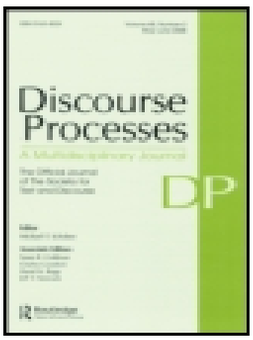

Discourse Processes

ISSN: 0163-853X (Print) 1532-6950 (Online) Journal homepage: http://www.tandfonline.com/loi/hdsp20

Smiling and the Negotiation of Humor in Conversation

Elisa Gironzetti, Salvatore Attardo & Lucy Pickering

To cite this article: Elisa Gironzetti, Salvatore Attardo & Lucy Pickering (2018): Smiling and the Negotiation of Humor in Conversation, Discourse Processes

To link to this article: https://doi.org/10.1080/0163853X.2018.1512247

Published online: 13 Sep 2018.

DISCOURSE PROCESSES
https://doi.org/10.1080/0163853X.2018.1512247

Routledge
Taylor & Francis Group

Smiling and the Negotiation of Humor in Conversation

Elisa Gironzetti [a], Salvatore Attardo[b], and Lucy Pickering[a]

[a]Department of Spanish and Portuguese/SLLC, University of Maryland; [b]Department of Literature and Languages, Texas A&M University-Commerce

ABSTRACT

This study investigates the function of smiling intensity as a nondiscrete marker of humor in conversation. The smiling intensity of participants in eight conversational dyads was measured relative to the occurrence of humorous and nonhumorous events in the conversation. A relationship was found between higher smiling intensity and the occurrence of humorous event across conversations, thus confirming the value of smiling as a marker of humor. The results show that the occurrence of humor correlates positively with an increase of smiling intensity relative to the nonhumorous stretches of talk, and it is foreshadowed by a localized increase of smiling both generally and when humor is predictable. Moreover, during humorous events participants displayed framing smiling patterns, often preceded or followed by smiling accommodation or inverted smiling gestures, which are representative of the conversational dynamics of the dyad and the ongoing negotiation of meaning.

Introduction

This study investigates humor markers and smiling behavior. In line with previous work on humor in conversation, we assume that interlocutors in conversational settings negotiate jointly the framing of the situation as humorous. In particular, we focus on smiling, a neglected area of research both in humor studies and in the analysis of discourse.

Humor Is Negotiated

Previous research has focused on one component of the humorous exchange at a time. One of the first foci was the role of the hearer in reacting to humor. In this view laughter is seen as a reaction to humor (see, for example, Norrick, 1993 claim that laughter may be the second part of an adjacency pair). Another focus, which attracted less interest, was on the role of the speaker in actively signaling that the surrounding talk should be construed as humor by resorting to, for example, laughter (see the discussion on "inviting laughter" in Jefferson, 1979). Yet another focus was the stimulus (the actual humor) and the cognitive processes involved in the processing it (incongruity and resolution). Once the province of psychological research, this was taken over by linguistics with the advent in the mid-80s of the semantic-script theory of humor, proposed by Raskin (1985).

What all the above approaches share is the focus on one factor of the humorous exchange, be it the speaker, the hearer, or the humor stimulus. Another strand of research, dating back to the pioneering work of Davies (1984), has maintained instead that participants negotiate the humorous status of an interaction. This approach has much to support it. First, the categorization of an

CONTACT Elisa Gironzetti elisag@umd.edu Department of Spanish and Portuguese/SLLC JMZ 2204, University of Maryland, 4125 N Library Lane, College Park, MD, 20742.

Color versions of one or more of the figures in the article can be found online at www.tandfonline.com/hdsp.

exchange as humorous can be openly and actively debated among the participants. Questions such as "are you kidding?" or claims of "That's not funny!" directly and openly question or manipulate the status of the exchange to determine if it will be counted as serious or humorous, or whether the humor is in good taste, or acceptable in the given setting. Second, the existence of so-called involuntary humor shows that the intentionality of the speaker is not required for a situation to be labeled as humorous: The reaction of the audience(s) may be enough to tip the situation to the "humor mode" (Mulkay, 1988), especially if the original speaker joins in the assessment of the situation as humor.

We assume in what follows that indeed the humorous status of the exchange is negotiated by participants, without privileging either the hearer or the speaker. That is not to say that humorous texts do not exist per se, regardless of the conversational actions of the interlocutors but rather that once an interlocutor recognizes the humorous potential in the text, he or she can act on it and make it accountable for the others.

Humor Markers

From the perspective of the joint negotiation of the situation as humorous, markers of humor are cues that speakers and hearers use to signal their *humorous intention* in the exchange (that is, the intention of the speaker who uttered the humorous text or the intention of the hearer who recognizes the humor in the text). This is a relatively recent research area (see Burgers & VanMulken, 2017; Gironzetti, 2017), but within it there exists a "folk theory" of production that claims that humor is delivered by speakers "with bells and whistles" (Chafe, 1994, p. 131), that is, with particular emphasis in terms of volume and pitch and with the use of pauses and marked speech rate. A review of the folk theory of humor production, specifically in relation to timing in humor delivery, can be found in Attardo and Pickering (2011).

Laughter is assumed to be the de facto marker of humor. However, within conversation analysis, scholars proposed the use of the term "laughable" to describe the referent of laughter and avoid presupposing its humor-oriented nature, recognizing that laughable only at times overlaps with humor (Glenn, 2003, p. 49; Glenn & Holt, 2017 , p. 298). Since the work of Gail Jefferson (1979, 1984, 1985, 2004)), the role of laughter as an active tool to frame the situation as humorous, and not as a mere reaction to humor, has been a significant part of conversation analysis (Glenn & Holt, 2013). However, the co-occurrence of humor and laughter is weak at best (Olbrechts-Tyteca, 1974) and misleading at worst (Provine, 2000). Despite the fact that humor and laughter are not co-extensive (Attardo, 1994) and laughter co-occurs with humor in conversation only about 50% of the time (Pickering et al., 2009, pp. 534–535), the traditional use of laughter as the tool to identify humor has persisted. Indeed, Holmes' (2000, p. 163) definition of humor for the purpose of its identification in a corpus is as follows: "utterances which are identified by the analyst, on the basis of paralinguistic, prosodic and discoursal clues, as intended by the speaker(s) to be amusing and perceived to be amusing by at least some participants." Despite its sophistication, the definition excludes failed and asymmetrical humor (i.e., one-sided humor) in which only one participant has a humorous intention (for example, aggressive mockery), which is nonetheless a type of humor and as such has been included in our analysis.[1]

The presence of smiling in a conversation can be related to the display and perception of emotions (McLellan, Johnston, Dalrymple-Alford, & Porter, 2010; Miles & Johnston, 2007; Niedenthal, Mermillod, Maringer, & Hess, 2010). However, smiling in conversation also serves a variety of communicative functions (Chovil, 1991; Crivelli, Carrera, & Fernández-Dols, 2015; Iwasaki, 2009; Ruvolo, Messinger, & Movellan, 2015), which include being a marker, a reaction, or

[1]While the role of laughter as a clue to humor is problematic, laughter may be connected with specific types of reactions to humor (for example, particularly intense appreciation; W. Ruch, personal communication).

a display of humor (Haakana, 2010; Attardo, Pickering, Lomothey, & Menjo, 2013; Gironzetti, Attardo, et al., 2016; Gironzetti, Pickering, et al., 2016)

Building on Haakana (2010), the current study explores the hypothesis posited by Attardo et al. (2013) that conversational partners may use smiling to frame a turn or turn sequence as humorous. More specifically, this study focuses on whether participants use specific smiling behaviors to display humor and whether they produce more intense smiling in the presence of humorous episodes compared to nonhumorous ones. The relationship between smiling and humor is examined by analyzing the presence of humor in eight 10-minute long dyadic conversations and applying a scale (Gironzetti, Pickering, et al., 2016) based on Facial Action Coding System (FACS; Ekman & Friesen, 1978) to measure the smiling intensity of participants during conversation. We then compare the results when humor is present with the baseline of the conversation, that is to say, non-humorous stretches of talk.

Study of Smiling Intensity

Most research on smiling and smiling intensity has been conducted applying Ekman's FACS (Ekman & Friesen, 1978; Ekman, Friesen, & Hager, 2002), which will be explained in the following section. One notable exception is Zigler, Levine, and Gould (1966), which applied a five-point facial mirth score system (p. 511) ranging from zero (negative response, such as grimace), one (no response, such as blank face), two (half or slight smile), three (full smile), and four (laughter). However, given its purpose, which was measuring the mirth response of subjects and not the intensity of their smiling behavior, this scoring system was not considered a suitable option for our study.

Facial Action Coding System

The FACS was developed based on facial muscular activity, categorized in 44 different Action Units (AUs) or anatomically separated and visually distinguishable muscle movements that combine to produce different facial expressions. A laterality score (bilateral, unilateral, and asymmetrical) and an intensity score on a five-point scale (1–5) further characterize each action unit. Following FACS, smiling behavior is caused by the combination of different action units involving AU12 or *Lip Corner Puller*, caused by the action of the zygomaticus major, and other AUs in the eye area (such as AU6 and AU7) or the mouth area (such as AU14) (Ekman & Friesen, 1982). Among the different types of smiling that have been identified, the Duchenne smile has received the most attention. Also known as sincere, genuine, or felt smiling, it involves flexion of the zygomaticus major (AU12) and the orbicularis oculi muscles (AU6). On the other hand, a non-Duchenne smile—also known as a fake or phony smile—involves AU12 but does not display any visible muscle movement of AU6. However, a visual effect akin to the action of AU6 could be simulated by the action of AU7, *Lid Tightener*, which also involves the flexing of the orbicularis oculi muscle.

Smiling intensity has been studied by using FACS-based instruments that used either additive or holistic scoring systems. Additive scoring systems treat smiling as a composite behavior caused by the action of discrete AUs, each contributing equally towards the overall smiling intensity. On the other hand, holistic scoring systems, although also considering smiling a composite behavior to which different AUs may contribute, integrate the effect of different AUs into a single, comprehensive scoring system.

Additive FACS-Based Scoring Systems

Harker and Keltner (2001) developed an additive FACS-derived scale that combines the intensity of both muscles involved in smiling, each measured on a five-point scale, according to FACS. Briefly, the score is the sum of the values of activation of the two AUs (AU12 + AU6). As a result this scale theoretically equates a level 5 contraction of the orbicularis (visually resulting in a very strong

squinting of the eyes) and a level 1 action of the zygomaticus (for a total score of 6) to a level 3 contraction of the orbicularis and a level 3 action of the zygomaticus (for a total score of 6). In other words, a strong squinting of the eyes with no rising of the mouth's corners is considered equal to a medium squinting of the eyes and a medium rising of the corners of the mouth. Originally, this scale was used to show that higher smiling intensity in yearbook photos correlates with self-reported life satisfaction (Harker & Keltner, 2001). Later, it was applied to analyze whether smiling intensity in photographs can predict divorce (Hertenstein, Hansel, Butts, & Hile, 2009), to study smiling intensity in photographs as an indicator of affective style in children and their families (Oveis, Gruber, Keltner, Stamper, & Boyce, 2009), and to explore the relation between smiling intensity on a Facebook picture and future life satisfaction (Seder & Oishi, 2012).

Holistic FACS-Based Scoring System

Other authors (Abel & Kruger, 2010; Freese, Meland, & Irwin, 2006; Kaczmarek et al., 2017) developed a trichotomous scoring system to rate the smiling intensity of people in pictures. This system was developed to allow fast scoring of a high number of images. The three possible scores of smiling intensity integrated AU12 and AU6 as follows: a score of 1 indicated absence of smile, a score of 2 indicated a partial smile (only AU12), and a score of 3 indicated a full Duchenne smile (involving AU12 and AU6).

Another recent addition to the family of FACS-based instruments to study smiling is the Smiling Intensity Scale (SIS), a holistic five-point Likert-like scale that integrates the muscular changes produced by smiling in the eyes and mouth areas. The SIS was the instrument used in the present study and thus is presented in detail in the following paragraphs.

The SIS is also based on the FACS (Ekman & Friesen, 1978). However, although the SIS takes into account a FACS description of certain facial expressions, it also avoids some of the problems of the FACS-based scales described in the previous section. The SIS was developed with the purpose of measuring the degree of smiling intensity of facial expressions in video recordings that lack the high-quality definition needed for a full FACS analysis. It is therefore a holistic instrument that measures smiling intensity by integrating the visual information of different AUs. In contrast to Harker and Keltner (2001) scale, the SIS provides an overall score that is not the result of the sum of the individual intensity of the eyes and mouth muscular contraction. In contrast to the system used by Abel and Kruger (2010), Freese et al. (2006), and Kaczmarek et al. (2017), the SIS allows for more precision by rating smiling intensity on a five-point scale. Smiling is primarily identified with a muscular contraction in the mouth area (AU12) that causes the corners of the mouth to move upward: If there is no upward movement of the corners of the mouth, there is no smiling. Moreover, the SIS integrates the muscular contractions of different AUs that may be involved in smiling without differentiating between Duchenne and non-Duchenne smiling (Ekman et al., 2002).

The five levels of smiling intensity represent different smiling behaviors (Gironzetti, Pickering, et al., 2016):

- Level 0: Neutral. No smile, no flexing of the zygomaticus (no AU12), may show dimpling (AU14) or squinting of the eyes (caused by AU6 or AU7), but no raised side of the mouth (no AU12), the mouth may be closed or open (AU25 or AU26).
- Level 1: Closed mouth smile. Shows flexing of the zygomaticus (AU12), may show dimpling (AU14) or flexing of the orbicularis oculi (caused by AU6 or AU7).
- Level 2: Open mouth smile. Showing upper teeth (AU25), flexing of the zygomaticus (AU12), may show dimpling (AU14) or flexing of the orbicularis oculi (caused by AU6 or AU7).
- Level 3: Wide open mouth smile. Shows flexing of the zygomaticus (AU12), flexing of the orbicularis oculi (caused by AU6 or AU7), and may show dimpling (AU14). 3A: showing lower and upper teeth (AU25), or 3B: showing a gap between upper and lower teeth (AU25 and AU26).

- Level 4: Jaw-dropped smile. The jaw is dropped (AU26 or AU27), showing lower and upper teeth (AU25), flexing zygomaticus (AU12) and the orbicularis oculi (AU6 or AU7); may show dimpling (AU14).

This Study

"A smile is the most frequent facial expression, but not all smiles are equal" (Rychlowska et al., 2017, p. 1259). On the one hand, people produce anatomically distinct types of smiles, which involve the action of different facial muscles (Ekman, 1973; Ekman & Friesen, 1978; Ruch, 2008). On the other hand, people also produce qualitatively different types of smiles that depend on the underlying emotions (i.e., Ekman, Davidson, & Friesen, 1990; Keltner, 1995; Woodzicka & LaFrance, 2001) or the social tasks being accomplished (i.e., Kaukomaa, Peräkylä, & Ruusuvuori, 2013; Rychlowska et al., 2017). Smiling is not an undifferentiated whole; therefore, the SIS was applied to explore degrees of smiling intensity and smiling behaviors (which we term *smiling patterns* and *smiling gestures*) to determine whether and how smiling is used by conversational partners to communicate that whatever is being said is meant to be humorous.

This study follows a mixed-methods design with the goal of establishing whether there is a relationship between humorous events and the smiling behavior of participants in a dyadic computer-mediated conversation. To this end quantitative and qualitative data were collected, analyzed, and coded separately and finally combined.

The data collection involved the video and audio recording of eight computer-mediated dyadic conversations (see the setup in Figure 1) lasting between 8 and 10 minutes each. This particular setup was chosen to allow for a more constrained interactional setting (participants interact via a computer monitor and thus their movements are constrained in space to be visible to the interlocutor) while also allowing for a naturalistic interaction. Participants were college students of different age, gender, and cultural background, enrolled in the same class at a Midwest university

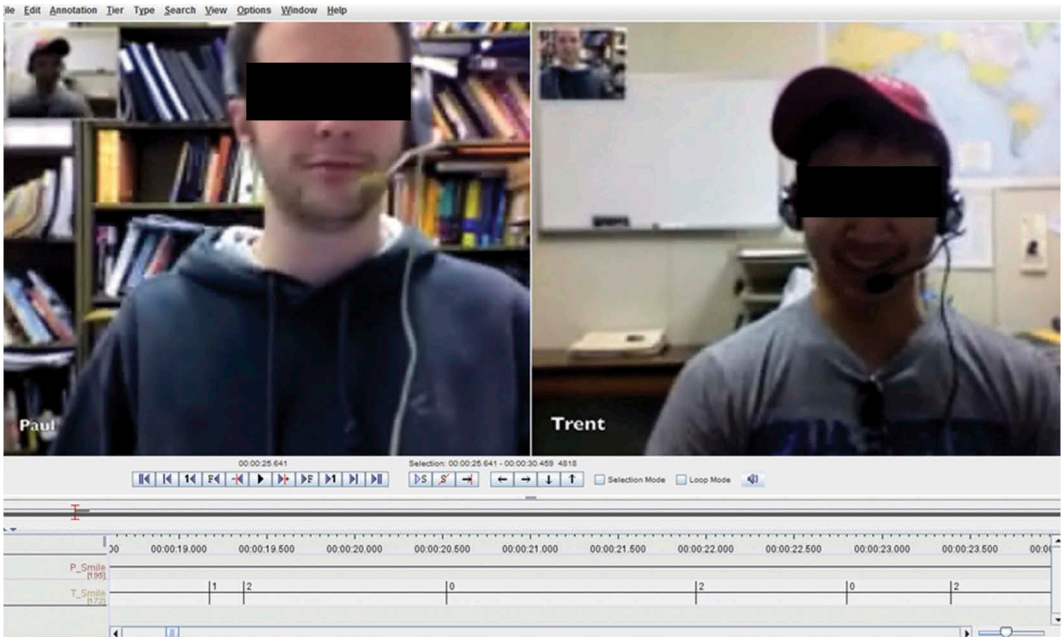

Figure 1. ELAN interface for coding smiling intensity with both participants visible.

in the United States. All participants agreed to take part in the study and signed an informed consent form.

Video and audio files were aligned using ELAN, a professional tool for the creation of complex annotations developed at the Max Planck Institute for Psycholinguistics (https://tla.mpi.nl/tools/tla-tools/elan/, Sloetjes & Wittenburg, 2008). New ELAN annotation tiers were created for the transcription of the conversation and the coding of prosodic features, humor, and smiling intensity.

Participants sat in different rooms and communicated with each other via computer. The videos of each participant in the conversation were collected using videoconferencing software and webcams integrated in the computers. Audio files for each participant were recorded using external microphones: each participant wore a head-set including a microphone and earphones. Participants were instructed to start the conversation by telling a canned joke provided beforehand by the researcher (the engineer joke and the frog joke, described in Pickering et al., 2009), and then continue talking for approximately five more minutes. The researcher was not present in any of the rooms while the data were being collected.

Methods

Participants

Sixteen native English-speaking participants (12 women, 4 men) were recruited for this study among students at a Midwestern U.S. university and consented to the use of the data. All the names used in this article are pseudonyms.

Transcription

After the data were collected, each conversation was transcribed for content and prosodic features (see Appendix 1 for a detailed description of the transcription conventions used). These were measured using CSL (Computerized Speech Lab, www.kaypentax.com) and Praat (http://www.fon.hum.uva.nl/praat/) and included pitch, pauses, volume, speech rate, and prominent syllable (Attardo, Pickering, & Baker, 2011; Pickering et al., 2009). An example of the transcription is included in Table 1 (all names are pseudonyms).

In Table 1 the third column shows the transcribed fragment of the interaction: Prominent syllables are marked in capital letters, for example *OTher* in line 276; the humorous phrases are marked in bold, for example *aMERican* in line 287; relevant pauses are included on a separate line and their length is expressed in seconds, for example the value 1.03 in line 288 indicates a pause

Table 1. Sample Transcription with Humor Marking

Line	Speaker	Transcription	Duration (s)	Syllables	Speech Rate
276	Carmen	//do you speak any OTher [225][62] languages besides ENGlish[242][60]?//	2.379	13	0.183
277		1.11			
278	Marina	//NOPE [251][71]//	0.221	1	0.221
279		0.42			
280	Marina	//nothin FLUently [216][59]//	0.979	5	0.196
281		0.12			
282	Marina	//little bit a this n THAT [210][60] n//	1.294	8	0.162
283		1.26			
284	Marina	//k OTher [185][73] thing//	0.801	4	0.200
285		0.66			
286	Marina	//you KNOW [147][65] = //	0431	2	0.216
287	Carmen	// = you're **aMERican** [227][60]//	0.811	5	0.162
288		1.03			
289		((both laugh))	2.023		
290	Marina	//**no KIdding** [245][75]//	0.678	3	0.226

lasting 1.03 seconds; and Hertz and Decibels are reported in this order within squared brackets, for example the values [147] [65] in line 286 correspond to 147 Hz and 65 Db.

Humor Coding Procedure

Two raters used the transcripts of the conversations to code all the humorous events independently, following the triangulation method outlined in Attardo (2012). Humor coding combined an internal perspective, relying on metalinguistic comments that revealed the speaker's and/or the hearer's pragmatic intentions (e.g., *that was not funny, let me tell you a joke*) and the presence of any other humor marker described in the literature (e.g., laughter), and an external perspective, performing a semantic-pragmatic analysis of the text to determine if a humorous script overlap/opposition (Raskin, 1985) was present. These criteria were mobilized whenever possible. However, the script overlap/opposition is the essential defining characteristic of humor (Raskin, 1985; Attardo, 1994, 2001), and thus humor events were coded as such also in the absence of explicit metalinguistic comments. Raters coded the transcripts independently and reached good interrater reliability, $k = .66$, $p < .005$. Following standard practices in humor coding (see Hempelmann & Ruch, 2005), after each rater independently coded the presence of humor, they met to discuss all cases that were initially rated differently to reach an agreement. Only cases on which raters reached a full agreement were included in the analysis.

Humorous events were coded as jab lines and punch lines (Attardo, 2001), that is, as either occurring anywhere in the conversation or at the end of a humorous narrative, respectively. Moreover, if the humorous event showed a direct opposition between what the speaker was saying or implying and what the speaker's beliefs and thoughts were assumed to be, the humor was coded as irony. Despite marking the occurrence of each humorous event by its type, at this stage of the project, we did not differentiate among humorous types in the analysis. The point of reference for marking the occurrence of each humorous event was the end of the last word in the humorous phrase, following Attardo and Chabanne (1992, based on Hockett (1973/1977), as shown in the example in Table 2.

Table 2 shows an excerpt from the conversation of Gilda and Kelly, when Gilda was telling the last part of her joke. The word marker in bold, *DONkey* in this example, is the one used as a reference point to indicate when the humorous event occurred in the conversation.

In eight dyadic conversations we found 75 humorous events. Each one was marked, and a 5-second-long segment around the humorous event (starting 2 seconds before and ending 3 seconds after the event) was extracted for each participant, for a total of 150 humorous segments. The same procedure was used to sample nonhumorous segments of the same length, which were generated randomly and later validated manually to make sure that no humor was included in these segments. The generation and extraction of segments allowed the researchers to build a corpus of humorous and nonhumorous segments of conversation of equal length to compare participants' behavior across these segments and to analyze in detail how the smiling behavior of each participant changed and unfolded through time when humor was present.

Table 2. Example of Punch Line

Gilda	//i am the SON
	of the PERson in the accident//
	0.88
	//and he PUshed his way through the crowd
	and he PUshed his way through the crowd//
	0.37
	//and when he GOT there
	he saw:: LYing
	on the STREET//
	0.19
	//was a **DONkey**//
	1.43

Smiling Coding Procedure

Three FACS-certified raters applied the SIS to code the smiling behavior of the 16 participants. The coding of smiling intensity was done using ELAN and adding a new tier for each participant, as illustrated in the bottom part of Figure 1. In order not to be biased when coding for smiling intensity, each rater was only able to see the video of the participant she or he was coding but not the interlocutor's video or their smiling intensity score. Moreover, during the smiling intensity coding the rater had no access to the audio files. Smiling intensity was coded frame by frame (each frame lasting 40 ms) by one rater at a time for the whole length of each conversation and then sampled at a rate of 200 ms to interpret the data and draw the smiling graphs included in the results section. The sampling was piloted at different rates—40, 100, 150, and 200 ms—and the decision to use a 200-ms sampling rate was based on two facts. First, a more fine-grained sampling rate showed the same as the more coarse-grained sampling rate, with no meaningful differences between the two; second, the graphs drawn with the 200-ms sampling rate are easier to interpret for the reader.

The SIS reliability to code smiling intensity in this study was measured by means of a weighted Fleiss' kappa, based on double-coding of 58 samples. The results show strong agreement between the three raters' judgements ($\kappa_w = 0.89$).

Results

Smiling Intensity

To explore the hypothesis that the occurrence of humor correlates positively with an increase of smiling intensity relative to the baseline of the conversation, we compared the smiling intensity of participants across humorous and nonhumorous segments of conversation. Smiling intensity values per participant were sampled at a rate of 200 ms. The average smiling intensity of each participant or conversation when humor was not present constitutes the baseline for that specific participant/conversation. The baseline smiling intensity value was then compared with the average smiling intensity when humor was present across conversations and participants. Tables 3 and 4 summarize the results obtained regarding the average smiling intensity across conversations (Table 3) and single participants (Table 4) for humorous and nonhumorous segments.

Table 3 shows a 1.01-point difference between smiling intensity during humorous (SIS average value = 2.05) and nonhumorous events (SIS average value = 1.06) on a five-point intensity scale, with the most frequent smiling expression being a wide-open mouth smile (SIS mode = 3) when there is humor and a neutral nonsmiling expression (SIS mode = 0) when there is no humor. Table 4 shows that every single participants displayed a higher smiling intensity when humor was present, thus confirming the result obtained across conversations (Table 3). The last column of Table 4 indicates how every participant contributed to the result, with a smiling intensity difference between humorous and nonhumorous segments ranging from 2.00 points on the SIS for Kelly to 0.29 points on the SIS for Terry.

Table 3. Average and Mode of Smiling Intensity for Humorous and Nonhumorous Segments Across Conversations

	Smiling Intensity: Humor		Smiling Intensity: No Humor	
Conversation	Avg	Mode	Avg	Mode
Courtney & Melinda	2.07	1	1.12	0
Tamara & Mary	2.85	3	2.15	1
Carmen & Martina	1.41	0	0.82	0
Miranda & Paul	2.24	2	1.08	0
Kelly & Gilda	1.99	1	0.11	0
Debbie & Jenny	2.53	3	1.58	0
Trent & Paul	1.88	3	0.57	0
Terry & Mindy	1.49	1	1.05	0

Table 4. Smiling Intensity Values and Differences for Humorous and Nonhumorous Segments Across Participants

Participant	Smiling Intensity: Humor (a)	Smiling Intensity: No Humor (b)	Difference (a − b)
Courtney	1.79	0.55	1.24
Melinda	2.36	1.70	0.66
Tamara	2.44	1.76	0.68
Mary	3.25	2.42	0.83
Carmen	1.31	0.71	0.60
Martina	1.48	0.92	0.56
Miranda	2.20	1.15	1.05
Paul	2.28	1.01	1.27
Terry	2.07	1.78	0.29
Mindy	1.03	0.41	0.62
Kelly	2.23	0.23	2.00
Gilda	1.74	0.00	1.74
Jenny	2.77	1.36	1.41
Debbie	2.30	1.80	0.50
Paul	2.14	0.56	1.58
Trent	1.62	0.58	1.04

A multilevel mixed linear model analysis with participants nested within dyads was performed to determine whether the presence of humor predicted an increase in smiling intensity as outlined in Table 4. Results showed that humor significantly predicted smiling intensity of participants, $F(1, 18.93) = 19.478$, $p = .0003$, with the presence of humor significantly predicting a higher smiling intensity, $b = 2$, $t\ (7) = 12.1$, $p < .001$. The data show that an increase of participants' smiling intensity with respect to the baseline of the conversation co-occurs with the presence of humor. We posit that conversational partners use a higher smiling intensity as a marker for humor in conversation. The possibility that the average smiling intensity difference found in conversations (Table 3) is due to only a few participants is excluded because each participant displayed a higher smiling intensity when humor was present (Table 4).

Smiling Patterns

In this section we describe the smiling pattern that conversational partners displayed when humor was present. Smiling intensity was coded according to the method outlined in the previous section, and the same 5-second-long humorous segments were used. Smiling patterns were sampled at a rate of 200 ms and visualized as line graphs to represent how smiling intensity changes over time, as exemplified in Figure 2.

Figure 2 represents a 5-second-long humorous segment around the occurrence of the humorous event at time 0. The hearer increased her smiling intensity from 1 to 3 on the SIS 1.4 seconds before the occurrence of the humorous event and maintained it until 2.4 seconds after the humorous event. The speaker's smiling intensity fluctuated between values 3 and 1 on the SIS, matching the smiling intensity of the hearer at value 3 on the SIS for about half a second 0.4 seconds after the humorous event. In all the following figures that represent smiling patterns, the vertical line indicates the occurrence of humor, the horizontal axis indicates time in units of 200 ms, and the vertical axis indicates the smiling intensity as coded using the SIS.

The analysis of the humor segments of conversation lead to the identification of a dominant smiling pattern (*framing smiling*) displayed by conversational partners alone or in combination with *accommodation* or *inverted smiling gestures*. In contrast to what folk theories of humor predict, a *peak smiling pattern*—with a sharp increase in smiling intensity and a peak that coincides with the humorous event—was found to occur only rarely. The different smiling patterns and gestures displayed by participants in the corpus are summarized in Table 5 along with the total number of occurrences and their frequency in our corpus.

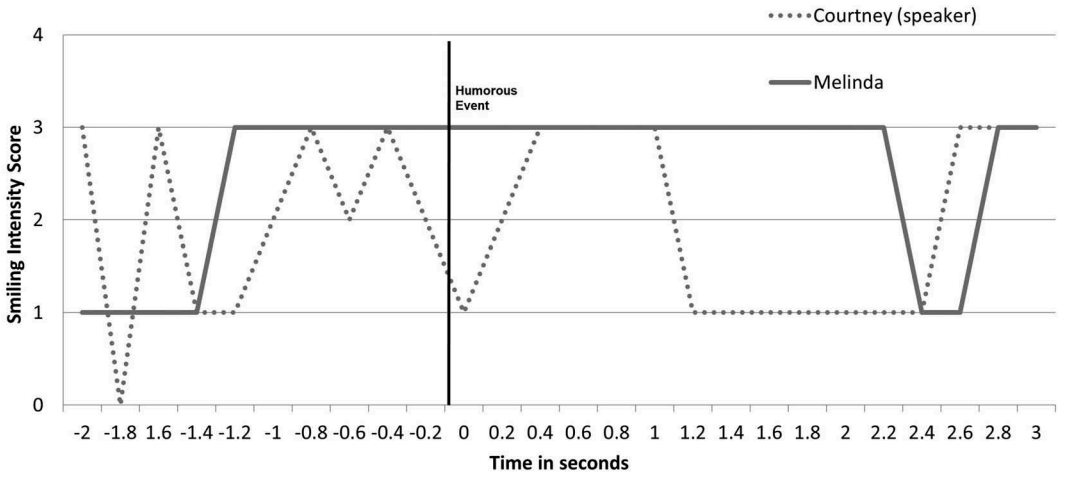

Figure 2. Sample line graph used to represent smiling patterns.

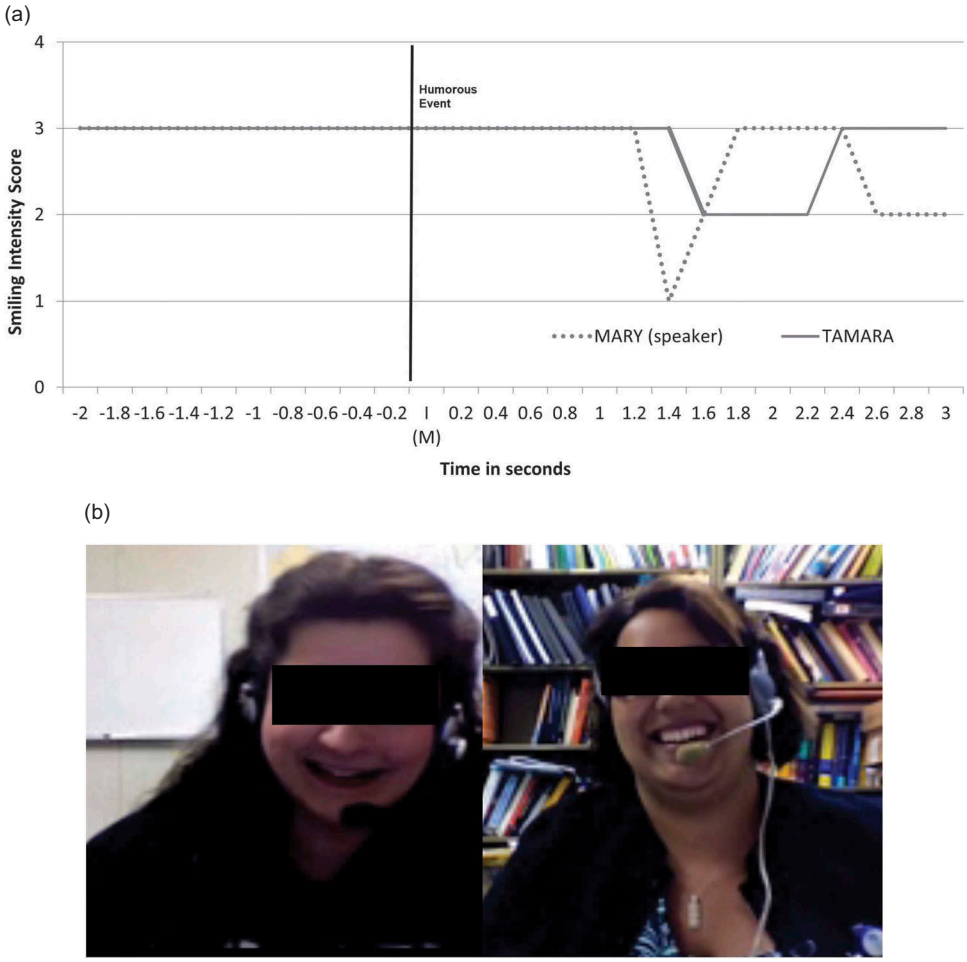

Figure 3. Participants' smiling intensity during a joint framing smiling pattern.

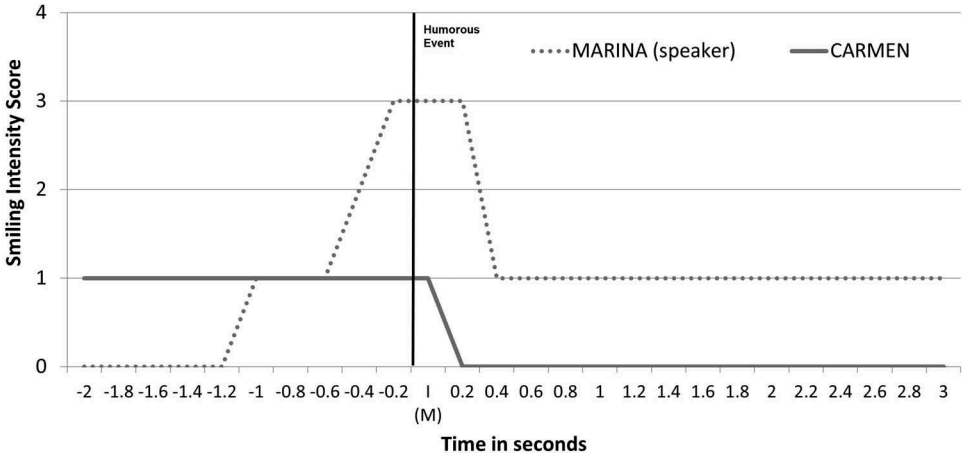

Figure 4. Participants' facial expressions during a joint framing smiling pattern.

Table 5. Occurrence of Smiling Patterns in Dyadic Computer-Mediated Conversations

Smiling Pattern	Pattern Subtypes	N	Percent
Framing	Joint	27	36
	Single	25	33
	With accommodation	9	12
	With inversion	2	3
Peak	—	7	9
Missing data points	—	3	4
No clear pattern	—	2	3
Total		75	100

Example 1			
TN	277	M	//ask me to boil waTER [314] [75] and then we have kitchen fires so:: you know? ((laughs))//
TN	278		2.167 ((both laugh))
TN	279	T	//that's **GREAT** [204] [76]//

Framing smiling pattern

The most frequent smiling pattern in our corpus is what we called *framing smiling pattern* (Figs. 3 and 4), which consists of a long sustained smile (>1 second) upheld by one (single framing) or both participants (joint framing). This pattern frames a stretch of speech as humorous.

In our corpus a framing pattern could include intensity shifts. Shifts are quick changes in smiling intensity by one or more level on the SIS scale. However, in line with Ekman's (2003) work on facial expression, which typically last between 0.5 and 4 seconds, we established a shift-duration threshold to code for framing smiling patterns: a sequence of shifts on the SIS scale lasting more than 25% of the smiling duration or lasting more than 0.4 seconds is considered an interruption of the framing smile, indicating that the participant cannot maintain the smiling pattern and is potentially displaying a different expression.

In Figures 3 and 4 the two participants are jointly framing the utterance in Example 1 as humorous by matching each other's smiling intensity before the humorous event (at time −2 on the horizontal axis, where the graph starts), and sustaining the smiling until after the humorous event was produced by Mary. In this example the joint framing smiling pattern lasts 3.2 seconds. It is

important to notice that to have a joint framing smiling pattern, the participants do not need to match each other's smiling intensity but just display a long and sustained smiling behavior.

Peak smiling pattern

According to folk theories of humor, participants in a conversation would suddenly increase their smiling intensity as the humorous event nears, reaching a peak at the humorous event, and then rapidly decreasing the intensity of their smiling behavior (Fig. 5). Thus, in contrast with the framing pattern described previously, the peak pattern is not a sustained smiling pattern but rather a sudden increase in smiling intensity followed by an equally sudden decrease. Interestingly, this smiling behavior is not frequent, as it appeared just 7 times in our corpus.

The example in Figure 5 is one of the few peak smiling patterns found in the corpus. In this example, Marina increases her smiling intensity to 3 as the humorous event is about to be produced and then decreases it down to 1 0.2 seconds after the event. In this instance the person marking the humorous event by means of a peak smiling pattern is the speaker, but this is not always the case.

Smiling Gestures

In this section we describe the smiling gestures that conversational partners displayed to open or close a smiling pattern when humor was present. These gestures are not independent patterns but rather frequent changes in smiling intensity that appear at the beginning or at the end of a smiling pattern and offer a glimpse into the interactional dynamic of the negotiation of meaning.

Smiling accommodation gesture

A smiling accommodation ("matching smiles" in Heerey & Crossley, 2013) indicates a delayed (<400 ms) shift in smiling intensity (positive or negative) to match a previous shift by the other interlocutor. This smiling gesture consists in one of the participants mirroring the other, independently of their conversational role. After one of the two participants sets the smiling intensity, the other follows it, accommodating to the smiling intensity level of the first participant. This type of smiling gesture appeared in our corpus in combination with a framing smiling pattern, as shown in Figure 6. Therefore, depending on whether it is displayed before or after a framing smiling, this smiling gesture may be a way to renegotiate the humorous nature of the text by agreeing or disagreeing with the interlocutor, and as such, it is a glimpse into the conversational dynamics of the dyad.

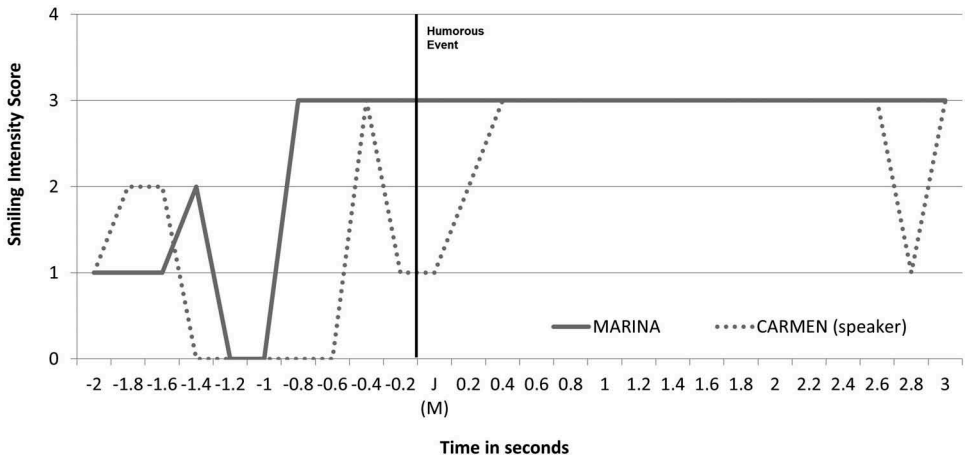

Figure 5. Peak smiling pattern.

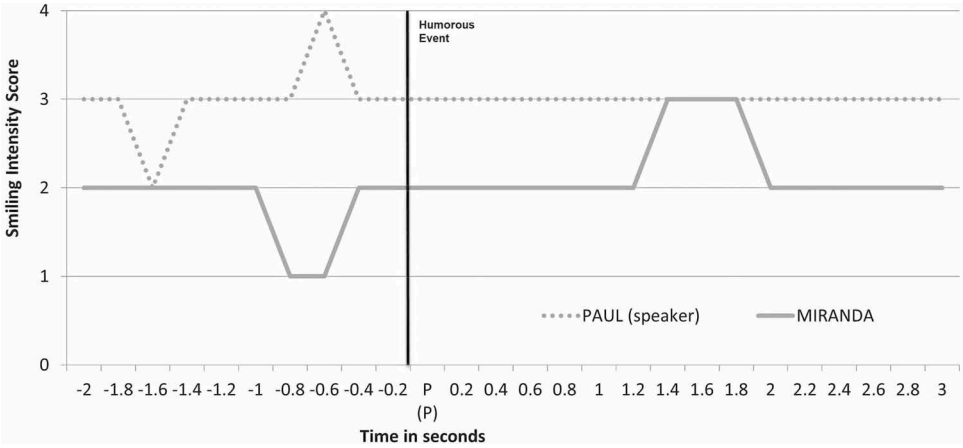

Figure 6. Inverted smiling gesture followed by a framing smiling pattern.

In Figure 5 the accommodation smiling gesture marks several points of alignment, the first starting right before the humorous event. Beginning at second −1.8, Carmen starts at SIS value 2 and then decreases to 0, whereas Marina mimics the same behavior with a delay, at second −1.4. Afterward, in the second movement, Marina sets the pattern by increasing her smiling intensity from 0 to 3 at second −0.8, followed by Carmen at second −0.6. After a sharp decrease in Carmen's—the speaker—smiling intensity that occurs right when she is delivering the punchline, the two participants keep their smiling intensity stable at value 3 on the SIS, displaying a joint framing smiling pattern that lasts until after the humorous event.

Inverted smiling

An inverted smiling gesture occurs when the two participants shift their smiling intensity at the same time but in opposite directions. This smiling gesture appeared in our corpus only in combination with a framing pattern, as shown in Figure 6. In this case it is possible that this brief diverging behavior is a display of the ongoing negotiation, with the two participants momentarily pointing in opposite directions on the intensity scale to then agree by displaying a framing smiling pattern.

In Figure 6 the inverted smiling gesture takes place at second −1 and is followed by a joint framing smiling, starting at second −0.4 and lasting until the end of the segment of conversation represented in the graph. In this example, as opposed to the one in Figure 3, the joint framing smiling behavior happens at two different intensity levels on the SIS, intensity 2 for Miranda and intensity 3 for Paul.

Discussion

The current study investigated the role of smiling as a discourse marker of humor in computer-mediated conversations. We argued that smiling might play a central role in the negotiation of the humorous nature of portions of text and the current findings support this hypothesis. Specifically, in dyadic computer-mediated conversations, the presence of humor significantly predicts a higher smiling intensity of participants relative to their baseline. In addition, the presence of humor co-occurs with participants' display of framing smiling patterns on 84% of all humorous events. These sustained smiles are used by one or both participants to frame a stretch of speech as humorous, and may occur in combination with different smiling gestures that provide a glimpse into the on-going negotiation of meaning.

Starting from Schiffrin's (1987) suggestion that "nonverbal gestures [...] mark units (phases) of social interaction. [...] these devices bracket units of talk which are much more broadly defined than sentences, propositions, speech acts, or tone units." (p. 35), and based on our results, we propose that smiling is a nondiscrete marker of humor in conversation, thus expanding previous works on discourse markers as discrete linguistic expressions. The results of our study show that smiling transcends the presence of the humorous events and may occur at any point during the conversation; however, a higher smiling intensity relative to the baseline of the conversation tends to co-occur with the presence of humor. Therefore, it seems that an increase in smiling intensity, rather than the presence of smiling per se, is what interlocutors use to frame an utterance or exchange as humorous. In every one of the eight conversations analyzed and for every participant, the average smiling intensity was higher for humorous segments than for nonhumorous ones.

Far from being used simply to mark or announce the jab or punch line—instances of the peak smiling pattern represent only 9% of our corpus, as shown in Table 5—as folk theories of humor assume, results indicate that smiling is consistently used by interlocutors to co-construct a humorous frame within which the punch line or jab line occurs. In fact, most of the time one or both participants displayed a sustained smiling or smiling framing pattern. Moreover, even when a single-framing smiling pattern was displayed by participant A, participant B behavior was characterized by an increased smiling intensity with respect to his or her baseline, thus indicating that both participants were actively relying on their smiling intensity and patterns to co-construct the humorous frame rather than it being imposed by one of them. The few cases in which there is a disconnect between the smiling behavior of the two participants take place mostly in the conversation between Carmen and Martina, in which Carmen's face is often not visible due to her wearing a baseball cap and glasses and covering her face with her hands quite often. In this particular conversation humorous and nonhumorous segments were included in the analysis only when the faces of both participants were visible. Nonetheless, during the conversation the view of Carmen's face was frequently hidden; therefore, it is possible that the limited view of Carmen's face, in particular the eyes and mouth regions involved in smiling (Ekman & Friesen, 1978), affected the use of smiling by both participants in the conversation. This may have caused the display of more single-participant smiling patterns compared to the other conversations.

The hypothesis of smiling being used by both interlocutors to co-construct a humorous conversational frame needs to be addressed within behavioral coordination studies (i.e., Bernieri & Rosenthal, 1991). Based on our results and in line with previous behavioral coordination studies (see Paxton & Dale, 2013), we observed that to co-construct the humorous frame, participants display synchronic smiling behaviors—in terms of patterns and intensity—when humor is present. Moreover, because participants align their behavior more during affiliative conversations than disaffiliative ones (Paxton & Dale, 2013) and given that humor in conversation can be used for "biting" or "bonding" (Boxer & Cortés-Conde, 1997), different uses of humor may cause participants to rely on different degrees of smiling synchrony and alignment.

Limitations and Future Research

The results presented in this article indicate that participants use smiling to mark the presence of humor in conversation. However, it is currently impossible to know whether this marking is intentional or unintentional, possibly as a byproduct of the underlying emotions felt by the participants (see the concept of *leaking* discussed by Ekman & Friesen, 1969). If the marking were intentional, then smiling would fall into the category of *humor marker*, an element that is not essential to the humor, not always co-occurring with the humor, and intentionally signaling the humor (Gironzetti, 2017). On the other hand, if the marking were unintentional, then smiling would fall into the category of *humor index*, an element that is not essential to the humor, not always co-occurring with the humor, and not intentionally signaling the humor (Gironzetti, 2017).

Although participants in our study had normal or corrected-to-normal vision and therefore were able to rely on visual cues, at this stage we have no data confirming that partners in a computer-mediated conversation do in fact attend to each other's smiling behavior, which would be essential if smiling were to be used as a marker of humor in conversations. However, this hypothesis is supported by findings on the correlation of facial emotional expressiveness and attention (Thompson, Malmberg, Goodell, & Boring, 2004) and the presence of humor with significant changes in the way interlocutors attend to each other smiling facial areas (the eyes and the mouth) in face-to-face conversations (Gironzetti, Pickering, et al., 2016; Gironzetti, Attardo, & Pickering, 2016).

In addition, this study should be replicated with different populations and involving a greater number of participants and conversations to confirm our conclusions and enable the generalization of these results. A further step forward would require a sequential analysis of smiling in humorous episodes and an investigation regarding the interactional purposes participants achieve when smiling and laughing to better understand how participants co-produce smiling as a way to frame apportion of discourse as humorous. Moreover, cultural and social factors that may affect participants' behavior need to be accounted for in a study using a larger corpus of conversations. For example, our study included only native speakers of English. However, it would be worth researching whether non-native speakers behave differently when interacting with a native speaker. Finally, given the fact that smiling may be a visual cue to indicate the presence of humor, it would be interesting to study interactions between visually impaired participants to see if they display the same kind of smiling behavior, and explore the kind of markers they use to co-construct a humorous frame in conversation.

ORCID

Elisa Gironzetti http://orcid.org/0000-0002-9493-4802

References

Abel, E. L., & Kruger, M. L. (2010). Smile intensity in photographs predicts longevity. *Psychological Science*, *21*(4), 542–544.

Attardo, S. (1994). *Linguistic theories of humor*. Berlin, Germany: Mouton de Gruyter.

Attardo, S. (2001). *Humorous texts: A semantic and pragmatic analysis humor research series, 6*. Berlin, Germany: Mouton de Gruyter.

Attardo, S. (2012). Smiling, laughter, and humor. In P. Santangelo (Ed.), *Laughing in Chinese* (pp. 421–436). Rome, Italy: Aracne.

Attardo, S., & Chabanne, J. C. (1992). Jokes as a text type. *Humor, International Journal of Humor Research*, *5*(1), 165–176.

Attardo, S., & Pickering, L. (2011). Timing in the performance of jokes. *Humor: International Journal of Humor Research*, *24*(2), 233–250. doi:10.1515/HUMR.2011.015

Attardo, S., Pickering, L., & Baker, A. (2011). Prosodic and multimodal markers of humor in conversation. *Pragmatics and Cognition*, *19*(2), 224–247. doi:10.1075/pc.19.2.03att

Attardo, S., Pickering, L., Lomothey, F., & Menjo, S. (2013). Multimodality in conversational humor. *Review of Cognitive Linguistics*, *11*(2), 402–416. doi:10.1075/rcl.11.2.12att

Bernieri, F., & Rosenthal, R. (1991). Interpersonal coordination: behavior matching and interactional synchrony. In R. Feldman & B. Rime (Eds.), *Fundamentals of nonverbal behavior: studies in emotion and social interaction*. New York, NY: Cambridge University Press.

Boxer, D., & Cortés-Conde, F. (1997). From bonding to biting: Conversational joking and identity display. *Journal of Pragmatics*, *27*(3), 275–294. doi:10.1016/S0378-2166(96)00031-8

Burgers, C., & Van Mulken, M. (2017). Humor markers. In S. Attardo (Ed.), *The routledge handbook of language and humor* (pp. 385–399). London, UK: Routledge.

Chafe, W. (1994). *Discourse, consciousness, and time. The flow and displacement of conscious experience in speaking and writing*. Chicago, IL: University of Chicago Press.

Chovil, N. (1991). Social determinants of facial displays. *Journal of Nonverbal Behavior*, *15*, 141–154. doi:10.1007/BF01672216

Crivelli, C., Carrera, P., & Fernández-Dols, J. M. (2015). Are smiles a sign of happiness? Spontaneous expressions of judo winners. *Evolution and Human Behavior*, *36*, 52–58. doi:10.1016/j.evolhumbehav.2014.08.009

Davies, C. E. (1984). Joint joking: Improvisational humorous episodes in conversation. In C. Brugman et al. (Eds.), *Proceedings of the Tenth Annual Meeting of the Berkeley Linguistics Society* (pp. 360–371). Berkeley, CA: University of California.Translated byOriginally published as *Mecanisme de la Physionomie Humaine* in 1862

Ekman, P. (Ed.). (1973). *Darwin and facial expression: A century of research in review*. Cambridge, MA: Malor Books.

Ekman, P. (2003). *Emotions revealed* (2nd ed. ed.). New York, NY: Times Books.

Ekman, P., Davidson, R. J., & Friesen, W. V. (1990). The Duchenne smile: Emotional expression and brain physiology II. *Journal of Personality and Social Psychology*, *58*(2), 342–353.

Ekman, P., & Friesen, W. V. (1969). Nonverbal leakage and clues to deception. *Psychiatry*, *32*, 88–105. doi:10.1080/00332747.1969.11023575

Ekman, P., & Friesen, W. V. (1978). *Facial action coding system*. Palo Alto, CA: Consulting Psychologists Press.

Ekman, P., & Friesen, W. V. (1982). Felt, false, and miserable smiles. *Journal of Nonverbal Behavior*, *6*(4), 238–252. doi:10.1007/BF00987191

Ekman, P., Friesen, W. V., & Hager, J. C. (Eds.). (2002). *Facial action coding system*. Salt Lake City, UT: Research Nexus.

Freese, J., Meland, S., & Irwin, W. (2006). Expressions of positive emotion in photographs, personality, and later-life marital and health outcomes. *Journal of Research in Personality*, *41*(2), 488–497. doi:10.1016/j.jrp.2006.05.006

Gironzetti, E. (2017). Prosodic and multimodal markers of humor. In S. Attardo (Ed.), *The Routledge handbook of language and humor* (pp. 400–413). London, UK: Routledge.

Gironzetti, E., Attardo, S., & Pickering, L. (2016). Smiling, gaze, and humor in conversation. A pilot study. In L. Ruíz Gurillo (Ed.), *Metapragmatics of humor: current research trends* (pp. 235–254). Amsterdam, Netherlands: John Benjamins. doi:10.1075/ivitra.14.12gir

Gironzetti, E., Pickering, L., Huang, M., Zhang, Y., Menjo, S., & Attardo, S. (2016). Smiling synchronicity and gaze patterns in dyadic humorous conversations. *HUMOR – International Journal of HUMOR Research*, *29*(2), 301–324. doi:10.1515/humor-2016-0005

Glenn, P. (2003). *Laughter in interaction*. Cambridge, UK: Cambridge University Press.

Glenn, P., & Holt, E. (Eds.). (2013). *Studies of laughter in interaction*. London, UK: Bloomsbury Academic Press.

Glenn, P, & Holt, E. (2017). Conversation analysis and humor. In S. Attardo (Ed.), *The Routledge handbook of language and humor* (pp. 295–308). London, UK: Routledge.

Haakana, M. (2010). Laughter and smiling: Notes on co-occurrences. *Journal of Pragmatics*, *41* , 1499–1512.

Harker, L., & Keltner, D. (2001). Expression of positive emotion in women's college yearbook pictures and their relationship to personality and life outcomes across adulthood. *Journal of Personality and Social Psychology*, *80*(1), 112–124.

Heerey, E. A., & Crossley, H. M. (2013). Predictive and reactive mechanisms in smile reciprocity. *Psychological Science*, *24*(8), 1446–1455. doi:10.1177/0956797612472203

Hempelmann, C. F., & Ruch, W. (2005). 3WD meets GTVH: psychology and linguistics break the ground for interdisciplinary humor research. *HUMOR – International Journal of HUMOR Research*, *18*(4), 353–387. doi:10.1515/humr.2005.18.4.353

Hertenstein, M. J., Hansel, C. A., Butts, A. M., & Hile, S. N. (2009). Smile intensity in photographs predicts divorce later in life. *Motivation and Emotion*, *33*(2), 99–105. doi:10.1007/s11031-009-9124-6

Holmes, J. (2000). Politeness, power and provocation: How humor functions in the workplace. *Discourse Studies*, *2*(2), 159–185. doi:10.1177/1461445600002002002

Hockett, C. F. (1973/1977). Jokes. In M. E. Smith (Ed.), *Studies in linguistics in honor of George L. Trager* (pp. 153–198). The Hague: Mouton. (Reprinted in The view from the language, pp. 157–189. Athens: University of Georgia.)

Iwasaki, S. (2009). Initiating interactive turn spaces in Japanese conversation: local projection and collaborative action. *Discourse Processes*, *46*(2–3), 226–246. doi:10.1080/01638530902728918

Jefferson, G. (1979). A technique for inviting laughter and its subsequent acceptance/declination. In G. Psathas (Ed.), *Everyday language. Studies in ethnomethodology* (pp. 79–95). New York, NY: Irvington.

Jefferson, G. (1984). On the organization of laughter in talk about troubles. In J. M. Atkinson & J. C. Heritage (Eds.), *Structures of social action: studies in conversation analysis* (pp. 346–369). Cambridge, UK: Cambridge University Press.

Jefferson, G. (1985). An exercise in the transcription and analysis of laughter. In T. Van Dijk (Ed.), *Handbook of discourse analysis. Discourse and dialogue* (pp. 25–34). London, UK: Academic Press.

Jefferson, G. (2004). A note on laughter in 'male-female' interaction. *Discourse Studies*, *6*(1), 117–133. doi:10.1177/1461445604039445

Kaczmarek, L. D., Behnke, M., Kashdan, T. B., Kusiak, A., Marzec, K., Mistrzak, M., & Włodarczyk, M. (2017). Smile intensity in social networking profile photographs is related to greater scientific achievements. *The Journal of Positive Psychology*, *13*(5), 1–5.

Kaukomaa, T., Peräkylä, A., & Ruusuvuori, J. (2013). Turn-opening smiles: Facial expression constructing emotional transition in conversation. *Journal of Pragmatics*, *55*, 21–42. doi:10.1016/j.pragma.2013.05.006

Keltner, D. (1995). Signs of appeasement: evidence for the distinct displays of embarrassment, amusement, and shame. *Journal of Personality and Social Psychology*, *68*, 441–454. doi:10.1037/0022-3514.68.3.441
McLellan, T., Johnston, L., Dalrymple-Alford, J., & Porter, R. (2010). Sensitivity to genuine versus posed emotion specified in facial displays. *Cognition & Emotion*, *24*(8), 1277–1292. doi:10.1080/02699930903306181
Miles, L., & Johnston, L. (2007). Detecting happiness: perceiver sensitivity to enjoyment and non-enjoyment smiles. *Journal of Nonverbal Behavior*, *31*(4), 259–275. doi:10.1007/s10919-007-0036-4
Mulkay, M. (1988). *On humor: its nature and its place in modern society*. Cambridge, UK: Blackwell.
Niedenthal, P. M., Mermillod, M., Maringer, M., & Hess, U. (2010). The future of SIMS: who embodies which smile and when? *Behavioral and Brain Sciences*, *33*(06), 464–480. doi:10.1017/S0140525X10002748
Norrick, N. R. (1993). *Conversational joking: humor in everyday talk*. Bloomington, IN: Indiana University Press.
Olbrechts-Tyteca, L. (1974). *Le comique du discours*. Brussels, Belgium: Editions de l'Université de Bruxelles.
Oveis, C., Gruber, J., Keltner, D., Stamper, J. L., & Boyce, W. T. (2009). Smile intensity and warm touch as thin slices of child and family affective style. *Emotion*, *9*(4), 544–548. doi:10.1037/a0016300
Paxton, A., & Dale, R. (2013). Argument disrupts interpersonal synchrony. *Quarterly Journal of Experimental Psychology*, *66*(11), 2092–2102. doi:10.1080/17470218.2013.853089
Pickering, L., Corduas, M., Eisterhold, J., Seifried, B., Eggleston, A., & Attardo, S. (2009). Prosodic markers of saliency in humorous narratives. *Discourse Processes*, *46*(6), 517–540. doi:10.1080/01638530902959604
Provine, R. R. (2000). *Laughter: A scientific investigation*. New York, NY: Viking.
Raskin, V. (1985). *Semantic mechanisms of humor*. Boston, MA: D. Reidel.
Ruch, W. (2008). Psychology of humor. In V. Raskin (Ed.), *The primer of humor research* (pp. 17–100). New York, NY: Mouton de Gruyter.
Ruvolo, P., Messinger, D., & Movellan, J. (2015). Infants time their smiles to make their moms smile. *PLOS ONE*, *10* (9), e0136492. doi:10.1371/journal.pone.0136492
Rychlowska, M., Jack, R. E., Garrod, O. G. B., Schyns, P. G., Martin, G. D., & Niedenthal, P. (2017). Functional smiles: tools for love, sympathy, and war. *Psychological Science*, *28*(9), 1259–1270. doi:10.1177/0956797617706082
Schiffrin, D. (1987). *Discourse markers*. Cambridge, UK: Cambridge University Press.
Seder, P. J., & Oishi, S. (2012). Intensity of smiling in facebook photos predicts future life satisfaction. *Social Psychological and Personality Science*, *3*(4), 407–413. doi:10.1177/1948550611424968
Sloetjes, H., & Wittenburg, P. (2008). Annotation by category – ELAN and ISO DCR. In *Proceedings of the 6th International Conference on Language Resources and Evaluation* (LREC 2008).
Thompson, L. A., Malmberg, K., Goodell, N. K., & Boring, R. L. (2004). The distribution of attention across a talker's face. *Discourse Processes*, *38*(1), 145–168. doi:10.1207/s15326950dp3801_6
Woodzicka, J. A., & LaFrance, M. (2001). Real versus imagined gender harassment. *Journal of Social Issues*, *57*, 15–30. doi:10.1111/0022-4537.00199
Zigler, E., Levine, J., & Gould, L. (1966). Cognitive processes in the development of children's appreciation of humor. *Child Development*, *37*(3), 507–518.

Appendix

1. Transcription Conventions From Attardo et al. (2011).

Transcription	Meaning
((lip smack))	Paralinguistic events
[204][63]	Pitch and volume values for a prominent syllable, in Hertz and Decibel, respectively
[?]	Impossible to get an accurate measurement
CAPS	Prominent syllable
//. . .//	Beginning and end of a pause-based unit
0.48	Pause duration in seconds
h h	Aspiration
=	Overlapping turns
{. . .}	Beginning and end of author comments
:	Lengthened vowel