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# Digital identity performance through emoji on the social media platform Instagram

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**Introduction:** Emoji are omnipresent features of digital discourses and have become almost inherent features of online interactions. Given the large and ever-increasing variety of emoji, it is not farfetched to assume that users will have preferences for particular emoji or emoji combinations, and that their preferences are indexically related to their identities, for example in terms of skin-tone and/or gender. With a case study, the present paper aims to address a particular gap in the extant literature, namely the role of emoji in the presentation of different identities of one individual, namely a US American female in her early 20s.

**Methods:** The data for this study was drawn from Instagram and comprises a total of 625 posts made by one user to three of her own accounts with the platform. Each account represents a different aspect of her identity, and the analysis demonstrates that while the use of some emoji remains stable across all of her accounts, other emoji are very account-specific in that they are employed to highlight one particular aspect of her identity.

**Results:** The results thus indicate the different values that emoji might have in the contexts of authorship analyses. Additional studies are required to investigate this phenomenon further.

## KEYWORDS

identity, multimodality, Instagram, self-presentation, forensic linguistics

## 1. Introduction

People constantly present different aspects of their identities in their daily interactions with other people. For example, in interactions with friends, a person is likely to show a different self-identity compared to interactions with parents, siblings, teachers, or strangers (Bell, 1985). Thus, the concept of “identity” is a highly complex one and depends not only on person-internal features but also varies with respect to contexts, situations, and individuals involved in interactions (see, for example, Bell, 1985). Wheeler and Bechler (2021) argue that “identities are categorical labels” (p. 6) that can be perceived of as a collection of beliefs (Sparks and Shepherd, 1992) and that can be differentiated according to whether they reflect personal identity or social identity (Guimond et al., 2006). Elements that contribute to a person’s identity are personality traits, physical characteristics, social relationships, or group affiliations, among others. While individuals place themselves into some of these categories, other categories are assigned to them from the outside (Wheeler and Bechler, 2021). Individuals further draw on different aspects of their identity, depending on the respective situation, meaning that they highlight certain parts of their identity while they background or sideline others, as perceived appropriate by the contextual elements of the interaction (see, e.g., Grant and MacLeod, 2020).

The performance of identity or identities has been discussed in particular by Goffman (1959) in their seminal work *The presentation of self in everyday life*. Goffman (1959) has compared social interactions with a performance and has argued that a performance is an “activity of an individual which occurs during a period marked by his continuous presence before a particular set of observers” (p. 22).

From this perspective, individuals are seen as actors who perform for a particular audience (Robertson et al., 2018). Goffman (1959) further distinguishes a front stage in which individuals aim to present an idealized version of themselves, from a more private backstage. In the context of the present paper which focuses on the portrayal of identities in an online environment, it is important to acknowledge that although many researchers do consider social media platforms to be rather public spaces (Zappavigna, 2012; Page et al., 2022), others consider this matter far from resolved (Stevens et al., 2015). In this paper, however, social media platforms are regarded to be rather public spaces for identity performances, particularly if access to posts is not restricted to a specific audience. A major difference between on- and offline performances is that in contrast to an unrecorded stage performance or offline conversation, an online performance is often retained and stored, thereby making it available for a future audience (Hogan, 2010) that might not be the target audience of the user. The specificities of online identities will be discussed subsequently.

## 1.1. Online identities

In an online environment, the question arises as to which degree the online identity reflects the offline identity (Robertson et al., 2018), i.e., how closely the online representation of the individuals' identity matches or resembles their offline identity. Robertson et al. (2018) argue that for some individuals, the correspondence between on- and offline identities is higher than for others based on their desire to represent their "real" self. In contrast, some online identities might be "at odds with reality" (p. 2), which implies that some individuals are performing a role that they do not embody offline. However, as Reed (2005) states, it is likely that an online profile "signifies a single individual [and] does not merely stand in for that individual but is that individual" (Hogan, 2010, p. 380). It is particularly young adults and late adolescents who experiment with the presentations of their online identities, as a study by Jordán-Conde et al. (2014) has demonstrated, and which is directly relevant in the context of the present study.

Robinson (2007) has coined the term "cyberperformers" in an effort to account for online identity performances, which requires adaptations of the original concept for the reason that online identity presentations differ from offline ones with respect to several features. For example, it is specific to the virtual world that it combines aspects of both offline and online performances (Hogan, 2010). As hinted at above, digital performances are often for unidentified audiences, are archived for future audiences, and, in addition, might not even take place synchronously (i.e., with the performer and their audience online at the same time). Social media platforms in particular have been found to be ideal front stages for identity performances (Ge-Stadnyk, 2021). Importantly, however, Tracy and Robles (2013) argue that cyberperformers have to keep a more diverse audience in mind than offline performers, who are usually aware of who is listening to them. Online, in contrast, a cyberperformer has less, if any, influence over who will view their social media sites and interact with (i.e., like, view, share, comment on etc.) their posts. Furthermore, online identity performance differs from offline identity performance, because

individuals have an additional array of digital affordances available for their communication, including emoticons and emoji (Ge-Stadnyk, 2021), which can substitute for gestures, provide insight into emotions of the user, or add illustrations of what has been stated in the accompanying text. Additionally, particularly with respect to Instagram, emoji might also be used to reflect the picture that they are posted with (Marko, 2022a).

### 1.1.1. Instagram

Instagram is a popular social media platform whose main purpose it is to share pictures with one's followers or, in the case of public profiles, with a vast unidentified audience. In contrast to other social media platforms, Instagram does not allow the sharing of posts without a picture (unless the picture file that is uploaded contains text) and is thus heavily multimodal in nature (Leaver et al., 2020). Only few linguistic analyses have addressed the language on Instagram, such as Manovich (2017), Veum and Undrum (2018), Siever and Siever (2019), Marko and Sullivan Buker (2022), and Marko et al. (2022). Leaver et al. (2020) further point out that the platform is mostly used for self-presentation, which is why Instagram is the ideal platform for identity-related research.

## 1.2. Emoji as markers of identity

Emoji, which are picture characters (Goldman, 2018) that have been available for easy use on Apple iPhones only since 2011 (Evans, 2017) and for Android phones since 2013 (Cervantes, 2018) when a special emoji keyboard was introduced (Dimson, 2015), are popular multimodal features of digital interactions. As of 2021, 3,633 different emoji are codified by the Unicode Consortium (Emojipedia, n.d.) and are used with tremendous frequencies in digital communications. For instance, it is estimated that over six billion emoji are sent on social media platforms every day (Evans, 2017) and that half of all comments made to Instagram contain emoji (Dimson, 2015). In 2015, additional features such as skin-tone modifiers and more gender-sensitive options have been introduced (Robertson et al., 2020). These modifications allow users to select emoji that represent them more accurately than their previous, purley yellow but more neutral counterparts.

In order to demonstrate how intricately linked emoji and identity seem to be in the minds of their users, a case example will serve as illustration: In 2017, Kendall Jenner posted a message on Twitter that included an emoji fist that was one shade darker than the white emoji. Jenner's use of this skin tone was perceived to be racist by many Twitter users who argued that Jenner could not use this skin tone as she was not black. This incident, as reported by Halverson (2021), shows that in the minds of many users, there is a "robustly presupposed relationship (iconic or symbolic) between an emoji and its user" (p. 2). This seems to be the case particularly for skin tones (Robertson et al., 2020, 2021; Halverson, 2021) and for gender (Halverson, 2021). Evidence for an indexical relationship between individuals and emoji used in self-descriptions on Twitter has also been found (Li et al., 2020). Further, a study by Ge-Stadnyk (2021), for example, indicates that emoji use is also culture-specific.

For instance, some emoji represent culturally specific actions and objects that are not understood (and used) in the same way by individuals with other cultural backgrounds. Li et al. (2020) further argue that the used emoji “reveal important aspects of [users’] self-identities, such as the teams and musicians that they support, the activities they enjoy, their national and political identities, and show their similarities with their followers in these same aspects” (p. 206–207). Thus, it can be assumed that emoji are essential features of online self-presentations (Ge-Stadnyk, 2021) that can be employed to portray both personal and group level identities and affiliations.

What most of the studies outlined above have in common is that they investigate how emoji are related to an author’s identity performance on one platform or account. The research gap the present paper attempts to address is the lack of investigations of a single individual’s portrayal of different aspects of their identity through emoji on different accounts with the same social media platform. Thus, the following research question has been developed for this study: How, if at all, does the use of emoji represent different aspects of one user’s identity on thematically different Instagram accounts?

## 2. Data and methodology

The data for this study was collected in the winter of 2021/22 from the social media platform Instagram. At this stage of research, it was refrained from including accounts from other social media platforms of the same user into the analysis in order to preclude any effects exerted on the emoji use by platform-dependent requirements or platform-specific affordances (Marko et al., 2022). Future research, however, might consider cross-platform identity performance through emoji as well. The individual whose data is included in this analysis is a US American female in her early 20s with a bachelor’s degree, who holds three different accounts with the platform, and who was identified as a suitable subject for this paper through a previous study (Marko, 2020). The individual’s accounts are put to different uses, i.e., one is her personal account, one is used for her job as a hair stylist, and the third account is used for the promotion of her own store selling clothes. The name of the user will not be revealed, but for convenience, the individual will be referred to as Amanda throughout the study. The corpus includes 625 posts, 17,332 words, and 1,103 emoji. An overview of the corpus is provided in Table 1.

After the data collection, the emoji in the dataset were coded with the software MaxQDA (VERBI Software, 2022). In order to illustrate how the coding was employed, an example will be provided below:

Example (1) I love butterflies!! 🦋

In Example (1), the butterfly was coded as “🦋 Butterfly, U + 1F98B.” The ID following the name of the emoji is attributed to all emoji by the Unicode Consortium, which makes the coding process as objective as possible. The IDs are provided throughout the paper in order to make the emoji uniquely identifiable, despite the different renderings of the same emoji on different devices and platforms (e.g., Miller et al., 2016, 2017; Evans, 2017; Goldman, 2018).

TABLE 1 Overview of the corpus.

Account	Posts	Word count	Emoji	Normalized emoji per 100 words
Private total	395	9,055	499	5.5
Private_1	196	4,231	261	6.2
Private_2	196	4,824	238	4.9
Hair	59	1,715	155	9.0
Store	207	6,562	449	6.8
	<b>625</b>	<b>17,332</b>	<b>1,103</b>	6.4

The bold values are the totals of the respective columns.

### 2.1. Mock authorship analysis

In order to answer the proposed research question, a mock authorship analysis was set up. An authorship analysis aims at comparing the texts of two or more authors in order to determine whether the employed writing styles are similar or different (e.g., Coulthard, 2004; Fobbe, 2011). In a forensic context, this kind of analysis aims to reveal whether an anonymous text exhibits a writing style that is more similar to person A’s or to person B’s writing styles (both of whom might be suspects in a criminal matter, for example).

For the purpose of the mock authorship analysis in this paper, the chronology of the posts of the private account was randomly scrambled with the aim of preventing an influence of seasonal or other time-related differences or biases in the display and use of emoji. After scrambling the posts, they were separated into two sets of documents, each set amounting to 196 posts. In the next step, all emoji in the four datasets (the Hair-Stylist Account, the Store Account, and two parts of the Private Account) were coded as outlined above (see Example 1). Emoticons were excluded from the analysis due to their low frequency in the corpus, even though a previous study has indicated that emoticons, which are created with regular ASCII characters, might have a higher potential in discriminating between authors than emoji (Marko, 2022b). After the coding, Jaccard’s Coefficient (see, e.g., Grant, 2013) was used to calculate distances between the posts on the different accounts. The separation of the data from the personal account into two datasets aids in establishing whether the emoji on the personal account are more similar to each other compared to the other two accounts with the help of Jaccard’s Coefficient and a similarity map created by MaxQDA based on the list of codes.

### 2.2. Jaccard’s coefficient

Jaccard’s Coefficient is a statistical means to measure distances between texts (MacLeod and Grant, 2012; Grant, 2013). Essentially, it is a binary measure (i.e., it takes into account either absence or presence of a feature) that indicates how similar or different the compared texts are with respect to the investigated features. Grant (2013, p. 482) argues that it is an

advantage of Jaccard [...] that it does not inflate similarity on the basis of two absences. Absence of evidence of a stylistic feature in a particular text message is not evidence of its absence from that individual's stylistic range [...] and thus using Jaccard does not risk overstating the explanatory power of a single text.

Several scholars have previously demonstrated the usefulness of Jaccard's Coefficient in forensic authorship analysis, particularly in the context of short texts (MacLeod and Grant, 2012; Grant, 2013; Marko, 2020, 2022b), which is why this measure is also adopted in the present paper. Jaccard's Coefficient was calculated with the software MaxQDA, which also creates a multidimensionally scaled map that visualizes the distances between the investigated textual material in terms of the selected features. In the present analysis, only the types of emoji were investigated, as previous studies had suggested that the types of emoji might be more promising features as markers of identity than the functions of emoji (Marko, 2020, 2022b). However, future studies might also consider emoji functions (such as complementation, substitution, reinforcement, and contradiction) in terms of identity performance, since this is another gap in the extant literature.

### 2.3. Limitations

The present paper presents the analyses of a case study and thus comprises only 17,332 words and 1,103 emoji. However, the dataset itself is unique in that, to my knowledge, it has not yet been attempted to describe the use of emoji of one person on the same platform but for different accounts with the platform and with respect to their identity management on these accounts. Therefore, despite the small sample, the analysis can point toward valuable aspects for future investigations and can contribute to furthering our knowledge about emoji, digital discourse, and authorship analysis.

### 2.4. Ethical considerations

The data included in this study is taken from public accounts, which means that anyone with access to Instagram can view the posts. However, since it has been debated whether social media sites are public or private spaces (Stevens et al., 2015) and even though Instagram allows the use of data for third parties and researchers (Instagram, 2018), the name of the individual whose data is included in the study has been anonymized to protect her identity. Also, in order to keep the possibility of reverse identification through search engines to a minimum (Ayers et al., 2018), the wording of the posts in any of the given examples has been changed in line with previous researchers (Ayers et al., 2018; Gawne and McCulloch, 2019), as the precise wording does not add an additional value to the present study.

## 3. Analysis and results

The analysis will be presented in two parts: firstly, the results of the statistical analysis with Jaccard's Coefficient will be described.

TABLE 2 Distances between the investigated texts based on emoji use and calculated with Jaccard's Coefficient.

Account	Private 1	Private 2	Hair-Stylist	Store
Private 1	1.00	0.39	0.22	0.26
Private 2	0.39	1.00	0.28	0.31
Hair-stylist	0.22	0.28	1.00	0.34
Store	0.26	0.31	0.34	1.00

Secondly, with the aid of prior statistical tests, a more qualitative approach is taken with the detailed description of the emoji use and the explanations for their use on the three different accounts.

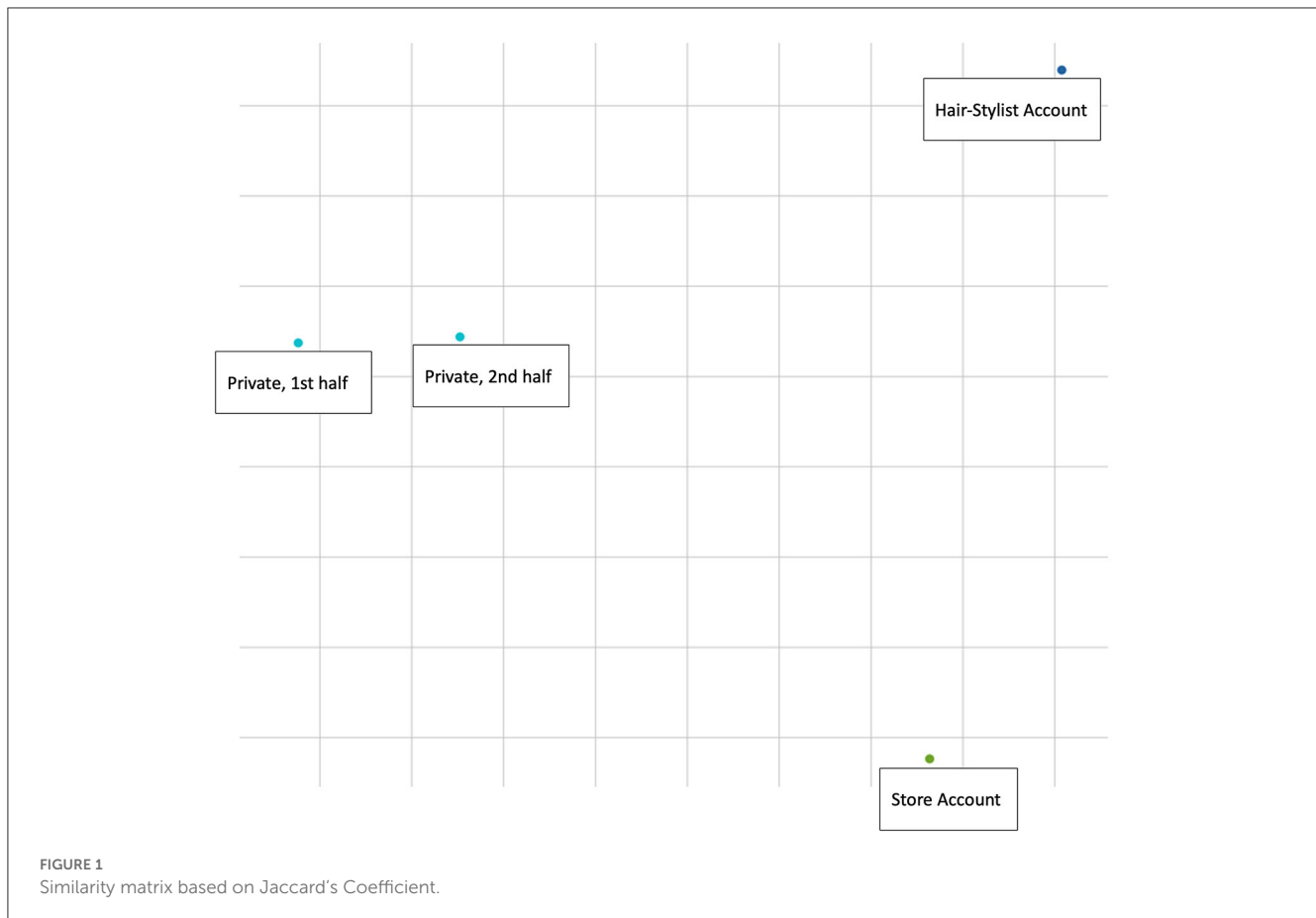
### 3.1. Measuring textual distance with Jaccard's coefficient

After the coding of the emoji in the dataset, the distances between the texts on the accounts were measured with Jaccard's Coefficient. Table 2 depicts the results of this analysis. The closer a value is to 1, the more similar the texts are; the closer a value is to 0, the more different the texts are in terms of the investigated features (i.e., emoji).

Figure 1 visualizes the distances between the investigated texts and also shows that the two parts of Amanda's Private Accounts cluster closer to each other than to her Hair-Stylist and Store accounts. Interestingly, the Hair-Stylist and Store accounts, both of which serve the purpose of selling either goods or services, do not cluster closely together, either. This finding is a first hint at the fact that Amanda's use of emoji is different on her three accounts, suggesting that the used emoji do play a role in the presentation of her identities and do not solely reflect the purposes of the accounts. In terms of an authorship analysis, this finding would be considered a correct attribution (i.e., the second half of the data of the Private Account was attributed correctly to the first part of the Private Account rather than to any of the other two accounts). However, this finding in and of itself does not reveal any information about the nature of emoji and about how the emoji are employed in the presentation of her identity (or identities). In order to find out more about this issue, a qualitative analysis is undertaken, the results of which will be reported below.

### 3.2. Analysis of types of emoji

As a first step, the overall use of emoji on the separate accounts will be looked at in order to determine whether it is possible to derive any usage patterns from them. For this analysis, the emoji were grouped into the following categories, based on other classification systems, such as the ones employed by Apple iOS16: faces, gestures, hearts, and objects. This classification was chosen as it is very practical and easy to use with little ambiguity. Figure 2 shows that the emoji in these categories are distributed unevenly across the accounts. To test whether the differences are also statistically significant, a generalized linear model with Poisson



distribution was run in R (R Core Team, 2022). Additionally, a dispersion test was used, which provided no indications of over-dispersed data and therefore, the Poisson distribution rather than a quasi-Poisson distribution was used for the generalized linear model. Also, *post-hoc* tests with simple contrasts were run, and the following results were obtained: with respect to face emoji, significant differences exist between the Hair-Stylist and the Private as well as the Hair-Stylist and the Store Accounts (both with  $p < 0.001$ ); gesture emoji appear significantly more frequently on the Private than on the Store Account ( $p < 0.001$ ); heart emoji are significantly more common on the Private Account compared to the Hair-Stylist Account ( $p < 0.001$ ), and significantly less common on the Hair-Stylist Account than on the Store Account ( $p < 0.001$ ); lastly, object emoji appear significantly more often on the Private Account than on the Hair-Stylist Account ( $p = 0.02$ ), but significantly less often than on the Store Account ( $p < 0.0001$ ). Also, the Store Account contains significantly more object emoji than the Hair-Stylist Account ( $p < 0.001$ ).

In order to investigate the emoji use in more detail, however, the emoji that are specific to the respective accounts are separated from those that appear on more than one account, and from those that appear on all accounts. For a first overview, the same statistical tests as outlined above (generalized linear model with Poisson distribution and *post-hoc* test with simple contrasts) were conducted for the emoji that are exclusive to the three investigated accounts. The following significant results were obtained: A difference exists between the Private and the Store Account in terms

of face emoji ( $p = 0.0005$ ), gesture emoji ( $p < 0.001$ ), heart emoji ( $p = 0.029$ ), and object emoji ( $p < 0.001$ ); as well as between the Hair-Stylist and the Private Account for object emoji ( $p < 0.001$ ).

In order to arrive at a better understanding of these differences, a closer look will be taken at the emoji that Amanda uses exclusively with her Private Account. Table 3 provides an overview thereof.

Table 3 shows that 110 emoji types are unique to Amanda's Private Account, which means that it is her Private Account on which she displays the largest range of overall emoji use. However, it is also visible that 70 of the 110 emoji (i.e., 63.3%) appear only once, and only 18 (i.e., 16.4%) appear more than twice. The two most frequent emoji specific to Amanda's Private Account are used five times in the dataset, which account for 9.1% of all emoji.

The most frequently used emoji on Amanda's Personal Account are emoji relating to or showing emotion, while the least frequent ones represent objects. In contrast, on her Hair-Stylist Account (see Table 4), it is a rather unusual multimodal marker, a black star, that is the most frequent emoji, followed by three face and an animal emoji. Even though the star is not technically considered an emoji as it does not have a Unicode ID, it is still considered as such in the present analysis as it is clearly a multimodal object that is not created with existing keyboard characters (as emotions are, for example). However, a closer look at the data shows that the black star is indeed overrepresented and an outlier, as it appears 12 times in total, but only within one post. In this one post, the star is used instead of bullet points within a list.

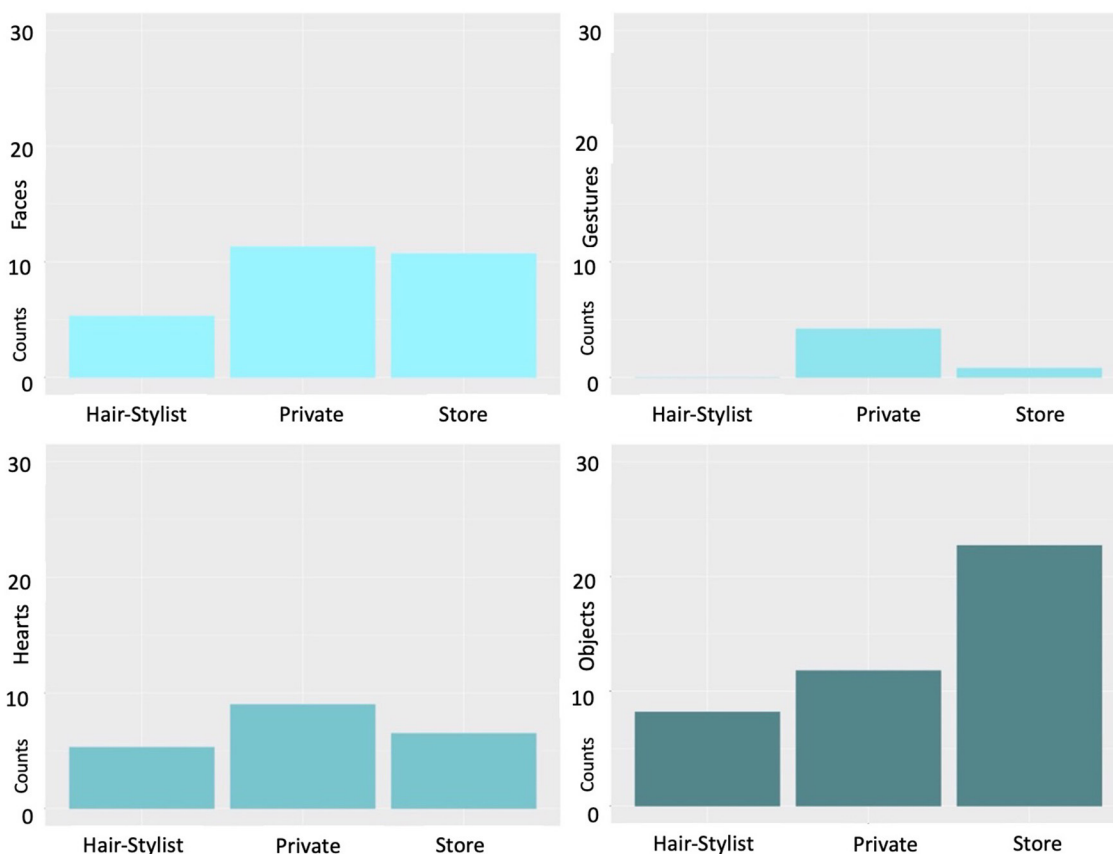


FIGURE 2  
Overview of emoji use on all accounts. Counts have been normalized for 100 occurrences.

The second most frequent emoji, which, in contrast to the black star, appears in five different posts, is the Drooling Face (U + 1F924). Examples (2) and (3) show how it is used in the dataset:

Example (2): I love creating this 🤤

Example (3): Just the right amount of blend 🤤

Similar to the emoji used on the Hair-Stylist Account, the most frequent emoji on Amanda's Store Account (see Table 5) are also not typical emoji with a Unicode ID. However, the majority of the emoji used with this account represent objects and things rather than faces or gestures.

The filled and the unfilled circles which appear at the top of Table 5 are used to separate paragraphs from each other. The shopping bags, on the other hand, are used in directive speech acts that aim at getting the reader to buy something from the website, as seen in Example (4), and the hand pointing downwards directs the reader to comment below or tag someone else, as illustrated in Example (5):

Example (4): Click here to shop our favorite spring pieces 🛍️

Example (5): Tag your friends below 👇

The way these emoji are embedded in the text exemplifies the highly interactive nature of the emoji used on the Store Account,

which is in contrast to the emoji that are specific to the Hair-Stylist Account. On the Hair-Stylist Account, the emoji are used to highlight Amanda's attitudes toward the content of the posts, while the emoji used on the Store Account aim at engaging the audience by inviting them to interact with her or to buy something from the store. Again, in contrast to that, Amanda's Private Account is even more personal in terms of emotional engagement with the audience.

From a forensic linguistic perspective, it is of utmost interest to investigate if some features remain stable across all the identities Amanda performs online, in order to be useful stylistic or authorship markers. Table 6 displays the emoji that are used on all accounts.

Firstly, Table 6 shows that all 20 emoji that Amanda uses consistently on all accounts by far exceed the frequencies with which the emoji specific to the Hair-Stylist and Store Accounts are used. Further, the consistently used emoji also appear to be of a different nature: half of them (10 instances) are either face or heart emoji, thus indicating emotions and/or attitudes. That is, the other half of emoji that are used consistently are related to objects and things. Interestingly, the consistently used object emoji differ from those that are specific to the individual accounts in that they refer to natural phenomena rather than particularly topical ones. The implications of this finding will be discussed in more detail below.

TABLE 3 Emoji used only with the Private Account.

#	Emoji	n	#	Emoji	n
1	💕 Heart with Ribbon, U+1F49D	5	26	🍃 Leaf Fluttering in Wind, U+1F343	2
2	🦋 Butterfly, U+1F98B	5	27	🎂 Birthday Cake, U+1F382	2
3	👧 People with Bunny Ears, U+1F46F	4	28	💩 Pile of Poo, U+1F4A9	2
4	😘 Face Blowing a Kiss, U+1F618	4	29	🌐 Globe Showing Americas, U+1F30E	2
5	🏡 House with Garden, U+1F3E1	4	30	👸 Princess: Medium-Light Skin Tone, U+1F478, U+1F3FC	2
6	💞 Revolving Hearts, U+1F49E	4	31	👤 Prince: Medium-Light Skin Tone, U+1F934, U+1F3FC	2
7	🙌 Person Tipping Hand, U+1F481	4	32	🐮 Cow, U+1F404	2
8	👻 Ghost, U+1F47B	4	33	🐎 Horse Face, U+1F434	2
9	🐻 Bear, U+1F43B	4	34	💚 Green Heart, U+1F49A	2
10	🙏 Pleading Face, U+1F97A	4	35	🐣 Hatching Chick, U+1F423	2
11	😊 Smiling Face, U+263A, U+FE0F	4	36	🎓 Graduation Cap, U+1F393	2
12	🎵 Musical Notes, U+1F3B6	4	37	🙈 Speak-No-Evil Monkey, U+1F64A	2
13	💖 Heart Exclamation, U+2763, U+FE0F	4	38	🌄 Sunrise Over Mountains, U+1F304	2
14	🙄 Woman Shrugging: Medium-Light Skin Tone, U+1F937, U+1F3FC, U+200D, U+2640, U+FE0F	4	39	💎 Gem Stone, U+1F48E	2
15	🙎 Person with Veil: Medium-Light Skin Tone, U+1F470, U+1F3FC	3	40	🚤 Speedboat, U+1F6A4	1
16	😄 Beaming Face with Smiling Eyes, U+1F601	3	41	🎨 Artist Palette, U+1F3A8	1
17	😂 Face with Tears of Joy, U+1F602	3	42	🍭 Lollipop, U+1F36D	1
18	🧊 Cool Button, U+1F192	3	43	👉 Sign of the Horns: Light Skin Tone, U+1F918, U+1F3FB	1
19	😊 Smiling Face with Smiling Eyes, U+1F60A	2	44	🏔 Mountain, U+26F0, U+FE0F	1
20	😘 Kissing Face with Closed Eyes, U+1F61A	2	45	🏈 American Football, U+1F3C8	1
21	👌 OK Hand, U+1F44C	2	46	🗿 Busts in Silhouette, U+1F465	1
22	🙈 Hear-No-Evil Monkey, U+1F649	2	47	😋 Face Savoring Food, U+1F60B	1
23	🏙 Cityscape, U+1F3D9, U+FE0F	2	48	😴 Weary Cat, U+1F640	1
24	🍦 Soft Ice Cream, U+1F366	2	49	🌳 National Park, U+1F3DE, U+FE0F	1
25	👶 Snowman Without Snow, U+26C4	2	50	💰 Money with Wings, U+1F4B8	1

(Continued)

TABLE 3 (Continued)

#	Emoji	n	#	Emoji	n
51	Hundred Points, U+1F4AF	1	76	Billed Cap, U+1F9E2	1
52	New Moon Face, U+1F31A	1	77	Whale, U+1F40B	1
53	Person in Tuxedo: Medium-Light Skin Tone, U+1F935 U+1F3FC	1	78	Bird, U+1F426	1
54	Pig Face, U+1F437	1	79	Fish, U+1F41F	1
55	Person Gesturing OK: Medium-Light Skin Tone, U+1F646, U+1F3FC	1	80	Woozy Face, U+1F974	1
56	Face with Rolling Eyes, U+1F644	1	81	Peace Symbol, U+262E, U+FE0F	1
57	Clinking Glasses, U+1F942	1	82	Woman Getting Haircut: Medium-Light Skin Tone, U+1F487	1
58	Person in Tuxedo: Medium-Light Skin Tone, U+1F935, U+1F3FC	1	83	Bread, U+1F35E	1
59	Person Getting Haircut, U+1F487	1	84	Smiling Face with Horns, U+1F608	1
60	Waxing Crescent Moon, U+1F312	1	85	Glasses, U+1F453	1
61	Milky Way, U+1F30C	1	86	Cowboy Hat Face, U+1F920	1
62	Ribbon, U+1F380	1	87	Sailboat, U+26F5	1
63	Merman: Light Skin Tone, U+1F9DC, U+1F3FB, U+200D	1	88	Camera with Flash, U+1F4F8	1
64	Mermaid: Light Skin Tone, U+1F9DC, U+1F3FB, U+200D	1	89	Frowning Face, U+2639, U+FE0F	1
65	Rabbit, U+1F407	1	90	Person Frowning, U+1F64D	1
66	Snowman, U+2603, U+FE0F	1	91	Relieved Face, U+1F60C	1
67	Monkey Face, U+1F435	1	92	Airplane, U+2708, U+FE0F	1
68	Water Pistol, U+1F52B	1	93	Tear-Off Calendar, U+1F4C6	1
69	Koala, U+1F428	1	94	Call Me Hand: Light Skin Tone, U+1F919, U+1F3FB	1
70	Fireworks, U+1F386	1	95	Cityscape at Dusk, U+1F306	1
71	Pineapple, U+1F34D	1	96	Houses, U+1F3D8, U+FE0F	1
72	Wedding, U+1F492	1	97	Sun Behind Cloud, U+26C5	1
73	Cocktail Glass, U+1F378	1	98	Maple Leaf, U+1F341	1
74	Weary Face, U+1F629	1	99	Tractor, U+1F69C	1
75	Ear of Corn, U+1F33D	1	100	Musical Note, U+1F3B5	1

(Continued)



TABLE 3 (Continued)

#	Emoji	n
101	🎵 Musical Score, U+1F3BC	1
102	🎧 Headphone, U+1F3A7	1
103	🎤 Microphone, U+1F3A4	1
104	💍 Ring, U+1F48D	1
105	🍣 Sushi, U+1F363	1
106	👴 Old Man, U+1F474	1
107	🌀 Spiral Shell, U+1F41A	1
108	💪 Flexed Biceps, U+1F4AA	1
109	☎ Telephone, U+260E, U+FE0F	1
110	☁ Cloud with Snow, U+1F328, U+FE0F	1

## 4. Discussion

The analyses in this paper hint at the fact that one and the same person might employ different emoji on different accounts to highlight particular aspects of their identity. This has direct implications for digital authorship analysis tasks. For instance, it can be crucial to know what kind of account the posts provided for analysis are taken from, which of the emoji could be more indicative of topics than identity, and which emoji might be more closely tied to a user's offline identities. The analysis with Jaccard's Coefficient has shown that for the individual examined in this paper, the use of emoji on her Private Account is quite different from her use of emoji on her professional accounts, which is also supported by the statistical analyses presented in this paper. As pointed out, the difference between the two professional accounts in terms of emoji use is particularly worth mentioning, as both accounts are aimed at selling either goods or services. Further, the qualitative investigations indicate that the differences in emoji use across all three accounts relate mainly to audience engagement and the portrayal of attitude and emotions. That is, audience engagement appears to be stronger on Amanda's professional accounts, in particular on the Store Account, on which she attempts to elicit more audience interactions than on the Hair-Stylist Account. In contrast, her Private Account contains not only the largest variety of emoji but also more personal ones that provide insights into emotions and attitudes. Thus, the identity portrayed through the Private Account is more versatile and more adapted to situational circumstances (e.g., seasonal changes, birthdays, vacations, etc.). In contrast, on her Hair-Stylist Account she performs in the role of a seller of services, and on her Store Account she performs her identity as a fashion expert. It also appears as if the purpose of the Private Account is in sharing parts of her life with her followers, while the purposes of the other two accounts are in engaging with the audience, the selling of products, and the marketing of services and that exactly these different purposes are also reflected in the use of emoji. For example, the limited

TABLE 4 Emoji used only with the Hair-Stylist Account.

#	Emoji	n
1	★	12
2	🤤 Drooling Face, U+1F924	8
3	🤓 Nerd Face, U+1F913	2
4	💣 Exploding Head, U+1F92F	1
5	🦌 Deer, U+1F98C	1

range of emoji specific to the professional accounts thus reflects the narrower purposes of these accounts as well. To sum up, in both of her professional accounts, Amanda presents herself as more interactive and less emotional (i.e., more neutral and objective). In contrast, her Private Account provides her followers with more insights into her feelings and emotions, as well as attitudes and personal opinions. An aspect that has to be acknowledged and which marks another limitation to the findings of the study is that the extent to which emoji use is influenced by the discussed topic(s), which also differ across the accounts, is left unclear. In this particular context, it might even be argued that the use of emoji on the accounts is not related solely to the identities presented on these accounts, but can be accredited to the topics discussed on them. This, however, is a general issue for research in this area, as different accounts might be created for exactly this purpose: covering different topics (and simultaneously presenting different sides of the self). How, if at all, this issue can be addressed in future studies is yet unclear, but should be considered in the future.

Despite these issues, it is an interesting finding of the present study that despite the different purposes of the accounts, Amanda does appear to use several emoji consistently on all of them. These emoji might be considered personal preferences of Amanda and could therefore carry significance in a potential authorship analysis. These stable emoji are largely related to emotions and have stronger connections to herself and to her life. For instance, the emoji used in posts made to her Private Account show her strong affiliations to nature, flowers, the ocean, and animals (particularly dogs) and appear frequently on all three accounts. As Hogan (2010) points out, "everyone can have his or her own exhibit, as long as the relevant information can be displayed with some coherence" (p. 382). In this context, Amanda's use of the same set of emoji on all of her accounts can be regarded as a form of creating coherence between her accounts (even if done unintentionally). This set of relatively stable emoji therefore is the most interesting one from an authorship analysis perspective, as these might be the emoji that most accurately reflect her offline identity, and/or be indicative of personal preferences. This finding, however, needs to be investigated in future studies. Also, further studies need to consider whether self-identification through emoji and the degree to which emoji are used for the presentation of identities differ

TABLE 5 Emoji used only with the Store Account.

#	Emoji	n
1	•	7
2	◦	2
3	🛍 Shopping Bags, U+1F6CD, U+FE0F	2
4	👉 Backhand Index Pointing Down: Light Skin Tone, U+1F447, U+1F3FB	2
5	🌺 Hibiscus, U+1F33A	2
6	🖤 Black Heart, U+1F5A4	2
7	☀ Sun Behind Large Cloud, U+1F325, U+FE0F	2
8	🚀 Rocket, U+1F680	1
9	💻 Desktop Computer, U+1F5A5, U+FE0F	1
10	🚗 Sport Utility Vehicle, U+1F699	1
11	💡 Light Bulb, U+1F4A1	1
12	🕒 Alarm Clock, U+23F0	1
13	💜 Heart Decoration, U+1F49F	1
14	🤣 Rolling on the Floor Laughing, U+1F923	1
15	🙋 Woman Raising Hand: Medium-Light Skin Tone, U+1F64B	1
16	😮 Face with Open Mouth, U+1F62E	1
17	😏 Squinting Face with Tongue, U+1F61D	1
18	👁 Eyes, U+1F440	1
19	💃 Woman Dancing: Medium-Light Skin Tone, U+1F483, U+1F3FC	1
20	🌘 Waning Crescent Moon, U+1F318	1
21	🧵 Thread, U+1F9F5	1
22	☔ Umbrella with Rain Drops, U+2614	1
23	👋 Waving Hand: Light Skin Tone, U+1F44B, U+1F3FB	1

with regard to age groups, genders, speech communities, and other factors.

## 5. Conclusion

The case study presented in this paper begins to address an important research gap that has implications for the research on emoji, social media platforms, identity, and forensic linguistics. From the perspective of emoji and social media analysis, the present study is valuable in that it highlights how emoji use in the context of self-presentations on Instagram might work. Since Instagram, in contrast to Twitter, actively encourages the creation of several

accounts by a user (Leaver et al., 2020), the results presented in his paper hint at how emoji can be employed to navigate the identities portrayed and presented on more than one account by one and the same person. From the perspective of identity and forensic linguistics research, this case study highlights the role of emoji in the presentation of an individual's identity. Knowledge about the versatility of emoji in the context of identity presentation aids forensic linguists in the analysis of social media data for authorship questions and is thus an important addition to the forensic linguists' toolkit. Future studies will have to investigate a larger sample of data and might also compare the use of emoji for the presentation of identities on different social media platforms and other forms of digital communication.

TABLE 6 Emoji used consistently on all accounts.

#	Emoji	n
1	🌟 Glowing Star, U+1F31F	49
2	🥳 Partying Face, U+1F973	37
3	💖 Growing Heart, U+1F497	33
4	💛 Yellow Heart, U+1F49B	33
5	🌻 Blossom, U+1F33C	29
6	☀️ Sun, U+2600, U+FE0F	23
7	😊 Smiling Face with Hearts, U+1F970	21
8	☀️ Sun with Face, U+1F31E	20
9	🌸 Bouquet, U+1F490	20
10	💜 Purple Heart, U+1F49C	19
11	😜 Zany Face, U+1F92A	19
12	🌿 Herb, U+1F33F	16
13	🌸 Cherry Blossom, U+1F338	15
14	💎 Sparkling Heart, U+1F496	14
15	😊 Smiling Face with Open Hands, U+1F917	14
16	😜 Winking Face with Tongue, U+1F61C	13
17	😜 Winking Face, U+1F609	9
18	🍂 Fallen Leaf, U+1F342	7
19	🌻 Sunflower, U+1F33B	7
20	🌊 Water Wave, U+1F30A	6

## Data availability statement

The data analyzed in this study is subject to the following licenses/restrictions: the dataset was taken from public profiles of the individual involved. In this study, only emoji-data is used, thus the individual is not identifiable. However, the full dataset with the posts cannot be made available, as, due to data protection reasons, the individual might become identifiable. The dataset containing only emoji can be shared upon request. Requests to access these datasets should be directed to [karoline.marko@uni-graz.at](mailto:karoline.marko@uni-graz.at).

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## Ethics statement

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. Written informed consent for participation was not required for this study in accordance with the national legislation and the institutional requirements.

## Author contributions

The author confirms being the sole contributor of this work and has approved it for publication.

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## Conflict of interest

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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