

Sighs in everyday and political communication

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Abstract

The work defines the sigh as a type of breath expressing or communicating specific mental or emotional states. To investigate the meanings of the sigh, after overviewing preliminary analyses of written and oral corpora, the paper focuses on a peculiar use of it as a “discrediting body comment” often exploited in political debates to imply the opponent’s stupidity or obsessive repetition, by displaying frustration or boredom. In a perception study on some uses of this sigh, participants’ interpretations are not significantly shared, but agreement emerges when considering their perception of sighs in terms of valence and arousal.

1 Introduction

Among the types of vocalization produced in vocal communication, some exploit the potentialities of breath for expressive or communicative aims. A snort may be issued when climbing steep stairs to convey effort, voiced expiration might communicate “I’m fed up”, a sudden voiced inspiration is often part of a startle reflex.

This work investigates the meanings of the sigh, a type of breath that can be used by a person both when alone – thus conveying expressive contents – and addressed to other people, with or without a communicative goal. Sect. 2 presents related work on sighs, Sect. 3 proposes a definition of sigh and overviews preliminary works on its meanings, Sect. 4 presents a perception study on a particular use of sighs in political debates.

2 Related work on sighs

Sighs have been studied in terms of their physiological mechanism and of their semantic and interactional functions.

Physiologically, a sigh is triggered by a normal eupneic breath and followed by a respiratory pause, a “post-sigh apnea” (Ramirez, 2014); it is a deep breath, a second breath starting when another is not yet over (Boncinelli, 2016; Li et al., 2016), that due to actual need for more air or to emotional events triggers a second inspiration.

In a Conversation *Analysis* framework, analyzing pre-utterance, post-utterance, stand-alone and transitional sighs, Hoey (2014) attributes them various functions and meanings depending on their position, context, physical production. Being manipulable, sighs can be conscious and used for social ends, and when and how they are delivered may influence people’s perception of their meaning in social interaction.

On the psychological side, Teigen (2008) investigated sighing in three works: a survey showed that people associate sighing mainly to negative, low-intensity and low-arousal emotional states; then it was shown that sighs produced by others are widely attributed to sadness, while self-produced sighs are mostly interpreted as “giving up” or “surrendering”. In a study asking participants to solve impossible puzzles, the sighs elicited by their ineffective attempts were seen as mostly unintentional expressions of some course of action, a wish, a plan to be set aside, a pause before a plan is replaced by a newfound initiative. Teigen (2008) finally proposes the following list of sigh types:

- (1) Sadness (including sorrow, depression, disappointment, and loneliness)
- (2) Giving up (resigned, helpless, despondent)
- (3) Weariness (tired, exhausted)
- (4) Boredom (unmotivated, restless)
- (5) Frustration (stress, irritated, displeased)
- (6) Other negative emotions (jealous, afraid,

- nervous, envious, hungry)
 (7) Happiness (joy, in high spirits, in love)
 (8) Satisfaction (relieved, well-being, content)
 (9) Relaxed (silent, tranquil)
 (10) Empathy (sympathetic, compassionate)
 (11) Other (surprised, excited, “strong feelings”)

3 The meanings of sighs: a first overview

This work focuses on a particular use of sigh in multimodal political debates. But before going into this, let us define the sigh in terms of a socio-cognitive model of communication (Poggi, 2007). A sigh is a vocal signal that may have either an expressive or a communicative function: it is expressive when its breathing pattern simply displays some internal physical or mental states like weariness or sadness, without its Sender having a conscious goal of making others know about such internal state. A sigh is communicative, instead, when its Sender has the conscious goal of having another know about his internal state. Whether expressive or communicative, it is a holophrastic signal (Poggi, 2009), i.e., it conveys a whole communicative act, including a performative and a content, where the performative is one of information and the content is an internal physical or psychological state. Thus the semantic structure of a sigh is always: “I inform you I am feeling X” where X may assume the meaning of various possible internal states, e.g. those overviewed by Teigen.

Before focusing on a particular type of sighs, we conducted two preliminary studies. First we explored the polysemy of sighs in a qualitative study on written literary texts: searching for the root *sospir-* (= sigh in Italian) in a corpus of 97 occurrences from 37 novels, for each occurrence we provided a verbal paraphrase of the meaning conveyed in that context, finding out, like did Teigen, that sighs convey: physical states (tired, exhausted, weary); negative emotions and mental states (sadness, being fed-up, grief, displeasure, regret, resignation, giving up); positive mental and emotional states (desire, patience, relief).

In a second study, we collected a corpus of 100 videos, taken from movies, tv fiction, cartoons, talk shows, political debates, where characters or debaters sigh during interaction. In this corpus too we generally found the same meanings as Teigen (2008); yet two peculiarities popped up. First, we also found a positive meaning of “self-encouragement”, in case of preparation for an effort, either physical or mental. Second, we

found that in most political debates the sigh is a body comment aimed at discrediting, to the point of delegitimizing, the opponent by implying s/he is boring or stupid. See this “discrediting sigh”.

- (1) <https://www.youtube.com/watch?v=X2XPD4Y6gs4>
 Laura Boldrini, the leftist Chair of the Italian Chamber, while talking of the boat people arriving on the Italian coasts, argues against her present opponent Matteo Salvini, the rightist leader of the North League, who claims the necessity to push them back, that this situation is the fault of the previous policy of the right government. While she is talking, Salvini performs an *audible inspiration* while *rolling his eyes up*, then he *points his eyes* again to the camera with his *eyelids half open*, making an *audible expiration*.
 This sigh looks as a signal of impatience and intolerance addressed to Boldrini’s complaint.

This type of sigh, working as a flaunted expression of annoyance and intolerance, is often exploited in political debates as a “discrediting body comment” (Poggi et al., 2012), a way to express one’s negative evaluation of the opponent’s discourse by facial expressions or other body signals that provide a “silent” feedback to the audience during the present speaker’s turn. When politician A is talking, the opponent B must leave him/her the turn, but taking advantage of being video-recorded by the camera, s/he launches seemingly “silent” messages to the audience, thus implicitly or explicitly displaying disapproval through expressions of boredom or annoyance, for instance by *rolling eyes*, *looking up in the sky*, or just *sighing*. Generally, the sigh has a literal meaning of frustration or boredom. Eyes upward, rolling eyes, opening arms may or not cooccur with the sigh, but when they do they enhance its aggressive import, by their very meaning, a pretended prayer to God. In this case, the eye signals intensify the expression of negative emotion, as if saying: “I am frustrated / bored”, “God, I pray you (help me bear this)”. The emotion display, whether intensified or not, in its turn implies negative evaluations about the opponent: expressing frustration may imply the other (or his discourse) is so stupid as not to be amendable; expressing boredom implies he/it is repetitive or pointless.

To investigate the meanings of sighs in general, and of their peculiar “discrediting sigh” among others, we conducted a perception study.

4 Sighs: a perception study

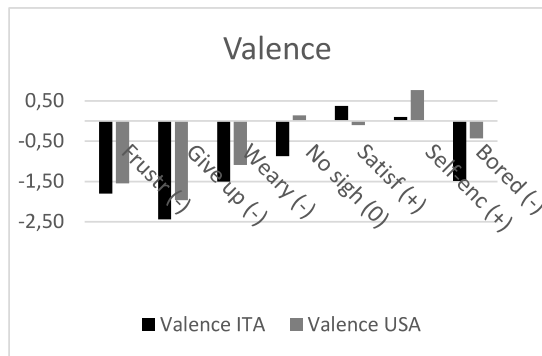
The goal of our study was to check if people viewing and listening to different sighs can attribute them different meanings, and if these meanings are shared among judges in the particular context of political debates.

In order to a preliminary check of Teigen’s (2008) taxonomy of meanings in the context of political debates, and to select the subset of meanings to submit to participants in our study, 55 different sighs, all taken from Italian political tv-shows, were analysed by two independent judges. Within these, to better adapt the list to interaction in the political context, that is generally not so placid or relaxed, we selected only 7 items: 5 out of them correspond to Teigen’s categories, while we excluded those with a positive valence (happiness and empathy) and, for balancing reasons, his category of *other negative emotions* (jealous, afraid, nervous, envious, hungry). Instead, we included the new positive category of self-encouragement found in the preliminary corpus analysis, to assess, through our perception study, if this is actually a possible meaning of the sigh. Finally, as a control item we included a case in which no sigh actually was produced.

Thus the selected items, beside the no-sigh, included frustration, boredom, weariness, giving up, satisfaction, self-encouragement: states with different combinations of valence and arousal. Some items were deliberately ambiguous among 2 meanings.

4.1. Participants and method

64 participants, 34 from USA and 30 from Italy were recruited through an online campaign and submitted with a survey in which they had to watch 8 different videos taken from Italian political debates, 6 of which contained a sigh. The



small number of items was aimed at preventing overload in participants. The videos of political debates were selected based on the technical feature that both opponents were visible in simultaneous frames, so one could see both the politician presently speaking and the one displaying facial comments during the other’s turn. Participants from the USA were asked to rate their level of understanding of Italian. After watching each video, both Americans and Italians were presented with the whole list of Teigen’s meanings, with the addition of “self-encouragement”, and they were asked to tell, on a 7-points Likert scale, how much each of those meanings corresponded to the sigh in the video.

4.2. Results and discussion

As results from Table 1, the sighs of frustration, self-encouragement and boredom were quite frequently recognized as such by participants, while those for giving-up, weariness and satisfaction elicited sparser ratings. The regression toward the mean for the control item reveals that participants can tell the difference between what is a sigh and what is not.

	Stimuli						
	Frustr	Give-up	Weary	Satisf	Self-enc	Bored	No sigh
Sadness	2,36	2,58	2,28	2,16	1,89	2,30	2,39
Giving up	3,91	4,23	3,69	2,66	2,50	2,97	2,91
Weariness	3,61	4,25	3,80	2,70	2,58	3,38	2,81
Boredom	3,88	4,20	4,05	2,27	2,56	4,06	2,67
Frustration	4,64	5,44	4,02	3,66	2,78	3,20	2,77
Satisfaction	1,70	1,67	2,27	2,77	2,77	2,28	2,23
Relaxed	1,80	1,73	2,30	2,30	3,11	2,55	2,20
Self-enc.	2,41	2,25	2,44	3,45	3,38	2,23	2,72
Other	2,14	2,16	2,13	2,72	2,44	1,95	2,33

Table 1. Ratings of sighs

Moreover, also when the specific emotion is not recognized, participants generally correctly rate the sigh either in terms of the dimension of valence (e.g., frustration perceived as giving up), or in terms of arousal (e.g., boredom perceived as relaxation). In general sighs conveying negative valence are perceived in any case as negative, but slightly more so by Italians than Americans (positive valence Italians mean = 0,24; positive valence Americans mean = 0,34; negative valence Italians mean = -1,81; negative valence Americans mean = -1,26). In Fig.1, on the x axis we labelled each video as +, - or 0 depending on our hypothesis on the relative valence conveyed by its sigh; on the y axis we listed the mean of a composite score [(satisfaction + relaxation + self-encouragement + other/surprised/excited) – (sadness + giving up + weariness + boredom)]

showing the level of valence indicated by participants; as can be seen, they answered coherently with our hypothesis.

Figure 1: Valence among all participants

We think that a more frequent attribution of negative valence to sighs in the videos on the part of Italian participants might be due not only to mere language competence, but to cultural knowledge in a broad sense: in most videos the Senders of the sighs were some politicians (e.g., Matteo Salvini) or journalists (Marco Travaglio) that are known to be particularly sarcastic. To this we might add also possible personal and political sympathy of Italian participants toward the speaker or the “sigher” in the debate, that might have influenced their interpretation of the sigh meanings, by viewing them as more or less aggressive than Americans did.

As regards the self-encouragement sigh, Italian participants generally tended to recognize it; the same cannot be said for Americans, who preferably rate it as conveying relaxation and satisfaction [Fig. 2].

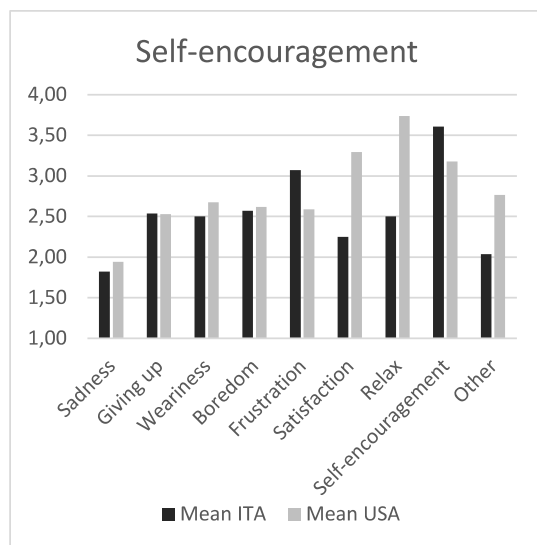


Figure 2: Self-encouragement

4 Conclusion and future work

The sigh is a highly polysemic signal, and its multiple meanings are not easy to distinguish; yet participants in our perception study differentiate positive from negative, and high from low arousal sighs.

Future research will try, first, to set a clear distinction, in terms of perceivable features and meanings, between sighing and other vocalizations like panting, puffing or snorting. Then, the correspondences will be investigated between the physiological production of sighs and consequent perceivable features and their respective meanings, checking for instance whether the audibility of inspiration and expiration correlates with different interpretations. Finally, it will be further investigated what meanings are added by the combination of a sigh with other body signals, such as rolling eyes, opening arms, raising head. The simulation of sighs in Virtual Agents will be both an end and a tool for such investigation.

Acknowledgments

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