

Humor markers

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How does a receiver know that humor is intended? The communicator may say so explicitly ("Wanna hear a joke?", "Listen, this is funny"), but she may also signal humor in less overt ways. Not much research exists that investigates signals of humorous devices (but see Attardo et al. 2011; Hay 2001; Adams 2012). Irony, however, is one of the best-researched types of humor [see ch. 18: Irony and sarcasm], and therefore the study of irony markers is more advanced and may also help to detect cases of humor. Although irony and humor are related to a certain degree (in that some irony is funny, and some humor is ironic), care should be taken to not equate the two. This contribution focuses on irony and sarcasm markers. Prosodic markers of humor are reviewed elsewhere [see ch. 29: Prosody and Humor].

1. Historical perspective

In 1899, French poet Alcanter de Brahm proposed that ironists should use a specific punctuation mark known as the ironic sign (a question mark turned backward) to guide their readers explicitly in an ironic interpretation of an utterance (Satterfield, 1982). This proposal was never really taken seriously. One of the reasons may be that ambiguity is precisely one of the goals of ironists. The irony mark would be a spoiler alert, and thereby reduce the pleasure of using irony. Using irony comes with a risk, however, because the ironic intention of the communicator may go unnoticed. In order to help the receiver to detect the intention of the communicator, she may use less overt signals, named irony markers.

Irony has been defined in many different ways [see ch. 18: Irony and sarcasm]. For our present purposes we settle on a definition based on the different commonalities between the various approaches: Irony is an utterance with “a literal evaluation that is implicitly contrary to its intended evaluation” (Burgers et al., 2011, p. 190). If an utterance is read ironically, the valence of the evaluation implied in the literal utterance is reversed in the ironic reading.

Some features are inherent to irony, which are called irony factors (Attardo, 2000). If an irony factor is removed from an utterance, this utterance is no longer ironic (Attardo et al., 2003; for a discussion of irony factors, see Burgers et al. 2012a). In contrast, irony markers are meta-communicative clues that can “alert the reader to the fact that an utterance is ironic” (Attardo, 2000, p. 7). An irony marker hints at the receiver that the communicator takes a different stance on the propositional content in the utterance she expresses. Verbal or non-verbal cues that can serve as irony markers, may also be used to serve other communicative goals, such as politeness, disagreement, surprise, etc. Example (1) contains several irony markers.

(1) [while listening to a very amateurish rendition of Ravel's Bolero] This really is, ehm, the best performance ever!

The adverb 'really', the hesitation 'ehm', the superlative 'best', the indefinite pronoun 'ever' and the exclamation mark all signal covertly (although the accumulation is poignant) to the receiver that the communicator is ironic. Almost all theorists on irony agree that irony markers are not necessary to an utterance being ironic. As long as the discrepancy between the intended meaning and uttered meaning is evident to the receiver, the ironist may refrain from using markers. Suppose the ironist removed the irony markers from her utterance, and said

(2) [while listening to a very amateurish rendition of Ravel's Bolero] This is a good performance.

In this case, her utterance would still count as ironic, but the irony would be more difficult to detect (see also Attardo, 2000). There must be some discrepancy between the reality and the utterance, but the extent of this discrepancy may vary, and in order to arrive at a successful interpretation of irony, the receiver has to recognize it in order to interpret the utterance as it was intended. Therefore, the communicator may decide to help the receiver and use cues or hints that play a supportive role.

The identification of irony markers has received small but significant attention in the irony literature. Booth (1974) discusses several irony markers used in literary works. He distinguishes straightforward warnings in the author's own voice (i.e. an explicit signal of irony), known error proclaimed (e.g., an initial absurdity to set the tone for the entire text), conflicts of facts within the work (i.e. the author seemingly contradicts herself), clashes of style (the author departs notably from the normal way of saying a thing) and conflicts of belief (a conflict between the beliefs expressed and the beliefs we suspect the author of holding). Booth' classification is insightful, but it does not allow to pinpoint irony markers in everyday irony.

Muecke (1978) is the first author to propose a clear taxonomy of irony markers. He also argues that irony is not irony unless it “fairly hints” at its own nature. Therefore, communicators should provide grounds for a correct interpretation (Muecke, 1978, p. 363). In that respect, markers are guides, not determinants or infallible pointers to irony. In discussing irony markers, Attardo alludes to a very relevant issue: can context and co-text serve as irony markers? According to Attardo (2000, p. 10), context and co-text should be considered irony factors, that is inherent to the identification of irony, without which the utterance would not count as ironic. However, the line between co-text, context and utterance is difficult to draw, as can be illustrated by paralinguistic elements of an utterance: are intonation, laughter or speech rate parts of the utterance, the context or

the co-text? In the next section, we will treat context and co-text as different layers in the ironic spectrum (see van Mulken et al., 2011; Burgers & van Mulken, 2013), although we acknowledge that these layers may intersect.

An important issue for this contribution, however, is to establish an overview of irony markers that have been identified in the literature that is as complete as possible. In the following section, we present such an outline, drawing on prior work with clearly defined sets of markers (Muecke, 1978; Kreuz, 1996; Seto, 1998; Attardo, 2000; Burgers et al., 2012a) as well as on studies that focus on one or more specific markers.

2. Core issues and topics

Burgers and van Mulken (2013) argue that irony markers can be divided into three categories: (1) markers of the utterance, (2) markers of the co-text and (3) markers of the context. We discuss each of the three categories and present examples of types of markers belonging to the different categories.

2.1 Markers of the utterance

Markers of the utterance concern the linguistic characteristics of the ironic utterance. The first type of utterance marker is an explicit marker, in that the communicator directly manifests her ironic intent to the audience. These are contemporary equivalents to Alcanther de Brahm's irony signal. Kovaz, Kreuz and Riordan (2013), for instance, identify ironic utterances in blogs and literary works by looking for phrases such as "said sarcastically" and "said ironically". Similarly, Kunneman, Liebrecht, van Mulken and van den Bosch (2015) and Reyes, Rosso and Veale (2013) use relevant explicit hash tags on Twitter like #sarcasm, #irony and #humor to identify irony and humor. These hash tags explicitly indicate that the author of the tweet had the intention of being ironic or humorous.

Burgers, van Mulken and Schellens (2012a) provide an overview of the other types of utterance markers they identified in a corpus analysis of irony in Dutch written discourse. They argue that utterance markers of irony can be roughly divided into four categories. These are (1) typographic markers, (2) morpho-syntactic markers, (3) schematic markers, (4) other tropes (cf. Table 1 for an overview). The more we move down the line, the more the utterance markers shift from linguistic to pragmatic signals.

[Table 1 about here]

The first group of markers includes typographic markers. Typographic markers include the use of striking typography, like the use of quotation marks and capitalization. In the case of computer-mediated communication (CMC), this category also includes the use of emoticons to signal humorous intent (Hancock, 2004). A second category of utterance markers is that of morpho-syntactic markers. These markers draw the reader's attention by presenting an utterance with a striking syntactic structure or morphology. This category includes markers such as exclamations (Seto, 1998), tag questions (Kreuz, 1996), negations (Giora et al., in press), focus topicalization (Seto, 1998), elongation (Adams, 2012) and diminutives (Burgers et al., 2012a). Interjections (also known as discourse particles, e.g., 'oh', 'you know', 'gee') may also be included in this category. By showing the dissociative or hesitant stance of the communicator, these markers draw attention to the ironic nature of a statement (Kovaz et al., 2013). A special kind of marker in this category includes acronyms used in computer-mediated communication (CMC) like LOL (laughing out loud) or ROTFL (rolling on the floor laughing, Davis et al., 2014) or onomatopoeic references to laughing (e.g., haha, Davies, 2015) to signal humorous intent (see also Whalen et al., 2009; Adams, 2012; Skalicky and Crossley, 2014). By using such acronyms, the speakers "imitate" a face-to-face

conversation, and verbalize their paralinguistic responses (e.g., laughing) to show the audience their utterance is meant humorously.

The final two categories of markers identified by Burgers et al. (2012a) are based on the distinction between schemes and tropes as made in treatises on classical rhetoric (cf. Corbett & Connors, 1999). Schemes are figures that deal with word order and sound patterns: a deviation from the ordinary arrangement of words and sounds, like alliteration and rhyme. In that vein, schematic irony markers are also based on repetition. The marker of ironic repetition implies that a certain statement is repeated (ironically) within the same text. In ironic repetition, both the original utterance and the ironic repetition can be found within the same text (Muecke, 1978). In contrast, an ironic echo implies that the ironic utterance repeats an utterance or statement familiar to the interlocutors that is not explicitly mentioned earlier in the text (Hay, 2001). Under this perspective, an echo can for instance refer to a statement made between the two interlocutors in a previous conversation, but also to expressions that are famous from other domains, like politics, sports and popular culture. A final schematic irony marker pertains the use of a change of register, which means that the speaker starts using words from a different style register in the ironic utterance to draw the reader's attention (Haiman, 1998). An example of such a change of register includes the use of excessive politeness in situations in which it is not warranted (Seto, 1998).

In contrast to schemes, tropes are rhetorical figures that focus on meaning operation, in that readers should reinterpret the propositional ("literal") meaning of the utterance to uncover the intended meaning. Stacking tropes in one utterance can alert the reader to the nature of the utterance's ironic character. In this vein, tropes like metaphor (Hao & Veale, 2010), hyperbole (Muecke, 1978), understatement (Seto, 1998) and rhetorical question (Barbe, 1995) have been listed as markers of irony. For example, Hao and Veale (2010) suggest that similes including the adverb 'about' (e.g., 'about as modern as a top-hatted chimneysweep') are relatively likely to be ironic. Yet, within this group of tropes, hyperbole is the trope that is most often associated with irony

(Kreuz & Roberts 1995; Carston & Wearing, 2015). For instance, Kreuz and Roberts (1995) posit that hyperbolic constructions including adverbs such as ‘absolutely’, ‘really’, ‘just’, ‘simply’ and ‘certainly’ followed by an adjective with an extremely positive valence (e.g., brilliant, fantastic, great, wonderful) may be an indicator of ironic intent.

2. Markers of the co-text

Co-text refers to all other elements (except for the linguistic features of the utterance under discussion) that can help the reader in detecting ironic intent. In many cases, these co-textual markers are textual. In spoken discourse, co-textual markers can be kinesic, phonetic or prosodic. In other genres (e.g., cartoons, advertisements), these co-textual markers can also be visual. Table 2 presents an overview of co-textual irony markers.

[Table 2 about here]

With regard to linguistic co-textual markers, three types are identified. The first type can be referred to as “humor support”, which means that one instantiation of humor is followed by either elaborating on the humor or by providing more humor (e.g., Burgers, van Mulken & Schellens, 2013a; Hay, 2001; Vandergriff & Fuchs, 2012) [see ch. 27: Humor support and mode adoption]. This implies that the use of humor in a text will serve as a marker for humorous utterances that are placed later on in the text. That is, a humorous utterance can create the expectancy that other humorous utterances may follow. In that way, say, a fifth humorous utterance of a given text should be easier to recognize than the first humorous utterance of the same text. One study looking at foreign language learners engaging in synchronous CMC (e.g., chat) found that the use of multiple humorous utterances was actually the most common way by which foreign language learners supported their humor use (Vandergriff & Fuchs, 2012).

Next to the use of multiple humorous or ironic utterances, Burgers et al. (2013a) identify two other types of linguistic co-textual markers. These are the use of other tropes (metaphor, hyperbole, understatement, rhetorical questions) and mood markers (register, cynicism). First, if the ironic utterance is preceded by a variety of other utterances involving tropes, the reader can already get into a mood of expecting more (and potentially other) tropes like irony. In that way, the other tropes can create an “expectation of tropes”. Second, mood markers like including a different register or using cynicism can alert a reader towards ironic intent. After all, a sudden shift of register in the utterances preceding the irony can alert the reader to the fact that something is going on, and that an ironic utterance may follow. Similarly, using cynic utterances can show the reader that the author has a very negative stance towards the topic under discussion and thereby open up the possibility of identifying irony.

In spoken communication, much empirical attention has been given towards identifying paralinguistic features of an “ironic tone of voice”. Many older studies into this topic often assume that a distinction can be made between an ironic vs. a non-ironic intonation (e.g., Cheang & Pell, 2009; Cutler, 1976; Roberts & Kreuz, 1995). The general hypothesis underlying these studies is that specific acoustic patterns can be identified that will lead the reader towards interpreting the specific utterance as ironic.

A first goal of these studies into the ironic tone of voice was isolating specific phonological features that lead the reader towards understanding a certain utterance as ironic. Phonological features that have been associated with communicating irony include a relative slow speaking rate, heavy stress and nasalization (Cutler, 1976; Kreuz & Roberts, 1995; cf. Table 2 for an overview). While the idea of an ironic tone of voice was and has remained popular, it has also come under criticism in recent years. First, researchers have shown that characteristics of the “ironic tone of voice” differ between languages. Cheang and Pell (2009), for instance, compared English to Cantonese. They found that, in English, irony was marked by lowering mean fundamental

frequency (F0), while, in Cantonese, irony was marked by increasing F0. In a similar vein, specific intonational patterns indicating an ironic tone of voice have been identified for other languages like French (Løevenbruck et al., 2013), German (Scharrer & Christmann, 2011), Italian (Anolli, Ciceri & Infantino, 2002) and Mexican Spanish (Rao, 2013). Thus, no generic intonational pattern to mark irony can be identified, but rather specific patterns for different languages.

A second point that has been raised against the ironic tone of voice is related to its recognition. To see whether intonation alone could lead to the identification of irony, Cheang and Pell (2011) asked Cantonese and Canadian-English speakers to evaluate whether a Cantonese or English utterance (that was either marked with an ironic intonation or not) was meant ironically. When participants had to do this task in their native language, they performed successfully. However, when they had to perform the task in the language they did not speak (English for the Cantonese speakers; Cantonese for the English speakers), participants performed around chance level, indicating that they needed language knowledge to correctly interpret the “ironic intonation”. In another study, Bryant and Fox Tree (2005) presented native speakers of English with original ironic and non-ironic utterances taken from talk radio. They found that their participants did not rely on any vocal cues to identify irony.

Because of such reservations, various authors have argued that there is not one specific acoustical pattern that can be referred to as the “ironic tone of voice” (e.g., Attardo et al., 2003; Bryant & Fox Tree, 2005). Instead, when comparing a spoken ironic utterance to preceding utterances, Bryant (2010) found that irony was marked by a prosodic contrast with the preceding utterance. That is, speakers adapted their way of speaking to mark that something was going on in the ironic utterance. In that way, ironic intonation may not be hidden in a specific intonational pattern, but rather in a contrast with preceding utterances (see also Attardo et al., 2003).

Next to paralinguistic cues, other non-verbal cues may help to signal irony in face-to-face interactions. Various studies have identified specific facial movements speakers can use to signal

irony. Rockwell (2001) divides the face into three areas: (1) eyebrows and forehead, (2) eyes, lids and upper part of the nose and (3) mouth, cheeks, lower part of the nose, jaw and chin. When contrasting ironic and non-ironic utterances, Rockwell (2001) found that only movements in the mouth area were predictive of differences between the two types of utterances. Similarly, Caucci and Kreuz (2012) code for facial gestures in a corpus contrasting literal and ironic utterances. They find that facial movements like smiling, lip tightens, looking at the conversational partner, slow nods and laughing are more frequent for ironic (vs. literal) utterances. Tabacaru and Lemmens (2014) report on a corpus analysis of humor use in two American television shows (*House MD*, *Big Bang Theory*), and argue that raising eyebrows is an important facial marker of humor: raised eyebrows work as a “gestural trigger”, showing the audience that the speaker is behaving non-seriously.

While various studies demonstrate that specific facial movements can be indicative of signaling irony, the absence of any facial expression (known as “blank face”) has also been suggested as a facial irony marker (Attardo et al., 2003). After all, when the utterance contains highly emotional information (as expressed through irony), the total absence of any emotion in the facial expression of the speaker may also serve as a trigger for the viewer. Like a prosodic contrast does with speech, a blank face sets up a contrast between the content of the utterance and the expression of the speaker, thereby alerting the viewer to the potential of irony in the utterance.

Most studies into visual markers of verbal irony have focused on facial expressions. Yet, kinesic choices can serve as markers as well. For instance, cues like pointing, nudges, and slow clapping can alert the reader to an ironic interpretation. A famous example of slow clapping as a marker for irony can be found in the Batman movie *The Dark Knight* (2008, dir. Christopher Nolan). In one scene, Lieutenant Gordon (played by Gary Oldman) gets promoted to commissioner at the police station. Upon hearing this, the Joker (played by Heath Ledger) starts clapping very

slowly in an adjacent prison cell in mock congratulations. In doing so, the Joker uses slow clapping as a kinesic marker of irony.

Next to facial expressions and kinesic markers, images in print genres like cartoons or advertisements can help the reader in detecting irony. Burgers, van Mulken and Schellens (2013b) present a first case study of visual markers of irony in images. First, they find that pictorial elements can alert a viewer to ironic intent in two ways. The first way is labeled as a “visual hyperbole”, which means that the image shows an exaggerated version of the propositional meaning of the ironic utterance. Because the event shown in the image is absurd and extremely unlikely to occur, this visual highlighting of the propositional meaning shows that the propositional meaning is probably false. Next to highlighting the propositional meaning, an image can also contrast with its propositional meaning, which Burgers et al. (2013b) label as visually incongruent. Their example is an advertisement for a Dutch phone company in which a man has received a pair of hedge clippers rather than the mobile phone he actually wanted. The ironic utterance reads “Sure, hedge clippers are nice”, while the advertisement’s image features the man looking disapprovingly and holding the hedge clippers to his ear as if they were a mobile phone. Such visually incongruent information can thus also serve to mark an utterance as ironic.

In a second analysis, Burgers et al. (2013b) analyzed which visual elements were responsible for achieving the ironic effect. Taking the perspective of visual narratology (Verstraten, 2009), they divide the image into elements from *mise-en-scène* (e.g., choice of characters, facial expression of characters, objects, setting) and cinematography (e.g., camera angle, use of color, depth and sharpness, focalization). Their analysis shows that elements from the *mise-en-scène* are typically used for marking the irony while cinematographic elements are hardly used for this purpose. Within the cinematographic elements, a character’s position, facial expression or body language, the use of objects and the choice for specific characters are the elements used most often to visually mark the irony in the utterance.

3. New debates

While most of the literature on irony markers has been concerned with their identification, new debates have also risen to the surface in the last years. These are related to four topics in particular: (1) the difference between irony markers and types, (2) the effects of markers in utterance processing, (3) usage and effects of markers in discourse and (4) the use of markers in identification of irony in new online media. We discuss each of these below.

3.1 The difference between irony markers and types of irony

This discussion has mostly centered on one particular type of utterance and co-textual marker: the use of other tropes like hyperbole, understatement, and rhetorical questions. While these tropes have historically been treated as irony markers, a new perspective has recently come up in which they are described as types of irony. Various scholars have argued that irony comes in different forms including sarcasm, jocularity, hyperbole, understatement and rhetorical questions (cf. Averbeck, 2015, p. 89; Gibbs, 2000, pp. 12-13; Pexman et al., 2009, p. 237). Under this perspective, then, a hyperbole, understatement or rhetorical question is not a marker, in that it alerts the reader to the fact that a sentence could potentially be ironic. Instead, a sentence including a hyperbole, understatement or rhetorical question is deemed to be ironic by default. This means that irony is typically defined very broadly. For instance, Gibbs (2000, p. 23) suggests that “[i]rony is not a single category of figurative language, but includes a variety of types, each of which is motivated by slightly different cognitive, linguistic, and social factors and conveys somewhat different pragmatic meanings”. Applying such a loose definition of irony enables the possibility of categorizing different types of figurative speech under the larger umbrella of irony.

In contrast, other scholars argue that irony is clearly distinct from other types of figurative language like hyperbole, understatement and rhetorical questions (cf. Carston & Wearing, 2015;

Wilson, 2013). The argument to see these as distinct forms (opening up the possibility that hyperbole, understatement and rhetorical questions can be markers) relates to their meaning operation. Under this perspective, irony is defined in a more narrow way. This is typically done in terms of opposition, in that, on a conceptual level, the intended statement implies a contrary evaluation (positive, negative) to the propositional content of the statement (negative, positive). Thus, irony crosses a zero (neutral) point of evaluation and always goes from positive to negative or vice versa.

While irony thus typically involves a shift in evaluation, other tropes do not. Hyperbole, for instance, involves an overstatement of the actual state of affairs. In this trope, then, the intended meaning of the communicator remains in the same evaluative domain, but moves closer to the zero point compared to the propositional meaning (see also Burgers et al., 2011; Seto 1998). For instance, a statement like “That was the best concert in history” may be an overstatement (e.g., it was quite good), but, if the utterance is only used hyperbolically and not ironically, the intended meaning is still in the positive domain. In understatement, we find the reverse effect, in that the intended meaning is further removed from the zero point compared to the propositional meaning (e.g., “The concert was quite OK” is an understatement to indicate that it was very good). Under this perspective, then, the different kind of tropes need be resolved in different ways. Thus, depending on the basic definition used of verbal irony (loose vs. narrow), it is possible to conceive of some elements (e.g., other tropes) as either markers or types.

3.2 Effects of markers in processing

A second debate is about the issue how markers can exactly influence processing, because various studies show different results for the strength and impact of markers. In lab experiments with online measures (i.e., measured during processing), Rachel Giora, Ofer Fein and colleagues show that markers do not always facilitate processing (Giora et al., 2007, Fein, Yeari & Giora, 2015). In some

of their studies (e.g., Giora et al., 2007; Experiment 1; Fein et al., 2015, Experiment 1), participants were asked to read a number of dialogues between two fictional friends. In all dialogues, one speaker made an ironic utterance approximately halfway through the scenario, setting up an expectation for irony. The dialogue subsequently ended in either a literal or an ironic utterance. Participants could either read the story at their own pace (Giora et al., 2007, Experiment 1) or had to respond to a lexical probe that was either related to the literal or ironic meaning, or unrelated (e.g., an utterance like “I see you developed some great habits” said to somebody with an unhealthy diet, followed by a literal probe like *healthy*, an ironic probe like *harmful* or an unrelated probe like *fragile*; Fein et al., 2015, Experiment 1). The general idea of these studies is that if the marker facilitates irony, it should also speed up reading and decision times for the second ironic sentence. However, across experiments, Giora and colleagues find no evidence of this effect. Even when expectations become more explicit (e.g., by allowing participants to read 36 scenarios that all end in irony, Giora et al., 2007, Experiments 3-4, or by explicitly informing participants of the study goal, Fein et al., 2015, Experiment 2), they consistently find longer reading times (indicating more effort) for ironic (vs. literal) contexts. From these studies, Giora and colleagues conclude that salience trumps co-textual markers in processing.

However, Voyer and colleagues (e.g., Voyer, Thibodeau & DeLong, in press; Woodland & Voyer, 2011) found empirical evidence that different co-textual markers can interact to increase processing. In their experiments, a statement spoken in either a sincere or a sarcastic voice (i.e., a prosodic co-textual marker) was paired with either a positive or negative co-text. In a series of experiments, they found that response time to utterances spoken in a sarcastic intonation was faster when it fitted the context (i.e., sarcastic intonation with a negative context; sincere intonation with a positive context) than when it did not. From these data, the authors conclude that utterance markers like tone of voice interact with co-text to facilitate processing.

Furthermore, in a recent series of experiments, Giora, Givoni and Fein (in press) have found that word salience does not always lead to the fastest processing time. Instead, they suggest that defaultness is most important in predicting processing. In order to qualify as default, a non-literal interpretation of an utterance should be evoked faster than a literal interpretation, under conditions that the constituents have to be unfamiliar, that semantic anomaly is not involved, and that contextual information is absent. An example of a sentence construction that, in Hebrew, led to a default non-literal interpretation involved a negation of a highly positive concept (e.g., *not the best/most X*). Results from four experiments demonstrate that the default meaning is always activated first, regardless of word salience and contextual strength. This novel perspective suggests that some kind of utterance markers (i.e., those related to a default interpretation) can be especially powerful in steering processing. Which utterance markers are related to defaultness in which ways, is a question for future research.

3.3 Use and effects of markers in natural discourse

An important question is of course whether markers not only facilitate processing, but impact effects of the humor in other ways as well. Burgers, van Mulken and Schellens (2012b, experiment 2), for instance, conducted an experiment to assess how irony markers influenced perceived utterance complexity, utterance comprehension, and attitudes towards the utterance and text. They presented participants with a variety of letters to the editor (adapted from real newspapers), which ended with a target utterance. This target utterance was either ironic or not, and included zero, one or three utterance markers. They found that an ironic utterance with three markers was perceived as less complex than an ironic utterance with one or no markers. Additionally, an ironic utterance with three markers was also appreciated better than an ironic utterance with one or zero markers. These effects did not translate to the attitude towards the text as a whole, which was unaffected by the target sentence.

The results from Burgers et al. (2012b) suggest that utterance markers can be used to decrease the complexity of the utterance, and make it clearer to the audience that the utterance is intended ironically. This is reinforced by corpus data. Burgers et al. (2012a) study the use of irony markers in a corpus of written Dutch markers. They found that utterance markers tend to be used more when the utterance is more difficult to detect as irony, based on the configuration of irony factors (Attardo, 2000). For instance, more irony markers were used in implicitly evaluative ironic utterances (that do not include evaluative words, e.g., *That is a 'plan'*) compared to explicitly evaluative ironic utterances (that do include such evaluative words, e.g., *That is a great idea*). Furthermore, relatively simple markers (e.g., typographic markers) were also associated with implicitly evaluative irony. Relatively complex utterance markers (e.g., other tropes) were used more often when the utterance was easier seen as irony, based on the configuration of irony factors.

Such results support the general assumption that markers can be helpful in situations where the irony is more difficult to detect. In this light, Caucci and Kreuz (2012) present surprising empirical evidence when looking at the use of facial markers in face-to-face conversations between friends and strangers. Based on the previous results, it could be expected that markers are used more in conversations between strangers, because they have little knowledge of each other and thus need to be helped. Yet, the Caucci and Kreuz (2012) study shows the exact opposite, in that communicators used more facial irony markers when talking to friends than when talking to strangers (Caucci & Kreuz, 2012). Such results suggest that the issue how communicators use which types of markers in which types of communicative situations is a question that warrants further research.

3.4 Humor markers in new media

Recently, the automatic detection of irony by computer programs has received a lot of scholarly attention. Example (3), a quote from a restaurant review, shows that it is impossible to tell whether the utterance is ironic or not.

(3) “I love McDonald’s” (example taken from Wallace, 2015)

In the field of sentiment analysis and opinion mining, it is of the utmost importance to be able to tell the polarity of a sentiment. If Internet users are ironic, this may confound the results of such analyses. Therefore, statistical or probabilistic models for the identification of irony have been constructed, with the help of machine-learning techniques and the construction of classifiers combining different features to tell ironic texts apart from non-ironic texts. These approaches typically work with a predefined set of cues to test a model to differentiate between types of texts. Often these models contain factors such as n-grams (frequent part of speech combinations), polarity (word valence based on preset lexicons), emotionality (affective words using values from WordNet), and explicit irony markers, such as quotation marks or emoticons.

Utsumi (1996) is the first author to suggest a computational formalization of irony. He stresses the need of incorporating expectations about the communicator of the irony, in order to be able to fully assess the ironic interpretation of an utterance. This same necessity is also highlighted by Wallace (2015), who claims that all probabilistic computational approaches to irony detection inherently fail unless they account for the pragmatic context (i.e. knowledge of the communicator and the situation). Reyes et al (2012, p. 240) point out that "irony cuts through every aspect of language [..]. As such, it is unrealistic to seek a computational silver bullet for irony, and a general solution will not be found in any single technique or algorithm”.

Nevertheless, several attempts have been made. It should be noted that these approaches do not propose to develop general models of irony, but rather pragmatic algorithms for irony detection. Most statistical approaches test their algorithms on publicly available social media data like Twitter or online product reviews (on sites like Amazon.com). They typically contrast datasets that either contain ironic texts (based on user-generated tags such as #irony or #sarcasm or #not) versus one or more datasets that are non-ironic (based on other hashtags, such as #politics; González-Ibáñez et al., 2011; Reyes et al., 2013; Vanin et al., 2013; Davidov et al., 2010; Skalicky & Crossley, 2014; Kunneman et al., 2015).

Carvalho et al. (2009) work on a data set containing opinionated user posts from the web site of a popular Portuguese newspaper. They combine a set of surface patterns that contain typical irony cues, such as positive statements, emoticons, onomatopoeic expressions for laughter and punctuation marks, and apply machine-learning techniques to automatically identify ironic sentences. According to Carvalho et al. (2009, p. 53), these surface patterns are more productive in finding irony than clues based on deeper linguistic information. Burfoot and Baldwin (2009) also use machine-learning and classifiers to separate satiric news articles (such as published in *The Onion*) from true news articles. Aided by scores for the validity of the content of the news stories, characteristics such as the presence of headlines, offensive and slang language, they were able to discriminate between the two genres. In a similar vein, Skalicky and Crossley (2014) work on a sample of product reviews. They found that other, more general linguistic properties than the markers mentioned in Tables 1 and 2 may serve as predictor for the presence of satire (and humor and irony) in product reviews. For instance, they found that satirical reviews contain more negative emotion words, have higher levels of concreteness and word certainty (e.g., *never*, *always*) and more often use past tense and quantification words (e.g., *few*, *many*).

Many of the statistical approaches show that other linguistic features co-occur with the presence of irony (e.g., words with a negative polarity, emotion words, etc.). These features can be

considered to be even more subtle signals of irony, humor or non-seriousness than the irony markers discussed in this chapter. Of course, no linguistic trait can be listed as an irony marker per se, and the co-occurrence of certain linguistic properties may help the automated detection of irony. In a similar vein, Reyes and colleagues identify humorous and ironic patterns in social media by automatically evaluating features that concern ambiguity, polarity, unexpectedness and emotional scenarios (Reyes et al., 2012). They manage to show that ironic (and humorous) texts deviate from other messages (political, technical or general tweets) with regard to these features. In another study, Reyes et al. (2011) used product reviews on Amazon that other users classified as ironic or sarcastic (e.g., *the Three Wolf Moon T-shirt*) to construct an ironic dataset and contrast it with other product reviews. Features such as polarity, affect and pleasantness were indicative of ironic content. In turn, Reyes & Rosso (2013) propose a set of eight different features, mostly based on the irony literature, to assess potentially ironic statements in different datasets. The majority of the features were sets of words that often co-occur with irony (such as punctuation marks, emoticons, *yet*, *nevertheless*, *suddenly*, *now*, *abrupt* or words implying emotionality). It appeared that the relatively longer documents, such as the movie reviews, were likelier to contain irony. This attempt at combining shallow features with more interpretive, contextual features is one of the most promising in the automatic detection literature to date.

Both Wallace (2015) and Reyes and colleagues concur that unless an algorithm accounts for an explicit model of the communicator and the situation, automatic irony detection will remain a challenge (see Wallace et al., 2014). Hopefully, future research may better succeed in incorporating irony factors and markers in irony algorithms.

4. References

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Table 1: List of utterance markers, (made-up) examples related to an ironic comment about a bad idea and sources (adapted and expanded from Burgers et al., 2012a)

Marker	Example	Sources
Direct markers		
Explicit reference	“That’s a great idea”, he said ironically.	Kovaz et al., 2013
Hash tag	That’s a great idea, #irony	Kunneman et al., 2015; Reyes et al, 2013
Typographic markers:		
Different typography	It is a great idea.	Kreuz, 1996
Capitalization	It is a GREAT idea.	Haiman, 1998
Quotation marks	It is a “great” idea.	Hancock, 2004
Several full stops	It is a great idea...	Muecke, 1978
Other punctuation marks	It is a great [!] idea.	Attardo, 2000
Emoticons	It is a great idea ;-)	Hancock, 2004; Kreuz, 1996
Crossed-out text	It is a terribly great idea.	Burgers et al., 2012a
Other special signs	Your Idea™ is great.	Burgers et al., 2012a
Morpho-syntactic markers:		
Exclamation	Great idea!	Seto, 1998
Tag question	That’s a great idea, isn’t it?	Kreuz, 1996
Focus Topicalization	A great idea that is, I believe.	Seto, 1998
Interjections	Well, it is great idea.	Kovaz et al., 2013
Syntactic negation	It is not the best idea.	Giora et al., in press
Acronyms of laughing	That is a great idea; LOL	Davis et al., 2014
Onomatopoeic reference	That is a great idea, haha	Davies, 2015
Elongation	That is a greaaaaaaaaaaaaat idea	Adams, 2012
Diminutives	“ <i>Dat was een goed ideetje</i> ”. That was a great little idea.	Burgers et al., 2012a
Schematic markers:		
Ironic repetition	“John will come up with a good idea” → Indeed, that’s a good idea.	Berntsen & Kennedy, 1996; Muecke, 1978
Ironic echo	Indeed, that’s a good idea.	Berntsen & Kennedy, 1996; Muecke, 1978
Change of register	You may grant me the honor of listening to another one of your fine ideas (said to a friend).	Haiman, 1998; Seto, 1998
Tropes as markers		
Metaphor	You are a rocket scientist.	Hao & Veale, 2010
Hyperbole	That was the best idea in the history of mankind.	Muecke 1978; Roberts & Kreuz, 1995
Understatement	That idea is quite OK.	Muecke 1978; Seto, 1998
Rhetorical Question	Could your idea be any better?	Barbe, 1995; Muecke, 1978

Table 2: List of co-textual markers, examples and sources

Marker	Example	Sources
<i>Linguistic markers</i>		
Humor support	Multiple humorous or ironic utterances	Hay, 2001; Vandergriff & Fuchs, 2012
Other figurative speech	Metaphor, hyperbole, understatement rhetorical questions	Burgers et al., 2013a
Mood markers	Change of register, cynicism	Burgers et al., 2013a
<i>Paralinguistic markers</i>		
Tone of voice		Attardo et al., 2003; Bryant & Fox Tree, 2005; Haiman, 1998
	Nasalisation, labialisation	Cutler, 1974; Muecke, 1978; Haiman, 1998
	Syllable lengthening	Attardo, 2000
Prosody	Intonation	Roberts & Kreuz 1995; Cheang & Pell, 2009
	Exaggerated stress	Cutler, 1974, Haiman, 1998
	Speech rate	Cutler, 1974, Attardo et al., 2011
	expressionless pitch, dead pan, flat	Muecke, 1978, Attardo et al., 2011
	False coughs, laughter, pauses	Muecke, 1978, Attardo, 2000, Haiman, 1998 Attardo et al., 2011
	Volume	Attardo et al., 2011
	Prosodic contrast	Bryant, 2010
<i>Visual markers</i>		
Facial	Smiling, lip tightening	Rockwell, 2001; Caucci & Kreuz, 2012
	Raised eyebrows	Rockwell, 2001; Tabacaru & Lemmens, 2014
	‘Blank face’, tongue in cheek	Attardo et al., 2003
	Frowning	Muecke, 1978
Kinesic	Winks, nudges, pointing, Slow clapping, air quotes	Muecke, 1978
Pictorial	Visual hyperbole	Burgers et al., 2013b
	Visual incongruence	Burgers et al., 2013b; Attardo et al., 2003;