Focus marking with emoji: On the relation between information structure and expressive meaning

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1   Introduction

Because digital communication (e.g. texts, social media posts) lacks many features of face-to-face communication, including facial expressions, gestures and prosody (e.g. Wagner 2016, Gawne & McCulloch 2019, Pasternak & Tieu 2020), innovations such as emoji have emerged to enrich this communication channel (Bai et al. 2019). In spoken communication, prosody plays a key role in indicating information-structural meaning at the semantics/pragmatics interface, such as whether information is focused (new) or given, in contrastive focus or new-information focus. However, despite lots of research on spoken language, to the best of our knowledge there is little systematic work on whether compensatory emoji mechanisms have emerged in digital communication for marking focus types, or for marking information-structural focus at all. We use Twitter data to investigate the relation between information-structural focus and emoji. We show that one class of emoji (what we call *focus emoji*, e.g. ✨ 👉) consists of semantically and pragmatically flexible 'focus signallers', while another class (*affective focus emoji*, e.g. 😍😡) acts as focus signallers while also resembling expressives (e.g. *damn*) in conveying information about affective attitudes in a way that is dissociable from their focus-related behaviour.

1.1 Focus and focus marking in spoken language

Researchers at the semantics/pragmatics interface have argued for different of information-structural divisions (e.g. Halliday 1967, Gundel 1974, Sgall & Hajicova 1977, Chomsky 1971, Jackendoff 1972; Reinhart 1982). However, all distinguish between new vs. given information. *Focus* refers to the part of an utterance that contributes new information. Many agree that focus can be divided into (at least) two categories: new-information focus and contrastive focus (e.g. Chafe 1967, Rochemont 1986, Kiss 1998; see Rooth 1992 for a different view). On the prosodic side, research suggests new-information focus and contrastive focus are realized differently in (e.g. in pitch accent terms, H* vs. L+H*, see Pierrehumbert 1980), though differences many not be categorical. This prosodic information is missing in the written domain (though italics etc can be used); we take initial steps towards exploring compensatory uses of emoji as focus signallers.

1.2 Expressives and use-conditioned meaning

Because many emoji resemble human facial expressions, researchers have investigated the role of emoji in communicating emotion (e.g. Weissman & Tanner 2018). We build on observations by Grosz et al. (2020) that affective face emoji (e.g. 😍😡) resemble linguistic expressives such as *damn* and *f*ing,* which Gutzmann defines as linguistic elements "that express some emotional and evaluative attitude with a high degree of affectedness" (Gutzmann 2013:4, see Potts 2005, i.a.). Gutzmann (2013:5,12) uses fraction-like representations to distinguish truth-conditional meaning (denominator) from expressive (use-conditioned) meaning (numerator), which we have slightly adapted below. Although discussion of expressives has mostly focused on examples like (1) where the attitude targets a particular entity (e.g. the dog), Gutzmann suggests that in cases like (2), the expressive applies to the full propositional content of the sentence. We return to the distinction between entities vs. propositions in the second half of the paper (section 3).

(1) *I hear your damn dog barking again* = I have a negative attitude towards the dog

I hear your dog barking again

(2) *I've spilled that damn bottle again* = <u>I have a negative attitude towards this event</u>
                                                                   I've spilled the bottle again

2   Focus emoji

This section provides evidence that specific kinds of emoji have emerged as a 'focus-marking tool.' As we will see, there are at least two types of emoji, namely the ✨sparkles ✨and the 👉pointing hands👈, whose distribution is related to focus. This section investigates whether these emoji occur with different focus types and other related phenomena. It also provides a crucial backdrop for section 3, where we turn to a second type of focus emoji that makes unique use of the affordances of digital communication, namely affective face emoji (e.g. 😍🤢). This paper focuses on emoji in a particular configuration where the same emoji occurs immediately before and after the word or constituent of interest. This configuration could be described as emoji *encircling* the word/constituent. We do not investigate configurations where there is an emoji between every word (that 😍 look 😍 like 😍 this 😍), nor do we investigate cases with only a single emoji. We focus on the encircling uses because those are the ones whose distribution appears to show parallels to focus marking (e.g. pitch accents that signal new information focus or contrastive focus). All examples are from Twitter and available through Twitter's public search function. We omit usernames/Twitter handles and URLs (see Tatman 2018).

2.1 Focus emoji are optional

In the rest of this section, we show that, on their encircling use, the ✨sparkles ✨and the 👉pointing hands 👈 typically occur around *focused elements*. (There may be other emoji with similar functions; use changes rapidly.) Before continuing, we note that these emoji are *not required* for interpreting an element as focused. We can construe a text as having focused elements without emoji (or italics/capitals). Thus, these emoji are best viewed as potential 'reinforcers' of focus marking, in a context without prosodic cues. We call them *focus emoji*.

2.2 Contrastive focus and new information focus

Both ✨ and 👉occur with new-information focus (examples 3,4,7) and contrastive focus (5,6, 8,9). These examples are quite heterogenous, which is due to the nature of Twitter: it is often not feasible to find the clean question-answer pairs used in theoretical work. However, the key point is simple; naturally-occurring Twitter data indicates both of these focus emoji are flexible in terms of the kinds of focus that they occur with. Both ✨ and 👉 also occur around elements in verum focus (10,11) (Hoehle 1992). In English, verum focus (marked with prosodic focus on the auxiliary) emphasizes the truth of the proposition (e.g. Peter *did* write a book).

(3) the first thing i think of in the morning is ✨ice cream ✨
(4) Same! First haircut I've managed to get since last January and I am ✨excited✨
(5) I don't even wanna buy a car no more, I wanna buy a ✨house ✨
(6) Not risking getting covid, but risking being ✨tired✨
(7) I have a new addition 👉👉👉coffee 👈👈👈
(8) the mirror didn't even mention you✨ it said 👉me👈
(9) Every time Trump points a finger, there are three pointing back at 👉him👈
(10) [context: someone said Republicans did not regroup] They ✨did✨ regroup to figure out how to bring back the voters they lost: voters who want to trust elections
(11) As usual Faux News leaves out a very salient point: 45 👉did👈 ask Comey to drop the Russia investigation during a subsequent mtg. Typical.

2.3 Association with focus

✨and 👉 also occur in contexts involving association with focus. Since focus-sensitivity with *even* and *only* is viewed as evidence that focus is semantically represented (not paralinguistic), this indicates that these emoji are indeed related to what is traditionally called focus in linguistics.

(12) It seems like they didn't even ✨try✨

(13) Conversations before coffee...like don't even ✨look✨ in my direction 😂

(14) Just a reminder to many that you ONLY need 👉ONE👈senator to contest the electoral college results on January 6th & Josh Hawley has ALREADY committed to doing so

(15) What if I ONLY want 👉YOU👈

(16) THEYRE surprisingly comfy! Chose them bc amazon reviews agreed they were easy to walk in even for infrequent heel wearers like 👉 me👈

2.4 Interim summary and other uses

So far we have seen that at least two kinds of emoji (✨👉) function as focus emoji. Before moving on to section 3 on affective focus emoji, it is worth noting that there are also other focus phenomena where ✨and 👉 occur. For example, they often achieve a strong deictic effect with locatives like *here* and *there* (17). Focus emoji can also serve functions similar to contrastive-focus reduplication (e.g. Ghomeishi et al. 2004 *salad-salad*, 18), and occur in self-correction (19).

(17) I am this 👌close to just dropping everything and moving back to canada i hate it ✨here✨

(18) Not a salad but a ✨salad✨. [accompanied by a photograph of a fancy salad]

(19) I meant to pasta ✨salad✨. [self-correction after tweeting about 'lemon basil pasta']

As a whole, the data in section 2 points to focus emoji being semantically and pragmatically *underspecified* in terms of the focus types that they occur with. It's not the case, for example, that one emoji is associated with new-information focus and the other with contrastive focus (at least we have uncovered no evidence for this) – thus, they differ from pitch accents, since H* is typically associated with new information and L+H* with contrast (in English). However, although these emoji appear to be relatively unconstrained in terms of the kinds of focus they occur with, *their position in the linear string is quite constrained:* typically, they encircle the word/words that are in focus. (We are currently investigating the possibility of focus projection.)

3   Affective focus emoji

In addition to ✨and 👉, we also find affective emoji (e.g. 😠🤢❤️😍) in encircling configurations where they surround focused elements. (These emoji are also used in other ways.) Crucially, these kinds of emoji carry meaning that is not present with ✨and 👉: They *express positive or negative emotional/affective content.* (Although one might regard the sparkle emoji as positively valenced, it is currently widely used in negative context as well, e.g. I am ✨sad✨, it was just ✨boring✨, and thus seems to be bleached of any positive connotations.)   Here, we investigate the behaviour of affective focus emoji, and propose an analysis of a surprising dissociation between their focus- and affect-related interpretations.

3.1 Word-level effects

Examples (20-25) show that affective emoji can have the *dual function* of (i) encircling an element that is focused and (ii) providing information about the author's attitude towards that element. This second function is absent with plain focus emoji (section 2), which do not provide

affective information. In terms of focus types, affective focus emoji appear to exhibit the same flexibility we saw in section 2 with ✨ and 👉: These emoji also occur with a variety of focus types.

(20) 😍That😍 would be a treat!!! Seattle summer.... 🍦
(21) & you ate 🤢that🤢
(22) U ever see someone's body and ur like wow why do they look like 😍that😍 and I look like 🤮this🤮
(23) How come han and leia look like ✨THAT✨ but then ben looks like 🤢...that...🤢
(24) I know, right?? With Trump, it was, well, you know, 😡TRUMP😡 doing a totally illegal thing. Now it's 😍Biden😍 doing a totally very legal thing
(25) I wanna buy so many things for myself but cant cause im 😡broke😡

Let's take a look at the affective contribution of these emoji. (Recall that we only focus on the *encircling use*; face emoji are also used in other ways.) In addition to signalling focus, these emoji provide information about the author's attitude towards the focused element. In (20) the author has a positive view of the referent of *that*; in (21) the author finds the referent of *that* disgusting. Ex (22-24) involve contrastive focus, where the author has a positive attitude towards one and a negative attitude towards the other referent ((24)) is sarcastic), and show that affective focus emoji can provide details about the nature of the contrast between the two focus alternatives. As a whole, these examples show language users employing emoji for the dual purpose of (i) indicating which element is in focus and (ii) what the author's attitude is towards that element.

So far, the 'target' of the focus marking and the 'target' of the author's attitude coincide, and are encircled by the affective focus emoji. In (21), the author's disgust is specifically targeted at the specific thing the person ate and that thing is also what's in focus. The affective meaning can be represented along the lines of what we saw for (1) in section 1.2. This is depicted below, adapting Gutzmann's informal format with the affective (use-conditioned) content as the 'numerator' on top and the truth-conditional meaning as the 'denominator.' Note that here, the affective meaning is targeting the (referent of the) DP *that*, not a proposition.

(26) you ate 🤢that🤢 = <u>I have a negative attitude towards what you ate</u>
<center>You ate that</center>

The above representation does not capture the positional constraints we have observed, i.e. that the emoji occur at the left and right edges of the focused element. As we will see in the next section, this is a desirable property because at least in certain contexts, we need to be able to dissociate the focus-related content and the affective content of affective focus emoji.

3.2 Effects beyond the word level

So far, we have focused on cases where the affective meaning of the emoji is specifically linked to the particular word that is in focus and that is encircled by the emoji. In this section we will see cases where the emoji encircle the focused word but, strikingly, the *affective meaning of the emoji is not restricted to that particular word and instead takes scope over a larger part of the utterance.* For example, consider (27), where the author's positive feelings are not about the referent of the word *here* – 'I'm here for that' is an idiomatic expression where *here* does not refer to a specific location. Instead, we can infer that the heart indicates that the author feels happy about the proposition that Valentine's Day in 2021 is about love for the world. Similarly, in (28-29), the author's positive feelings are not about the location *per se* but about the situation where a particular person is present in that location.

(27) I woke up to #valentinesday2021 being not the usual coupledom but LOVE FOR THE WORLD in 2021 and I am ❤️here❤️ for that!

(28) He's literally just..standing 😍there😍

(29) I love when hes just ❤️there❤️

(30) Need a holiday right 😡now😡

(31) Need 😡coffee😡

(32) When you get 😍😍THAT😍😍 notification

(33) We should all understand by now that no Republican will 😡EVER 😡 vote FOR any bill that helps Americans. And will put obstacles (Ron Johnson) in the way. [...]

Negative variants are in (30-31,33). In (30), *now* is in focus and encircled by the emoji, but the author's anger is directed at the broader situation about her life being such that she needs a holiday. In (31), *coffee* is in focus and encircled by the angry face emoji, but the author's anger is not directed towards the referent of the noun *coffee*. Instead, the angry emotion takes scope over the entire utterance: the author is angry about the fact that she needs coffee. In these examples, even though the affective information is conveyed by the emoji encircling the focused word, the scope of the affective information is *not* limited to that word.

Example (32) is a case of the determiner *that* being in focus. Here the author's positive attitude is not about the determiner but instead about the entire noun phrase *that notification* or even the entire clause *when you get that notification* – in other words, we can infer the author feels happy because she received good news. Again, the affective meaning conveyed by the emoji applies not only to the word that it is encircling but to the entire DP or in all likelihood the entire utterance. (Note that under typical analyses of focus projection, focus is not expected to project out of the demonstrative *that* into the rest of the clause, so this example suggests that the sentence/proposition level effects cannot be attributed to focus projection.)

These examples provide evidence that *the affective scope of the emoji does not have to match its focal scope*. Although the emoji encircle the focused word, their affective contribution can take wider scope. In this regard, they are like the 'damn bottle' example (2) in section 1.2. We can represent the truth-conditional meaning and affective (use-conditioned) meaning for (31) as illustrated in (34). Crucially, here, the emoji has scope over the entire proposition (similar to *damn* in (2)). Thus, to capture the contribution of affective focus emoji, their affective meaning needs to be able to (potentially) project beyond the specific word that is focus-marked.

(34) Need 😡coffee😡 = <u>I have a negative attitude towards my needing-coffee situation</u>
I need coffee

4   Conclusions

We used Twitter data to investigate the relation between information-structural focus (expressed prosodically in many languages) and emoji in digital communication. We identify two types of emoji that co-occur with focused elements: focus emoji (✨👉) and affective focus emoji (e.g. 😍😡). Both emoji types are (i) semantically and pragmatically flexible (occur with a variety of focus types, unlike spoken language where focus types often differ in prosody), but (ii) positionally constrained in that the emoji tend to occur to the immediate left and right of the focused constituent – thereby providing a communicatively useful signal of focus-marking in a domain without prosodic cues. We also show that affective focus emoji have an additional function of conveying affective attitudes (e.g. disgust, happiness): Although the focus-signalling and affect-expressing functions are expressed by the same emoji, they can operate in separable ways (section 3.2). Affective focus emoji seem to be a novel type of multi-functional expression.

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