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ABSTRACT

Our paper focuses on the semiotic analysis of images as shot by photojournalists. The photographs we analyze were taken in two different cities in Spain during a period of strict enclosure. For the analysis, we asked photojournalists to select several images. Once we received a selection, we analyzed the content of the images and categorized them. We processed the resulting information through statistical methods. The results show the importance of two variables: judgment and social emotions. While both variables show positive and negative significance, the results indicate the relevance of negative meanings. This may be due to a social logic centered on survival and individualism. This leads us to think that there has been a process of descaffolding during the period analyzed.

Introduction

The linguistic and semiotic study of images has had a prominent development in the recent years (Caple 2013; Lemke 1998; Liu 2023; Newton 2001). As Beckert (1974) points out, sociology and the study of images emerged at practically the same time. It is fair to say then that social studies on images have a fairly long tradition, but it is one that keeps evolving. In this article, we focus on the semiotic analysis of one specific subarea of the field, namely, the attitudinal character in social semiotics (Liu 2023). In this sense, Martin (2002) indicates that attitudes, when taken as a subsystem, allows us to distinguish three dimensions for evaluation: affectivity (feelings), judgment (reactions) and appreciation (esthetic orientation). The semiotic appreciation of the attitudinal character is not often clear in the way we look at images, and as such, their semantic dimension will be put aside for the purpose of our research.

Instead, what we want to focus on is the idea that cultural products (such as photography) are deeply related to meaning-making processes, with the process of image creation considered as an observation of the first order in our analysis. A relevant assumption we make is that, in order to produce meaning, meaning itself must be presented in a logically articulated way (Landowski 2007). In other words, we must be able to establish

relationships that open up to the analysis of possible and actual differences between a particular image and the system it may belong to. The way social sense is shaped, as indicated by Luhmann (1996b) in his *Social Systems*, is based on the process of observation, making social differentiation a noticeable phenomenon when studying social organizations. Luhmann points out that observation is not related to the truth/non-truth code proper of scientific knowledge (Luhmann 2012). Rather, what we require is a scientific observation of the second order, allowing us to establish the differences or concomitances related to the sense as structured by the first observers, in this case, the creators of images.

To put it in a more concrete fashion, this article is a second-order observation of cultural products made by two photojournalists, our first-order observers. They shape and structure the specific meaning that they are seeking (or demanding) when they carry out the act of photographing (Marzal 2007; Moreiro and Robledano 2003). Human action constantly strives for meaning, or rather, to be given meaning, echoing Lotman and Uspensky's notion of the semiotic mechanism of opposition through which culture becomes meaningful (1978). In following their footsteps, we believe that the creation of culture is an opposition based on the constant transfer of non-cultural signs and cultural signs, a shift and interaction between elements within a semiosphere (Lotman 2005). In this way, we believe that images have social value related to their established social function at any given moment (Burke 2001). In the case of photojournalists, one of their obvious functions is to describe a specific part of the existing reality at any given moment. Photographers will therefore filter social reality through what they tell or what they frame in their images as experts and storytellers (Caple 2013).

The socio-semiotic role of photojournalists has acquired an outstanding social and communicative importance during the strict confinement caused by the SARS-CoV-2 coronavirus pandemic. Throughout this period, people have been forced to stay home to limit the transmission of the virus, which has turned photojournalists into narrators for the duration of these conditions. On the other hand, strict confinement has pushed photojournalists to identify and show the elements of meaning that structured the pandemic reality for society to see. We know that domestic confinement had negative effects on their social relationships and emotions. Predictably, these elements will also be part of the images of photojournalists. After all, they are social actors who are also affected by the social meanings that were generated at that time in our recent history. It is for this reason that we consider the study of these images a highly relevant point of view as a condensed and revealing narrative mechanism of a period that has shown a profound level of uncertainty. In this sense, the gaze acquires great importance. As Shairi and Fontanille (2001) points out, a second-degree equivalence rests on it. This is reminiscent of the second-order observer of which Luhmann speaks. This gaze inserts an element of semiotic interpretation of a process of representation of social reality.

With all these considerations in mind, the aim of this research is to detect, in a set of images selected by the photojournalists themselves, some of the semiotic elements that generate meaning. We will focus on analyzing the elements that appear to have the greatest semiotic relevance, socially speaking, though not all semiotic elements can ever be covered when it comes to the social interaction of images and individuals. This is due to the fact that images are, in addition to a form of representation, an expression of particular and specific traits of photojournalists. This link becomes one of the

cornerstones of the socio-semiotic configuration of the judgment that the author brings to the images created by him, as we will later argue.

Materials and methods

The analysis that has been carried out is based on the semiotic perspective of the shaping of meaning by the photographer.[1] Nevertheless, our intention is to reduce, as much as possible, the interpretative elements of image analysis. However, neither do we intend to fall into an excess of objectivism, nor do we intend to fall into an excess of subjectivism. We characterize our approach as semiotic insofar as it is based on the analysis of signs (within images, in this case) with meaning, and whose objective is communicative, but based on phronesis, which "is forced to phase the question of foundationalism versus relativism" (Flyvbjerg 2001, 130), moving into directions beyond the meaningful characterization of images in context and venturing into the territory of analogical reasoning. Peirce (1931–1958) in referencing analogical reasoning, shows that sensory qualities can be similar, putting two different objects in relation (CP 7.498, c. 1898). Analogical reasoning involves making comparisons between different things or situations that share similarities, even if they are not identical. In the context of image analysis, analogical reasoning can be a useful tool because it allows us to identify similarities between different images and use those similarities to gain insights about the content and meaning of those images.

Analogical reasoning can also be used to identify differences between images, which can be useful for tasks like image classification or object detection. By comparing the features of an image to a set of reference images that are known to belong to different categories (e.g. flowers, animals, vehicles), we can use analogical reasoning to determine which category the image most likely belongs to. Overall, analogical reasoning is a powerful tool for analyzing images because it allows us to leverage our knowledge of similar situations and objects to gain insights about the content and meaning of the images we are analyzing. In this sense, we understand that the general context is similar and the conditioning factors caused by strict confinement are also similar. Hence, we understand that such analogical reasoning is possible. Furthermore, in order to place subjectivity in a more manageable place, we have opted for image categorization as part of our methodology, consequently making our analysis more constrained. The categories we used, as we have indicated above, were established prior to the study of the images. These categories, in turn, are based on the idea of the semiotic tension of texts developed by Niklas Luhmann (2012), according to which texts (in our case images) are in tension between constatative and performative components. We understand that, with this procedure, we also engage in analogical reasoning by looking for similarities between an objective and a subjective perspective (Gentner and Smith 2012).

We asked the photojournalists to send us a selection of images for subsequent analysis, trying to avoid discursive interpretations and analyses. Hence, we opted for a content analysis of the information obtained based on the previous categories. In line with this type of study (content analysis), we opted for a statistical data processing analysis of the image. We are aware that capturing the discourse expressed in the images implies reasoning in the reverse direction of the production of the image. For this reason, our approach focuses more on the perception generated by the images than on a semiotic analysis based on semantic correspondences and inferences from signifying elements

within the image. What we are interested in is the possible perception that can be generated by the images, as one of the dimensions of meaning-making in social situations. We believe that this approach brings relevant value to the field, as it facilitates the interconnection between sociological and semiotic studies. A semiotic analysis of images in terms of their composition and signifying elements will no doubt enrich and complement our study, but our study is limited to what we believe are wider processes of signification and classification of attitudes, and is not intended as a more fine-grained analysis of the semiotic properties of the images.

After the analysis of the images and their subsequent categorization, we performed a statistical analysis of the results obtained. A statistical breakdown of signification processes can inform the semiotic analysis of images, providing valuable information on how images are constructed and interpreted in society. In this sense, statistical analysis makes it possible to explain in a concrete way the results obtained from the categorization of images. Moreover, image categorization and their general semiotic features presents us with an opportunity to observe social dynamics pertaining to judgment and specific meaning-ascribing processes (see for instance Thurlow, Aiello, and Portman 2020), which leads us to think that by analyzing statistical data, semioticians can explain in a more precise way the social realities, contexts and perceptions that emerge in society by both sampling images and analyzing their processes of signification in relation to social perception.

Description of the sample

The set of images we used in our work was given to us by two photojournalists. One of them works in Alicante and the other one in Soria. We chose both of these urban settings for a particular reason. They represent a relevant part of the population typology of Spain. Alicante is a coastal city of medium size, while Soria is a small inland city inserted within an unpopulated area and with reduced population movement. Given our local circumstances, we have good access to data for both cities, making them ideal candidates for our research.

It was in our interest that the first-order observers (the photojournalists) maintained their freedom and intentionality, and so we asked them to provide us with a set of images for further analysis. No limit was set on the number of images, although they were urged to be representative of the lived reality of this moment in time. However, we did suggest them to take into account a series of criteria when selecting the photographs: relevance, informativeness, non-repetitiveness and the ability to make sense of reality. We, therefore, worked with a social construct mediated by its creators from which we analyzed the social significance that operates through these visual narratives within the sample we were provided with.

The sample used in this work (Table 1) is composed by a selection of 158 images, of which 61 (38.6%) are from Soria and 97 (61.4%) are from Alicante.

Table 1. Description of the sample.

	No. of images	Percentage
Soria	61	38.6
Alicante	97	61.4
Total	158	100

Description of the analysis and variables

We analyzed the material in two different ways. First we carried an ethnographic analysis with a visual perspective in mind. Each image was described using two or three terms, depending on the content of each one of them. These terms were focused on the neutral description of what was represented. Secondly, we analyzed the images once more trying to determine a generic semiotic category to categorize their meaning in a single term. We settled for three major categories: "place" (denotative function), "judgement" (interpretive function) and "social emotions" (connotative function), considering these as semiotic variables because of their heuristic quality. These categories are intended to be a fast and operational determination of the concept of *emon* used by Kull (2019). We are aware that this strategy does not provide a fleshed out semiotic analysis, but we consider it to be operative when carrying out descriptive semiotic studies that open the door to exploring social processes in larger groups with more precise information. As expected, the images do not display the same connotations for every category. For this reason, we considered it necessary to assign a value to the intensity of the meaning in each image. Some images show, for instance, a positive judgment of reality, while others show a negative judgment. Similarly, some images will express, for example, positive social emotions whereas others will be display negative emotions.

The variable "Place" refers to the origin of the sample and is composed of two geographical categories, *Soria* and *Alicante*, the geographical location of the photographers and their images. The second variable, "Judgment," refers to the way reality is evaluated by the photographer. In this sense, the same symbolic element (for example, the masks, the army, and so on) can be transmitted as something *good*, *bad* or *ambiguous*. Following this criterion, a positive reaction was determined when the images represented events that conveyed meanings that increased the generation of community: care, work, applause and family. Likewise, a negative reaction was determined by the greater presence, in global terms, of the following responses: isolation, loneliness, and separation. Finally, an ambiguous reaction was determined when the image showed the same number of terms associated with positive and negative concepts, or when the responses included the following more ambiguous or neutral terms: waiting, every day, watchers, strollers and empty (no response).

Finally, the "Social Emotions" variable refers to the type of feeling or emotion provoked in the viewer by the different images observed. Again, it is worth remembering that the photographer intends to convey a sense of what is happening around him or her. This sense we believe can be related to *positive*, *negative* or *neutral* social emotions. As for the variable "Social emotions," the responses were also characterized as to whether they showed positive, negative or neutral emotions. Sometimes images convey several emotions at the same time. We deal with this situation by focusing on which characteristic was the most relevant in each image. By describing the images we were able to qualitatively evaluate this respect. When we had a greater number of positive terms (e.g. help, support, solidarity, care, dialogue, gratitude, encouragement, group, information, and work) in the description, then the image was considered positive. If we found a greater number of negative terms (e.g. loneliness, separation, sadness, fear, worry, social and emptiness) in their description, then the image was considered negative. Finally, we

considered images as ambiguous when there was a similar presence of terms related to positive and negative emotions, or when the terms expressed in the subjects' responses were ambiguous or neutral: normality, strollers, watchers, waiters, caution, neighbors, control, undefined tourism, faith and nationalism.

All this made it possible to elaborate a matrix for the analysis of these photographs. We carried a Pearson Chi-Square statistical analysis following the collection of data, given that the variables to be studied are all qualitative. In this way, we tried to observe the existing relationship between the variables with a confidence level of 95%.

Descriptive statistics

In Table 2 we can observe the descriptive statistics for the variables of Judgement and Social emotions, both in Soria and Alicante. These comprise the main variables within our current work. The first one helps us understand the meaning behind the positive and the negative reactions as in the images. The second one, on the other hand, refers to the typology of the messages shown in the images.

More specifically, 34.4% of the images from Soria emit a positive judgement, while in 19.7% of the images the judgement transmitted by them is negative, the remainder 45.9% of the images being considered ambiguous. However, the images evoke positive emotions in 29.5% of them, while 37.7% of the sample evoke negative emotions and 32.8% of them remain neutral.

On the other hand, in Alicante, 42.3% of the images evoked a positive judgment, while 27.8% evoked a negative judgment and 29.9% were ambiguous. Likewise, 39.2% of the images in Alicante elicited positive emotions, while 36.1% caused some negative emotion and in 24.7% these were neutral.

We can see in the sample a large number of images that are descriptive in nature and do not emit judgments or emotional behavior. This fact makes our semiotic analysis less clear with regards to social behavior. However, we believe this may stem from the temporal context in which the images are circumscribed, namely, the strict period of confinement at home at the time of the taking of the pictures.

Table 2. Description of the Social emotions and Judgement variables for each item.

			Frequency	Percentage	Cumulative percentage
Soria		Positive signification	21	34.4	34.4
	Judgement	Negative signification	12	19.7	54.1
		Ambiguous signification	28	45.9	100
		Total	61	100	
		Positive Emotions	18	29.5	29.5
	Socioemotional Behavior	Negative Emotions	23	37.7	67.2
		Neutral Emotions	20	32.8	100
		Total	61	100	
Alicante		Positive signification	41	42.3	42.3
	Judgement	Negative signification	27	27.8	70.1
		Ambiguous signification	29	29.9	100
		Total	97	100	
		Positive Emotions	38	39.2	39.2
	Socioemotional Behavior	Negative Emotions	35	36.1	75.3
		Neutral Emotions	24	24.7	100
		Total	97	100	

Results

Relationship between the variables of judgment and social emotions

After carrying out our analysis, one of the main highlights was a strong relationship between Judgement and the Social emotions present in the images, this relationship being statistically significant for the Soria sample [$\chi^2(4) = 41.801$; $p = .000$]. However, as seen in Table 3, in line with the contingency table elaborated for the calculation of Pearson's Chi-Square value, there were 3 cells in the Soria sample with expected values lower than 5, making up 33.3% of the total number of cells belonging to this sample. When this happens and the number of these cells exceeds 20% of the total for that sample, Pearson's Chi-Square value should be taken with caution. Instead, Fisher's Exact Test gives us then a more reliable significance value, with a statistically significant value for the relationship between the variables of Judgement and Socioemotional behavior in the images belonging to the Soria sample ($F = 37.263$; $p = .000$). For the Alicante sample there are no cells with expected values lower than 5, so the value offered by the Chi-Square statistic is reliable [$\chi^2(4) = 76.630$; $p = .000$].

With these results, it does not seem strange that the association between both variables is also statistically significant at a general level, without distinction of place [$\chi^2(4) = 111.614$; $p = .000$], where the Chi-Square statistic is reliable given the absence of cells with expected values of less than 5 in the contingency table (Table 4).

Table 3. Contingency table for the calculation of the χ^2 statistic for the different variables in both samples, Soria and Alicante.

				Positive emotions	Negative emotions	Neutral emotions	Total
				Social emocions			
Soria	**Judgement**	Positive signification	Count	14	3	4	21
			Expected count	6.2	7.9	6.9	21
		Negative signification	Count	0	12	0	12
			Expected count	3.5	4.5	3.9	12
		Ambiguous signification	Count	4	8	16	28
			Expected count	8.3	10.6	9.2	28
		Total	Count	18	23	20	61
			Expected count	18	23	20	61
Alicante	**Judgement**	Positive signification	Count	33	8	0	41
			Expected count	16.1	14.8	10.1	41
		Negative signification	Count	5	18	4	27
			Expected count	10.6	9.7	6.7	27
		Ambiguous signification	Count	0	9	20	29
			Expected count	11.4	10.5	7.2	29
		Total	Count	38	35	24	97
			Expected count	38	35	24	97

Table 4. Contingency table for the calculation of the χ^2 statistic between the different variables for the complete sample.

			Socioemocional semiotics			
			Positive emotions	Negative emotions	Neutral emotions	Total
Judgement	Positive signification	Count	47	11	4	62
		Expected count	22	22.8	17.2	62
	Negative signification	Count	5	30	4	39
		Expected count	13.8	14.3	10.9	39
	Ambiguous signification	Count	4	17	36	57
		Expected count	20.2	20.9	15.9	57
	Total	Count	56	58	44	158
		Expected count	56	58	44	158

Relationship between the variables (categories) of judgement and socioemotional behavior, and place

Considering the differences between the positive, negative or ambiguous reactions (that is, the Judgment variable), Pearson's Chi-Square statistic indicates that there are no statistically significant differences between the different parts of the sample [$\chi^2(2) = 4.257$; $p > .05$].

Similarly, if we analyze the existence of differences in the type of emotions displayed in the images (that is, the Social emotions variable), we see no statistically significant differences between the different locations in the sample [$\chi^2(2) = 1.885$; $p > .05$]. Table 5 shows how the expected values do not differ particularly from the count values, which leads to the non-existence of statistically significant differences.

Discussion

The way the images showcase positive, negative or ambiguous judgments of reality follows a specific intentional and emotional evaluation. In other words, the photojournalist intends, in a single image, to explain a part of reality that, in principle, is not necessarily related to social emotions. We did find, however, that this link takes place rather frequently, although in a nuanced way. The connection between perceived reality and its evaluation seems to be firmly established in the images analyzed such that, when faced with images that emit a positive judgment, the emotions (as interpreted by the researchers) that are transmitted are also usually positive. Similarly, when images emit a negative judgment, they will be structured around emotional reactions as a general rule. Likewise, the relationship between the representation of an ambiguous judgment and neutral socioemotional behavior seems to remain stable. This generally occurs if we observe both the whole sample as well as each place, Soria and Alicante, separately.

An admittedly reasonable outcome we found was the existence of images that convey a positive judgment of reality through the expression of ambiguous emotions. A clear example of this lies in images of intensive care units. After all, intensive care units, despite the insecurities that this operating room might generate, are places where

Table 5. Contingency table for the calculation of the χ² statistic between each of the variables and the different locations, Soria and Alicante.

			Place		
			Soria	Alicante	Total
Judgement	Positive reaction	Count	21	41	62
		Expected count	23.9	38.1	62
	Negative reaction	Count	12	27	39
		Expected count	15.1	23.9	39
	Ambiguous reaction	Count	28	29	57
		Expected count	22	35	57
	Total	Count	61	97	158
		Expected count	61	97	158
Social emotions	Positive emotions	Count	18	38	56
		Expected count	21.6	34.4	56
	Negative emotions	Count	23	35	58
		Expected count	22.4	35.6	58
	Neutral emotions	Count	20	24	44
		Expected count	17	27	44
	Total	Count	61	97	158
		Expected count	61	97	158

people have managed to survive infection. In these environments, no positive or negative emotions seem to be conveyed, but the judgment of reality is positive, since lives are being saved. In addition, positive emotional elements do not have to be strictly related to positive value judgments. As Liu (2023) indicates, there are patterns of complementarity in the semiotic construction of a message that can turn an image into a multisemiotic artifact. This means that the elements of meaning shown by each image can become, in some cases, paradoxical. By studying virtual images, Jandrić (2018) points out that affective and meaningful elements contribute to an increase in ambiguity, where the so-called post-truth operates with ease. For this reason, the semiotics of the image are flexible, subjective and what seems obvious at first glance may contain multiple layers of complexity.

On the other hand, we find a tendency to develop negative socioemotional behaviors contextually, a principle that operates both in Soria and Alicante. We can see that in both places, though a positive concept is usually related to positive emotions, there is a smaller number of positive emotions in relation to the number images with messages that transmit a seemingly positive idea. The same thing happens in both Soria and Alicante with neutral emotions and ambiguous concepts, since again, a smaller number of neutral emotions can be seen in relation to the magnitude of ambiguous concepts that the subjects form when viewing the images. If these two semiotic facets take place together, one reason may be because in both Soria and Alicante a greater number of negative emotions are shown in relation to the intensity of bad concepts emitted. There is something curious about such a result, but it is not unreasonable that such a correlation exists given the social context in which we are immersed, considering the COVID-19 pandemic.

These results are consistent with the study performed by Coca, Soto, and Roche (2021) where they found, in an analysis of images published in the media, that one of the four main socio-semiotic environments is related to *survival*. The concern over health or survival as reflected in the images focuses the semiotics of the image towards negative behaviors related to the control of the other, surveillance, etc. Following the reasoning of Cobley (2016), who in turn relies on Hoffmeyer (2014), *semiotic freedom* characterizes

the evolutionary process of social scaffolding. However, we may posit, though semiotic freedom seems to increase in social systems, this may not apply to all the elements within the system. Generally speaking, we may be confident in an increase in this freedom and, therefore, an evolution of social scaffolding, but at the same time, given specific social dynamics, this increase may end up reducing the semiotic freedom of certain marginalized groups. We will return to this later.

Hoffmeyer coins the concept of semiotic freedom to explain the process of biological evolution as a gradual increase of semiotic competences, where signs function as "scaffoldings" on top of previous signs. In other words, semiotic relations entailed by organisms and environments are essential features for the usage of resources and change in behavior in terms of the relationship between organisms and their environment, leading to the evolution of organisms and their signs. As added to this, we can follow Turner and Machalek (2018) in their analysis of society from an evolutionary perspective. At the same time, such a situation reinforces negative elements in the discourse of our corpus of images. There may be survival mechanisms at play in the generation of this negativity, but, paradoxically, as a survival mechanism it could be considered essential for the long-term well-being of the population. The reduction in scaffolding that we detected may be related to the consolidation of some features of the so-called *technocratic authoritarianism*, which, according to Ferreira et al. (2020) exists in current sociopolitical contexts as means of control of the population through technological means (9) including the permanent surveillance of citizens, contact networks and infected people, among others.

When it comes to the images in our research, we find ourselves with *signs* that can be interpreted in different ways. The photographs we used may display positive intentionality (in the sense of protection), all the while operating as a negative element in the sense of a reduction of semiotic freedom as mentioned earlier. This is due to the fact that, if we follow along the lines of Peirce, interpretation (and the interpretation of interpretation) is a constant process (Lee 2018). Being the interpreter par excellence – what Deely called "the semiotic animal" (2003) – human beings are organisms with the capacity to be aware of the importance of signs for their life. In fact, according to Deely, the semiotic animal realizes that signs are more important in shaping the human experience than the objects around it. However, the semiotic animal cannot have access to an *ultimate* interpretation, an issue Deely took on regarding the nature of objectivity (2009). We can, however, approach signs within a range of plausible options related to the reality they seem to stand for (Lacković 2020). What happens is that the same sign can generate different interpretations and even different social consequences as a result of their subsequent interpretations.

Interestingly, Kull (2019) has approached a potential taxonomy of signs including the concept of *emon*, a kind of sign that is related to emotions, empathy and imitation. These signs, which in Kull's work would be one of the fundamental kinds within Peircean semiosis, could represent social situations, social learning and familiar recognition. This kind of signs entail a kind of logic regarding how and what organisms are capable of learning. In the case of *emonic learning*, Kull believes that "if it is possible to link to a link, then it tends to produce a linkage that models (imitates) the whole pattern of a regular situation, producing a representation" (2019: 97). Following this line of reasoning, we think that emons operate socially in two ways. Considering the highly sophisticated symbolic apparatus of

humans, these signs increase the social phenomena of scaffolding, supporting social relationships – different kinds of signs do not replace the other kinds and instead complement them. Secondly, in turn, emons also generate separation among subjects (a form of individualism, we might say), in a process we call "descaffolding." As we see, when it comes to change in the social process of "descaffolding" of sign structures, it could be the case that emons, if so conceived, could act as signs that restructure visual perception and, in turn, social judgments. Negative processes, including those linked to emons, would have different properties because, as signs, they would be involved in judgments and emotions of a non-additive nature for semiotic scaffolding. Being non-additive would imply that the learning that takes place is a removal of previously scaffolded elements within social semiosis. Precisely what we have indicated above in relation to the negative effects of the pandemic is an example of this.

Linked to these processes of a negative nature (both in the category of judgment and in that of socioemotional behavior) is the phenomenon of individualization and social isolation. This phenomenon has already been detected by Coca and Roche (2021) in the context of the COVID-19 pandemic. However, this social process has been hypertrophied by the manifestation of the *society of individuation* in which we find ourselves (Bréchon 2017; Rasborg 2017). However, as Coca and Roche (2021) also indicate, parallel to this hypertrophy of individuation, there has also been an increase in communitarian processes. These authors speak of an increase in *communitas* and, therefore, of the generation of socialization mechanisms and social spaces for participation that are different from the usual ones. In this sense, stairways, balconies, etc. became meeting places. Following our observations, we can see that this increase, using the images of the photojournalists as an example, is less pronounced than that of individuation. We cannot qualify the assertion that alternative mechanisms of sociality and even social resilience have increased thanks to an increase in *communitas*. As we have seen, in the complex social process that became more common due to the pandemic, paradoxical effects (positive and negative) became more common. Some of these have been able to expand the social scaffolding, whereas others may not display the same trajectory. For example, Fernández-Prados, Lozano-Díaz, and Muyor-Rodríguez (2021), in their work on resilience, indicate that the level of trust generated by political leadership and its adopted measures has increased the level of resilience in Spanish society. However, the authors themselves show that it is not possible to state categorically that this is indeed resilience or mere compliance with the norm, resignation, a coping strategy, social desirability, etc. Our data also lead us to question the assumed increase in resilience, although we do not doubt the increase in confidence mentioned by these authors. The reason for this is fundamentally found in the work of Sherrieb, Norris, and Galea (2010), where they show that community and resilience are linked to each other, so a social phenomenon that increases individuality makes us doubt the increase of social resilience, as we stated earlier.

Conclusions

Our aim in this research was to provide a socio-semiotic analysis of a number of images taken by photojournalists within the context of the strict confinement in two Spanish cities during the beginning of the SARS-CoV-2 coronavirus pandemic. The main focus of the work was analyzing and categorizing these images according to the meaning

they carried. The characteristics of our set of images led us to observe and work with two fundamental semiotic dimensions: judgment and socioemotional behavior.

The results of the socio-semiotic analysis were structured on the basis of these two main dimensions. We carried out a statistical study in order to know the existing correlations between positive, negative or neutral/ambiguous image significations. Our results indicate that perceptual semiotic processes are biased towards negative responses in the authors of the images, although there is also a marked ambiguous/neutral component in the results. We can attribute this to how semiotic practices/resources may perpetuate biases, imbalance or legitimize and maintain kinds of power interests. This implies a number of limitations and variations in the ways in which semiotic resources/practices operate in everyday life and in the social system.

Social constraints and their impact on social scaffolding have a correlate in the processes of interpenetration between the different systems (specifically between the social, psychic and natural systems). Hence, following the Luhmannian proposal, we could state that domestic confinement generated a reduction of possibilities. However, this reduction of social (and, according to our study, also semiotic) possibilities forced people to establish processes of resignification and reconfiguration of the ways of relating, communicating and living. This phenomenon may in fact lie at the basis of the transmission of emonic signs, which is why we see the need to utilize the concept of emon in our research. Emonic signs are structured through processes of social scaffolding as well as descaffolding. On this basis, we believe that the level of control exercised by the authorities in their attempt to curb the pandemic is reflected in the images we analyzed, shown to reduce the process of semiotic scaffolding. The pandemic lockdown reduced the process of semiotic scaffolding in a number of ways. More relevantly, it *reduced social interactions*. The lockdown measures led to reduced social interactions, limiting the opportunities for individuals to learn from each other's experiences and perspectives. This, in turn, reduced the possibilities of socially reconfiguring emotions (*emons*). Semiotic scaffolding is based on interactions with others, and when these interactions are reduced, the process of learning and meaning-making is also affected. Another situation caused by the lockdown was *limited exposure to social environments*. The lockdown measures have also limited individuals' exposure to social environments and experiences. This can limit the range of semiotic resources available to individuals, and therefore limit the ways in which they can construct and interpret meanings. Finally, this enclosure process *increased reliance on digital media*. We have not been able to evaluate this respect in our study, but it is undoubtedly one of the social consequences of the phenomenon. While digital media can provide some opportunities for semiotic scaffolding, excessive reliance on digital media during lockdown can limit the richness and diversity of semiotic resources available to individuals. In addition, digital media can reinforce certain dominant cultural codes and perspectives, limiting opportunities for alternative interpretations and meaning-making. Then, in summary, we can observe that pandemic enclosure disrupts the normal processes of semiotic scaffolding by limiting social interactions, exposure to social environments, and the range of semiotic resources available to individuals. In this sense, regarding descaffolding, a reality as shocking as that of strict confinement has increased the construction of a social semiotics based on *separational* emons. At this point, there was a higher perception of negative significant elements, however these preserved alternative semiotic possibilities as reflected by the constant repetition of ambiguous semiotic elements.

The levels of prominence attained by the negative elements (*emons*) could be linked to the logic of survival and control underlying the institutional actions promoted by the authorities. On the other hand, the importance of ambiguous signs in the images could be correlated to the sense of an evanescent society and the era of post-truth in which we find ourselves. However, the extent of this study does not allow such wide statements. Our study is limited in space and time; a greater contrast with other works and even a comparison with social behavior would be necessary to extend and generalize these claims. In opening these avenues of research, there is a pressing need to understand media literacy as related to pictorial signs, breaking away from dichotomies that do not encompass the whole range of semiotic possibilities of images (Lacković 2020, 460).

There are multiple fronts that can be expanded upon regarding both our theoretical considerations and methodology. One of the more interesting facets was the negative impact of represented elements in the semiotic world of the individuals. By allowing sign types that operate on emotions and learning, i.e. emons, we can expand our semiotic descriptions towards a social understanding of scaffolding phenomena within more concrete settings. That is, using emons as an anchoring mechanism for social processes where conflict may be present can allow us to first parse specific situations as learning, and this has been done effectively to some degree in the biosemiotic literature. Starting with an understanding of potential semiotic thresholds (Kull 2009; Rodríguez Higuera and Kull 2017), we can see how the Peircean sign nomenclature is capable of accounting for *some* processes of semiotic activity, but the complexity of learning for organisms with robust representational systems may actually require us to dig deeper into the emotional relevance of social situations as related to how signs become more complex or more complexly aggregated. This particular biosemiotic insight can be developed further and we see emerging evidence in our study that these semiotic aggregates, working side by side with learning in social situations, may also be somehow *defused*, descaffolded: The emotional element of semiotic characteristics may well present situations where learned, scaffolded structures become eroded, and despite the fact that our sample does not allow us to generalize about such possible incidences, contexts with a high emotional load such as what is portrayed in the images from our sample may indeed require a deeper exploration.

We have only hinted at processes of semiotic descaffolding, and for these to be effective, we may require more work on some of the biosemiotic facets of scaffolding as applied to learning. Olteanu and Stables (2019) view learning as "ecological and environmental" (429) in the sense that scaffolding processes, like learning processes make use of multiple biological elements of organisms instead of being of a purely linguistic nature. To this we add that sociosemiotic characteristics of images, coupled with social processes, can be representative of the nature of such complex learning process, and that the nature of the pandemic represented in the images can also lead to a profound change in learned social behaviors.

The negative emotions and significances witnessed in our sample may stem from both the context at hand and the way the context perfuses the images with specific kinds of meaning. In the description of the images, our first-order observers may have presented a statistically significant number of negative responses in both categories, and we believe this may be a product of social processes operating at the

level of control and survival. These negative responses may be representative of larger-scale processes taking place under the current circumstances brought about by the Covid-19 pandemic. This may also entail a pattern of semiotic constructions (and the destruction of other semiotic structures) taking place in situations of conflict and isolation. In order to verify these potential entailments, however, more studies need to be conducted on the kinds of emotions that take place during the social scaffolding of semiotic elements in situations of both high and low pressure for individuals.

As we have already mentioned, a fine-grained analysis of specific meaning-making features in the image was beyond the scope of our analysis, but we believe that engaging in understanding specific visual features can thoroughly enrich our analysis. For instance, Sonesson and Lenninger (2015) offer a cognitive framework for assessing semiotic competence in development that can inform how individual perception of semiotic features can change in situations such as strict confinement. Having a deeper view of the specific medium we have chosen, namely photography, can also make the data we have collected much richer. A Peircean approach that takes into account the cultural nature of photography and the specific signifying elements within, as in Basso Fossali (2011), can make our data not only more precise, but it can also allow us to approach the topic at a closer distance by fleshing out the relation of photography to the embodiment of the signifying elements and how we understand them, particularly during times of crises. After all, though we do not explore the role of images in culture at large, the clear influence of depictions in our semiotic systems can be seen at the cognitive, social, emotional and representational. By expanding on these areas, the semiotics of photography can complement the sociological study of image production to understand the way meaning-making takes a particular form in terms of our relation to photographic depictions and their own particular way of representing.

Strict confinement and social isolation have impacted society at large, and their long-term effects – already a topic of discussion in the medical and psychological literature (for instance Cruz et al. 2016; Pietromonaco and Overall 2022 to name only a few) – are a relevant facet to keep in mind when dealing with phenomena specific to semiotics. As we deal respects related to the social meaning of the impact of strict confinement, that is, its semiotic dimension and potential ramifications, we believe that studying agential communicative roles in the production of images can inform how meaning-making may be affected by the pandemic. As such, even though there may be much more to cover in connection to the biosemiotic respects of scaffolding and descaffolding and their relation to sociosemiotic processes, we see in our analysis a plausible description of the semiosis occurring in the production of images and the current negative connotations that reflect other social processes at hand.

Note

1. The dataset can be consulted at the following link: https://uvadoc.uva.es/bitstream/handle/10324/60232/Social%20Semiotic%20data.pdf?sequence=1&isAllowed=y

Disclosure statement

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