attitude or other towards a proposition.

4.2 Face emojis as pictures

Maier (2021) proposes that face emojis are semantically interpreted as little pictures (see also Danesi 2016 and Cohn et al. 2019). Using the formalism from Greenberg (2013, 2021a), he proposes a formal analysis that is summarized in (52a), which is informally rendered in (52b). (See also Chapter 57: Expressivity and Art / Pictures.)

(52) *Picture Semantics for Face Emoji (based on Maier 2021)*

a. For any face emoji 😶 ('face without mouth' as a **place-holder** for face emojis): $[\![😶]\!] = \{c \mid \Pi(w_c, v_c) = 😶\}$

b. *In words:* 'the picture 😶 is felicitously used in an utterance context *c* if an aspect of the world w_c looks like 😶 from a canonical viewpoint v_c using a stylized projection Π'

In Maier's system, the default canonical viewpoint v_c of face emojis is a viewpoint that faces the author of a message as they are typing the message. In other words, deploying a face emoji in a message communicates 'I look like this, as I am typing this message.' Perspective shifting as discussed in Section 3.2.2, example (29), would then involve a change of the viewpoint so that v_c no longer faces the author of the message, but the experiencer who is mentioned in the message and whose perspective is being assumed. The stylized projection function Π is the component of the analysis that maps, for example, any real-world facial expression of a smiling person onto the 'smiling face with smiling eyes' emoji 😊, regardless of real-world properties such as the gender of the person, their skin tone, their hair style, whether they wear glasses, etc.[28] In an adaptation of Maier's (2021:16) own words (originally discussing the car emoji), an emoji-related projection "specifies a fixed shape and then effectively maps every [facial expression of the same type] to that shape".

4.3 Comparison of the two approaches

The question of which approach has more explanatory adequacy is currently entirely open. The main difference comes down to the respective role of semantics *vs.* pragmatics and how they interface in the interpretation of emojis. We proceed by reviewing one challenge for each of these accounts.

A lexicalist view (as laid out in Section 4.1) posits a richer semantics, including a choice of whether emojis take a propositional argument, (53a), or are interpreted in

[28] More technically, Maier (2021:5) defines a geometric projection as "a recipe for turning a 3D scene into a 2D pictorial representation of that scene", based on Greenberg (2013, 2021a) and Abusch (2020).

isolation, (53b) – this is an empirical question, and not all emojis may exhibit the same properties in this respect.

(53) a. $[\![😠]\!](p) = \{c \mid \text{author}_c \text{ is angry about p in } w_c\}$
b. $[\![😠]\!] = \{c \mid \text{author}_c \text{ is angry in } w_c\}$

To complicate matters even further, there may be a third interpretation, in which the emoji comments on an individual, illustrated by (54a) with the analysis in (54b), in addition to further intepretations not included here (see also Grosz et al. 2021b). This is a challenge for the lexicalist view, as an approach that posits a single lexical entry for all uses of the same emoji clearly counts as more parsimonious.

(54) a. That man 😠😠😠 [twitter]
b. $[\![😠]\!](x) = \{c \mid \text{author}_c \text{ is angry at x in } w_c\}$

Of course, the flexibility of face emojis that is shown in (53)-(54) is not insurmountable, given that many natural language expressions exhibit a similar flexibility with regards to their semantic type; for instance, the word *cigarette* can refer to a physical object or to the eventuality of smoking such an object (Bücking & Maienborn 2019:6). Asher (2011, 2014), among many others, posits so-called *polymorphic types* to account for this flexibility; these could also be employed in the analysis of expressive emojis – and other emojis, such as the 'cigarette' emoji 🚬, which certainly shares the two readings of the word *cigarette*.

By sharp contrast, a picture-based approach (Section 4.2) assumes a highly minimal semantics for face emojis, where the meaning of 😠 essentially amounts to a picture of a heavily stylized angry facial expression; (55) is derived by simply slotting the relevant facial expression into the general rule in (52). The 'polysemy' challenge that arises for the lexicalist approach from (53)-(54) does not pose a challenge for the picture-based approach, since the connection between an emoji and the accompanying text is almost exclusively mediated at the level of pragmatics in such a view.

(55) $[\![😠]\!] = \{c \mid \Pi(w_c, v_c) = 😠\}$

Expressive emojis that are potentially outside of the purview of a picture-based approach include heart emojis (e.g., 💖) and face emojis that incorporate symbolic features (e.g., the 'zipper-mouth face' 🤐 and the 'money-mouth face' 🤑).

We can identify a challenge for a picture-based approach in conventional uses of expressive emojis that do not transparently derive from the facial expressions that they resemble. For a concrete example, Grosz & Scheffler (2021) discuss the distribution of the 'grinning face with smiling eyes' emoji 😄 and the 'beaming face with smiling eyes' emoji 😁, and argue that these face emojis seem to communicate different emotions even though they amount to pictures of nearly indistinguishable facial expressions. As argued by Fugate & Franco (2021), 😄 and 😁 map onto

identical action units (AU12+25+26+63) in the FACS system (Ekman & Friesen 1978, Ekman & Rosenberg 1997, Ekman et al. 2002), yet Grosz & Scheffler show that they differ in their semantic interpretation (with 😁 being perceived to be more ironic than 😁). This is a challenge for the picture-based view, as it is unclear how to set up pragmatic mechanisms that differentiate between 😁 and 😁 without explicitly making reference to usage conventions in line with the lexicalist view. Of course, this, too, need not be an insurmountable challenge; a proponent of a picture-based perspective could propose a projection function Π that maps 😁 and 😁 onto facial expressions in the real world that correspond to exactly the readings associated with the emojis. To determine the nature and limits of such a projection function, and how it interacts with pragmatics, would then be the main challenge to be solved.

To summarize, the strength of the lexicalist approach is that it predicts a semantic association between a given expressive emoji and a set of conventional meanings; by contrast, the strength of the picture-based approach is that it derives the extensive underspecification of expressive emojis. We can conclude that both approaches to emoji semantics have potential, and future empirical research is needed to decide between them.

5. Projection behavior of expressive emojis

The discussion of expressive language draws frequent connections to non-verbal bodily expressivity, and, in particular, to facial expressions and gestures (Cruse 1986:272, Potts 2007:169, Foolen 2016:473,484). Most expressive emojis are direct representations of the expressive body, e.g., by depicting a facial expression (😊, 😦) or a manual gesture (🤞, 👍). This observation takes center stage in the discussions of Gawne & McCulloch (2019), Pierini (2021) and Pasternak & Tieu (2021), who argue that emojis are digital counterparts of speech-accompanying gestures; see also Cohn et al. (2019). (See also Chapter 30: Expressivity and Gestures.) In the case of face emojis, this translates to digital counterparts of facial expressions (see Russell & Fernández-Dols 1997, Fernández-Dols & Russell 2017, among many others). An empirical question that is central to formal theoretical research on speech-accompanying gestures and facial expressions concerns the projection behavior of such meanings (Lascarides & Stone 2009a, 2009b, Ebert & Ebert 2014, Schlenker 2018a, 2018b, Esipova 2019, 2021). Connections between face emojis and facial expressions that have received coverage in the literature may include comparisons of the 'nauseated face' emoji 🤢 with a 'disgusted' facial expression (Schlenker 2018b:313-314,344),[29] the 'face with rolling eyes' emoji 🙄 with an actual eye-roll (Esipova 2021), and the surprise-related emojis 😮, 😯 or 😲 with mirative facial expressions (Esipova 2019, 2021).

[29] The 'disgusted' facial expression of Schlenker (2018b:313) resembles the 'standard disgust' face of Yoder et al. (2016), predominantly associated with moral disgust and anger (and less so with physical disgust). In spite of its appearance, which signals physical disgust, the 'nauseated face' emoji 🤢 is also routinely used for moral disgust in naturally occurring examples on Twitter and other platforms.

To give one concrete example of issues at hand, consider the eye-roll emoji in (56), first discussed in Grosz, Kaiser & Pierini (2020), which is appears to be syntactically integrated into the surrounding text. Once again, when trying to find a natural language counterpart of (56), interjections such as *bah* and *ugh* may be used as substitutions for the eye-roll emoji, (57a); however, an epithet paraphrase (cf. Dubinsky & Hamilton 1998, Patel-Grosz 2014), as spelled out in (57b), seems to capture its contribution at least equally well. (See also Chapter 22: Expressivity and Slurs)

(56) Some people 🙄 have apparently forgotten how walls and gates work. [twitter]

(57) a. Some people, *bah/ugh*, have apparently forgotten how walls and gates work.
b. Some people, *(those) idiots*, have apparently forgotten how walls and gates work.

There are minimally three questions that can be asked with regards to (56): (i.) what is the semantic target of the emoji? (ii.) is the emoji semantically or syntactically *embedded* into the surrounding text? (iii.) if the emoji is semantically embedded, does it exhibit the 'projection' behavior of presupposition triggers, or of expressive items?[30]

To see how we may approach these three questions, consider the baseline example in (58), which demonstrates the variable scope of an eye-roll emoji. As marked by underlining, the emoji can comment on a noun phrase as its semantic target, (58a), or on a definite description, (58b), or on a larger constituent, (58c), in addition to other options not indicated. In each case, the author expresses mild (and potentially ironic) disdain for the target constituent, as indicated.[31] (Compare, e.g., Esipova 2021:30-32 for eye roll facial expressions.)

(58) a. Sam is out of the country, and now I have to feed Sam's dog 🙄 every day.
↝ the author dislikes dogs
b. Sam is out of the country, and now I have to feed Sam's dog 🙄 every day.
↝ the author dislikes Sam's dog
c. Sam is out of the country, and now I have to feed Sam's dog 🙄 every day.
↝ the author dislikes having to feed a friend's pet

We can now turn to the issue of projection and semantic embedding; for present purposes, we can simplify and let the term 'projection' refer to the way certain inferences from a given utterance, such as presuppositions, interact with semantic

[30] On the projection behavior of presuppositions, see, e.g., Karttunen (1973) and Beaver et al. (2021); see Pierini (2021), Pasternak & Tieu (2021), and Grosz et al. (2022) for explorations of such projection behavior in emojis.

[31] Consider the Emojipedia entry (as of 21 December 2021), which defines the meaning of the eye-roll emoji as follows: "As with the gesture of an eye-roll, commonly conveys moderate disdain, disapproval, frustration, or boredom. Tone varies, including playful, sassy, resentful, and sarcastic, as if saying Yeah, whatever." Source: https://emojipedia.org/face-with-rolling-eyes/

operators in the same utterance. For instance, presuppositions are not negated by sentential negation and are thus said to 'project' out of the scope of negation. To illustrate, (59a) is an example where the definite description *Sam's dog* triggers the presupposition that Sam has a dog, which is not affected by sentential negation in (59b).

(59) a. Sam's dog is a poodle. ⇝ Sam has a dog
b. Sam's dog is not a poodle. ⇝ Sam has a dog

To probe for the projection behavior of the eye-roll emoji, we turn to the *presupposition filters* of Karttunen (1973:176-181): Example (60) shows that the presupposition of *her dog* does not project from the consequent of a conditional when its content is asserted in the antecedent, (60a), or from a second disjunct when its negation is stated in the first disjunct, (60b). (See also van der Sandt 1992:314.) We say that the presupposition of *her dog* is filtered (or *bound*) in such an example.

(60) a. If Sam has a dog, her dog is a poodle. ↛ Sam has a dog
b. Either Sam does not have a dog or her dog is a poodle. ↛ Sam has a dog

In parallel, we can set up the context and examples in (61a-c), modeled after Schlenker (2019:739,776), where we assume the intended reading of the eye-roll emoji that corresponds to (58a), namely *the author dislikes dogs*. If this meaning contribution were to behave like a presupposition, then we would expect it to be filtered in (61b-c), which are analogous to (60a-b). Moreover, if the meaning contribution were filtered in such a way, then (61b-c) should be acceptable in the context in (61a), where the author wants to argue that they do *not* dislike dogs. What we find, however, is that the emoji contribution is not filtered; it projects out of the filter context in a way that is not found with presuppositions, but typical for expressive meanings (Potts 2005), thus projecting globally in both of (61b) and (61c). This gives rise to a contextual contradiction (marked by the hash mark '#'), since the author tries to argue that they do not dislike dogs, while conveying that they dislike dogs by virtue of the emoji.

(61) a. *Context:* The author has been accused of disliking dogs. The author currently feeds Sam's dog, and wants to use this to argue that they do not dislike dogs.
b.# If I really disliked dogs, I wouldn't feed Sam's dog 🙄 every day.
⇝ the author dislikes dogs (*not filtered and thus contradictory*)
c.# Sure, there are indeed plenty of people who dislike dogs, but ... either I myself do not dislike dogs, or I wouldn't feed Sam's dog 🙄 every day.
⇝ the author dislikes dogs (*not filtered and thus contradictory*)

This initial case study outlines how we may probe for the projection behavior of expressive emojis; while the 'face with rolling eyes' emoji 🙄 may not form a uniform

class with evaluative emojis such as the 'nauseated face' emoji 🤢, or surprise-related emojis such as the 'face with open mouth' emoji 😮, test scenarios such as the filters in (61b-c) can be utilized in the exploration of a wide range of expressive emojis.

6. Conclusion

This chapter reviewed the role that emojis can assume for the non-verbal encoding of expressive meaning in digital communication, where they may take over the functions of facial expressions, gestures and intonation, which are lost when transitioning from face-to-face communication to written text. After introducing the topic in Section 1, we explored sub-classes of expressive emojis and the question of how to diagnose expressivity in emojis (Section 2). Section 3 focused on the established properties of expressives and showed that emojis seem to be expressives *par excellence*. They exhibit Pottsian independence (Potts 2007), ineffability and repeatability. As for the properties of perspective dependence, nondisplaceability, and immediacy, expressive emojis exhibit all of them to a certain extent. They typically encode the emotion of the author, but they can shift to another attitude holder if an experiencer is present in the text; they are generally tied to the utterance context (or rather: the context in which they are typed as part of a message), but limited shifting is possible, which may be explained in terms of mixed quotation. Section 4 outlined the current question of whether a lexicalist analysis or a pictorial analysis is more adequate for a formal semantic treatment of emojis. Finally, Section 5 outlined an approach to the projection behavior of expressive emojis on the basis of recent theoretical discussions of gestures and facial expressions.

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