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## Miscellaneous

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## The study of emoji linguistic behaviour: an examination of the theses raised (and not raised) in the academic literature

### Abstract

This bibliographic review of academic research on emoji reveals how the bulk of studies accepts it as a language but do not develop detailed linguistic analysis that could support this claim: they accept the clues provided by the initial studies, as if the scientific community had already reached such a consensus. However, the truth is that the fields in which emoji have generated the greatest academic interest (computer science, psychology and cognitive science) have considered the study of their linguistic nature a minor issue. Therefore, research on emoji has been growing over the years, widening the scope of its contributions, but with a common core made up of few basic notions about its linguistic condition that has important blind spots, in which Linguistics hasn't done (generally) its work to place it in this new context for communication that the digital environments represent, despite the supports provided by multimodality and visual language theory. From these two disciplines, some authors have boldly suggested the emoji's status as a gesture. However, to analyse its linguistic nature and behaviour, it is more accurate to understand the emoji, not as a gesture, but as a simplified representation of a gesture, without the unique features that a personal gesture has. The emoji seems to be the tool that, with fewer resources, best ensures that the interlocutor can understand the intentionality with which the sender has written the message.

### Keywords

**Emoji, Linguistics, literature review, gesture, multimodality.**

### 1. Introduction

With the popularisation of the use of emoji on mobile devices since 2010, emojis have also become the subject of academic study. But the researchers who have studied them, and who have referred to emoji as a language, have preferred to avoid explaining why they have considered them a language: they have used the term without further details (sometimes in quotation marks), without understanding the need to explain why they consider them a language (exceptions are few). They have not analysed what features they have that constitute languages, nor have they explained the terms of the analogy if they only wanted to use the term "language" in a figurative sense, in a looser way. Despite the very high number of articles published on emoji since 2016, very few are proper linguistic studies, aimed at analysing the

linguistic features of emojis, their linguistic nature, which should establish the basis of their understanding as an element for (written) digital communication.

We can classify the literature on emojis into two groups:

1. Research on emojis as a specific subject of study. This research is small in number.
2. Research that has another object of study, another goal, and uses emojis only as a means. This research is much more numerous.

However, in both cases the main disciplines from which their linguistic characteristics are approached are:

1. Semiotics, which sees emoji as a sign.
2. Pragmatics, which is concerned with the sender's communicative intention and the receiver's reaction.

The core conclusions shared by the studies are basically twofold:

1. Emojis replace non-verbal language in written communications on digital devices.
2. The purpose of emojis is primarily to seek an emotional reaction from the recipient.

The main theoretical conclusions can already be seen in the early research, the main theses of which have not been refuted, despite the use of outdated and in some cases too small corpuses. The systematic reviews that have been published show the very high level of consensus in this field: the bulk of the studies, particularly those whose field of study is not linguistics strictly speaking, have accepted these initial conclusions as the premises from which to advance towards the more specific field in their research, for which communication is only the very broad framework from which these studies start (for example, in marketing or psychology). There is a handful of theses that have consolidated very quickly, mainly from a few books: Danesi (2016), Evans (2017), and Seargeant (2019), which had a greater impact than the academic papers.

Our starting point is that most studies reviewed accept emoji as a language but, except for a few, do not develop detailed linguistic analysis to support this claim: they either simply accept the few general indications put forward by the first studies, without confirming, correcting, or expressly qualifying them. Or, for their object of research, which is far removed from the strictly linguistic, it is sufficient for them to record the consensus that exists in the scientific community about the linguistic nature of emojis. They consider it enough to offer an elementary exposition, either from semiotics, understanding emoji as a symbol but without setting out a rigorous methodology for its analysis, or from pragmatics, with the search for certain effects based on the notion of the illocutionary force of the theory of speech acts that underpins this discipline, but also without sufficient development to be able to academically endorse this part of their research. They use the term "language" loosely or metaphorically. This allows them to move towards the ultimate goal of their research, for which they reserve their most revealing hypotheses, already in the field of another discipline, but without making a relevant contribution to the central question surrounding emojis: their status as an element of communication.

Only a minimal percentage of papers studied in this review analyse the different theoretical approaches to emoji as a linguistic code. They mark a bold line of research on the linguistic condition of emoji that can contribute to General Linguistics an exceptional field of research, with a non-natural language that gradually seems to be shaping a self-conscious grammar. But these papers are still a minority in the extensive general bibliography on emoji. The literature on the study of emojis is abundant, with exponential growth in 2016 and 2017, but this volume has come not so much from an interest in emoji as a specific element of digital communication, but rather from its application in different and very diverse fields. Our bibliographical analysis focuses on the linguistic nature and behaviour of emoji, on its consideration as a possible language, with its own characteristics and circumstances, but it studies it both in papers that focus on this issue and in the papers that develop it solidly, despite focusing their final interest on another field.

From multimodality, several researchers have compared emoji to gestures. They consider that an emoji and a gesture have an equivalent function in communication, as markers of the author’s intentionality or as disambiguators of meaning. However, to analyse the emoji’s own linguistic behaviour within a message, it is necessary to go further: to note that the emoji is not a gesture, but a simplified representation of a gesture, without the specific characteristics that individual imprints on his or her body gestures. The emoji is no more than a standard representation of a generic gesture. In search of maximum communicative efficiency, the emoji provides a basic understanding of the interlocutor’s objective when communicating, with elementary encoding and decoding.

With this premise, it is possible to specify better how an emoji can calibrate, with a specific tone, the written message, which is understood as the reduction to a single plane of a conversation whose other dimensions can be glimpsed precisely from the indications provided by the emoji, with its own characteristics revealed in its syntax and morphology, in its condition of visual language, not gestural, and composed exclusively of closed-class lexical elements (because the user cannot modify them).

## 2. Methodology

In our review of literature, only papers published in high-impact journals were analysed (registered in the JCR, Web of Science and Scopus databases). We have left out the grey literature, works not published in these better-indexed journals, or even those published without academic intentions (on the web itself), often with substantial contributions, but without a methodological or systematic will, which is what can reveal the ambition of their thoroughness in the analysis.

At the beginning of 2022 in Google Scholar, a search for “emoji” returns approximately 35,900 results (34,200 excluding citations). But those where the term appears in the title (which is to be expected in a study focused on emoji) reduce the results to 1,680 papers. Using the plural “emojis” (also in the title), with that “S” which is not part of the term but which responds to its regularisation in languages such as English or Spanish, 807 results showed up. Adding both together (it would be very strange for both to show up in the same title, except in sporadic cases), there are 2,487 results. In Scopus, a search for “emoji” in all fields yields 3,023 results (3,715 when the plural “S” is added), but if we filter only those where it appears in the title, it reduces it to 436 (578 if the plural is included). If we include the abstract and keyword fields: 823 and 565 results. In Web of Science, a search for “emoji” as a topic returns 595 results (460 with the plural “S”), but those where it appears only in the title narrow it down to 291 (143 in the plural). If we include the abstract and keyword fields: 646 and 470 results. Most of these are articles (168), but there are also books (12) and conference or seminar proceedings (84), concentrated over very few years:

**Table 1:** Papers published each year.

year	2014	2015	2016	2017	2018	2019	2020	2021
papers	2 <sup>1</sup>	3	18	43	49	59	56	51

Source: Own elaboration.

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<sup>1</sup> We should take 2016 as the first year for the publication of emoji results. The two publications that WoS indicates as being from 2014 were presented at the "20<sup>th</sup> International Conference on Information Integration and Web-Based Applications and Services (iiWAS)," actually held in November 2018, and two of the three publications from 2015 were presented at the "ACM International Conference on Multimedia (ACM Multimedia)," of a purely technical nature, on their technological status (one on a search engine and one on a predictor).

Its emergence took place in 2016 (the same year that Danesi published his book): In just six years the whole theory on emojis and their application to different areas of knowledge has been developed, which is reflected in the two main systematic reviews to date, both from the same year (Bai, Dan, Mu and Yang [2019], published in a journal of Psychology, and Tang and Hew [2019], published in a journal of Communication): Mainly computer science, communication, marketing, behavioural science, linguistics, psychology, medicine and education (unchanged since then). There was a substantial increase in 2017, but since then it has remained very stable, with similar numbers every year, even with a slight decrease since 2020, but this cannot be interpreted as a consequence of a reduced interest in the subject, especially given the abnormal circumstances, also for academic publications, brought about by the pandemic caused by Covid-19.

There is a considerable amount of information on emoji. But the starting point for this work is the linguistic theories that attempt to frame the characteristics and behaviour of emojis with their hypotheses. This is a much smaller body of material, which is really scarce. There is more scientific literature on topics such as the analysis of emotions or feelings or those related to digital technology (the majority), and to a lesser extent on how emoji interact in a given language: Arabic (Al-Azani *et al.*, 2018; Khalifa *et al.*, 2021), Chinese (Li *et al.*, 2018), Italian (Barbieri *et al.*, 2016), Portuguese (Duarte *et al.*, 2019), Spanish (Sampietro, 2016; Cantamutto *et al.*, 2019; Casañ Pitarch, 2021), Russian (Vatian *et al.*, 2018), etc., ruled out as the new Esperanto (Danesi, 2019). There are also articles about their use on a given platform, especially Twitter (Wahyuni *et al.*, 2018), on its role in communication, and with specific topics, food (Ares *et al.*, 2021; Schouteten *et al.*, 2021; Sick *et al.*, 2020), medical issues (Katz *et al.*, 2021), educational matters (Kootbodien *et al.*, 2018), solidarity (Santhanam *et al.*, 2021), etc. Or on linguistic or semiotic questions, but very specific ones: for example, on irony (Weissman *et al.*, 2018).

We have also excluded, along with studies relating to other fields, those focused on a specific language, those centred on learning, and those on computer or programming issues, which do not address the linguistic question or do not make a substantial contribution beyond picking up on what others have already noted. The papers chosen are those that deal with emoji as an eminently linguistic phenomenon: 73 publications. The selection was initially based on: 1) the title, abstract and keywords of the paper (according to its subject matter); 2) the author (if the author has a research career as a linguist or in a related field); and 3) the journal in which it was published (if it is in the field of linguistics or communication). A few had to be discarded as inaccessible. After reading them, some of the collected studies were furthermore discarded as irrelevant to the object of our study.

### **3. Analysis**

The bulk of these papers' formal characteristics is significant, indicating their interests and limitations. Generally, these papers analysed: 1) are short, 2) with an abstract that devotes a considerable part of its content to explaining what an emoji is (despite its popularity), 3) with an extensive introduction that reflects the bibliographical review carried out by the authors (as shown by the bibliography itself which also tend to be very extensive at the end), 4) devote quite a lot of space to referring to the collection and analysis of data, although the corpus handled seem too small to be able to trust the universality of the results and 5) synthetically set out the conclusions, with a length appreciably less than that of other sections. Semiotics studies emoji as an autonomous and often isolated element, which prevents further development of theories, because emoji are closed products, with no creative margin for their users, beyond possible interpretations in their understanding and the possibilities allowed by the combination of several emoji or emoji with text (none of them considers this combination with images or sound). From there, many studies quickly turn to the effects of emoji in communication, with a pragmatic orientation, such as in acts of speech.

The first papers focusing on a single emoji (on the hand with the thumbs up, or the face crying in laughter) have already been published, or on a purpose for their use (explaining AIDS or promoting solidarity, for example), in a specific context (such as university student communications), or with a type of user (differentiated by age or gender). Although other works have opted on the other hand to analyse emoji together with emoticons and, to a lesser extent, with stickers, with the features they share as visual signs within the text (which Tang and Hew reproached them for in 2019), some other articles incorporate this into the analysis of the use of certain expressions arising from the use of digital tools or devices, insofar as they also affect text. As Swartz and Crooks (2020) point out, they are capable of expressing what text does not find easy to convey. But regardless of the direction the topic takes in each case, in most of the papers, the conclusions of the analysis occupy a minor place within the work, with results that almost without exception reaffirm those of previous research: What we understand as symptomatic of a discipline or an academic field at a still early stage, in which 1) the basic coordinates for its understanding have become very settled (partly because they are so intuitive) and 2) an even larger corpus is required to find cases that distance themselves from the usual ones and test those first interpretations, which can hardly claim to be universal. Some papers actually use examples based on intuition, which are then tested in social networks. The discussion on the different understandings of emoji as a linguistic element is not yet sufficiently far-reaching, despite these few more revealing papers. The conceptual system used by linguistics has been accepted, even if this has meant forcing the analysis without an exhaustive reflection on the problems that derive from this: studies that rely on more innovative theories such as multimodality are still in the minority. Or it has avoided organising and justifying the analysis of emoji from a method that could show rigour in such a procedure.

We need an answer (albeit a tentative one) as to why the linguistic nature and behaviour of emoji have not been studied more, analysing, for example, how far it is possible to stretch the theory on the linguistic condition of emoji, given its morphological and syntactic simplicity, its limited historical trajectory and the control that a single organisation (a consortium) such as Unicode has over these symbols, which decides the number, design and even the meaning of emoji it puts into circulation. But we can also consider other possible extrinsic causes: for example, the consequences of the fact that the first researchers who approached emoji are interested in scientific fields other than linguistics, which may have discouraged specific studies of their linguistic behaviour, which have not been called upon by those who have shown interest in this phenomenon.

It would be enough to check in on the studies that have made a more substantial contribution to the linguistic status of emoji: 1) the fields of the journals in which they have been published and 2) the fields of research in which their authors have worked the most. It would have been reasonable for linguistics to monopolise the list, and it is by no means the dominant discipline: Of the 32 papers selected for their linguistic focus (discussed in the following section of this literature review), 11 were published in computer science journals and 4 in (generic) scientific journals. In contrast, only 6 papers appeared in linguistics (or semiotics) journals. In our first analysis of the literature, of the 938 papers selected, only 64 have been published in linguistics journals (or semiotics or pragmatics, or even computational linguistics publications). This represents 6.82% of the total. The topics of the journals are exceptionally diverse, but the percentage of journals on computation is much higher than any other. Moreover, we have not necessarily found the main contributions on linguistic aspects of emoji in linguistic publications.

Having mapped the crossroads of emoji research from varying disciplines, it gives us the following preliminary results:

- 1) Emojis generate interest mainly in the fields of computer science (and digital communication) and, to a lesser extent, psychology (and cognitive science).

- 2) The mastery of emoji research is such that even on the specific issue of its linguistic status, the majority of contributions have come from these disciplines, ahead of linguistics itself.
- 3) General Linguistics has shown, so far at least, very little interest in emoji. In fact, although emoji has been highlighted for its ability to influence the interlocutor's behaviour, it has hardly been studied in pragmatics either. There are still few exceptions.
- 4) The disciplines that have shown interest in emoji have not shown excessive interest in their linguistic nature: they have been satisfied with the few guidelines on their behaviour that they have taken for granted from earlier research.

#### **4. Results**

Different research on emoji in this review offers very different perceptions (and assessments) as to the object of study: we have the two extremes in the literature that has studied them.

From one of the extremes: Sun (2019) defends emoji as a language-saving element. He understands it as different from cyber-speech, which he analyses as a dialect. His argument is that the language of the internet is a social dialect created by young users, cyber-speech, which he characterises by its negative features (its speed and linguistic economy, which give rise to unconventional expressions); but the invention of emoji has made it possible to replace many of these words or expressions, which has led or is leading cyber-speech to diminish and return –he literally says– to normal language. His is a controversial thesis, without a rigorous study of these new manifestations in communication, but he uses as a premise or as a logical consequence of his reasoning the consideration of emoji as a non-linguistic element, differentiated from language; he leaves it outside language, classifying it as a symbol (without relying on semiotics), capable of representing (quickly and economically) the feelings and activities of these users without spoiling the words, which he does consider language.

From the other extreme, with a similar diagnosis of the general situation, but with a different consideration of emoji and emoji responsibility: Wagner, Marusek and Yu's (2020) warn against the abuse of the massive use of emojis, because they consider that they can lead to a displacement of communication standards, with a negative social impact. They think that emojis (not exclusively, but they are the best example) undermine the civil rules and respect that used to exist in communication because the desire to go faster makes communications more aggressive and less careful, more vulnerable to conflicts and misunderstandings.

Without such an explicit assessment of the advantages or disadvantages of the use of emoji, most of the papers argue that emojis are capable of conveying emotions. Focused on the field of linguistics, Ge and Gretzel (2018) have studied it from the rhetoric used by influencers (for use in marketing). They define emoji as the quintessence of communication through social networks as an element of persuasion (as a rhetorical device and as a rhetorical structure). They list its uses as follows: 1) to increase personal interactions by showing non-verbal information, 2) to improve the understanding of the message (and guide the interaction process), and 3) to connect users in a more personal, more intimate way. They explain how they achieve this by either just using the emoji (or a succession of emojis) or by interacting with the text, in three different ways: 1) by adding attractiveness to a text that by itself has none (as in an enunciative sentence); 2) by reinforcing the persuasive content of an already eloquent text; or 3) by modifying, with their emotional component, the content of the text, in an opposite direction (as in an exhortative sentence). They understand that emoji as speech acts with a persuasive purpose that trigger reactions (with positive and negative emotions).

Joel Gn (2018) expresses it in similar terms, analysing emoji as a language of cuteness, as a more tender way of expressing oneself. He published "Emoji as a 'language' of cuteness," using 'language' in quotation marks so as not to commit himself too much to recognising it as such, at least not initially (although he later draws on Saussure and Barthes), but makes significant contributions to this approach, of which one is fundamental: He analyses its

systematicity. Joel Gn considers it to be a form of systematic sweetness, like pictograms with a systematic structure and use given its dependence on the Unicode Consortium, they are products of a systematised aesthetic (they must be simple, fun and affective), which make this cuteness an alternative linguistic tool.

Some papers analyse emoji from the perspective of pragmatics: the concept of illocutionary force is useful to them. They usually refer to other studies on pragmatics, either with the more general guidelines of this discipline or those already focused on emoji (which cannot be reduced only to the expression of emotions or feelings, as Wahyuni and Budi warn in 2018). For example, Li and Yang (2018) propose a classification with 7 functions (emotion signal, emotion intensity enhancer, illocutionary force modifier, humour, irony, shifting and as a backchannel device) and 3 categories (positive, negative and neutral). They analyse a sample of 10 volunteers on the WeChat social network, but support their results with the research of other authors, such as that of Provine *et al.* (2007) on emoticons (the authors of this paper do not differentiate them from emoji), that of Luor *et al.* (2010), to enhance the message and to express humour) or that of Kavanagh (2010), which is more exhaustive (to show modesty, message coverage, soften a request, positive politeness, relationship building, humour, convey emotion, emphasise the message and used as a lexicon), or with Yus' 8 functions (2014) using a more complete taxonomy than the one he himself proposed in 2011 (for emoticons): 1) signal the attitude underlying the utterance; 2) give it greater intensity; 3) graduate the illocutionary force of the speech act; 4) add humour to the utterance; 5) add irony to the utterance; 6) show an affective attitude towards the utterance; 7) show an emotion in parallel to the communicative act; and 8) communicate the intensity of an emotion that has been verbally encoded.

But none of these works deals with the syntax with which emojis are ordered among themselves and in relation to the text or other elements of the message, despite this being an elementary question for considering their status as language.

This was done by Menglan, Yuhui and Haiyang (2017), on the occasion of a 2015 Chevrolet press release made up exclusively of emojis and which was not well understood. The thesis defended by these authors at the time was that by adopting certain structures and syntactic rules specific to emojis, it was possible to be more precise in their use and thus avoid the problems detected between signifiers and referents. They proposed a rational use of the grammatical structure of emoji, in accordance with cognitive psychology and linguistic rules.

Arafah and Hasyim (2019) explain emoji with Morris' triadic model: as a symbol, with its three components: vehicle, designatum and interpreter. They do not adapt Morris' theory to emoji, but at least they point out its impact on syntax: emoji would be one more element of the sentence, which can appear in any position, but whose dominant function –as Sampietro has also pointed out for Spanish (2016)– is to close the sentence as a punctuation mark (on the semantic level it gives a certain connotation to the conversation and on the pragmatic level it shows the relationship between the speakers).

Danesi published “Emojis: Langue or Parole?” in 2019. In 2016, he had published *Semiotics of Emoji*, a major text for the study of emoji, but which avoided discussing its status as a language, or the appropriateness of treating it as a language, despite including different fields of linguistics (“Emoji semantics,” “Emoji grammar” and “Emoji pragmatics”) as central themes in its table of contents. In his 2019 paper, he retraced his steps to stop at some of these basic ellipses in his book in order to give emoji an appropriate status, based on Saussure's canonical distinction between language and speech, but also on Chomsky's notion of linguistic competence. In this new text, he did research whether emoji has a grammar analogous to linguistic grammars: Danesi considers the grammatical construction of emoji to be based on episodes; it is an episodic representation. To be considered a language, emoji should require an abstract knowledge of the rules in order to be understood. On the other hand, emojis are understandable without the receiver needing to develop any grammatical and lexical

competence. However, Danesi relies on Malinowski's thesis that expressions are less important for their meanings than for their social functions, and on Lakoff's theory that the basis of language is figurative, not syntactic, to argue that it is not syntax or morphology that guides the distribution of emojis in the text, but narrative structure. His response is similar to that given by Cohn, Engelen, and Schilperoord (2019), the same year.

But the findings of Cohn, Engelen and Schilperoord (2019) better answer the determining questions in considering whether emoji is a language or not: Is there grammar behind the way users express themselves with an emoji? How do emojis interact with the grammar of the written text they accompany? They conclude that they do not have a grammatical structure per se; they do have vocabulary, determined by the Unicode Consortium, as whole units of meaning, with no possibility of altering them, but no grammar that sequences them, with a certain complexity; they are repeated, grouped around the same semantic field, etc., in a linear sequence that limits them. They have conceptual categories (the agent, the patient, the object, the action...), but not grammatical ones (a subject, a verb, a predicate...). They are understood in their interaction with the text, as gestures, the equivalent of gesturing in oral discourse, but without the benefits of the simultaneity of non-verbal language (not being able to be used as a separate channel).

Their hypothesis is similar to that of McCulloch and Gawne (2018), with their analogy of emoji as beat gestures. They too find it hard to see grammar behind the arrangement in which emojis appear, which is almost always based on repeating sequences. With a behaviour that could be similar to that of some words, in terms of *ngrams*, structures of words that appear frequently together, in which "n" marks the number of words in the composition. This is what Shoeb and De Melo (2021) call *tokens*, using big data terminology: their proposal is *to tokenise* a text, fragmenting it into different *tokens*, which can be words, emojis or other characters. However, it is better explained as the representation of gestures, because these repetitions are more characteristic of gestures than of grammar. Emoji sequences are too heterogeneous, without a certain structure that is always repeated or a pre-established order for the organisation of emojis in a sequence (as is the case, for example, in sign language). It is easier to think of their nature as (digital) gestures rather than as grammar, because grammar must have a hierarchical structure. Such a conclusion is enough for McCulloch and Gawne to rule out their status as language, at least for the time being, as long as they do not show structural regularities.

Cohn, Engelen and Schilperoord (2019) recognise important limitations in the structure of emoji (the limitation of their combinations, their lexicon provided exclusively by an external source or the restrictions in the transmission of information, for example), as Cohn had already pointed out in 2015. In this paper, they consider emoji to have only restricted combinatorial properties: emoji have no grammatical structure ("they lack grammatical structure on their own"). But they are less categorical when it comes to denying emoji their status as language. They understand that the fact that the sequencing of emojis is not the same as that of mature language does not need to imply denying them the status of language without further ado. They claim that not all languages have a complex grammatical structure and rely on Jackendoff and Wittenberg's (2014) proposal of a hierarchy of grammars, developed on the basis of basic ordering principles, with a scale for communicative systems ranging from the most elementary (proto-languages, stages of language development, etc.) to fully developed linguistic systems. They explain that at the lowest levels of this hierarchy of Jackendoff and Wittenberg, grammar has little influence, with a much smaller role than semantics (there is no syntax or function for words): each term is a unit of expression in a series of juxtaposed elements, without the internal structure of the sentence, such as gestures, concatenated units in a linear grammar.

With these premises, Cohn, Engelen and Schilperoord put forward different hypotheses for emoji. They think of a sequencing pattern similar to that of grammar, but made of

sequential images, as is the case in comics (insofar as these images are processed in a similar way to syntax), or that in the use of emojis there is a desire to renounce the grammatical roles given by syntax, because there is a preference to assign them narrative roles given by their distribution in a sequence. This would allow us to think about the emoji's capacity to transmit meaning to the text through their causal or conceptual relationship, because their use would not seek redundancy of what is expressed in the text but rather further develop its meaning, its semantic field.

In the same direction, Pierini (2021)<sup>2</sup> analyses the different interpretative possibilities of emoji (focusing on emojis representing objects and activities). He also considers their properties to be similar to those of gestures: their semantic contribution to language is similar to that of gestures. He uses Schlenker's typology of gestural iconic enrichment for his research. His thesis is that emoji interact in non-trivial ways with logical operators, generating inferences (such as gestures or sound effects). He proposes 3 possibilities, depending on their syntax (how emoji are integrated into the text): [1] emojis generate co-suppositions (when immediately following text); [2] emojis generate supplements (when they are separated from the accompanying text by a pause); [3] when used as replacements for words (emojis have an at-issue semantics and can trigger standard presuppositions).

Pierini aims to support the semantics of emoji from its grammar. He makes this point in another paper published with Grosz and Kaiser (2021): they want to take initial steps towards a formal semantic analysis of emoji and their relation to the text that they accompany. They make a first basic distinction: on the one hand, face emoji (which incorporate indexicality in the first person); on the other hand, activity emoji (which incorporate anaphoricity).

Neil Cohn (2018) provides a definition of language as a shared code: "A language constitutes a set of patterns in a person's mind/brain. To the extent that the patterns in one person's brain (their idiolect) align with other people's, they share a common language." Grosz, Kaiser and Pierini (2021) make it concrete with emoji: "Face emoji may be *iconic*, in which case their meanings would derive from a generalized rule-like semantics, [...] or they may be *symbolic*, in which case their meanings would be listed in a user's lexicon."

Nowadays, in the question of whether emojis are a language or not, research is focused on considering whether the grouping of emojis or the interaction of emojis with text can be understood as a grammar. The researchers positions are within a spectrum of possibilities (smaller than it might seem) ranging from the denial of a grammar (properly understood) to the recognition of the configuration of a linear, basic, non-complex grammar in the different alignments of emojis. In this second case (for some even in the first case), they do understand that emojis meet the conditions to be considered as a (simple) language.

## **5. Conclusions**

The studies on emoji that we have analysed have a structure, generally, that expands to add content to a first nucleus built with basic notions, which most of the studies share. This core is made up of the bibliography –an often meticulous state of the question– and the theoretical framework (or frameworks) used to formalise their hypotheses. From there, research grows with particular contributions in a specific, more limited field (especially with application to another discipline, such as psychology or marketing, for example).

However, in this often-shared core there are frequent blind spots: elementary questions to understand different linguistic aspects of emoji that their authors may understand that are not necessary in their particular work (oriented to other disciplines), but which should form a firmer basis in understanding emoji as an element of communication. In this sense, syntax

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<sup>2</sup> Pierini's paper "Emojis and gestures: a new typology" (2021) is not indexed in the Web of Science and Scopus databases. Nor is another of his papers mentioned in this review: "Discourse anaphoricity and first-person indexicality in emoji resolution," by Grosz, Kaiser and Pierini (2021). Even so, we consider it relevant to include them because they continue the path opened by the understanding of emoji as gesture.

functions as a symptom: calling emoji “language” in many works, without justifying it or referring to a careful analysis of their location and functions in the message, shows the carelessness with which their nature has often been approached.

Authors who have gone further in their linguistic analysis, such as Danesi or McCulloch and Gawne or Cohn and Schilperoord, have referred to the emoji’s condition as a gesture: by its capacity to express emotions, by its structural properties, or by its functional properties. But –in order to take further steps in its understanding as a communicative element– it would probably be more appropriate to understand it not as the gesture itself but as the simplified representation of that gesture (without the personal features or nuances of a body gesture, only the standard representation of a generic gesture), in its search for communicative effectiveness, in its search for the easiest way to ensure the basic understanding of the interlocutor with elementary encoding and decoding, economising as much as possible on resources in a new communicative context provided by digital technology. From there, an attempt is made to extract from emoji the real scope of its contribution to communication, how it exactly indicates the intentionality with which the sender has written the content and reinforces the global understanding of the communication; how it marks the location of the message on a scale (which determines its character) so that the receiver can understand it better, to be able to calibrate what is written, with a specific tone, although it does not achieve the precision that a (physical) gesture of the speaker can give to the message, which provides a much greater expressive richness; how it serves as an approximation to that intention, which the user –given the data on the use of emoji– takes for granted.

The first thing we need to answer at this second level of the literature review is the cause of these blind spots, rather than specific solutions. We must ask to what extent emoji may be an indication of a deeper issue. There are reasonable grounds for a linguist to rule out studying emoji: 1) Since they are a product created and controlled by an organisation: clearly artificial, even commercial, language. 2) Because their structure or behaviour are seen as too simple to make them the subject of research. 3) Since (used to working with words or with complex visual codes) they are not bold enough. 4) Because they don’t have the means to get hold of a representative corpus, which can change so quickly. etc. However, the reason may also be the still visible gap between the analogue environments with which linguistics have historically dealt and the new digital environments, for which at least an adaptation is needed.

In the literature reviewed, there are no references to an analysis proposal from multimodality, despite the location of emoji in a digital ecosystem and its interrelation with other elements of a different nature in discourse. In principle, the study of emoji will benefit from the rise of linguistic proposals that understand all communication as a system of relations, with the use of several semiotic modes in the design of a single semiotic product. What Kress and van Leeuwen’s (2001) multimodal theory proposes is that a discourse is a construction of meaning made up of different synchronous modes (multimodality refers to the variety of channels used by the sender). It is based on the rejection of a linguistics that only studies verbal language, leaving aside the rest of the modalities. Communication is, on the contrary, the way in which people use different semiotic resources to make signs in a specific social context. Every text, this theory asserts, is nourished by multiple forms of expression. This makes it possible to generate semiotic synergy greater than the sum of its isolated meanings (as Lemke affirms in 1998 of the articulation of different semiotic modes).

While emoji are visual elements, the path that seems to be exhausted so soon in the specific analysis of the linguistic behaviour of emoji will be much greater as its study opens up to the wider context of digital communication based on its interaction in a digital environment, as a visual code. All communication is in principle of a multimodal nature, made up of several modes (linguistic, visual, auditory, gestural and spatial are the main ones), even when communication is only written, as in the case of emoji on digital devices (in most cases). At this point, Neil Cohn (2018) suggests the way forward for the answer about whether or not

emoji should be considered language. He writes: A language requires an interaction between three primary components: meaning, modality and grammar. We should answer whether the emoji lexicon is ordered by a grammar: whether we can trace coherent sequences. As they are closed-class items (they cannot be modified), we should study their combinatorial properties. In their most recent paper, Cohn and Schilperoord (2022) answer affirmatively with emoji: they understand that linear sequences with only meaningful associations (as in the case of emojis) constitute simple grammars, visual linear grammars.

There is a peculiarity moreover that should make it more attractive to linguists, because being a visual element it assumes the role of a gesture, representing the gestures of oral communication simplified into a basic symbolic code (it oscillates between two modes). The receiver interprets it as a gesture (therefore, as a sign of a mood, of an emotion, also with emoji that are not faces), in order to understand the message as a whole from the effect that the gesture that the emoji represents or, better, simplifies (whereas the emoji is a standard, non-customisable icon), would have on the conversation. Since the message is perceived as the reduction to a single plane of a conversation whose other dimensions can be glimpsed precisely from the indications provided by the emoji, with the assumption of its limitations, through the depersonalisation of the physical gesture, converted into a drawing of general and very basic strokes, but very effective for at least pointing out that gesture with an exceptional economy of means.

Revealing traits in common between emoji and gestures is an exceptional starting point. To work on the linguistic behaviour of emoji in a text, it is very useful to understand their equivalence with gestures (which implies a greater concreteness than their equivalence with non-verbal language). But this comparison is not the goal in its linguistic study. It is only a premise (albeit a very revealing one). An emoji is a representation of a gesture: not the gesture (body gesture) itself. And it has its own characteristics that are revealed in its morphology and syntax, as a visual language (not a gestural language), made up of closed-class lexical elements (they cannot be modified, they cannot be personalised, as we personalise our gestures).

Currently coexist: 1) A bold line of research on the linguistic condition of emoji that is still in its beginning, made of very few publications, but that can contribute to general linguistics an exceptional field of research, with a non-natural language (of widespread use) that gradually seems to be shaping a linear, basic, but self-conscious grammar. 2) An extensive general bibliography on emoji that, for its diverse fields of research, has not yet considered relevant an evaluation of the linguistic condition of emoji and its consequences in its way of communicating and in the effects it provokes. The cause of this dissociation is probably multiple. But we cannot forget that it is a very recent phenomenon, which will continue to develop. As a minimum prospect after these first 6 years of academic research on emoji, we can expect: 1) A solid line of research into the linguistic aspects of emoji from multimodality or visual language or from other linguistic approaches that are attentive to the hybrid condition of language in digital media. 2) The conclusions of this research are incorporated into other papers that study emoji from other academic disciplines to be more accurate in their analyses.

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