OPEN ACCESS Top-Quality Science
Peer Reviewed
Open Peer Reviewed

Review of Communication Research
2022, Vol.10
ISSN: 2255-4165

Socio-cultural and individual factors in verbal irony use and understanding: What we know, what we don't know, what we want to know

Natalia Banasik-Jemielniak
Maria Grzegorzewska University, PL
nbanasik@aps.edu.pl

Piotr Kałowski
University of Economics and Human Sciences in Warsaw, PL
piotr.kalowski@psych.uw.edu.pl

Abstract

A significant part of everyday verbal communication consists of nonliteral language, including irony (Gibbs, 2000). Efficient irony use can serve a wide range of pragmatic goals, while deficits in irony comprehension can have negative social consequences. Whereas a large body of psycholinguistic research has been produced on irony use and understanding by adults, little attention has been paid to the socio-cultural characteristics of this phenomenon so far. Some individual factors that have been identified as correlates of irony use include personality of the speaker, gender, age, or speaking a second language. In this article, we argue that it is necessary to bring the aspects of socio-cultural variables and individual characteristics together in the further study of irony across national cultures. To this end, we present a narrative review of theoretical and quantitative empirical literature from the field of psycholinguistics on both national cultural and individual/psychological factors impacting the use and understanding of verbal irony in communication. Based on the review, we suggest a theoretical model that could guide future quantitative studies on irony use such that both contextual factors (including national cultural dimensions) and individual differences between the speakers are clearly defined and related to one another in terms of their influence.

Highlights

- Existing psycholinguistic studies have shown the influence of numerous individual differences on verbal irony use and understanding.
- Most of these studies have focused on single factors (e.g., gender, specific individual differences) and involved Western student/adult populations.
- The influence of national cultural factors has been largely ignored despite significant theoretical indications of its importance.
- We review the existing quantitative, psycholinguistic studies on national cultural factors in irony
- We argue for the need to incorporate the cross-cultural perspective in psycholinguistic irony research.
- We propose a theoretical framework for integrating cross-cultural factors into quantitative research on individual differences in irony use.

Suggested citation: Banasik-Jemielniak, N., & Kałowski, P. (2022). Socio-cultural and individual factors in verbal irony use and understanding: What we know, what we don't know, what we want to know. *Review of Communication Research, 10*, pp. 80–113, https://doi.org//10.12840/ISSN.2255-4165.036

Editor: Giorgio P. De Marchis (Complutense University of Madrid, Spain).
Reviewers who accepted to sign their review: Carla Canestrari (University of Macerata, Italy). One reviewer prefers to stay blind.

Open Peer Review: Sep., 16th 2021 **Received:** Jul., 28th 2021 **Accepted:** Feb., 15th 2022

Prepublished: Mar., 14th 2022 **Published:** Apr. 2022

Content

Introduction

Verbal irony is a mainstay of everyday communication. It has been estimated to comprise around 8% of total everyday utterances (Gibbs, 2000). It is prevalent online, both in instant messaging (Hancock, 2004) and in user-generated content such as forum or blog posts (Aguert et al., 2016, see also Ask & Abidin, 2018). Algorithms for irony detection in written content online are also an emerging area of research (Reyes et al., 2012), pointing to the significance of understanding irony as a communicative phenomenon.

Although irony has been a topic of scholarly interest for centuries (Garmendia, 2018), Kreuz (2000) has named a 1984 series of articles of the *Journal of Experimental Psychology: General* as the starting point of quantitative psycholinguistic studies on this topic. These articles marked a shift from broad theoretical works to more specific empirical examinations. As part of this shift, both use and understanding of irony has been studied using various methodologies, from booklet-based studies in which participants read short examples of ironic speech and write down their responses, to neuroimaging studies tracking brain activity during the process of negotiating the ironic meaning of a given utterance. Such study designs have also allowed for manipulating a wide array of dependent variables, producing a broad, at times fragmented, picture of irony in verbal communication.

Irony has been found to rely on such factors as shared knowledge between the interlocutors ("The more familiar two people are with one other, the more likely it is that they will employ sarcasm," Kreuz & Caucci, 2007: 1) or references to commonly held beliefs and assumptions (Kumon-Nakamura et al., 1995). It is also influenced by the individual differences between the interlocutors (who is speaking to whom; Milanowicz & Bokus, 2013). Chief among them are gender (Colston

& Lee 2004; Milanowicz & Kałowski, 2016) and age/developmental period (Banasik-Jemielniak, 2013; Banasik-Jemielniak, 2019; Banasik-Jemielniak & Bokus, 2019; Bosco & Bucciarelli, 2008; Harris & Pexman, 2003; Pexman et al., 2005; Recchia et al., 2010). Recently, emphasis is being placed on personality factors, for example, anxiety or shyness (Gucman, 2016; Milanowicz et al., 2017; Mewhort-Buist & Nilsen, 2017), cheerfulness (Bruntsch & Ruch, 2017a), or various dispositions towards humor (Bruntsch et al., 2016), among others (Kreuz & Johnson, 2020).

The majority of the studies mentioned above have often focused on single factors in isolation. Attempts to present a unified model of the influence and interplay of several of them are rare. Additionally, these studies were usually carried out on homogenous, usually English-speaking samples, which makes generalizing their results beyond the western cultural sphere difficult (Pawlak, 2019). Moreover, Dynel (2014) has cautioned that researchers run the risk of neglecting natural occurrences of irony in favor of "stock" examples derived from and designed to test specific linguistic theories. In turn, these examples may fail to capture the wide variability of possible ironic forms (e.g., Colston, 2019).

More specifically, many authors rarely try to connect their findings on irony use or comprehension to the cultural context in which the study took place. Some international comparisons, if made, are usually limited to two countries and are not necessarily scalable. On the other hand, since irony engages numerous social-cognitive processes, we posit that such extensive cross-cultural comparisons could yield novel and important insights. For example, different national cultures may differ in the typically observed patterns of irony use and understanding, or may recognize and use forms that are different from, yet related to, verbal irony (e.g., Okamoto, 2002, 2006, 2007; Yao et al., 2013). Alternatively, the same factor (e.g., self-esteem) could have a different impact on irony use and understanding in different national cultures, or the relationship between a given individual and national cultural factor may differ between national contexts[1]. Still other factors (e.g., self-presentation style, tolerance of uncertainty, tendency towards indirectness in communication) could be conceptualized either on the individual or national cultural level, possibly exhibiting different relationships with irony use and understanding on these two levels.

To address this gap, the current article presents a narrative review of quantitative psycholinguistic studies on verbal irony in the context of cross-cultural comparisons and individual differences. We adopted a perspective on irony as a communicative phenomenon used in everyday speech to accomplish a variety of pragmatic goals. Due to our focus on quantitative studies, qualitative methodologies as well as studies on irony as a rhetorical device, or artistic performance fall outside the scope of our article. However, we do not wish to dismiss them with this decision. Regarding culture, we adopted Hofstede's (2001) perspective of the *national culture* dimensions to inform our review hypothesis generation. This perspective conceptualizes national cultures along a set of five dimensions which characterize their various aspects. Although we recognize that multiple dimensional frameworks of national cultures have been developed (Hall & Hall, 1990; Schwartz, 2006), we acknowledge that other conceptualizations of culture, as well as of irony as a popular cultural phenomenon also exist and deserve consideration (see the Limitations section).

We aimed at reviewing and, where possible, consolidating the results of relevant quantitative studies on individual differences and social factors, as well as studies which involved cross-cultural comparisons. This way, our review serves as a complement to previous reviews (e.g., Colston, 2019; Katz et al., 2004; Kreuz & Caucci, 2009; Kreuz & Johnson, 2020; Pexman, 2005). We (a) argue for including national cultural factors (e.g., norms for emotional expressions, tolerance of uncertainty, preference for indirectness) in psycholinguistic irony research and (b) we highlight how they may influence irony use and understanding directly as well as through potential interactions with specific individual differences (e.g., personality, bi- and multilingualism, emotional intelligence, self-presentation style, self-esteem), both within and across different national cultures. The current review is located a specific psycholinguistic tradition. It emphasizes quantitative measurement and comparison. This emphasis influences both its scope and the conclusions it presents. We do not argue for the superiority or exhaustiveness of this approach, but rather, our review intends to summarize and foster research in this particular direction.

[1] We thank an anonymous reviewer for this suggestion.

Verbal Irony

Numerous definitions, theories, and models of verbal irony[2] exist within psycholinguistics, representing pragmatic, speech act, or relevance theoretic approaches, in addition to a rich tradition of studying the process and time course of irony comprehension (Gibbs & Colston, 2007; Garmendia, 2018; Attardo, 2002, for a discussion on the lack of clear boundaries between irony and other forms of humorous nonliteral speech). However, two main features of most of these theories can be distinguished. The first is a contrast, opposition, or clash (Garmendia, 2014) between the literal and the intended/nonliteral meaning. The second is the simultaneous expression of a (typically) negative attitude (Dynel, 2014). Thus, when somebody fails to keep a promise, some possible forms of ironic criticism (termed *blame by praise*) include: (a) *Thanks for remembering!*, (b) *Why so generous?*, (c) *I'm glad you kept the promise*, (d) *I can always count on you!*. Alternatively, irony can take the form of ironic praise (termed *praise by blame*) rather than criticism. For instance, when a family member invites us for a light meal at their house, which turns out to be a lavish dinner of delicious, home-made dishes, one might comment: (a) *I'll probably leave hungry, as always,* (b) *Why so little food?*, (c) *I see we're going to have a small snack*, (d) *I hope there's more to come!*. However, this form of irony is much more rare (Bruntsch & Ruch, 2017b), since it is considered that praise does not usually need to be expressed indirectly (Sperber & Wilson, 1981).

Functions of Irony

As the above implies, the frequency, form, and pragmatically effective use and understanding of irony is highly context-dependent (Kreuz & Caucci, 2007). Kreuz (1996) postulated the *principle of inferability* which states that speakers use irony in situations where they are relatively certain that it will be appropriately interpreted by their listeners based on a range of available contextual cues. Averbeck and Hample (2008) have applied the situation-goal-plan-action framework (Dillard, 1999) to describe patterns of irony use. In a questionnaire study, they confirmed that "an important situational feature that contributes to the likelihood that an ironic message will be used is the amount of shared knowledge, experiences, and/or attitudes between a speaker and hearer" (397) and suggested that this use of common ground may make irony especially fitting for the goal of communicating criticism and reprimand. Accordingly, in a later study, Averbeck (2010) applied the language expectancy theory framework (Burgoon et al., 2002) and found that ironic utterances are judged as relatively effective in terms of influencing behavior: the nonliteral, counter-attitudinal (e.g., expressing the opposite of the speaker's actual attitude) meaning inherent in an ironic message serves to highlight the ongoing violation of expectancies held about the situation and thus reprimand undesirable behavior. This suggests that "irony can be a vehicle for maximally effective, minimally destructive messages that seek to maintain current behaviors in others" (368; see also Burgers et al., 2016, for a discussion on the use of irony in frame shifting/maintenance).

Thus, the contrast or opposition between the literal and the nonliteral/intended meaning is created by the sender in such a way as to make it possible for the receiver to interpret (Garmendia, 2018). Indeed, Garmendia (2014) proposed that the most notable theories of irony – the traditional pragmatic model of Paul Grice (1975), the relevance theoretic model of Wilson and Sperber (2012), and the pretense theory of Clark and Gerrig (1984) – ultimately propose different ways of highlighting this same contrast. Similarly, Averbeck (2010) defines irony as "a blatantly false message containing some counterattitudinal information with the intent of being actively detected by the receiver as being false" (357). Thus, following Garmendia (2014), within this review, we adopted the view that the essential feature of irony is "an overt [perceivable by the hearer] clash between what the speaker intends to communicate and what she is apparently putting forward" and that numerous other features and characteris-

[2] The distinction between *irony* and *sarcasm* must also be considered, as important methodological difficulties and/or inaccuracies in measurement might arise when these are not disambiguated. However, the relationship between these two terms is described in several ways: as (a) interchangeable, (b) distinct but related, or (c) as sarcasm being a type of irony (Taylor, 2017). Therefore, we suggest that in order to maintain a high degree of ecological validity, cross-cultural studies on verbal irony should carefully consider the terminology used in the study materials, as it might carry potential implications for how the participants approach and understand them. Additionally, providing a short working definition for the participants seems warranted.

tics (e.g., expressing a negative evaluation, being humorous, relying on the mechanism of echo or allusion) can be recruited in service of signaling this clash. Such a broad understanding allows for considering a range of quantitative studies, focusing on the pragmatic effects of irony use or understanding in conversations rather than the specific structural features of the ironic utterances employed in the individual studies.

The pragmatic effects of irony are numerous and varied. They range from positive and affiliative to negative and aggressive. Accordingly, contrast inherent in irony allows for using it to strengthen social bonds (Clark & Gerrig, 1984), but also to deliver criticism in a socially-approved way (e.g., Attardo, 2000; Kreuz et al., 1991). Depending on the situational context, irony may be used for social distance management by bringing speakers together when taking the form of shared play (Milanowicz, 2013) or targeting a third party (Gibbs, 2000). However, it can also widen the gap between the interlocutors by mocking, insulting, criticizing (Bowes & Katz, 2011), or displaying detachment (Attardo, 2000). Additionally, it can be used to compliment, add humor to a conversation, be playful or silly, or engage in social hedging, that is, modesty and face-saving (Dews & Winner, 1995). However, it can also be hurtful and mean (Colston, 1997; Gucman, 2016; Milanowicz et al., 2017; Milanowicz & Kałowski, 2016; van Mulken et al., 2010). Finally, it is often a rhetorically attractive and clever form of speech (Attardo, 2000; Kreuz, 2020). Importantly, it is recognized that irony in communication can serve several of these functions at once and that the assumption of one-to-one correspondence between a single ironic utterance and a single pragmatic effect is problematic (Attardo, 2002; Gibbs, 2012).

The majority of the existing quantitative psycholinguistic studies which have examined the pragmatics of irony listed above have chiefly concerned the western cultural context. Thus, in the next part of this narrative review, we look at irony from a cross-cultural perspective on communication, arguing for the need to further develop this research direction. Namely, irony use and understanding may differ between national cultures. Furthermore, irony use and understanding are subject to interindividual variance, depending on various personality traits. These two areas (cross-cultural differences and interindividual differences) may also overlap or interact. Accordingly, we then discuss studies on individual differences in irony use and understanding, arguing for the need to integrate this perspective with cross-cultural studies. We claim that individual differences which impact irony use and understanding may also be influenced by cultural differences and propose a theoretical model based on these assumptions.

The Role of National Culture in Irony Use and Comprehension

Models of national culture

Comprehending and using irony is part of *pragmatic proficiency*, that is, the ability to use language in context in order to engage and communicate with others effectively (Gibbs, 2000; Whalen et al., 2013). However, this aforementioned context can be expected to differ cross-culturally. National cultures can differ with respect to allowed social behaviors, communicative styles, and strategies (Hofstede, 2001), including the appropriate degree of politeness or directness of expression of both positive and negative emotions. For example, people from collectivist cultures tend to use and look for indirect meaning more than people from individualist ones (Holtgraves, 1997).

Hofstede (2001) proposed a framework for describing national cultural differences. He distinguishes five dimensions of national culture: (a) individualism versus collectivism (the degree of integration of individuals into groups), (b) societal masculinity versus femininity (prioritizing assertiveness and competitiveness over cooperation and nurturance), (c) low versus high power distance (the emphasis placed on hierarchy and its acceptance as justified), (d) low versus high uncertainty avoidance (tolerance of ambiguous, unpredictable situations), and (e) short- versus long-term orientation (valuing traditions and stability over adaptability and development). In a later expansion, the dimension of societal indulgence versus restraint (with respect to happiness and pleasure) has been added (Hofstede, 2011).

Hofstede's model lends itself well to generating and testing quantitative hypotheses about the impact of national culture on irony use and understanding. For example, regression analysis could be employed to identify causal relationships between the national cultural dimensions and measures of irony use. Such a methodology also aligns with the current trends of psycholinguistic research on irony (Bruntsch et al., 2016). However, the quantitative nature of this model has

also been criticized for its oversimplification of complex phenomena, in particular for the assumption that the broad national cultural profile will be uniformly reflected in individual behavior (McSweeney, 2002) or the assumption of the bipolar character of each national cultural dimension (Dimitrov, 2014). Indeed, Brewer and Venaik (2012) point out that "the correlations among the items used to measure the national culture dimensions are positive and highly significant at the aggregated national [...] level, but are mostly low and insignificant and sometimes of opposite sign at the individual level" (674). In other words, the national culture dimensions should not be used to inform predictions about individual behavior (de Mooij, 2013).

Therefore, when carrying out cross-cultural studies on individual behavior - such as irony use or understanding - care should be taken to include measures of national cultural dimensions/patterns of behavior on an individual level instead of assuming a priori that the broad differences in national-level scores will map onto differences between the samples. One option, derived from Hofstede's model, is the CVSCALE developed by Yoo et al. (2011). Addressing the conceptual problem of applying the national scores uniformly to individuals, Yoo et al. (2011) created the 26-item CVSCALE based on Hofstede's original questionnaires as well as related and derived works that are used to measure preference for each of the national cultural dimension on an individual level. This method allowed for creating actual indicators of the national cultural values for the sample studied. In a subsequent validation, the CVSCALE reflected the five-dimensional model and showed satisfactory psychometric properties. Thus, the authors suggest that "this is strong evidence that the scale can be used across countries" (205). However, it should be noted that both Hofstede's model of national culture and the CVSCALE were developed in the context of organizations, and thus many of the CVSCALE items refer to work and the workplace (e.g., "People in higher positions should not delegate important tasks to people in lower positions," "There are some jobs that a man can always do better than a woman;" Yoo et al., 2011: 210). Nevertheless, the CVSCALE has been successfully employed to measure cross-cultural differences in such constructs as compulsive Internet use (Quinones & Kakabadse, 2015), emotional intelligence (Gunkel et al., 2014; 2016), cooperation within teacher teams (Ning et al., 2015), belief in conspiracy theories (Adam-Troian et al., 2020), willingness of expressing political opinions (Ho et al., 2013), or compliance with public health campaigns (De Meulenaer et al., 2018). Taken together, such breadth of application suggests that the CVSCALE may potentially be used also in irony research. Additionally, the above discussion highlights the importance of integrating the cross-cultural and individual differences perspective in irony research. By operationalizing national culture through a validated questionnaire, some of the most significant methodological pitfalls of quantitative cross-cultural research can be mitigated or avoided.

Nevertheless, due to the limitations of Hofstede's model, it is also worth considering other quantitative conceptualizations. For example, Edward Hall's model places national cultures on a continuum from low to high context. *Context* here "summarizes how people in a culture relate to one another, especially in social bonds, responsibility, commitment, social harmony, and communication" (Kim et al., 1998). Thus, high context corresponds to Hofstede's understanding of high collectivism and power distance. Accordingly, "high context (HC) communication or message is one in which *most* of the information is already in the person, while very little is in the coded, explicit, transmitted part of the message" (Hall & Hall, 1990: 2000).

Hall's model received some empirical validation (Kim et al., 1998). Similarly to the studies using Hofstede's (2001) model, a large part concerned the managerial/workplace context. However, some studies focused on broader aspects of communication. For example, Gudykunst and Nishida (1988) found differences in attributional confidence, or the general certainty about other people's behaviors, opinions, and internal states, between the low-context United States sample and the high-context Japanese sample. Similarly, Gudykunst and Nishida (2001) reported varying patterns of influence of attributional confidence and anxiety on the perceived effectiveness of interpersonal communication between a US and a Japanese sample (see also Pryor et al., 2005). Dozier et al. (1998) compared US, Spanish, and Mexican students and showed that they differed in their self-reported need for approval (the "wish to maintain a positive appearance to others" by adjusting behaviors in line with perceived expectations, 114). US students scored the lowest and Mexican students scored the highest. In a questionnaire study on conflict resolution styles, Croucher et al. (2012) found that "individuals from high-context cultures (India and Thailand) are more likely to use indirect conflict strategies, such as non-confrontation strategies (avoiding and obliging)" while "individuals from low-context cultures

[United States and Ireland] prefer to control conflict situations" (70). Leets (2003) also found that high and low communicative context affected the amount of perceived harm in racist remarks, such that individuals from high-context national cultures rated indirect racist messages as more harmful, while individuals from low-context national cultures found direct racist messages more harmful. As Leets (2003) suggests, "Asian Americans were more likely to invest considerably more time and energy interpreting and responding to subtle, inappropriate remarks [...]. Likewise, people from lower context cultures (European, Hispanic, and African Americans) expect conflict to be addressed directly" (160).

Based on these results showing different patterns of confidence in interpersonal interactions, expectations of behavior, and attending to indirect messages, it can be expected that national cultures on the low/high context continuum will differ in their frequency of using irony and/or the conversational goals they might attempt to meet through irony (e.g., criticism vs. humor), as well as in their interpretation of ironic messages (e.g., as more or less humorous, critical, or appropriate). However, in their systematic review of studies on the high/low context continuum, Kittler et al. (2011) enumerated several methodological problems, namely, the treatment of high/low context as a dichotomy rather than a continuum and a priori, unvalidated choices of countries and samples representing high and low contexts. This leads to the same conceptual issue of assuming a direct correspondence between the national and individual levels of measurement that was discussed above in relation to Hofstede's (2001) model (see also Cardon, 2008). Therefore, although potentially productive for generating hypotheses about cross-cultural differences in irony use and understanding, Hall's high/low context model should be supplemented with an individual-level measure. To this end, Warner-Søderholm (2013) presented an overview of existing context questionnaires, additionally signalling that most of them have not yet been validated. To address this limitation, she proposed and initially validated a five-item context scale, showing that it is "psychometrically acceptable and therefore suitable for use in exploratory research" (34).

Another complementary model of national culture has been proposed by Trompenaars (1993). His seven dimensions are: universalism-particularism of rules, individualism-communitarianism, neutral-emotional expression, specificity-diffuseness (with specific national cultures drawing clear boundaries between the public/work and the private/relationship sphere; Straub et al., 2002), achievement-ascription (the extent to which people are valued based on their achievement vs. inherent traits and birth position; Straub et al., 2002), internal-external locus of control, and attitude towards time (sequential and linear vs. flexible and synchronous). This model shows a degree of overlap with Hofstede's (2001) model, particularly in the dimension of individualism-collectivism. However, it has received less attention in quantitative studies and Hofstede (1996) has criticized the construct validity of this model.

An interesting alternative or addition to quantitative studies on national culture and irony use could be Schwartz's model of cultural values (Schwartz, 2006). Within this model, values are defined as emotion-laden beliefs which motivate goal-directed behaviors and evaluations. Schwartz (2006; see also Schwartz & Sagiv, 1995) distinguished ten values: self-direction (independent choices), stimulation (seeking novelty), hedonism (seeking pleasure), achievement (personal success), power (status and dominance), security (self and group stability), conformity (restraint for the sake of others), tradition (acceptance and respect of one's national culture), benevolence (increasing others' welfare), and universalism (acceptance and support for everyone else and for nature). These ten values are included in the Schwartz Value Survey (SVS, Schwartz, 1992) which measures the participants' ratings of importance, with the possibility of also indicating which values are opposite to the participants' values. The SVS has satisfactory psychometric properties (see also Fischer et al., 2010; Spini, 2003) and has been adapted for use in many languages (Schwartz, 2006). Schwartz (2006, 2013) also developed national-level value means for different regions of the world, although, as with the models discussed above, national-level scores should not be used to compare individuals (Fischer et al., 2010). Importantly, in the case of Schwartz's value model, statistical analyses have supported collating the ten individual values into seven nation-level values (Fischer et al., 2010; Schwartz, 2006). Nevertheless, an appropriate, individual-level methodology using the SVS could be considered within studies on irony. For example, Schwartz (2012) suggests that the values of power and achievement correspond to the motivation for "social superiority and esteem," achievement and hedonism - to "self-centered satisfaction," hedonism and stimulation - to "a desire for affectively pleasant arousal," and security and power - to "avoiding or overcoming threats by controlling relationships and resources" (9). In turn, these

motivations can be broadly mapped onto the pragmatic functions of ironic speech, such as expressing criticism and establishing oneself in the position of authority via allusions to social norms, self-enhancement, humor and amusement, or verbal aggression (Attardo, 2000). However, this suggestion requires empirical examination. One inspiration for further studies on this point may be found in Ruch et al. (2018) who have examined the correlations between various *comic styles* (including irony) and character strengths (e.g., emotional, intellectual, or interpersonal strengths), both assessed by validated questionnaires.

Despite the issues related to national- versus individual-level measurement, numerous studies have examined the relationship between national cultural dimensions in Hofstede's (2001) model and communication styles. For example, a meta-analysis by Merkin et al. (2014) found that individualism and cultural masculinity were related to self-promotion, but also direct communication, while power distance and uncertainty avoidance were related to sensitivity and face-saving. However, Merkin et al. (2014) included studies using varied measures of communication (i.e., measures of "anything that appeared to be a communication pattern," 8).

National cultural norms of communication and irony

National cultural norms of communication may also specifically impact irony use or understanding. For example, masculinity in national culture might be related to greater permissiveness for anger and pride displays (Matsumoto, 1989). Individualism has also been found to be correlated with social desirability of negative emotional expressions (Fernández et al., 2000), which may potentially involve more positive interpretations of ironic utterances, or, alternatively, frequent irony use, considering its potential for aggressive communication, expression of negative attitudes, or vertical distance management. On the other hand, in high power distance national cultures, "expression of emotions [...] might be attenuated ... even if positive" (Fernández et al., 2000: 85). Barta (2013) has also suggested that a history of totalitarian regimes in Eastern Europe has contributed to a greater preference for indirect, nonliteral speech as a way to communicate with a lesser risk of repercussions. Yao et al. (2013) and Blasko et al. (2021) raise a similar point with regard to the function of irony in China, especially when commenting on current political events. Similarly, communicative directness and indirectness correspond to the dimension of cultural individualism and collectivism (Sanchez-Burks et al. 2003). These factors might also contribute to the frequency of irony use and accuracy of its understanding. For example, since irony carries a risk of misunderstanding and thus insult due to its duality of meaning (e.g. Colston & Lee 2004), high-collectivism national cultures may avoid using it in favor of more direct communication in order to preserve in-group order. However, these suggestions have not been tested empirically to a sufficient degree yet, although the available studies show that the interplay between national cultural context and irony warrants further explorations. Below, we review the most notable studies on this point.

Rockwell and Theriot (2001) tested American southeastern university students from individualistic and collectivistic cultures (as defined by a country of origin) by inviting them to a lab in Paris and providing them with questions eliciting irony/sarcasm. The participants then filled in questionnaires on the degree they thought their conversation partner and themselves were sarcastic. The results showed that men perceived themselves and their interlocutors as more sarcastic with other men than with women, and women perceived themselves and other women as more sarcastic with men than with other women. The authors also found that "individualists were [...] significantly more sarcastic than collectivists" (49) and men were rated as more sarcastic in general than women.

Dress et al. (2008) have found differences in irony/sarcasm use between participants from the northern and southern United States, with those from the north being more sarcastic on average (i.e., describing themselves as more sarcastic and producing more frequent sarcastic responses in an open-ended task, though not in a forced-choice experimental task). The authors posit cultural factors as an explanation of these differences (e.g., the southern USA is a culture of honor, and thus more direct). Additionally, when asked to provide their own definitions of sarcasm, "Northern participants were far more likely to view sarcasm as humorous in comparison to the Southern participants" (80). These results are in line with the results of Roberts and Kreuz (1994) who found that 94% of the sample of college-aged Americans from Tennessee (in the southeastern US) listed the expression of negative emotion as a pragmatic goal of irony (with this being the most frequently named goal of irony, out of 19 goals).

Giles et al. (2019) also provided interesting results on national cultural differences in the perception of prosocial lies. They studied a sample of English-speaking Canadian, Chinese, and German adults (the Chinese and German participants were viewing the stimuli and giving their answers in English, their L2) giving ratings of politeness, appropriateness, and likelihood of own use of seven recorded social interactions containing prosocial lies. Although only one video out of seven used in the study contained a directly ironic remark (which was treated by the authors as a filler stimulus) and the authors did not break down their analysis of the results by each individual video, they found that all three national cultures rated prosocial lies as more polite than blunt truths and that only the German participants rated prosocial lies as less appropriate than blunt truths. Additionally, only the German participants reported they would be more likely to use blunt truths than prosocial lies. However, while German culture has previously been described as more direct and Chinese culture as more indirect, "the Chinese group may have adapted their disposition to judge the politeness of prosocial lies/blunt remarks to what they believed reflects Canadian or anglophone standards of politeness, as displayed in the video stimuli." This suggests that "regional differences, or communities of practice may also influence the evaluation of non-literal speech including but not limited to prosocial lies and sarcasm" (p. 8). Additionally, Filippova (2014) has shown intercultural differences between Czech and Canadian participants' understanding of irony (both children and adults were tested): Canadians reported ironic praise (*praise by blame*) as funnier than did Czechs, while Czechs rated ironic praise as more difficult to understand than ironic criticism (*blame by praise*).

Furthermore, Taylor (2016) described differences in the understanding and use of the linguistic labels of *irony* and *sarcasm* between the UK and Italy. She found that irony was seen as a "British/English behavior" (477) in both the British and the Italian corpus under study. Additionally, while irony was not associated with the Italian national identity in the Italian corpus, it was associated with the Milanese and Tuscan regional identities. A similar pattern also emerged for sarcasm. However, despite these differences in stereotypical beliefs, Taylor (2016) noted no significant differences in irony/sarcasm use between the British and Italian corpora. She concludes that "the academic descriptions of mock politeness (mainly under the labels irony and sarcasm) have underestimated (cultural) variation, and, in contrast, that cultural variation is overestimated in lay description" (493).

Interesting results have also been provided by Simpson (2019), who has shown differences in understanding of situational irony (i.e., the frequency of considering a given course of events as ironic) between North American and UK respondents. The results showed that while North American participants described these situations as ironic to a similar extent as did the participants from the UK, these proportions varied by each individual story. Regarding individual differences, it is also notable that "younger informants produced, on five of the stories, irony ratings that were on average 5.1% higher than the ratings from those born before 1996." Thus, Simpson (2019) suggests that "it might be that we are using the expression 'ironic' more and more, and with perhaps looser or more permeable semantic-pragmatic boundaries" (189). In conjunction with the results of Taylor (2016), this points to the significance of our earlier suggestion to provide participants of cross-cultural studies with a working definition of sarcasm.

Finally, Blasko et al. (2021) examined cross-cultural differences in irony perception using Hofstede's (2001, 2011) framework. The authors surveyed a sample of 836 participants from China (high collectivism, high power distance, high restraint), the United States (high individualism, low power distance, high indulgence), and Mexico ("in the middle between the U.S. and China," 115) using the *Sarcasm Self-Report Scale* (SSS; Ivanko et al., 2004) together with an additional set of questions concerning the reasons behind irony use. The results showed that participants from the US and Mexico achieved higher scores on the SSS than did Chinese participants, which points to the influence of national cultural dimensions. Namely, high individualism and low power distance characteristic of the US may make irony use more permissible in contrast to China, which is characterized by higher collectivism and power distance so that "the use of sarcasm between leader and subordinates may be viewed as a sign of defiance and disrespect" (118). Interestingly, despite the cross-cultural differences in the frequency of irony use, participants from all three national cultures indicated very similar reasons for irony use. Thus, Blasko et al's (2021) study offers significant evidence that while irony may be a culturally universal phenomenon, its form and frequency is nevertheless shaped by national cultural factors, such that it serves different pragmatic goals in different communities and contexts.

In sum, several studies point towards cross-cultural differences in irony use and understanding. They also show that cultural beliefs and stereotypes about irony as regional/national characteristics might not always accurately reflect actual usage patterns. However, the above studies chiefly relied on a priori assumptions about national cultures and the differences between them whereas, as we have signaled, a more reliable, quantitative conceptualization of national cultural factors should be incorporated. Thus, we suggest that further studies using a more systematic framework are warranted. As shown above, Hofstede's model of national cultural dimensions or Schwartz's model of individual and national values might serve as such a framework, especially considering the possibilities they offer for quantitative comparisons as long as appropriate, individual-level measures are used (e.g., the CVSCALE, Yoo et al., 2011; the SVS, Schwartz, 1992). Importantly, several methodological solutions should be considered to ensure that any observed differences in irony use would reflect the role of national cultural factors rather than of other variables or confounds. In particular, the samples should be balanced with respect to the demographic variables that have been shown to potentially influence irony use and understanding (e.g., gender, Colston & Lee, 2004; age and education, Ruch et al., 2018). The questionnaires used also should be back-translated into the appropriate languages (Van de Vijver & Hambleton, 1996). Furthermore, care should be taken to make sure that the definitions, notions, and examples of irony (and/or sarcasm) used in the instruction material for the participants are adapted to the target languages/national cultures such that they reflect the same understanding (Colston, 2019; Dynel, 2017; Taylor, 2016, 2017).

Variables such as individualism-collectivism, tolerance of uncertainty, indirectness in communication, or masculine/feminine gender expression and identity may also be conceptualized and operationalized as individual differences in personality. These individual differences may impact irony use and understanding alongside national cultural factors, or may themselves be impacted by cultural norms as well. Therefore, we propose that integrating the cross-cultural perspective with the quantitative, individual differences approach may yield novel and significant results by providing a unified framework and methodology to consider and compare numerous variables in within- and cross-cultural studies on irony. Accordingly, we now turn to a review of the most significant individual differences in the context of irony.

Individual Differences in Irony Use and Understanding

Gender

One of the main individual differences that is related to irony is gender. Differences in nonliteral language use and understanding between women and men have been extensively studied. For example, Lampert and Ervin-Tripp (2006) found that male-male conversations are characterized by more teasing than female-female conversations (e.g., Guiller & Durndell, 2006, on similar results in an online context), but in mixed-gender conversations, men used self-deprecating jokes and women used more teasing. Moreover, men (a) rate themselves as more likely to use irony than do women (Ivanko et al., 2004; Milanowicz, 2013), (b) rate irony as funnier than women, who more often report it as critical (Jorgensen, 1996; Milanowicz, 2013; Milanowicz & Bokus, 2020), (c) are perceived as more ironic than women, by both genders (Pexman, 2005), and (d) use irony more often in conversations (Colston & Lee, 2004; Gibbs, 2000). Milanowicz et al. (2017) and Milanowicz and Bokus (2020) also found that both genders were more likely to respond with irony to ironic comments made by men in general, and with irony to ironic criticism (i.e., nonliteral reproach) coming from men and ironic praise (i.e., nonliteral compliments) coming from women in particular. Milanowicz and Bokus (2020) also used a task measuring self-irony use in which participants were asked to choose an utterance they would say to themselves. The authors found that, in a negative situational context, men were more likely to use self-irony for self-affirmative purposes (de-emphasizing mistakes, e.g., "I look fantastic!" in a situation where one looks unkempt), whereas women were more likely to use self-deprecation (e.g., "I look horrible!"). According to the authors, this reflects societal/cultural gender stereotypes: men are expected to be self-aggrandizing, while women are expected to be humble. To this end, self-directed irony may be used as a form of deflection of criticism (see also Ervin-Tripp & Lampert, 1992). Indeed, gender differences in humor and irony use have also been suggested to be a function of differences in conversational directness (Holtgraves, 2005), men's self-serving attributional style (i.e., attributing any pragmatic failure of irony to the addressees rather than to themselves), or more stereotypically male discourse goals (such as criti-

cism, asserting dominance; Colston & Lee, 2004). In turn, these factors might be influenced by more general national cultural factors (recall the cultural dimension of masculinity vs. femininity, low vs. high power distance, or low vs. high uncertainty avoidance, Hofstede, 2001).

However, national cultural norms of communication might also impact broader social cognitive processes, which can be expected to play a part in nonliteral language use. For example, Gunkel et al. (2014) have carried out a cross-cultural examination of differences in emotional intelligence, defined as the ability to "code and decode own and others' emotions as they are displayed in the society" (256). Among other things, they found that collectivism is related to more accurate emotion understanding and expression, that "individuals scoring high in uncertainty avoidance might be observing others' emotions more thoroughly in order to avoid any future uncertainties" and that "individuals that are better able to control their emotions might reduce uncertainty related to their behavior in the eyes of others" (268). Since emotional intelligence is related to effective emotional regulation and an accurate understanding of others' emotions, it might also be related to irony use (e.g., Bajerski, 2016; Jacob et al., 2016).

Age

Age is an important factor in irony comprehension and use. Extensive studies on the topic have been conducted in the area of developmental psychology, where young children were tested. Irony is a complex pragmatic process which engages social-cognitive abilities such as the theory of mind (Angeleri & Airenti, 2014; Kreuz & Caucci, 2007; Pexman, 2008, Zajączkowska & Abbot-Smith, 2020). To understand irony, "a child must understand what the speaker's ironic statement means (speaker belief) before she/he can determine why the speaker chose to use irony (speaker intent)" (Harris & Pexman, 2003). Thus, an important question concerns the age at which children gain the ability to appropriately understand and use irony. Recent research suggests that children between 3 and 4 years of age can comprehend ironic utterances (Angeleri & Arienti, 2014; Banasik-Jemielniak & Bokus, 2019), although there is significant variability in the measured samples, and the cues and characteristics of the ironic utterances are also differentially used by the children to aid irony comprehension. For example, (Banasik-Jemielniak & Bokus, 2019) found that ironic utterances which directly referenced the addressee's behavior were more easily understood by 4-year-old children than ones which did not, and that this difference did not occur for 6-year-olds. Furthermore, Pexman et al. (2005) manipulated the degree of common ground between the interlocutors (i.e., friends, strangers, or enemies) and found that 7-to-10-year-olds "did not use relationship information to modify their perceptions of the speakers' attitude for ironic statements, and also did not use this relationship information to modify their perceptions of the speakers' intent to be funny or serious" (281). According to the authors, this may have been due to the fact that at this age, children do not yet have sufficiently developed metapragmatic information about patterns of irony use to refer to during irony interpretation. Similarly, Harris and Pexman (2003) investigated children's understanding of ironic criticisms and ironic compliments, showing that although 7-to-8-year-olds understood the former more frequently than did 5-to-6-year olds, both age groups struggled with understanding the latter, being a less frequent type of irony. Referring to the tinge hypothesis (i.e., the intended negative meaning of the ironic criticism is made less negative by the positive literal meaning while the intended positive meaning of an ironic compliment is made less positive by the negative literal meaning; Dews et al., 1995; Dews & Winner, 1995), the authors posit that this may be due to the children having less pragmatic experience with the less frequently occurring ironic compliments. This explanation is in line with the results of a later study by Bianchi et al. (2017): gifted children (i.e., obtaining IQ test scores within the top 2% of the population, 3) aged 12-15 were more proficient at understanding more subtle, less hyperbolized ironic utterances than were regularly developing children and at providing verbal explanations of the mechanisms behind irony. According to Bianchi et al. (2017), this may be due to higher cognitive abilities. Bosco and Bucciarelli (2008) also reported that simpler ironic utterances were more frequently interpreted correctly by children between 6 and 10 than were more complex utterances (i.e., ones requiring a longer inferential chain to understand), and older children outperformed younger children.

In line with these results, Banasik-Jemielniak et al. (2020) and Recchia et al. (2010) showed the role of parental irony use in facilitating children's irony understanding, with the parent's gender having a differential effect. Namely, mothers used irony more frequently in contexts of conflict, while fathers tended to also employ irony for humorous purposes

(Recchia et al., 2010). Banasik-Jemielniak et al. (2020) also reported a statistically significant relationship between maternal, but not paternal, irony use and children's irony comprehension. The authors suggest that cultural models of family interactions may be a contributing factor, as, for example, mothers typically spend more time interacting with their children in everyday contexts than do fathers. Additionally, these studies were both carried out on a sample representing a high-context national culture, which may have potentially impacted the results.

Having reviewed the research on irony and gender and age, we now discuss those individual differences that may impact irony use and understanding and that may themselves differ depending on the specific national cultural factors.

Humor and Verbal Irony Use

Irony is closely related to humor (Gibbs et al., 2014). Thus, an important personal variable that might interact both with one's gender and with specific national cultural factors is *humor style*. Humor styles denote the broad categories of functions or goals an individual typically seeks to accomplish via their humor use (Martin et al., 2003). A widely accepted typology by Martin et al. (2003) distinguishes four humor styles, depending on their self- versus other-enhancing and benign versus hostile intentions. These are: affiliative (other-enhancing and benign), self-enhancing, aggressive, and self-defeating (other-enhancing and hostile to the self). Irony (and sarcasm) has been the most closely identified with the aggressive humor style (Hornowska & Charytonik, 2011). However, the humor styles framework is focused on humor behaviors rather than on the linguistic content of humor per se (Ruch et al., 2018). Also, though it conceptualizes the four styles as independent, they are intended to represent gradients rather than entirely separate entities (Martin et al., 2003). Thus, skillfully applied, irony can just as well serve more positive, affiliative goals:

> relatively benign forms of affiliative humor may often involve some degree of disparagement, such as when groups of friends or colleagues enhance their feelings of group identity, cohesiveness, and well-being by making fun of other groups or individuals outside the group who are disliked or pose some threat to them … Also, affiliative humor may involve gentle teasing or playfully poking fun at others within one's own group, which could be seen as containing some mildly aggressive elements (52).

Research with the Humor Style Questionnaire (HSQ), designed to measure these four constructs (Martin et al., 2003), has shown that while the humor styles are broadly replicable across cultures (Martin & Ford, 2018), a pattern of differences has been observed in which "people from Western culture are apt to use self-defeating and aggressive humor, whereas people from Eastern culture tend to embrace self-enhancing and affiliative humor" (Jiang et al., 2020: 2). For example, Chen and Martin (2007) reported higher average usage of all humor styles in a Canadian, compared to a Chinese sample, with the difference being particularly high for the aggressive humor style, which also comprises irony. The authors suggest this might indicate that irony is perceived as a more desirable characteristic in Canadian national culture (see also Chen et al., 1992 for a study on children). Liao (2001, quoted in Jiang et al., 2011) also found that Chinese students rated themselves as less humorous than did American students. Using the Implicit Association Test, Jiang et al. (2011) revealed that Chinese students were more likely to associate humor with unpleasantness.

Interestingly, the national cultural attitudes towards humor also interact with gender. Hornowska and Charytonik (2011) reported that Polish men and women only differ with regard to the aggressive humor style, with men using it more often. Regarding men's tendency towards self-defeating humor, it seems national cultural factors exert an influence. For example, this tendency was confirmed in an Armenian-Lebanese sample by Kazarian and Martin (2006). Basak and Can (2014) have confirmed men's greater tendency towards both the aggressive and self-defeating humor style in a sample of Turkish students. On the other hand, Chen and Martin (2007) have shown no gender differences in humor styles in a Chinese sample. However, studying gender and national cultural factors in the context of self-deprecating humor qualitatively (not using the HSQ), Ervin-Tripp and Lampert (1992) have reported that

> women in single-gender groups self-deprecated (or self-disclosed) with humorous effect more than men in single-gender groups. However, in gender-mixed groups, we found that only the Hispanic and Asian speakers maintained these traditional gender differences. The `white' speakers changed their style of humor in mixed company. They increased their put-downs of absent targets significantly, and the men put themselves down and self-disclosed through humor more whereas the women did so less often (115).

Thus, it seems further cross-cultural research on the specific relationship between gender and humor style in the context of different national cultural factors is still needed.

Self-Presentation Style and Self-Esteem as Possible Correlates of Irony Use

The tendency to use irony might also be related to *self-presentation style*, defined by Wojciszke (2002) as "actions undertaken by the individual to modify the way they are perceived by others in a desirable direction" (145). Wojciszke (2002) distinguishes two major self-presentation styles: (a) self-promotion (underscoring one's competence and worth) and (b) self-deprecation (emphasizing humility, but also flaws and low self-esteem). Bruntsch and Ruch (2017a) have found that the histrionic self-presentation style, that is, "the tendency to draw attention to the own person and entertain others by engaging in as-if behaviors" (142) was positively correlated with irony use. Whalen et al. (2009) have also shown that irony is frequently used in online blogs, which serve as an avenue for self-expression and self-presentation. The authors have found that the most common topics of blog irony were personal social experiences and hobby activities, possibly because "each of these subjects might invite clever discourse about failed expectations" and "when things did not unfold as planned, ironic language provided the blogger with a way to comment on the discrepancy" (566). Similarly, Ask and Abidin (2018) in their aforementioned study of student memes online report that ironic and self-deprecating jokes about one's competence as a student can contribute to the creation of a shared identity:

> students who feel they are unable to succeed in higher education can instead acquire a different form of social status by competitive memeing. In addition to catharsis and community building for struggling students, SP Memes has emerged as a shadow economy to the normative higher education system, where instead of academic achievement and a healthy lifestyle, students instead assign value to the linguistic acrobatics of memeing, practising honesty through humour, disclosure through deprecation, and relatability through rhetoric (845).

Therefore, it seems warranted to expect that self-presentation will be a function of irony use. Additionally, self-presentation styles may differ depending on the specific influence of national cultural factors. For example, Rosen et al. (2010) showed that people from more individualistic cultures tend to upload more photographs of themselves to social media as a way of emphasizing personal achievement. Rui and Stefanone (2013) have also reported differences in online self-presentation between Singaporean (collectivist) and American (individualist) users, with Americans displaying more protective self-presentation. The authors state that "on the one hand, culture affects norms guiding communication behaviors. On the other hand, culture influences how individuals perceive them and others, which then influences communication behaviors" (116). Indeed, Gudykunst et al. (1987) report that people from the US display more public self-consciousness (concern about one's self image and social performance) and self-monitoring (defined as "self-observation and self-control guided by situational cues to social appropriateness," Snyder, 1974: 526) than do people from Japan and South Korea (collectivist). Gudykunst et al. (1987) also refer to a series of studies showing that self-monitoring is related to accurate detection of deception as well as to effective and situationally-appropriate impression management. Thus, seeing the cross-cultural differences in self-presentation, uncertainty management, and communicative strategies, it seems theoretically warranted to anticipate cross-cultural differences in irony use as well, though no studies as yet have examined this relationship. However, it can also potentially be influenced by *self-esteem*, a construct related to self-presentation style. Understood as a person's general evaluation of their worth (e.g., Łaguna et al., 2007), it can affect interpersonal communication:

> If a person has low self-esteem it might be expected that the person would be less willing to communicate because he/she feels he/she has little of value to offer. Similarly, the person with low self-esteem may be less willing to communicate because he/she believes others would respond negatively to what would be said (McCroskey & Richmond, 1990: 26).

Considering the risk of being misunderstood when using irony (Colston & Lee, 2004) and considering the fact that in various contexts, irony is rated as more hostile and critical than literal messages (Leggitt & Gibbs, 2000; Pexman & Olineck, 2002), it can be expected that individuals with low self-esteem will use irony less often, or in a narrower selection of contexts.

Regarding cultural differences in self-esteem in particular, Bleidorn et al. (2016) have found that the relationship between gender and self-esteem (i.e., higher for men) as well as age and self-esteem (i.e., higher with age) were universal across 48 nations. However, "the 48 nations still differed significantly in the magnitude of the gender-specific trajec-

tories," which suggests "the relevance of culture-specific influences" (406), in particular the given nation's socioeconomic status. Thus, including this variable in a cross-cultural study of irony use seems pertinent. This is especially because self-esteem might also fit into a wider network of interrelations between individual differences and/or national cultural factors. For example, Costa et al. (2001) have reported that women exhibited greater neuroticism than men across cultures (see also Schmitt et al. 2008, for similar results, Hofstede, McCrae 2004, on links between personality traits and national culture dimensions). The negative bias inherent in neuroticism and/or anxiety is, in turn, related to a more negative understanding of verbal irony as more critical or threatening (e.g., Gucman, 2016; Mewhort-Buist & Nilsen, 2017; Milanowicz et al., 2017).

Bi- and Multilingualism and Verbal Irony Use and Comprehension

A particularly interesting individual difference which may show significant cross-cultural differences (e.g., Chen, 2015) and which may additionally impact verbal irony is bi- and multilingualism. Bromberek-Dyzman and Rataj (2016) tested the performance of Polish-English adult bilinguals in an irony detection task. The participants were shown short vignettes containing either literal praise or ironic criticism (blame by praise), in either Polish or English. Importantly, the participants had only one second to respond. The results indicated that while the participants were accurate in both their native language (L1, Polish) and their learned second language (L2, English), irony detection was less accurate and slower both within the languages (literal vs. ironic L1 and L2) as well as between languages (ironic L1 vs. ironic L2). This indicates that irony understanding is cognitively costly, and processing of irony in L2 additionally increases this cost.

However, bilingualism might also affect irony use and understanding through its impact on wider social-cognitive abilities. For example, bilingualism has been linked to greater theory of mind (ToM) development (Goetz, 2003; Kovács & Mehler, 2009): ToM is the ability to think about others' internal states. A greater ability to think about and anticipate others' reactions can, in turn, be expected to influence irony use, since irony is a highly context-dependent form of speech and depends on utilizing the knowledge shared by the interlocutors in order to form pragmatically effective ironic messages (Kreuz & Caucci, 2007). In turn, ToM may facilitate this process.

The debate on the relationship between bilingualism and ToM in adults is ongoing (e.g., Nichols et al., 2020, for negative results, Javor, 2016; Rubio-Fernandez & Glucksberg, 2012, for confirming results; Kobayashi et al., 2006; Kobayashi et al., 2008, for cross-linguistic differences in neural bases of ToM for bilingual adults). However, ToM has been shown to be related to irony comprehension in both children (e.g., Banasik-Jemielniak, 2013; see also Matthews et al., 2018, for a review) and adults (Akimoto et al., 2012; Spotorno et al., 2012). Additionally, Banasik-Jemielniak and Podsiadło (2016) have found that 6-year-old bilingual children developed a relatively proficient (73%) accuracy of irony understanding, with the age of reliable irony understanding in monolingual children being commonly reported as 7 or 8 years, indicating a possible contribution of bilingualism to irony understanding. Yow and Markman (2011) also found that bilingual three-year-olds were more proficient in recognizing the speaker's emotions from their tone of voice. However, in a study by Antoniou et al. (2020), no differences in irony interpretation emerged between monolingual and bilingual children aged 10-11, though both methodological differences between the studies as well as the developmental trajectories of nonliteral language use must be considered when interpreting these results.

Regarding adults, Tiv et al. (2019) have found that "greater global L2 proficiency [...] predicted a greater likelihood of general sarcasm use in any language throughout daily life" and that "despite cultural and linguistic influences from a L2, bilinguals are largely using sarcasm for the same communicative purposes as monolinguals" (471). The authors suggest this might be because bilingualism is related to increased ToM, which, in turn, helps bilinguals to decide more accurately when irony is appropriate and when it will be well received. However, their sample largely consisted of English- and French-speaking bilingual college students "living in a bilingual context" (471). The study on Arabic and English bilinguals and English monolinguals by Peters et al. (2016), described below, also has implications for the role of bilingualism in irony understanding and use, as less efficient irony comprehension might (due to a lower ability to use prosodic cues to aid interpretation) lead to less frequent irony use in L2 contexts. Although research on bilingualism and irony (in either L1 or L2) remains scarce (Cieślicka, 2017),

existing studies point to the fact that it might have a significant impact: bi- and multilinguals might differ from monolinguals regarding the characteristics of their cognitive processes behind irony use and understanding, but also, irony spoken by bi- and monolinguals in their L2 might differ in terms of cognitive load for the listeners from irony spoken in their L1 by native speakers.

Finally, an interesting line of evidence comes from Cheang and Pell (2011). They compared how English-speaking residents of Montreal and southern Ontario and Cantonese-speaking immigrants from Hong Kong to Quebec recognize speaker attitudes based on the prosody of the utterance in both their native and a foreign language. Listeners recognized ironic intent expressed in their native language but not in the unfamiliar one. The authors point out that English and Cantonese irony is marked by significant prosodic features. The interpretation given is that listeners may try to attribute the acoustic features from their own language to recognize speakers' intention, which results in errors. Relatedly, Peters et al. (2016) have compared native and non-native (Arabic) speakers of English in their ability to employ both contextual/situational and prosodic cues when interpreting ironic utterances spoken in English. Their results showed that non-native speakers "appeared to have relied exclusively on context in all cases" (13). Peters et al. (2016) also suggest that the non-native speakers of English might have relied on the prosody of their native language, even when listening to English utterances. However, both native and non-native speakers interpreted irony relatively accurately, which shows that prosody is a useful, but not necessary marker. Thus, another interesting cross-cultural aspect of irony use and understanding might involve the ways in which various languages use prosodic cues to mark irony, sarcasm, jocularity, or insincerity.

Cross-cultural differences and similarities in cues for irony

Prosodic Cues

It is generally assumed that irony involves a range of prosodic markers that allow the speaker to signal their intent and allows the recipient to properly interpret it. Indeed, Grice (1978, quoted in Clark & Gerrig, 1984) already suggested that a specific tone of voice is necessary to communicate ironic intent. In turn, this point was also discussed by Sperber and Wilson (1981) and Clark and Gerrig (1984) as an important cue for irony (see also Pexman, 2008; Zajączkowska, 2017). Slower tempo, lower pitch, and high intensity of speech have been identified as the chief prosodic cues of irony (Cheang & Pell, 2008; Mauchand et al., 2018; Mauchand et al., 2020; Woodland & Voyer, 2011). Accordingly, a range of studies shows that prosodically marked irony may be easier for children to interpret correctly (e.g., Kreuz & Roberts, 1995, for a discussion). Bryant and Fox Tree (2002) also showed that prosodic cues are used by adults when interpreting irony: When participants silently read the same utterance in both the ironic and the nonironic context, they rated it as equally ironic. However, when they heard it being spoken out loud, the same utterance in the ironic context was rated as more ironic. An EEG study by Caffara et al. (2019) additionally showed that the speaker's voice is taken up as a cue relatively early during irony processing.

Other studies contest the notion of a specific ironic tone of voice. Notably, Bryant and Fox Tree (2005) carried out an acoustic analysis of naturally produced ironic utterances that were then filtered such that no words could be distinguished. The participants' ratings of the tone of these filtered utterances showed that different groups of participants rated the same ironic utterances as simultaneously sarcastic, angry, and inquisitive, which points to the lack of prosodic markers specific to irony (and additionally testifies to the typically negative character of irony). Indeed, the authors suggest that "the folk notion of sarcasm as a fairly uniform category of language use could contribute to the illusion of prosodic consistency that an ironic tone of voice implies" (272), which is a point similar to the one raised by Attardo (2002). Kreuz and Roberts (1995) did not use audio stimuli in their experiment, but they showed that the presence of hyperbolic expressions increased the probability of identifying an utterance as ironic, and concluded that what is considered the ironic tone of voice may actually be the prosodic cue for hyperbole.

Cheang and Pell (2008) suggested that the prosodic markers of irony/sarcasm may vary across languages. Indeed, research in various languages shows different results regarding the role of lexical markers and acoustic parameters. For example, Loevenbruck et al. (2013) have analyzed the prosodic quality of irony in French and found both similarities and differences regarding the pitch level between French and English and German. A similar analysis was carried out for irony in Dutch by Jansen and Chen (2020). González-Fuente

et al. (2015) analyzed spontaneously produced verbal irony utterances generated between Catalan-speaking pairs of friends and found that ironic utterances contrast with immediately preceding non-ironic utterances in terms of prosody (similar to results by Bryant, 2010, on English). Ironic utterances contained higher rates of prosodic breaks and there were different voice quality features such as falsetto or creaky voice in ironic utterances than in non-ironic ones. Interesting results were also provided by Rao (2013), who focused on the prosody of irony in Mexican Spanish, noting that it differs in some aspects to other Spanish dialects. Likewise, Cheang and Pell (2009) compared the prosody of irony in English and Cantonese and found that while both languages used slower speech and changes of pitch to signal irony, they did so in different ways (raised for Cantonese, lowered for English). Thus, the authors conclude that while the cue of pitch manipulation for irony is prevalent across cultures, the character of the manipulation "is dictated to a considerable extent by social conventions" (1402).

Taking the above into consideration, it seems crucial that research on irony use is conducted within a linguistic community and that the prosodic features are described and analyzed across group studies. Interestingly, Rivière et al. (2018) also reported interindividual differences in the extent of using prosodic information for understanding irony, which further points to the importance of a multifaceted perspective in the study of irony, combining individual and cultural factors, as well as their possible interdependencies. For example, Caffarra et al. (2018) presented native speakers of Spanish with audio recordings of short scenarios containing an ironic utterance spoken with a native Spanish accent or a British English accent. They found that the speaker's accent impacted the listeners' interpretation of their irony: ironic praise (praise by blame), though not ironic criticism (blame by praise) was judged as less ironic when spoken with a foreign accent. According to the authors, this might be because "listeners assume foreign speakers to be less pragmatically competent than native speakers" or because the listeners correctly identified the foreign accent as British, and "estimated the frequency of use of irony as being lower in English-speaking countries as compared to Spain" (9) which could have directed their interpretations. Differences in cultural conceptualizations of irony and its role as a stereotypical, national attribute were discussed above. However, research on the relationship between bi- and multilingualism and irony also seems pertinent to examine.

Nonprosodic cues and broad linguistic strategies

Body language and facial expression are an important part of interpersonal communication, and they have been shown to play a role in ironic speech as well. For example, Attardo et al. (2003) suggested that a "blank," neutral facial expression may serve as a cue to irony. On the other hand, exaggerated smiling, nodding, tightening of the lips, and eye contact can also be used to convey irony (Caucci & Kreuz, 2012). The observation that both an exaggerated or an underpronounced facial expression (as well as tone of voice) can accompany irony suggests that its role is to signal the incongruity between what is being said literally and what is being expressed by "varying or flattening the range and intensity of one's facial expression, and using techniques such as widened, rolling eyes, more rapid blinking, increased grimacing and smirks to help alert the listener that the meaning is ironic" (Rankin et al., 2009: 2005).

Additionally, while paralinguistic cues may show cross-cultural differences in themselves (e.g., Kleinsmith et al., 2006; Mesquita, 2003; Scherer et al., 1988), they may also be variously used specifically to signal ironic intent. However, research evidence on this point has been sparse thus far. For example, Kim (2014) interviewed a sample of 28 adult South Korean English-as-second-language (ESL) speakers and 15 adult US monolinguals about their understanding of a series of ironic video stimuli. They found that, among others, "Korean participants heavily relied on visual cues that included facial expressions and body movements" (200), whereas the English-speaking US participants typically indicated the tone of voice and the situational context as the most salient cues for detecting irony. Kim (2014) suggests that this difference may have resulted from the Korean ESL speakers relying on the observable visual cues in a situation of insufficient context or L2 understanding, as English and Korean share several linguistic strategies of conveying irony (see also Kim & Lantolf, 2018).

Additional evidence suggesting cross-cultural differences in linguistic and paralinguistic signals of irony comes from a study by Bouton (1994), who showed that ESL speakers lag behind native speakers in irony comprehension. A further elaboration (Bouton, 1999) suggests that this difference may be due to cultural factors, as "people from different cultural backgrounds may see conversational roles or the context of a conversation, or the world itself as it pertains to

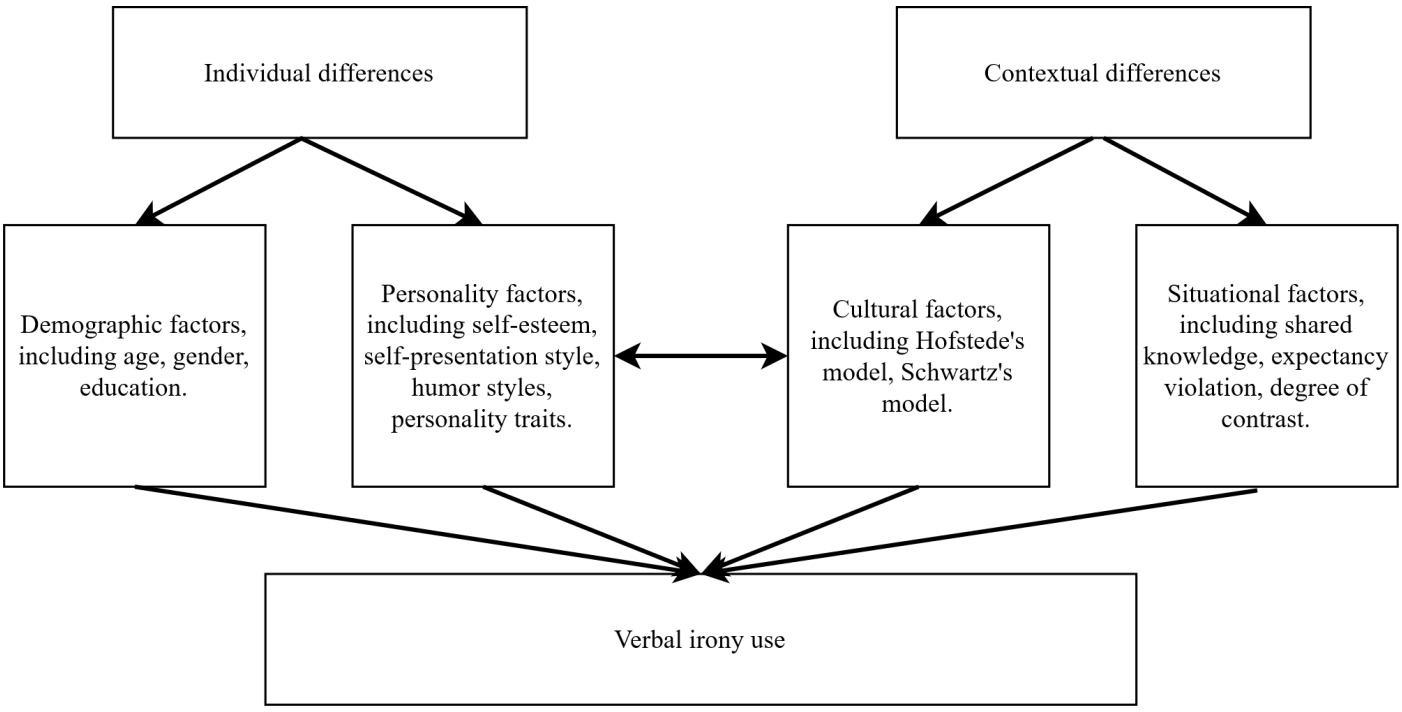
that conversation, quite differently" (49). Interestingly, in that study, German ESL speakers were more proficient in detecting irony in English than were speakers of Sinitic languages such as Chinese, Korean, and Japanese, which suggests the role of the general cultural context in understanding irony. Accordingly, Taguchi (2008) showed that a four-month period of studying abroad in the US was related to an improvement in irony detection in a sample of 44 Japanese ESL students.

A theoretical model of irony use and understanding

Based on the above review, we propose a factor model of irony use and understanding, which includes elements from two broad levels that may influence a person's preference for irony use. The model is depicted in Figure 1. Importantly, this model follows the traditional psycholinguistic framing of irony as a communicative phenomenon and is intended to inform quantitative studies. Thus, it may not necessarily apply to all approaches or methodologies, particularly those considering irony as a performative act or rhetorical strategy.

We argue that it is possible to predict one's preference for choosing to react with irony or, alternatively, one's tendency to interpret ironic utterances as more or less humorous, critical, and/or appropriate by taking into account (a) a range of individual differences and (b) contextual differences. Individual differences can be broadly categorized into demographic factors, such as age, education and gender; and personality factors encompassing personality traits, self-esteem or self-presentation, as well as narrower traits related to humor and understanding ambiguity, such as general sense of humor, preferred humor styles, or the need for cognition and need for cognitive closure (Young, 2019). More or less fine-grained distinctions can be considered here, for example, including humor-related personality traits or character strengths (Bruntsch & Ruch, 2017a; Hofmann et al., 2020; Ruch et al., 2018), or factors related to social cognition, such as theory of mind (Akimoto et al., 2012; Spotorno et al., 2012). Bi- and multilingualism (Tiv et al., 2019) would also be classified as an individual difference. On the other hand, we propose dividing contextual differences into national cultural factors, which encompass a variety of dimen-

Figure 1. *The proposed theoretical model of verbal irony use that integrates the cross-cultural perspective into the individual differences approach*



sions including cultural masculinity versus femininity, uncertainty avoidance, power distance, cultural collectivism and individualism, indulgence and restraint, or high and low context. Situational factors that are related to the "here and now" of the interaction, such as shared knowledge between the speaker and the addressee, the presence of expectancy violation, or the degree of contrast being signalled, can also be considered. Importantly, since certain national cultural factors can be alternatively conceptualized as individual differences (e.g., masculinity/femininity, tolerance of or preference for uncertainty), we propose that specific personality and national cultural factors may enter into a bidirectional interaction.

A unifying framework like the one we propose would allow for integrating results from studies examining different factors and for generating additional hypotheses regarding potential cross-cultural differences in the role they play in irony use. Thus, it could be used to generate and synthesize studies (a) comparing the role of specifically defined individual (e.g., openness to experience as a personality trait) or national cultural factors (e.g., cultural masculinity) on both irony use and understanding; (b) comparing the effect of given individual traits on irony use and understanding across national cultures (e.g., the role of gender or trait anger in high- and low- power distance national cultures; testing the generalizability of one statistical relationship on other national cultures); and (c) examining the interplay of individual and national cultural factors on irony use and understanding through regression or mediation analysis (that is, aside from being one variable in a broad set, national cultural factors may work through impacting individual differences, communicative norms, or forms of ironic utterances).

The above model may also assist study designs by bringing the issue of operationalization and confound control into focus. For example, in following the model, researchers wishing to examine the role of neuroticism or trait anger in irony use in a cross-cultural comparison would be guided to (a) consider the potential impact of demographic factors such as gender on neuroticism or anger (e.g., Lynn & Martin, 1997; Kring, 2000), (b) select appropriate measures of neuroticism and trait anger, (c) consider a meaningful and appropriate cross-cultural comparison, for example, between groups of participants from national countries differing on the factors of power distance or cultural masculinity, (d) select an appropriate individual-level measure of these national cultural factors, and (e) design stimuli used in the study such as to be ecologically valid and represent instances of irony which would be prototypical and recognizable to the participants. This way, significant shortcomings of both quantitative psycholinguistic research on irony (Dynel, 2014) as well as on cross-cultural comparisons (see above) would be avoided.

Based on the above, the following example hypotheses regarding the national cultural factors in Hofstede's model and irony use/understanding can be put forward and tested through a quantitative study following our proposed model:

- Cultural individualism as well as cultural masculinity (based on evidence from studies on gender differences in irony use, see below) will be related to more frequent irony use and appreciation (i.e., perception of irony as humorous, appropriate, or attractive), with self-esteem and self-presentation style playing a mediating role.
- High power distance may be negatively related to the frequency of irony use, although it may additionally affect the contexts in which irony is used and/or its purposes.
- Uncertainty avoidance will be related to less frequent irony use, as irony is a form of speech based on uncertainty of meaning (Dews et al., 1995). Personality factors such as neuroticism, conscientiousness, or shyness may also affect this relationship.

In addition to the above hypotheses, in Table 1, we present a brief summary, informed by the above review, of the most significant statistical relationships between irony use/understanding and various individual and contextual differences, as defined in our above model. However, this is not intended to be an exhaustive or systematic review, but rather a presentation of the current achievements and possible future directions of quantitative, psycholinguistic studies on irony, informed, in full or in part, by our above theoretical model.

Limitations

In the review, we have attempted to comprehensively cover the topic of irony use and comprehension in conversations in the approach of quantitative psycholinguistics. The topic of irony is broad and multifaceted, and other approaches and forms, which were not covered here in detail, deserve attention. However, it was not feasible to cover these additional

aspects here. Hence, the scope of the paper might be seen as one of its limitations. It should be noted, however, that our approach represents only one of several possible conceptualizations of irony and methodological approaches towards its study.

First, within the psycholinguistic research tradition, in which our analysis is embedded, irony is typically understood as a communicative phenomenon, or a form of nonliteral language used in everyday communication in order to achieve certain communicative goals. To this end, irony use is frequently quantified, with instances of irony being counted (e.g., Gibbs, 2000) or with participants being asked to rate the likelihood of speaking ironically in a given situation (e.g., Ivanko et al., 2004). Similarly, irony understanding is quantified on a set of Likert-type scales reflecting the degree of humor or criticism perceived in a given ironic utterance or the intensity of given emotional reactions to the ironic utterance experienced by the participants (e.g., Leggitt & Gibbs, 2000). Studies in this tradition also usually consider a relatively simple *form* of irony, centered around the clash between the literal and the nonliteral meaning. Although this can be seen as a natural consequence of the quantitative methodology (i.e., the ironic utterances used in the study as stimuli need to be understandable to all participants and standardized so as to eliminate as many potential sources of confound as possible), it runs the risk of misrepresenting irony, or failing to capture the richness and variability of its possible forms (Dynel, 2014). Therefore, it would be pertinent to examine other forms as well as contexts of ironic expression. For example, irony can be subdivided into understatements and hyperbole. Understatement centers around a less marked contrast between the literal and intended meaning (e.g., "This seems to be a slight predicament" said in a very problematic situation, in contrast to "This is just great," Colston & O'Brien, 2000a). On the other hand, hyperbole or overstatement involves a negatively valenced utterance of such magnitude that it surpasses the literal negative meaning (e.g., "This is the worst thing that has happened to me" said in a somewhat unfortunate situation, Colston & O'Brien, 2000b: 180). Kappogiani (2011) proposes the existence of surrealistic irony, in which the relationship of contrast or opposition between the literal and the intended/nonliteral meaning is severely weakened in an unexpected, creative fashion. Finally, Giora et al. (2005, 2015) also distinguished *negative irony*, or ironic remarks constituting a negation of the typical ironic form. For example, "He is not exceptionally bright" said of an unintelligent person is an instance of negative irony, since it negates the default ironic overstatement ("He is exceptionally bright," Giora et al., 2005: 85), but still maintains the contrast between the literal and the nonliteral/intended meaning. Interestingly, Canestrari et al. (2018) and Canestrati and Bianchi (2018) have shown that an intermediate degree of contrast, namely, "a polarized comment" about "something which is perceived as neither one pole nor the opposite pole" also generates irony (e.g., "Here we have a foil held horizontally!" said by a fencing instructor about a student who is holding the foil at a 45 degree angle, as opposed to a vertical or a horizontal angle, which would imply an ironic and a literal meaning of the utterance, respectively). According to the authors, this "supports the idea that a disparity, whatever its size, between what is said, and the referent situation makes an ironic interpretation possible" (14). Importantly, understatements and overstatements have been shown to serve different pragmatic purposes to varying degrees. The issue of comparing the pragmatic effects of irony, sarcasm, teasing, satire, and so forth (e.g., Leggitt & Gibbs, 2000; Ruch et al., 2018) also deserves further study, as theoretical taxonomies should be empirically validated. It may be that different pragmatic goals can be achieved to different degrees by employing different forms of irony or irony-adjacent figurative forms (Colston, 2002).

Moreover, empirical studies on irony use and understanding should also include culture-specific forms or varieties of ironic expression. Namely, rather than assuming the stability of the notion of irony across cultures, psycholinguistic studies may be informed by ethnolinguistic literature on this point. For example, Goddard (2006) discussed the role of sarcasm and deadpan ironic speech in Australian culture, noting that "solidarity-oriented sarcasm," or sarcasm used towards chiefly affiliative means, may be a more characteristic feature. This observation is somewhat incongruent with the mainstream psycholinguistic assumption that sarcasm represents a more aggressive and disaffiliative form of irony (e.g., Dynel, 2017), and therefore deserves further study. Furthermore, Yao et al. (2013) have described the creation of ironic meaning in Chinese via the passive marker *bei* (e.g., "being forced to actively take part"). The authors carried out a qualitative analysis of 140 ironic sentences using the *bei* marker and identified three contexts of irony which are more specific for Chinese culture. These are: (a) indicating untruthfulness on the part of the media or public authorities, (b) indicating that one is being forced to do something by the

authorities, and (c) situations where someone falls victim to malicious action and has to suffer the consequences. In all three, "the *bei*-construction is invariably used to express the frustration and helplessness of the affected entity when confronted with the inequality imposed by the causer. Criticism is enhanced when the reader understands who takes position against whom in what situation and socio-historical contexts" (203). Similarly, Okamoto (2002) discusses the use of Japanese honorifics to express irony as well as the Japanese concept of *hiniku* and *oseji* (Okamoto, 2006), the former being a form of speech that is similar to irony, yet focuses more on expressing criticism (see also Okamoto, 2007, for the suggestion that *hiniku* resembles sarcasm more closely than it does irony), while the latter involves insincere and hyperbolic praise. Importantly, in an experimental rating task, Okamoto (2006) also showed that *hiniku* can be signaled by certain orthographic deviations in the Japanese script. Finally, Kim (2014) and Kim and Lantolf (2018) also described irony (*ban-eo*) and sarcasm (*bi-kkom*) in Korean, noting that the ironical *ban-eo* is more frequently used to comment on negative situations and circumstances rather than to express criticism in an interpersonal context. On the other hand, the sarcastic *ban-eo* "implies intentionality in making fun of someone and works as a sign of showing animosity" (Kim, 2014: 201). However, hyperboles, rhetorical questions, prosodic cues, and facial expressions are used to signal irony in both Korean and in English. Thus, as Colston (2019) suggests, the "assessment of ironic systems in hundreds or more different languages, as well as in different cultures, genres and other domains, could reveal some remarkable surprises" (128).

Furthermore, quantitative cross-cultural comparisons may be strengthened by considerations of irony as a rhetorical device or within artistic, public, cultural, or media performance. Although this approach was outside of the scope of our review, it does fit with and extend the studies on the role of social context in irony. Namely, since the degree of interpersonal closeness and shared knowledge between the interlocutors is considered a crucial cue for irony (Kreuz & Caucci, 2007; Pexman, 2008), it can be assumed that social context will impact the patterns of irony use and understanding as well. For example, an early study on this point by Katz and Pexman (1997) showed that knowledge about a speaker's occupation (e.g., journalist vs. judge) can change the understanding of the utterance (e.g., "Children are precious gems") from metaphorical to ironic. Katz et al. (2004) also described that occupation has been shown to serve as a contextual marker of ironic and sarcastic language. More recently, Burgers et al. (2015) examined how irony is used to create a shared group identity among football fans by addressing expectancy violations to maintain a shared belief (see also Beukeboom & Burgers, 2020). These findings were confirmed and extended by Burgers and Beukeboom (2016), who showed that irony was seen as more appropriate and likely in situations where stereotypical expectations were unexpectedly violated (e.g., a woman showing proficiency in computers).

Moreover, recent literature has explored the emergence of the *Sang* subculture in China, which also centers around ironic self-deprecation that "parodies the symbolic order through subverting ideological values of Chinese mainstream that codes youth with positive qualities of 'hope, courage and dynamism' (Kwong, 1994: 248, quoted in Tan & Cheng, 2020: 87). Within that broader subcultural movement, irony can be employed to serve the same functions as in interpersonal communication, namely, the expression of negative attitudes and expectancy violations. In particular, "[through ironic self-deprecation], Sang participants were able to engage in a temporary form of catharsis as well as reflecting on hegemonic social values" (Tan & Cheng, 2020: 96). Similarly, Ask and Abidin (2018) studied the contents of ironic, self-deprecating messages in university students' social media groups and found that they served as a "safe way of expressing and sharing negative emotions" (844) as well as of negotiating a "relatable" in-group identity in opposition to broader societal norms (see also Glozer & Morsing, 2020, for an example from the marketing context).

Interestingly, within mainstream North American culture, typically represented in psycholinguistic studies, irony has also been a topic of cultural contention. Some commenters have called for a de-emphasis of irony in cultural expressions in the wake of the September 11 terrorist attacks, seeing it as a threat to a sincere engagement with society. In contrast, others saw it as a necessary safeguard against narrow-mindedness (e.g., Guhin, 2013; O'Brien, 2004; see also Fish, 1983, for a discussion of the social construction of the literal meaning that contrasts with irony). In the context of more recent political events, studies have also examined the use of irony in political discourse. Notably, Young (2019) has analyzed how "irony and outrage are the logical extensions of the psychology of liberalism and conservatism" (207), arguing that a progressive worldview and a preference for the creative and playful aspects of irony share similar cogni-

tive underpinnings. A range of studies additionally focused on how irony operates in far-right Internet subcultures as a tool to normalize extremist sentiments in the form of parodies or jokes while maintaining a degree of deniability (e.g., Tuters, 2018; Nilsson, 2021). Greene (2019) argues that irony and satire are one of the main tools of online political communication by far-right groups, allowing for a gradual introduction of extremist views into more mainstream discourse by widening "the 'Overton window' of acceptable political discourse" (36). Although the topic of irony in cultural expression and political messaging is beyond the scope of this review and would lend itself better to methodologies other than quantitative psycholinguistic studies, it nevertheless testifies to the flexibility in which irony can be adapted to various contexts and purposes.

Finally, within the quantitative framework, it would be worthwhile to follow up narrative reviews with systematic reviews and meta-analyses, realizing in practice the suggestions for integration formulated above. Aside from synthesizing the empirical data on several of the aforementioned relationships between individual/national cultural factors and irony use/understanding (e.g., gender, personality factors), such studies would also survey the current methodological trends in quantitative irony research. Possible questions to answer include: which national samples are the most represented, what definition of irony is most typically employed, which measures are most frequently used, what form of stimuli is the most common, and so forth.

Conclusion

We have argued that in the vast body of research on irony use and comprehension, the aspect of cultural specificity seems to be a missing voice. Previous international studies on irony use in adults have usually been fragmented, focused on a single factor, and chiefly conducted in English. As a result, our knowledge of factors accounting for variability in irony use in adults is limited and our understanding of the phenomenon comes down to single related elements rather than to having a thorough and broad perspective of it as a whole. Additionally, studies that have been published in languages other than English are largely disregarded, which seems to be an issue in scientific research in general, but is of special importance in disciplines related to communication and language in particular. Therefore, it seems pertinent to also publish English-language reviews of studies on irony which were carried out in other languages than English. This would greatly facilitate the development of our understanding of national cultural influences on irony.

Hence, we advocate further research aiming to answer questions on the topic of irony use and understanding in adult speakers of various languages, taking into account both socio-cultural and individual aspects, as well as their possible relations and interdependencies. This type of research will further examine the interplay of individual and socio-cultural factors. By considering both the participants' individual differences and national cultural factors in play, it would provide valuable data in an under-researched area by consolidating our fragmented knowledge about various factors in few cultural settings. This may give us a more thorough and broad perspective of the topic as a whole. We propose that such research should continue in at least the following directions:

- Quantitative studies of the influence of national cultural factors (e.g., within Hofstede's or Schwartz's model) on irony use and understanding.
- Quantitative, cross-cultural comparisons of the influence of individual differences on irony use and understanding (e.g., gender in the context of national cultural factors).
- Quantitative studies on the interplay of individual and national cultural factors on irony use and understanding, including mediation studies (e.g., the relationship between self-esteem and power distance and its impact on irony use).
- Quantitative studies assessing the cross-cultural generalizability of recognized statistical relationships.
- Qualitative and quantitative studies of the processes, strategies, and cues of irony in various cultures.

Acknowledgements

The work on the manuscript was possible thanks to the first author's stay at HGSE funded by the Polish National Agency for Academic Exchange (NAWA) within Bekker Program no. PPN/BEK/2019/1/00233 and the grant no. 2019/35/D/HS2/01005 within the SONATA Program funded by the National Science Center.

References

Adam-Troian, J., Wagner-Egger, P., Motyl, M., Arciszewski, T., Imhoff, R., Zimmer, F., ... & van Prooijen, J. W. (2021). Investigating the links between cultural values and belief in conspiracy theories: The key roles of collectivism and masculinity. *Political Psychology, 42*(4), 597-618. https://doi.org/10.1111/pops.12716

Aguert, M., Laval, V., Gauducheau, N., Atifi, H., & Marcoccia, M. (2016). Producing irony in adolescence: A comparison between face-to-face and computer-mediated communication. *Psychology of Language and Communication, 20*(3) 199-218. https://doi.org/10.1515/plc-2016-0013

Akimoto, Y., Miyazawa, S., Muramoto, T. (2012). Comprehension processes of verbal irony: The effects of salience, egocentric context, and allocentric theory of mind. *Metaphor and Symbol, 27*(3) 217-242. https://doi.org/10.1080/10926488.2012.691750

Antoniou, K., Veenstra, A., Kissine, M., & Katsos, N. (2020). How does childhood bilingualism and bi-dialectalism affect the interpretation and processing of pragmatic meanings? *Bilingualism: Language and Cognition, 23*(1), 186-203. https://doi.org/10.1017/S1366728918001189

Ask, K., & Abidin, C. (2018). My life is a mess: self-deprecating relatability and collective identities in the memification of student issues. *Information, Communication & Society, 21*(6), 834-850. https://doi.org/10.1080/1369118X.2018.1437204

Attardo, S. (2000). Irony markers and functions: Towards a goal-oriented theory of irony and its processing. *Rask, 12*(1), 3-20.

Attardo, S. (2002). Humor and irony in interaction: From mode adoption to failure. In L. Anolli, R. Ciceri, & G. Riva (Eds.), *Say not to say: New perspectives on miscommunication* (pp. 159-179). IOS Press.

Attardo, S., Eisterhold, J., Hay, J., & Poggi, I. (2003). Multimodal markers of irony and sarcasm. *Humor, 16*, 243-260. https://doi.org/10.1515/humr.2003.012

Averbeck, J. M. (2010). Irony and language expectancy theory: Evaluations of expectancy violation outcomes. *Communication Studies, 61*(3), 356-372. https://doi.org/10.1080/10510971003776147

Averbeck, J. M., & Hample, D. (2008). Ironic message production: How and why we produce ironic messages. *Communication Monographs, 75*(4), 396-41. https://doi.org/10.1080/03637750802512389

Banasik-Jemielniak, N. (2013). Non-literal speech comprehension in preschool children–An example from a study on verbal irony. *Psychology of Language and Communication, 17*(3), 309-324. https://doi.org/10.2478/plc-2013-0020

Banasik-Jemielniak, N. (2019). Children's exposure to irony in the first four years of their life: what we learn about the use of ironic comments by mothers from the analysis of the Providence corpus of CHILDES. *Psychology of Language and Communication, 23*(1), 1-13. https://doi.org/10.2478/plc-2019-0001

Banasik-Jemielniak N., & Bokus, B. (2019). Children's comprehension of irony: Studies on Polish-speaking preschoolers. *Journal of Psycholinguistic Research, 48*(5), 1217-1240. https://doi.org/10.1007/s10936-019-09654-x

Banasik-Jemielniak N., Bosacki, S., Mitrowska, A., Wyrębek Walters, D., Wisiecka, K., Copeland, N. E., ... & Siemieniuk, A. (2020). "Wonderful! We've just missed the bus."–Parental use of irony and children's irony comprehension. *PloS One, 15*(2), e0228538. https://doi.org/10.1371/journal.pone.0228538

Banasik-Jemielniak, N., & Podsiadło, K. (2016). Comprehension of ironic utterances by bilingual children. *Psychology of Language and Communication, 20*(3), 316-335. https://doi.org/10.1515/plc-2016-0019

Bajerski, M. (2016). "I understand you, so I'll not hurt you with my irony": Correlations between irony and emotional intelligence. *Psychology of Language and Communication, 20*(3), 235-254. https://doi.org/10.1515/plc-2016-0015

Barta, P. (2013). *The fall of the Iron Curtain and the culture of Europe*. Routledge.

Basak, B. E., & Can, G. (2014). The relationships between humor styles, shyness and automatic thoughts among university students. *Egitim ve Bilim, 39*, 365-376. https://doi.org/10.15390/EB.2014.2619

Beukeboom, C. J., & Burgers, C. (2020). Seeing bias in irony: How recipients infer speakers' stereotypes from their ironic remarks about social-category members. *Group Processes & Intergroup Relations, 23*(7), 1085-1102. https://doi.org/10.1177/1368430219887439

Bianchi, I., Canestrari, C., Roncoroni, A. M., Burro, R., Branchini, E., & Savardi, U. (2017). The effects of modulating contrast in verbal irony as a cue for giftedness. *Humor, 30*(4), 383-415. https://doi.org/10.1515/humor-2017-0028

Blasko, D. G., Kazmerski, V. A., & Dawood, S. S. (2021). Saying what you don't mean: A cross-cultural study of perceptions of sarcasm. *Canadian Journal of Experimental Psychology, 75*(2), 114–119. https://doi.org/10.1037/cep0000258

Bleidorn, W., Arslan, R.C., Denissen, J. J. A., Rentfrow, P. J., Gebauer, J. E., Potter, J., & Gosling, S. D. (2016). Age and gender differences in self-esteem—A cross-cultural window. *Journal of Personality and Social Psychology, 111*(3), 396-410. https://doi.org/10.1037/pspp0000078

Bouton, L. F. (1994). Conversational implicature in the second language: Learned slowly when not deliberately taught. *Journal of Pragmatics, 22*, 157–167. https://doi.org/10.1016/0378-2166(94)90065-5

Bowes, A., & Katz, A. (2011). When sarcasm stings. *Discourse Processes, 48*(4), 215-236. https://doi.org/10.1080/0163853X.2010.532757

Brewer, P., & Venaik, S. (2012). On the misuse of national culture dimensions. *International Marketing Review, 29*(6), 673-683. https://doi.org/10.1108/02651331211277991

Bromberek-Dyzman, K., & Rataj, K. (2016). Irony comprehension in the nonnative language comes at a cost. *Psychology of Language and Communication, 20*(3), 336-353. https://doi.org/10.1515/plc-2016-0020

Bruntsch, R., Hofmann, J., & Ruch, W. (2016). Virgin soil in irony research: Personality, humor, and the "sense of irony". *Translational Issues in Psychological Science, 2*(1) 25-34. https://doi.org/10.1037/tps0000054

Bruntsch, R., & Ruch, W. (2017a). The role of humor-related traits and broad personality dimensions in irony use. *Personality and Individual Differences, 112*, 139-143. https://doi.org/10.1016/j.paid.2017.03.004

Bruntsch, R., & Ruch, W. (2017b). Studying irony detection beyond ironic criticism: Let's include ironic praise. *Frontiers in Psychology, 8*, 606. https://doi.org/10.3389/fpsyg.2017.00606

Bryant, G. A. (2010). Prosodic contrasts in ironic speech. *Discourse Processes, 47*(7), 545-566. https://doi.org/10.1080/01638530903531972

Bryant, G. A., & Fox Tree, J. E. (2002). Recognizing verbal irony in spontaneous speech. *Metaphor and Symbol, 17*(2), 99-119. https://doi.org/10.1207/S15327868MS1702_2

Bryant, G. A., & Fox Tree, J. E. (2005). Is there an ironic tone of voice? *Language and Speech, 48*(3), 257-277. https://doi.org/10.1177/00238309050480030101

Bosco, F. M., & Bucciarelli, M. (2008). Simple and complex deceits and ironies. *Journal of Pragmatics, 40*(4), 583-607. https://doi.org/10.1016/j.pragma.2007.05.004

Burgers, C., & Beukeboom, C. J. (2016). Stereotype transmission and maintenance through interpersonal communication: The irony bias. *Communication Research, 43*(3), 414-441. https://doi.org/10.1177/0093650214534975

Burgers, C., Beukeboom, C. J., Kelder, M., & Peeters, M. M. (2015). How sports fans forge intergroup competition through language: The case of verbal irony. *Human Communication Research, 41*(3), 435-457. https://doi.org/10.1111/hcre.12052

Burgers, C., Konijn, E. A., & Steen, G. J. (2016). Figurative framing: Shaping public discourse through metaphor, hyperbole, and irony. *Communication Theory, 26*(4), 410-430. https://doi.org/10.1111/comt.12096

Burgoon, M., Denning, P. V., & Roberts, L. (2002). Language expectancy theory. In J. P. Dillard & M. Pfau (Eds.), *The persuasion handbook: Developments in theory and practice* (pp. 117–137). Sage

Caffarra, S., Michell, E., & Martin, C. D. (2018). The impact of foreign accent on irony interpretation. *PloS One, 13*(8), e0200939. https://doi.org/10.1371/journal.pone.0200939

Canestrari, C., & Bianchi, I. (2018). Perceptual opposites and the modulation of contrast in irony. *Review of Cognitive Linguistics, 16*(1), 48-71. https://doi.org/10.1075/rcl.00003.can

Canestrari, C., Bianchi, I., & Cori, V. (2018). De-polarizing verbal irony. *Journal of Cognitive Psychology, 30*(1), 43-62. https://doi.org/10.1080/20445911.2017.1368525

Cardon, P. W. (2008). A critique of Hall's contexting model: A meta-analysis of literature on intercultural business and technical communication. *Journal of Business and Technical Communication, 22*(4), 399-428. https://doi.org/10.1177/1050651908320361

Caucci, G. M., & Kreuz, R. J. (2012). Social and paralinguistic cues to sarcasm. *Humor, 25*(1), 1-22. https://doi.org/10.1515/humor-2012-0001

Chen, G. H., & Martin, R. A. (2007). A comparison of humor styles, coping humor, and mental health between Chinese and Canadian university students. *Humor, 20*(3), 215-234. https://doi.org/10.1515/HUMOR.2007.011

Chen, X. Y., Rubin, K. H., & Sun, Y. R. (1992). Social reputation and peer relationships in Chinese and Canadian children: A cross-cultural study. *Child Development, 63*, 1336-1343. https://doi.org/10.1111/j.1467-8624.1992.tb01698.x

Chen, S. X. (2015). Toward a social psychology of bilingualism and biculturalism. *Asian Journal of Social Psychology, 18*(1), 1-11. https://doi.org/10.1111/ajsp.12088

Cheang, H. S., & Pell, M. D. (2008). The sound of sarcasm. *Speech Communication, 50*(5), 366-381. https://doi.org/10.1016/j.specom.2007.11.003

Cheang, H. S., & Pell, M. D. (2009). Acoustic markers of sarcasm in Cantonese and English. *The Journal of the Acoustical Society of America, 126*(3), 1394-1405. https://doi.org/10.1121/1.3177275

Cheang, H. S., & Pell, M. D. (2011). Recognizing sarcasm without language: A cross-linguistic study of English and Cantonese. *Pragmatics & Cognition, 19*(2), 203-223. https://doi.org/10.1075/pc.19.2.02che

Cieślicka, A. B. (2017). Bilingual figurative language processing. In: A. Ardila, A. B., Cieślicka, R. R. Heredia, & M. Roselli (Eds.). *Psychology of Bilingualism* (pp. 75-118). Springer. https://doi.org/10.1007/978-3-319-64099-0_4

Clark, H. H., & Gerrig, R. J. (1984). On the pretense theory of irony. *Journal of Experimental Psychology: General, 113*(1), 121–126. https://doi.org/10.1037/0096-3445.113.1.121

Colston, H. L. (1997). "I've never seen anything like it": Overstatement, understatement, and irony. *Metaphor and Symbol, 12*(1), 43-58. https://doi.org/10.1207/s15327868ms1201_4

Colston, H. L. (2002). Contrast and assimilation in verbal irony. *Journal of Pragmatics, 34*(2), 111-142. https://doi.org/10.1016/S0378-2166(02)80008-X

Colston H. L. (2019). Irony as indirectness cross-linguistically: On the scope of generic mechanisms. In: Capone A., García-Carpintero M., & Falzone A. (Eds.). *Indirect reports and pragmatics in the world languages* (pp. 109-131). Springer. https://doi.org/10.1007/978-3-319-78771-8_6

Colston, H. L., & Lee, Y. S. (2004). Gender differences in verbal irony use. *Metaphor and Symbol, 19*(4), 289-306. https://doi.org/10.1207/s15327868ms1904_3

Colston, H. L., & O'Brien, J. (2000a). Contrast and pragmatics in figurative language: Anything understatement can do, irony can do better. *Journal of Pragmatics, 32*(11), 1557-1583. https://doi.org/10.1016/S0378-2166(99)00110-1

Colston, H. L., & O'Brien, J. (2000b). Contrast of kind versus contrast of magnitude: The pragmatic accomplishments of irony and hyperbole. *Discourse Processes, 30*(2), 179-199. https://doi.org/10.1207/S15326950DP3002_05

Costa, P. T., Terracciano, A., & McCrae, R. R. (2001). Gender differences in personality traits across cultures: Robust and surprising findings. *Journal of Personality and Social Psychology, 81*(2), 322-331. https://doi.org/10.1037/0022-3514.81.2.322

Croucher, S. M., Bruno, A., McGrath, P., Adams, C., McGahan, C., Suits, A., & Huckins, A. (2012). Conflict styles and high–low context cultures: A cross-cultural extension. *Communication Research Reports, 29*(1), 64-73. https://doi.org/10.1080/08824096.2011.640093

De Mooij, M. (2013). On the misuse and misinterpretation of dimensions of national culture. *International Marketing Review, 30*(3), 253-261. https://doi.org/10.1108/02651331311321990

De Meulenaer, S., De Pelsmacker, P., & Dens, N. (2018). Power distance, uncertainty avoidance, and the effects of source credibility on health risk message compliance. *Health Communication, 33*(3), 291-298. https://doi.org/10.1080/10410236.2016.1266573

Dews, S., & Winner, E. (1995). Muting the meaning. A social function of irony. *Metaphor and Symbol, 10*(1), 3-19. https://doi.org/10.1207/s15327868ms1001_2

Dews, S., Kaplan, J., & Winner, E. (1995). Why not say it directly? The social functions of irony. *Discourse Processes, 19*(3), 347-367. https://doi.org/10.1080/01638539509544922

Dress, M. L., Kreuz, R. J., Link, K. E., & Caucci, G. M. (2008). Regional variation in the use of sarcasm. *Journal of Language and Social Psychology, 27*(1), 71-85. https://doi.org/10.1177/0261927X07309512

Dillard, J. P. (1990). A goal-driven model of interpersonal influence. In J. P. Dillard (Ed.), *Seeking compliance: The production of interpersonal influence messages* (pp. 41-56). Gorsuch Scarisbrick.

Dimitrov, K. (2014). Geert Hofstede et al's set of national cultural dimensions-Popularity and criticisms. *Economic Alternatives, 2*, 30-60. https://doi.org/10.48550/arXiv.1810.02621

Dionigi, A., Duradoni, M., & Vagnoli, L. (2021). Humor and personality: Psychometric properties of the Italian version of the comic styles markers and its relationships with the big five personality traits. *Current Psychology*, 1-13. https://doi.org/10.1007/s12144-020-01303-0

Dynel, M. (2014). Isn't it ironic? Defining the scope of humorous irony. *Humor, 27*(4), 619-639. https://doi.org/10.1515/humor-2014-0096

Dynel, M. (2017). Academics vs. American scriptwriters vs. Academics: A battle over the etic and emic 'sarcasm' and 'irony' labels. *Language & Communication, 55*, 69–87. https://doi.org/10.1016/j.langcom.2016.07.008

Ervin-Tripp, S., & Lampert, M. D. (1992). Gender differences in the construction of humorous talk. In: K. Hall, M. Bucholz, & B. Moonwomon (Eds.), *Locating power* (pp. 105-117). Berkeley Women and Language Group.

Fernández, I., Carrera, P., Sánchez, F., Paez, D., & Candia, L. (2000). Differences between cultures in emotional verbal and non-verbal reactions. *Psicothema, 12*, 83-92.

Filippova, E. (2014). Developing appreciation of irony in Canadian and Czech discourse. *Journal of Pragmatics, 74*, 209-223. https://doi.org/10.1016/j.pragma.2014.09.003

Fischer, R., Vauclair, C. M., Fontaine, J. R., & Schwartz, S. H. (2010). Are individual-level and country-level value structures different? Testing Hofstede's legacy with the Schwartz Value Survey. *Journal of Cross-Cultural Psychology, 41*(2), 135-151. https://doi.org/10.1177/0022022109354377

Fish, S. (1983). Short people got no reason to live: Reading irony. *Daedalus, 112*(1): 175–191.

Garmendia, J. (2014). The clash: Humor and critical attitude in verbal irony. *Humor, 27*(4), 641-659. https://doi.org/10.1515/humor-2014-0094

Garmendia, J. (2018). *Irony*. Cambridge University Press.

Gibbs, R.W. (2000). Irony in talk among friends. *Metaphor and Symbol, 15*(1-2), 5-27. https://doi.org/10.1080/10926488.2000.9678862

Gibbs, R. W. (2012). Are ironic acts deliberate? *Journal of Pragmatics, 44*(1), 104-115. https://doi.org/10.1016/j.pragma.2011.11.001

Gibbs R. W., Bryant G. A., & Colston H. L. (2014). Where is the humor in verbal irony? *Humor, 27*(4), 575-595. https://doi.org/10.1515/humor-2014-0106

Gibbs, R. W., & Colston, H. L. (Eds.). (2007). *Irony in language and thought: A cognitive science reader.* Psychology Press.

Giles, R. M., Rothermich, K., & Pell, M. D. (2019). Differences in the evaluation of prosocial lies: A cross-cultural study of Canadian, Chinese and German adults. *Frontiers in Communication, 4*, 38. https://doi.org/10.3389/fcomm.2019.00038

Giora, R., Fein, O., Ganzi, J., Levi, N. A., & Sabah, H. (2005). On negation as mitigation: The case of negative irony. *Discourse Processes, 39*(1), 81-100. https://doi.org/10.1207/s15326950dp3901_3

Giora, R., Fein, O., Kaufman, R., Eisenberg, D., & Erez, S. (2009). Does an "ironic situation" favor an ironic interpretation. In G. Brone, & J. Vandaele (Eds.), *Cognitive poetics: Goals, gains and gaps* (pp. 383-399). Mouton De Gruyter. https://doi.org/10.1515/9783110213379

Giora, R., Givoni, S., & Fein, O. (2015). Defaultness reigns: The case of sarcasm. *Metaphor and Symbol, 30*(4), 290-313. https://doi.org/10.1080/10926488.2015.1074804

Goddard, C. (2006). "Lift your game Martina!": Deadpan jocular irony and the ethnopragmatics of Australian English. In C. Goddard (Ed.), *Ethnopragmatics* (pp. 65-98). De Gruyter Mouton. https://doi.org/10.1515/9783110911114.65

Goetz, P. J. (2003). The effects of bilingualism on theory of mind development. *Bilingualism: Language and Cognition, 6*(1), 1-15. https://doi.org/10.1017/S1366728903001007

González-Fuente, S., Escandell-Vidal, V., & Prieto, P. (2015). Gestural codas pave the way to the understanding of verbal irony. *Journal of Pragmatics, 90*, 26-47. https://doi.org/10.1016/j.pragma.2015.10.002

Greene, V. S. (2019). "Deplorable" satire: Alt-right memes, white genocide tweets, and redpilling normies. *Studies in American Humor, 5*(1), 31-69. https://doi.org/10.5325/studamerhumor.5.1.0031

Grice, H. P. (1975). Logic and conversation. In: P. Cole, & J. L. Morgan (Eds.), *Syntax and semantics. Volume 3: Speech acts* (pp. 225-242). Academic Press.

Gucman, M. (2016). The role of individual differences and situational factors in perception of verbal irony. *Psychology of Language and Communication, 20*(3), 255-277. https://doi.org/10.1515/plc-2016-0016

Gudykunst, W. B., & Nishida, T. (1986). Attributional confidence in low-and high-context cultures. *Human Communication Research, 12*(4), 525-549. https://doi.org/10.1111/j.1468-2958.1986.tb00090.x

Gudykunst, W. B., & Nishida, T. (2001). Anxiety, uncertainty, and perceived effectiveness of communication across relationships and cultures. *International Journal of Intercultural Relations, 25*(1), 55-71. https://doi.org/10.1016/S0147-1767(00)00042-0

Gudykunst, W. B., Yang, S. M., & Nishida, T. (1987). Cultural differences in self-consciousness and self-monitoring. *Communication Research, 14*(1), 7-34. https://doi.org/10.1177/009365087014001002

Guhin, J. (2013). Is irony good for America? The threat of nihilism, the importance of romance, and the power of cultural forms. *Cultural Sociology, 7*(1), 23-38. https://doi.org/10.1177/1749975512453545

Guiller, J., & Durndell, A. (2006). 'I totally agree with you': gender interactions in educational online discussion groups. *Journal of Computer Assisted Learning, 22*(5), 368-381. https://doi.org/10.1111/j.1365-2729.2006.00184.x

Gunkel, M., Schlägel, C., & Engle, R.L. (2014). Culture's influence on emotional intelligence: An empirical study of nine countries. *Journal of International Management, 20*(2), 256-274. https://doi.org/10.1016/j.intman.2013.10.002

Gunkel, M., Schlaegel, C., & Taras, V. (2016). Cultural values, emotional intelligence, and conflict handling styles: A global study. *Journal of World Business, 51*(4), 568-585. https://doi.org/10.1016/j.jwb.2016.02.001

Hall, E. T., & Hall, M. R. (1990). Key concepts: Underlying structures of culture. In *Understanding cultural differences: Germans, French, and Americans*. Intercultural Press

Hancock, J. T. (2004). Verbal irony use in face-to-face and computer-mediated conversations. *Journal of Language and Social Psychology, 23*(4), 447-463. https://doi.org/10.1177/0261927X04269587

Harris, M., & Pexman, P. M. (2003). Children's perceptions of the social functions of verbal irony. *Discourse Processes, 36*(3), 147-165. https://doi.org/10.1207/S15326950DP3603_1

Heintz, S. (2019). Locating eight comic styles in basic and broad concepts of humor: Findings from self-reports and behavior tests. *Current Psychology*, 1-12. https://doi.org/10.1007/s12144-019-00179-z

Hofmann, J., Platt, T., Lau, C., & Torres-Marín, J. (2020). Gender differences in humor-related traits, humor appreciation, production, comprehension, (neural) responses, use, and correlates: A systematic review. *Current Psychology*, 1-14. https://doi.org/10.1007/s12144-020-00724-1

Hofstede, G. (1996). Riding the waves of commerce: A test of Trompenaars' "model" of national culture differences. International *Journal of Intercultural Relations, 20*(2), 189-198. https://doi.org/10.1016/0147-1767(96)00003-X

Hofstede, G., (2001). *Culture's consequences: Comparing values, behaviors, institutions, and organizations across nations.* Sage.

Hofstede, G. (2011). Dimensionalizing cultures: The Hofstede model in context. *Online Readings in Psychology and Culture, 2*(1), 2307-0919. https://doi.org/10.9707/2307-0919.1014

Holtgraves, T. (1997). Styles of language use: Individual and cultural variability in conversational indirectness. *Journal of Personality and Social Psychology, 73*(3) 624-637. https://doi.org/10.1037/0022-3514.73.3.624

Holtgraves, T. (2005). Social psychology, cognitive psychology, and linguistic politeness. *Journal of Politeness Research. Language, Behaviour, Culture, 1*(1), 73-93. https://doi.org/10.1515/jplr.2005.1.1.73

Hornowska, E., & Charytonik, J. (2011). Polska adaptacja Kwestionariusza Stylów Humoru (HSQ) R. Martina, P. Puhlik-Doris, G. Larsena, J. Gray i K. Weir. [Polish adaptation of the Humor Styles Questionnaire by R. Martin, P. Puhlik-Doris, G. Larsen, J. Gray, and K. Weir] *Studia Psychologiczne, 49*(4), 5-22.

Ivanko, S. L., & Pexman, P. M. (2003). Context incongruity and irony processing. *Discourse Processes, 35*(3), 241-279. https://doi.org/10.1207/S15326950DP3503_2

Ivanko, S. L., Pexman, P. M., & Olineck, K. M. (2004). How sarcastic are you? Individual differences and verbal irony. *Journal of Language and Social Psychology, 23*(3), 244-271. https://doi.org/10.1177/0261927X04266809

Jacob, H., Kreifelts, B., Nizielski, S., Schütz, A., & Wildgruber, D. (2016). Effects of emotional intelligence on the impression of irony created by the mismatch between verbal and nonverbal cues. *PloS One, 11*(10), e0163211. https://doi.org/10.1371/journal.pone.0163211

Jansen, N., & Chen, A. (2020). Prosodic encoding of sarcasm at the sentence level in Dutch. [Paper presented at the 10th International Conference on Speech Prosody, Tokyo, 25-28 May].

Javor, R. (2016). Bilingualism, theory of mind and perspective-taking: The effect of early bilingual exposure. *Psychology and Behavioral Sciences, 5*(6), 143-148. https://doi.org/ 10.11648/j.pbs.20160506.13

Jiang, F., Lu, S., Jiang, T., & Jia, H. (2020). Does the relation between humor styles and subjective well-being vary across culture and age? A meta-analysis. *Frontiers in Psychology, 11*, 2213. https://doi.org/10.3389/fpsyg.2020.02213

Jiang, F., Dong, X., & Lu, S. (2011). Different attitudes toward humor between Chinese and American students: Evidence from the Implicit Association Test. *Psychological Reports, 109*(1), 99-107. https://doi.org/10.2466/09.17.21.PR0.109.4.99-107

Jorgensen, J. (1996). The functions of sarcastic irony in speech. *Journal of Pragmatics, 26*(5), 613-634. https://doi.org/10.1016/0378-2166(95)00067-4

Kappogiani, E. (2011). Irony via "surrealism." In M. Dynel (Ed.), *The pragmatics of humour across discourse domains* (pp. 51-68). Routledge.

Kałowski, P., Szymaniak, K., & Maciantowicz, O. (2021). Exploring the links between trait anger, self-reported sarcasm use, and narcissism. *Advances in Cognitive Psychology, 17*(4), 261-273. https://doi.org/10.5709/acp-0335-6

Katz, A. N., & Pexman, P. M. (1997). Interpreting figurative statements: Speaker occupation can change metaphor to irony. *Metaphor and Symbol, 12*(1), 19-41. https://doi.org/10.1207/s15327868ms1201_3

Katz, A. N., Blasko, D. G., & Kazmerski, V. A. (2004). Saying what you don't mean: Social influences on sarcastic language processing. *Current Directions in Psychological Science, 13*(5), 186-189. https://doi.org/10.1111/j.0963-7214.2004.00304.x

Kazarian, S. S., & Martin, R. A. (2006). Humor styles, culture-related personality, well-being, and family adjustment among Armenians in Lebanon. *Humor, 19*(4), 405-423. https://doi.org/10.1515/HUMOR.2006.020

Kim, J. (2014). How Korean EFL learners understand sarcasm in L2 English. *Journal of Pragmatics, 60*, 193-206. https://doi.org/10.1016/j.pragma.2013.08.016

Kim, J., & Lantolf, J. P. (2018). Developing conceptual understanding of sarcasm in L2 English through explicit instruction. *Language Teaching Research, 22*(2), 208-229. https://doi.org/10.1177/1362168816675521

Kim, D., Pan, Y., & Park, H. S. (1998). High-versus low-Context culture: A comparison of Chinese, Korean, and American cultures. *Psychology & Marketing, 15*(6), 507-521. https://doi.org/10.1002/(SICI)1520-6793(199809)15:6<507::AID-MAR2>3.0.CO;2-A

Kleinsmith, A., De Silva, P. R., & Bianchi-Berthouze, N. (2006). Cross-cultural differences in recognizing affect from body posture. *Interacting with Computers, 18*(6), 1371-1389. https://doi.org/10.1016/j.intcom.2006.04.003

Kobayashi, C., Glover, G. H., & Temple, E. (2006). Cultural and linguistic influence on neural bases of 'Theory of Mind': an fMRI study with Japanese bilinguals. *Brain and Language, 98*(2), 210-220. https://doi.org/10.1016/j.bandl.2006.04.013

Kobayashi, C., Glover, G. H., & Temple, E. (2008). Switching language switches mind: linguistic effects on developmental neural bases of 'Theory of Mind'. *Social Cognitive and Affective Neuroscience, 3*(1), 62-70. https://doi.org/10.1093/scan/nsm039

Kovács, Á. M., & Mehler, J. (2009). Cognitive gains in 7-month-old bilingual infants. *Proceedings of the National Academy of Sciences, 106*(16), 6556-6560. https://doi.org/10.1073/pnas.0811323106

Kring, A. M. (2000). Gender and anger. In A. H. Fischer (Ed.), *Gender and emotion: Social psychological perspectives* (pp. 211–231). Cambridge University Press. https://doi.org/10.1017/CBO9780511628191.011

Kreuz, R. J. (1996). The use of verbal irony: Cues and constraints. In: J. S. Mio, & A. N. Katz, (Eds.), *Metaphor: Implications and applications*, (pp. 23-38). Lawrence Erlbaum Associates.

Kreuz, R. J. (2000). The production and processing of verbal irony. *Metaphor and Symbol, 15*(1-2), 99-107. https://doi.org/10.1080/10926488.2000.9678867

Kreuz, R. J. (2020). *Irony and sarcasm*. MIT Press.

Kreuz, R. J., & Caucci, G. M. (2007, April). Lexical influences on the perception of sarcasm. In *Proceedings of the Workshop on computational approaches to Figurative Language* (pp. 1-4). Association for Computational Linguistics.

Kreuz, R. J., & Johnson, A. A. (2020). The production of verbal irony. How to be an ironist. In J. Barnden, & A. Gargett (Eds.), *Producing Figurative Expression: Theoretical, experimental and practical perspectives* (pp. 263-295). John Benjamins. https://doi.org/10.1075/ftl.10.10kre

Kreuz, R. J., Long, D. L., & Church, M. B. (1991). On being ironic: Pragmatic and mnemonic implications. *Metaphor and Symbol, 6*(3), 149-162. https://doi.org/10.1207/s15327868ms0603_1

Kreuz, R. J., & Link, K. E. (2002). Asymmetries in the use of verbal irony. *Journal of Language and Social Psychology, 21*(2), 127-143. https://doi.org/10.1177/02627X02021002002

Kreuz, R. J., & Roberts, R. M. (1995). Two cues for verbal irony: Hyperbole and the ironic tone of voice. *Metaphor and Symbol, 10*(1), 21-31. https://doi.org/10.1207/s15327868ms1001_3

Kumon-Nakamura, S., Glucksberg, S., & Brown, M. (1995). How about another piece of pie: The allusional pretense theory of discourse irony. *Journal of Experimental Psychology: General, 124*(1), 3-21. https://doi.org/10.1037/0096-3445.124.1.3

Lampert, M. D., & Ervin-Tripp, S. M. (2006). Risky laughter: Teasing and self-directed joking among male and female friends. *Journal of Pragmatics, 38*(1), 51-72. https://doi.org/10.1016/j.pragma.2005.06.004

Leets, L. (2003). Disentangling perceptions of subtle racist speech: A cultural perspective. *Journal of Language and Social Psychology, 22*(2), 145-168. https://doi.org/10.1177/0261927X03022002001

Leggitt, J. S., & Gibbs, R. W. (2000). Emotional reactions to verbal irony. *Discourse Processes, 29*(1), 1-24. https://doi.org/10.1207/S15326950dp2901_1

Loevenbruck, H., Ben Jannet, M. A, D'Imperio, M., Spini, M., & Champagne-Lavau, M. (2013). Prosodic cues of sarcastic speech in French: Slower, higher, wider. [Paper presented at the 14th Annual Conference of the International Speech Communication Association (INTERSPEECH 2013), Lyon, 25-29 August].

Lynn, R., & Martin, T. (1997). Gender differences in extraversion, neuroticism, and psychoticism in 37 nations. *The Journal of Social Psychology, 137*(3), 369-373. https://doi.org/10.1080/00224549709595447

Łaguna, M., Lachowicz-Tabaczek, K., & Dzwonkowska, I. (2007). Skala samooceny SES Morrisa Rosenberga–polska adaptacja metody. *Psychologia Społeczna, 2*(02), 164-176.

Matthews, D, Biney, H., & Abbot-Smith, K. (2018). Individual differences in children's pragmatic ability: a review of associations with formal language, social cognition, and executive functions. *Language Learning and Development, 14*(3), 186-223. https://doi.org/10.1080/15475441.2018.1455584

Matsumoto, D. (1989). Cultural influences on the perception of emotion. *Journal of Cross-Cultural Psychology, 20*, 92-105. https://doi.org/10.1177/0022022189201006

Martin, R. A., & Ford, T. (2018). *The psychology of humor: An integrative approach*. Academic Press. https://doi.org/10.1016/C2016-0-03294-1

Martin, R. A., Puhlik-Doris, P., Larsen, G., Gray, J., & Weir, K. (2003). Individual differences in uses of humor and their relation to psychological well-being: Development of the Humor Styles Questionnaire. *Journal of Research in Personality, 37*(1), 38-75. https://doi.org/10.1016/S0092-6566(02)00534-2

Mewhort-Buist, T. A., & Nilsen, E. S. (2013). What are you really saying? Associations between shyness and verbal irony comprehension. *Infant and Child Development, 22*(2), 180-197. https://doi.org/10.1002/icd.1769

Mewhort-Buist, T. A., & Nilsen, E. S. (2017). Shy individuals' interpretations of counterfactual verbal irony. *Metaphor and Symbol, 32*(4), 262-275. https://doi.org/10.1080/10926488.2017.1384275

Mauchand, M., Vergis, N., & Pell, M. D. (2018). Ironic tones of voices. [Paper presented at the 9th International Conference on Speech Prosody, Poznań, Poland, 13-16 June].

Mauchand, M., Vergis, N., & Pell, M. D. (2020). Irony, prosody, and social impressions of affective stance. *Discourse Processes, 57*(2), 1-17. https://doi.org/10.1080/0163853X.2019.1581588

McCroskey, J. C., & Richmond, V. P. (1990). Willingness to communicate: A cognitive view. *Journal of Social Behavior and Personality, 5*(2), 19-37.

Mendiburo-Seguel, A., & Heintz, S. (2020). Comic styles and their relation to the sense of humor, humor appreciation, acceptability of prejudice, humorous self-image and happiness. *Humor, 33*(3), 381-403. https://doi.org/10.1515/humor-2018-0151

Mendiburo-Seguel, A., Páez, D., & Martínez-Sánchez, F. (2015). Humor styles and personality: A meta-analysis of the relation between humor styles and the Big Five personality traits. *Scandinavian Journal of Psychology, 56*(3), 335-340. https://doi.org/10.1111/sjop.12209

Mesquita, B. (2003). Emotions as dynamic cultural phenomena. In: Davidson, R., Scherer, K., & Goldsmith, H. (Eds.), *Handbook of affective sciences* (pp. 871-890). Oxford University Press.

Milanowicz, A. (2013). Irony as a means of perception through communication channels. Emotions, attitude and IQ related to irony across gender. *Psychology of Language and Communication, 17*(2), 115-132. https://doi.org/10.2478/plc-2013-0008

Milanowicz, A., & Bokus, B. (2013). Gender and moral judgments: the role of who is speaking to whom. *Journal of Gender Studies, 22*(4), 423-443. https://doi.org/10.1080/09589236.2012.719314

Milanowicz, A., & Bokus, B. (2020). *W krzywym zwierciadle ironii i autoironii. O kobietach i mężczyznach nie wprost* [The distorted lens of irony and self-mockery. A gender comparison]. Wydawnictwo Uniwersytetu Warszawskiego.

Milanowicz, A., & Kałowski, P. (2016). Zing Zing Bang Bang: how do you know what she really meant. Gender bias in response to irony: the role of who is speaking to whom. *Psychology of Language and Communication, 20*(3), 219-234. https://doi.org/10.1515/plc-2016-0014

Milanowicz, A., Tarnowski, A., & Bokus, B. (2017). When sugar-coated words taste dry: The relationship between gender, anxiety, and response to irony. *Frontiers in Psychology, 8*, 2215. https://doi.org/10.3389/fpsyg.2017.02215

Nichols, E. S., Wild, C. J., Stojanoski, B., Battista, M. E., & Owen, A. M. (2020). Bilingualism affords no general cognitive advantages: A population study of executive function in 11,000 people. *Psychological Science, 31*(5), 548–567. https://doi.org/10.1177/0956797620903113

Nilsen, E. S., Glenwright, M., & Huyder, V. (2011). Children and adults understand that verbal irony interpretation depends on listener knowledge. *Journal of Cognition and Development, 12*(3), 374-409. https://doi.org/10.1080/15248372.2010.544693

Nilsson, P. E. (2021). The new extreme right: Uncivility, irony, and displacement in the French re-information sphere. *Nordicom Review, 42*(1), 89-102. https://doi.org/10.2478/nor-2021-0008

Ning, H. K., Lee, D., & Lee, W. O. (2015). Relationships between teacher value orientations, collegiality, and collaboration in school professional learning communities. *Social Psychology of Education, 18*(2), 337-354. https://doi.org/10.1007/s11218-015-9294-x

O'Brien, S. (2004). On death and donuts: Irony and ecology after September 11. *Cultural Critique, 58*, 148-167.

Okamoto, S. (2002). Politeness and the perception of irony: Honorifics in Japanese. *Metaphor and Symbol, 17*(2), 119-139. https://doi.org/10.1207/S15327868MS1702_3

Okamoto, S. (2006). Perception of hiniku and oseji: How hyperbole and orthographically deviant styles influence irony-related perceptions in the Japanese language. *Discourse Processes, 41*(1), 25-50. https://doi.org/10.1207/s15326950dp4101_3

Okamoto, S. (2007). An analysis of the usage of Japanese hiniku: Based on the communicative insincerity theory of irony. *Journal of Pragmatics, 39*(6), 1143-1169. https://doi.org/10.1016/j.pragma.2006.08.012

Pawlak, M. C. (2019). How to be sarcastic in Greek: Typical means of signaling sarcasm in the New Testament and Lucian. *Humor, 32*(4), 545-564. https://doi.org/10.1515/humor-2018-0088

Peters, S., Wilson, K., Boiteau, T. W., Gelormini-Lezama, C., & Almor, A. (2016). Do you hear it now? A native advantage for sarcasm processing. *Bilingualism: Language and Cognition, 19*(2) 400-414. https://doi.org/10.1017/S1366728915000048

Pexman, P. M. (2005). Social factors in the interpretation of verbal irony: The roles of speaker and listener characteristics. In H. L. Colston, & A. N. Katz (Eds.), *Figurative language comprehension: Social and cultural influences* (pp. 209-232). Lawrence Erlbaum Associates.

Pexman, P. M. (2008). It's fascinating research: The cognition of verbal irony. *Current Directions in Psychological Science, 17*(4), 286-290. https://doi.org/10.1111/j.1467-8721.2008.00591.x

Pexman, P. M., Glenwright, M., Krol, A., & James, T. (2005). An acquired taste: Children's perceptions of humor and teasing in verbal irony. *Discourse Processes, 40*(3), 259-288. https://doi.org/10.1207/s15326950dp4003_5

Pexman, P. M., & Olineck, K. M. (2002). Does sarcasm always sting? Investigating the impact of ironic insults and ironic compliments. *Discourse Processes, 33*(3), 199-217. https://doi.org/10.1207/S15326950DP3303_1

Pexman, P. M., & Zvaigzne, M. T. (2004). Does irony go better with friends? *Metaphor and Symbol, 19*(2), 143-163. https://doi.org/10.1207/s15327868ms1902_3

Plessen, C. Y., Franken, F. R., Ster, C., Schmid, R. R., Wolfmayr, C., Mayer, A. M., ... & Tran, U. S. (2020). Humor styles and personality: A systematic review and meta-analysis on the relations between humor styles and the Big Five personality traits. *Personality and Individual Differences, 154*, 109676. https://doi.org/10.1016/j.paid.2019.109676

Pryor, B., Butler, J., & Boehringer, K. (2005). Communication apprehension and cultural context: A comparison of communication apprehension in japanese and american students. *North American Journal of Psychology, 7*(2), 247-252.

Quinones, C., & Kakabadse, N. K. (2015). Self-concept clarity, social support, and compulsive Internet use: A study of the US and the UAE. *Computers in Human Behavior, 44*, 347-356. https://doi.org/10.1016/j.chb.2014.11.019

Rankin, K. P., Salazar, A., Gorno-Tempini, M. L., Sollberger, M., Wilson, S. M., Pavlic, D., ... & Miller, B. L. (2009). Detecting sarcasm from paralinguistic cues: Anatomic and cognitive correlates in neurodegenerative disease. *Neuroimage, 47*(4), 2005-2015. https://doi.org/10.1016/j.neuroimage.2009.05.077

Rao, R. (2013). Prosodic consequences of sarcasm versus sincerity in Mexican Spanish. *Concentric: Studies in Linguistics, 39*(2), 33-59.

Recchia, H. E., Howe, N., Ross, H. S., & Alexander, S. (2010). Children's understanding and production of verbal irony in family conversations. *British Journal of Developmental Psychology, 28*(2), 255-274. https://doi.org/10.1348/026151008X401903

Reyes, A., Rosso, P., & Buscaldi, D. (2012). From humor recognition to irony detection: The figurative language of social media. *Data & Knowledge Engineering, 74*, 1-12. https://doi.org/10.1016/j.datak.2012.02.005

Rivière, E., Klein, M., & Champagne-Lavau, M. (2018). Using context and prosody in irony understanding: Variability amongst individuals. *Journal of Pragmatics, 138*, 165-172. https://doi.org/10.1016/j.pragma.2018.10.006

Roberts, R. M., & Kreuz, R. J. (1994). Why do people use figurative language? *Psychological Science, 5*(3), 159-163. https://doi.org/10.1111/j.1467-9280.1994.tb00653.x

Rockwell, P., & Theriot, E. M. (2001). Culture, gender, and gender mix in encoders of sarcasm: A self-assessment analysis. *Communication Research Reports 18*(1), 44-52. https://doi.org/10.1080/08824090109384781

Rosen, D., Stefanone, M. A., & Lackaff, D. (2010, January). Online and offline social networks: Investigating culturally-specific behavior and satisfaction. In *Proceedings of the 2010 43rd Hawaii International Conference on System Sciences* (pp. 1-10). IEEE Computer Society. https://doi.org/10.1109/HICSS.2010.292

Rubio-Fernández, P., & Glucksberg, S. (2012). Reasoning about other people's beliefs: Bilinguals have an advantage. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 38*(1), 211-217. https://doi.org/10.1037/a0025162

Ruch, W., Heintz, S., Platt, T., Wagner, L., & Proyer, R. T. (2018). Broadening humor: comic styles differentially tap into temperament, character, and ability. *Frontiers in Psychology, 9*, 6. https://doi.org/10.3389/fpsyg.2018.00006

Rui, J., & Stefanone, M. A. (2013). Strategic self-presentation online: A cross-cultural study. *Computers in Human Behavior, 29*(1), 110-118. https://doi.org/10.1016/j.chb.2012.07.022

Sanchez-Burks, J., Lee, F., Choi, I., Nisbett, R., Zhao, S., & Koo, J. (2003). Conversing across cultures: East-West communication styles in work and nonwork contexts. *Journal of Personality and Social Psychology, 85*(2), 363-372. https://doi.org/10.1037/0022-3514.85.2.363

Scherer, K. R., Wallbott, H. G., Matsumoto, D., & Kudoh, T. (1988). Emotional experience in cultural context: a comparison between Europe, Japan, and the United States. In: Scherer, K. R. (Ed.), *Faces of emotions* (pp. 5-30). Lawrence Erlbaum Associates.

Schmitt, D. P., Realo, A., Voracek, M., & Allik, J. (2008). Why can't a man be more like a woman? Sex differences in Big Five personality traits across 55 cultures. *Journal of Personality and Social Psychology, 94*(1), 168-182. https://doi.org/10.1037/0022-3514.94.1.168

Schwartz, S. H. (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. *Advances in Experimental Social Psychology, 25*, 1-65. https://doi.org/10.1016/S0065-2601(08)60281-6

Schwartz, S. H. (2006). A theory of cultural value orientations: Explication and applications. *Comparative Sociology, 5*(2-3), 137-182. https://doi.org/10.1163/156913306778667357

Schwartz, S. H. (2012). An overview of the Schwartz theory of basic values. *Online Readings in Psychology and Culture, 2*(1). https://doi.org/10.9707/2307-0919.1116

Schwartz, S. H. (2013). Culture matters: National value cultures, sources, and consequences. In *Understanding culture* (pp. 137-160). Psychology Press.

Schwartz, S. H., & Sagiv, L. (1995). Identifying culture-specifics in the content and structure of values. *Journal of Cross-Cultural Psychology, 26*(1), 92-116. https://doi.org/10.1177/0022022195261007

Simpson, P. (2019). "Americans don't do Irony." Cross-cultural perspectives on the pragmatics of irony. In P. Simpson (Ed.), *Style, rhetoric, and creativity in language: In memory of Walter (Bill) Nash* (pp. 171-193). John Benjamins. https://doi.org/10.1075/la1.34.12sim

Snyder, M. (1974). Self-monitoring of expressive behavior. *Journal of Personality and Social Psychology, 30*(4), 526. https://doi.org/10.1037/h0037039

Sperber, D., & Wilson, D. (1981). Irony and the use-mention distinction. *Philosophy, 3*, 143-184.

Spini, D. (2003). Measurement equivalence of 10 value types from the Schwartz value survey across 21 countries. *Journal of Cross-Cultural Psychology, 34*(1), 3-23. https://doi.org/10.1177/0022022102239152

Spotorno, N., Koun, E., Prado, J., Van Der Henst, J. B., & Noveck, I. A. (2012). Neural evidence that utterance-processing entails mentalizing: The case of irony. *NeuroImage, 63*(1), 25-39. https://doi.org/10.1016/j.neuroimage.2012.06.046

Straub, D., Loch, K., Evaristo, R., Karahanna, E., & Srite, M. (2002). Toward a theory-based measurement of culture. *Journal of Global Information Management (JGIM), 10*(1), 13-23. https://doi.org/10.4018/jgim.2002010102

Szymaniak, K., & Kałowski, P. (2020). Trait anger and sarcasm use. *Personality and Individual Differences, 154*, 109662. https://doi.org/10.1016/j.paid.2019.109662

Tan, K. C., & Cheng, S. (2020). Sang subculture in post-reform China. *Global Media and China, 5*(1), 86-99. https://doi.org/10.1177/2059436420904459

Taylor, C. (2016). *Mock politeness in English and Italian: A corpus-assisted metalanguage analysis*. John Benjamins.

Taylor, C. (2017). The relationship between irony and sarcasm: Insights from a first-order metalanguage investigation. *Journal of Politeness Research, 13*(2), 209-241. https://doi.org/10.1515/pr-2015-0037

Tiv, M., Rouillard, V., Vingron, N., Wiebe, S., & Titone, D. (2019). Global second language proficiency predicts self-perceptions of general sarcasm use among bilingual adults. *Journal of Language and Social Psychology, 38*(4), 459-478. https://doi.org/10.1177/0261927X19865764

Tortoriello, G. K., Hart, W., & Richardson, K. (2019). Predicting perceived harmful intent from the Dark Tetrad: A novel cognitive account of interpersonal harm. *Personality and Individual Differences, 147*, 43-52. https://doi.org/10.1016/j.paid.2019.04.020

Tuters, M. (2018). LARPing & liberal tears. Irony, belief and idiocy in the deep vernacular web. In M. Fielitz, & N. Thurston (Eds.), *Post-digital cultures of the far right* (pp. 37-48). transcript Verlag.

Van de Vijver, F., & Hambleton, R. K. (1996). Translating tests. *European Psychologist, 1*(2), 89-99. https://doi.org/10.1027/1016-9040.1.2.89

van Mulken M., Burgers C., & van der Plas B. (2010). Wolves, confederates, and the happy few: The influence of comprehension, agreement, and group membership on the attitude toward irony. *Discourse Processes, 48*(1), 50-68. https://doi.org/10.1080/01638531003692177

Warner-Søderholm, G. (2013). Beyond a literature review of Hall's context dimension: Scale: Development, validation & empirical findings within a Norwegian study. *International Journal of Business and Management, 8*(10), 27-40. https://doi.org/10.5539/ijbm.v8n10p27

Wilson, D., & Sperber, D. (2012). *Meaning and relevance*. Cambridge University Press.

Whalen, J. M., Pexman, P. M., & Gill, A. J. (2009). "Should be fun—not!" Incidence and marking of nonliteral language in e-mail. *Journal of Language and Social Psychology, 28*(3), 263-280. https://doi.org/10.1177/0261927X09335253

Whalen, J. M., Pexman, P. M., Gill, A. J., & Nowson, S. (2013). Verbal irony use in personal blogs. *Behaviour & Information Technology, 32*(6), 560-569. https://doi.org/10.1080/0144929X.2011.630418

Wojciszke, B. (2002). Autopromocja i autodeprecjacja: Kwestionariusz Stylów Autoprezentacji [Self-promotion and self-deprecation: The self-presentation styles questionnaire]. *Psychologia Jakości Życia, 1*, 145–17.

Woodland, J., & Voyer, D. (2011). Context and intonation in the perception of sarcasm. *Metaphor and Symbol, 26*, 227–239. https://doi.org/10.1080/10926488.2011.583197

Yao, J., Song, J., & Singh, M. (2013). The ironical Chinese bei-construction and its accessibility to English speakers. *Journal of Pragmatics, 55*, 195-209. https://doi.org/10.1016/j.pragma.2013.06.003

Young, D. G. (2019). *Irony and outrage: The polarized landscape of rage, fear, and laughter in the United States*. Oxford University Press.

Yow, W. Q., & Markman, E. M. (2011). Bilingualism and children's use of paralinguistic cues to interpret emotion in speech. *Bilingualism: Language and Cognition, 14*(4), 562-569. https://doi.org/10.1017/S1366728910000404

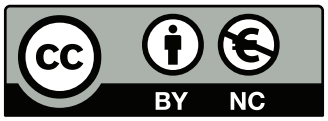
Zajączkowska, M. K. (2017). Influence of voice intonation on understanding irony by Polish-speaking preschool children. *Psychology of Language and Communication, 20*(3), 278-291. https://doi.org/10.1515/plc-2016-0017

Zajączkowska, M., & Abbot-Smith, K. (2020). Using shared knowledge to determine ironic intent; a conversational response paradigm. *Journal of Child Language, 47*(6), 1170-1188. https://doi.org/10.1017/S0305000920000045

Table 1. *Most Significant Areas of Research on the Individual and Contextual Differences in Verbal Irony Use and Understanding in the approach of Quantitative Psycholinguistics* (back to text)

Factor	Results
Age	Understanding and using irony is a complex skill which emerges in childhood alongside the development of social cognitive abilities. Irony understanding seems to be a matter of degree, with simpler forms being understood earlier by younger children (e.g., Banasik-Jemielniak & Bokus, 2019; Bosco & Bucciarelli, 2008; Harris & Pexman, 2003; Nilsen et al., 2011; Pexman, 2008). Younger people tend to use irony more frequently than do older people (Ruch et al., 2018).
Gender	Men tend to use irony more often and have more favorable views/interpretations of irony than do women (e.g., Colston & Lee, 2004; Milanowicz, 2013). However, several studies point to the importance of the makeup of the gender dyad, with women using irony more frequently with other women than with men (e.g., Lampert & Ervin-Tripp, 2006; Milanowicz et al., 2017; Milanowicz & Bokus, 2020).
Personality factors	Typically subsumed under the aggressive humor style (Martin et al., 2003), irony use has consistently been found to be positively correlated with neuroticism, and negatively correlated with agreeableness and conscientiousness (e.g., Mendiburo-Seguel et al., 2015; Plessen et al., 2020). Studies measuring irony specifically (rather than humor styles which may contain irony) have found positive correlations with extraversion and openness to experience, and negative correlations with agreeableness and conscientiousness (e.g., Dionigi et al., 2021; Markowitz, 2007; Ruch et al., 2018).
Individual traits	Irony use is positively correlated with sense of humor, subjective happiness, cheerfulness, and humorous self-image, as well as with the acceptability of laughing at socially sensitive topics (Heintz, 2019; Mendiburo-Seguel & Heintz, 2020). Self-reported irony use is positively correlated with trait anger (Szymaniak & Kałowski, 2020; Kałowski et al., 2021). Dark Triad traits (hostile and manipulative traits, i.e., machiavellianism, psychopathy, and sadism) are associated with higher irony use (Tortoriello et al., 2019). Trait anxiety (Gucman, 2016) and shyness (Mewhort-Buist & Nilsen, 2013, 2017) facilitate more negative interpretations of irony.
Bi- and multilingualism	Bilingual proficiency has been found to predict irony use (Tiv et al., 2019).
National cultural factors	Cultural individualism has been found to positively correlate with irony use (Dress et al., 2008; Rockwell & Theriot, 2001), while power distance has shown a negative correlation (Blasko et al., 2021).
Social context of using irony	A certain degree of shared knowledge is required for successful use and interpretation of irony (e.g., Kreuz & Caucci, 2007). Irony is more often used among friends than acquaintances/strangers (Gibbs, 2000; Kreuz & Link, 2002; Pexman & Zvaigzne, 2004). Irony is successfully employed in computer-mediated communication (Aguert et al., 2016; Hancock, 2004). A context of negative circumstances or violated expectations seems to be the most prototypical for irony (Giora et al., 2009; Ivanko & Pexman, 2003).

Copyrights and Repositories



Corresponding author
Piotr Kałowski
University of Economics and Human Sciences in Warsaw
ul. Okopowa 59, 01-043 Warsaw, Poland
p.kalowski@vizja.pl
+48 691 248 570

Attached is a list of permanent repositories where you can find the articles published by RCR:
Academia.edu @ http://independent.academia.edu/ReviewofCommunicationResearch
Internet Archive @ http://archive.org (collection "community texts")
Social Science Open Access Repository, SSOAR @ https://www.ssoar.info/ssoar/