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Children's irony comprehension

Abstract

The present study aims to provide an overview of recent work on children's comprehension of verbal irony. First, the concept itself, then comprehension of irony are discussed, with special reference to the factors vs processes that can contribute to successful irony comprehension. Particular emphasis is placed on children's interpretation and production of irony by a presentation of several cross-linguistic studies conducted recently. Finally, open questions left unexplored are briefly examined.
Keywords: verbal irony, children, irony comprehension, cross-linguistic studies

1   Introduction

The phenomenon of irony is widely employed as a literary device in works of art and it also permeates everyday conversations. As reported by Gibbs (2000), up to 8% of all dialogue turns are ironic. It is a figure of speech often used to make a point, make fun of something, or just to make people laugh.

There are different types of irony. This paper focuses exclusively on verbal irony. According to Sperber & Wilson (1981) verbal irony is considered to be universal and seems to occur spontaneously, without being taught or learned. Though different cultures vary in their affinity for irony, from a cultural perspective, it is generally considered a useful tool to avoid censorship, to reveal absurdities as well as to express social critique.

The structure of the article is the following. Section 2 provides an overview of the most prominent models of irony comprehension. Section 3 focuses on the major components of successful irony comprehension. In Section 4, special focus is placed on children's interpretation and production of irony. Finally, Sections 5 and 6 report several cross-linguistic contemporary studies conducted within this field, followed by a concluding summary in Section 7.

2   Comprehension of irony

2.1   The most prominent models of irony comprehension

It is a basic fact that any case of irony always involves an opposition, a contradiction between what is said and what is meant. Two basic models exist in connection with processing irony: the standard pragmatic model (SPM) propagated by Booth (1974) and Attardo (2000), and the

direct access model (DAM) developed by Gibbs (1986). According to the standard model, there are always two meanings in irony, first, what the speaker says and second, what is meant. Thus, irony contains an implied meaning, which is naturally hidden. As stated by the classic standard pragmatic model, an ironic utterance is always misunderstood for the first hearing as the literal meaning is processed first. After the initial literal stage, the hearer figures out the ironic meaning only during the second stage. This model is supported by many empirical studies (see for example Dews & Winner 1999; Schwoebel et al. 2000), as well as by the fact that irony comprehension takes longer than understanding a literal statement. Grice (1967/89) also adopts a two-stage model of irony. Based on the Gricean view, an ironic utterance involves two different meanings, "one that is made as if to say the literal meaning and another that is implicated" (Garmendia 2018: 46). As reported by this two-stage model of irony, the literal meaning of the utterance is rejected as soon as the ironic content of the utterance is comprehended.

However, considering irony a two-stage phenomenon has been extensively disputed in the pragmatics of irony. Gibbs' (1986) direct access model (DAM) claims that comprehension of irony is a one-stage process, where pragmatic knowledge is activated directly when the receiver unravels what the ironically loaded content means. There is empirical evidence supporting this hypothesis as well (see for example Gibbs 1986, Ivanko & Pexman 2003). The DAM also serves as the basis for a theory created by Shelley (2001), which is called the bicoherence theory. As specified by this theory, human cognition is structured to use conceptual coherence at an optimal level, i.e. with logical interconnection and consistency. Pexman's (2008) constraint-satisfaction approach suggests that various cues are processed as soon as the ironic statement is uttered and as soon as a sufficient number cues have been processed, the ironic meaning becomes obvious.

Another prominent one-stage model is the echoic account proposed by Sperber & Wilson (1981) to explain irony. According to them "when being ironic, the speaker always conveys a dissociative attitude; that is, the speaker rejects the attributed thought as ludicrously false" (Garmendia 2018: 45). Based on this model, Sperber & Wilson (1981) claim that irony is always echoic, i.e. irony can only be comprehended when the addressee can attribute the source of the echo to someone (or to people in general). Later, Sperber & Wilson (1986/95) proposed the relevance theory which is a theory of communication. It upholds the view of verbal irony as an echo and declares that echoic utterances are used to represent a speaker's attitude towards thoughts or utterances, which they resemble in content.

A somewhat intermediate proposal by Giora (1995) must also be mentioned here. She maintains that relevance theory cannot explain every ironic utterance from the perspective of echo, as there are some ironic utterances where an echo cannot be traced down at all. She suggests that in irony, both the literal and the implicated meanings are processed in order to compute the difference between them. In her view, two meanings, namely the literal and the implicated ones, are processed and the difference is deducted. She claims that "These two meanings are set in a relationship of indirect negation, that is, a non-explicit form of negation, which does not use an overt negation marker" (Garmendia 2018: 38, 39). In addition, Giora's account of irony employs the graded salience hypothesis, according to which the most salient meaning is the one first captured by a hearer, this being either the literal or the ironic one. The degree, as to how salient a meaning is, is defined by its conventionality, familiarity and frequency. This way, in ironic utterances, more often than not, the non-ironic meanings are understood first and only after that the ironic meaning will be derived. Consequently, as the

hearer retains the non-ironic meaning to process how it differs from the ironic meaning it indirectly negates, irony may take longer to compute than non-figurative meanings, which has been long debated by experimental approaches to ironic communication.

The controversy whether irony is always echoic or not seems to be endless at this point. Sperber & Wilson are determined to continue defending the necessity of the echo. However, it can be stated that ironic utterances adopt a wide variety of different patterns, besides several various forms of irony do exist. As mentioned before, the most essential and most basic feature of ironic communication is that there is an overt clash between what the speaker intends to communicate and what is proposed. On the one hand, this account definitely needs to be refined and elaborated, but on the other hand, bearing in mind that echo, opposition and pretence are three compatible means of ironic communication, a more complete interpretation of irony can be presented.

2.2 Interim conclusion of irony comprehension

Interpretation of verbal irony is a complex cognitive process, where a range of individual differences are also at work. The starting point is that the duality of meaning in the ironic comment is needed to be perceived by the recipient. After that, to arrive at the intended meaning, the addressee has to comprehend the speaker's intention, understand the two suggested meanings, and opt for the intended one.

The extent, to which a figurative meaning surfaces, depends on various features like how familiar, conventional or how frequent an important word in the ironic utterance is. Irony comprehension can be considered effortful, as addressees need to interpret the linguistically encrypted meaning of the critical word in a figurative comment. Schwoebel et al. (2000)'s study verified this view by showing that irony comprehension takes longer than the understanding of a literal statement. On the other hand, Pexman (2008) proved that different cues are processed immediately when the ironic utterance is heard and it is understood instantly if sufficient evidence confirms it.

In the first place, one should not discard any of these views, as there are several other factors that can contribute to successful irony interpretation. The case might also be that different models are activated depending on the individuals' mindset, the relationship between the speaker and the listener, the context itself, the regularity of ironic utterances in the given culture, etc.

3 Major components of successful irony comprehension

Irony is a phenomenon greatly reliant on context and at the same time it clearly calls on non-linguistic processes like perspective change and intention reading. Thus the factors vs processes that can contribute to successful irony comprehension are more than worthy to be introduced.

3.1 Irony markers

In order to avoid misunderstandings, numerous markers of irony can be at the speaker's disposal. One group of them involves phonological markers. Intonation has been the most commonly noted one of these. According to the literature it can be flat (i.e. neither rising, nor falling) or low (Anolli et al. 2000). In contrast, Rockwell (2000) discovered that higher pitch can also be a marker of irony.

In addition, non-verbal clues might also mark irony, for example the following facial gestures can also be of great assistance in identifying irony: blank face, raised or lowered eyebrows, winking, nodding, and smiling. Similarly, contextual information, as well as background information about the speaker, can help the listener to grasp what the speaker intends to express.

As it was mentioned previously, Pexman's (2008) approach suggests that various cues are processed immediately after the ironic statement is uttered and when there is a sufficient number of them, the ironic meaning becomes obvious.

3.2   Perspective change

In everyday conversations, the addressee needs to make inferences about what the speaker intends to communicate. This process often requires adopting the communicative partner's perspective. Perspective taking can be particularly difficult when verbal irony is employed. A popular view regarding perspective change is that it is a characteristic property of language. It arises from the fact that language users have to discuss various communicative situations from different perspectives. Irony, in Komlósi's (2013) view, draws attention to this characteristic property of language. Besides making language users aware of their differences of perspective, simultaneously it also encourages a shift forcing them to change juxtaposing perspectives.

3.3   Metapragmatic awareness

Metapragmatic awareness is known to cover the competence to reflect on language use in a conscious way. This ability is a sort of link between the linguistic and the extralinguistic level of language skills, which requires linguistic, contextual, and world knowledge. As a result, it plays a central role in creating and negotiating meaning (Szűcs & Babarczy 2017).

It is important to note here that irony may be viewed as a special kind of implicit meaning interpretation suggesting metapragmatic reflection. The previously mentioned perspective taking is also regarded as a metapragmatic phenomenon, since it is attributed to the speaker's critical, self-reflective attitude toward their own language use. Considering the fact, that in contextual information it is indispensable, metapragmatic awareness is crucial for successful irony comprehension.

3.4   Cognitive processes

There are several cognitive processes involved in irony comprehension offered by developmental literature. According to experimental studies, the relevant mental processes for irony include Theory of Mind, emotion recognition, as well as executive functions, for instance working memory, inhibitory control (Anderson & Weaver 2009), and cognitive flexibility (Pexman 2021). They are related skills, evolving together through childhood, and it is not yet transparent which of them the essential one in irony processing is.

3.4.1   Theory of Mind

The first cognitive resource that is mentioned here, mentalizing, is commonly known as the Theory of Mind. According to Filippova & Astington (2008), irony comprehension presupposes that the hearer detects the speaker's intention correctly and discerns their attitude toward the

state of affairs or person concerned. Mentalizing is an essential part of pragmatic competence, hence, it allows the addressee to realize that the speaker's communicative purposes are not explicitly pronounced by the literally encoded meaning of the ironic expression. On the one hand, it must be highlighted that theory-of-mind (ToM) skills imply ability to be aware of our own selves and other individuals' ideas, opinions, wishes, and intentions. On the other hand, social cognition skills are fundamental to processing complex social correlations and defeating interpersonal obstacles when communicating.

3.4.2   Emotion recognition

Several experiments proved (see later Banasik 2013) that although even at an early age, children are aware that in the case of an ironic utterance the speaker does not intend what they mean, the intention behind, namely, criticism conveyed hand in hand with being funny, is detected only later, around 8 years of age (Pexman & Glenwright 2007). It is possible that the ability to discern these opposite valence emotions (critique and fun) develops only later and this fact plays a significant role in successful irony appreciation. As suggested by Pexman (2021), "the ability to recognize that a speaker can hold both positive and negative emotions or desires at the same time is likely to be important to appreciating that an ironic speaker can intend to be both critical and funny" (2021: 8).

3.4.3   Executive functions

Executive function skills are responsible for keeping and manipulating information in the mind. They have also been suggested to be essential to the development of children's irony comprehension. The non-exhaustive list of them involves working memory accuracy (Godbee & Porter 2013), cognitive flexibility (Zajaczkowska & Abbot-Smith 2020) and inhibitory control (Caillies et.al. 2014).

To start with working memory, Kaakinen et al. (2014) showed that readers with a high working memory capacity processed ironic meanings more readily than did readers with a lower working memory capacity, however, it was not always the case. More explicitly, when the ironic utterances were introduced in shorter texts (Olkoniemi et al. 2019), the working memory load did not seem to be sufficient to detect significant differences between high and low working memory capacity readers.

Moving on to cognitive flexibility, Zajaczkowska & Abbot-Smith (2020) provided evidence that the ability to switch between representations was a better predictor of irony comprehension than was Theory of Mind. They assumed that the reason behind this is the fact that irony comprehension requires consideration of and switching between different interpretations of speaker intent.

Last but not least, as an executive function skill developing from infancy onto adulthood, inhibitory control covers the abilities to regulate emotions, behaviour and cognitions so as to adapt to the natural and social environment. In other words, it allows to inhibit impulses and behavioural responses to stimuli to opt for suitable behaviours that are in harmony with one's goals.

As a conclusion, it should be noted though that these executive function skills tend to be related to the Theory of Mind skills (e.g. Carlson et al. 2002). Being a deeply complex subject as it is, irony comprehension can be a question of the contribution of several factors and skills. Appreciating irony relies on many factors leading to correctly interpreting an entire utterance

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in context. We will see from what follows, too that more empirical work needs to be carried out to determine the relative contributions of these and other skills to development of children's irony comprehension.

4   Children's irony comprehension

As Pexman (2021) states, children's development of irony comprehension, which occurs over an extended window, is linked to their developing cognitive and linguistic skills. This extended trajectory offers researchers a scope to examine how these links work. According to Peterson et al. (2012), acquiring the competence of successful irony interpretation signals a major milestone in the development of children's cognitive skills. This process normally starts at about the age of three, as this is the age when language skills stabilise, and, as a result, a new dimension of interpersonal communication opens up. In general, the capability of irony understanding forms at a later stage in the developmental process in comparison with other forms of figurative language. More precisely, as Andrews et al. (1986) state, it follows the ability to perceive similes and metaphors.   As Bernicot et al. (2007) suggest, irony comprehension lags significantly behind the other pragmatic phenomena. As mentioned above, one possible explanation can be that in order to understand the intended message of the speaker, besides linguistic competence (lexical, syntactic, discourse), non-linguistic cognitive and/or socio-cultural skills are required, too.

Lately, the focus has been turned on children's ability to understand irony in current research on cognitive science. However, it must be noted that eliciting children's production of these communicative acts in the laboratory can be very challenging. There have only been a few studies concentrating on children's spontaneous production of verbal irony, while observing them during spontaneous communication in the family context. The main reason behind this is that prolonged observations would be required to document examples of children's irony production. Furthermore, it is also difficult to judge whether the absence of recorded irony utterances signals a lack of irony use in children's conversations.

In what follows, I will take a closer look at contemporary studies where children's irony comprehension has been examined from different perspectives.

5   Cross-linguistic studies of children's irony comprehension

5.1   Cross-linguistic studies with children

The studies below investigated preschool children's nascent irony interpretation from certain aspects, including age, level of Theory of Mind and the role of language input by family members. These works attempted to determine at what age young children might grasp the actual intention of the speaker of an ironic utterance, deriving from cues such as intonation, facial expression, context, and others.

5.2   Developmental aspects of irony comprehension

Banasik conducted a series of experiments on the developmental aspects of irony comprehension. Her study of 2013 focused on the earliest age at which irony can first be

grasped, as well as the relationship between irony comprehension and Theory of Mind (ToM). The experiment involved 46 preschool children being tested with the Irony Comprehension Task (ICT) and a Reflection on Thinking Test. They belonged to three age groups: four-, five-, and six-year-olds.

With the help of the ICT, that will be during the presenting of the pilot study referred back to, the comprehension of irony was examined. 12 stories, of which 6 were ironic and 6 literal, were recorded and then played to the children accompanied by pictures. As a follow-up, a set of questions was asked to test whether the message (ironic vs. literal) was correctly understood. In addition, a pictorial Likert scale (emojis) was also employed, checking the degree of how funny the narrative was and how nice the speaker was.

During the creation of the stories, special care was given to the number of words in each narrative, the difficulty of words, and the nature of characters. After telling a story, an open question followed to examine the process of the children's interpretation of the opposition between ironic and literal meaning. The development of Theory of Mind was investigated with the help of Reflection on Thinking Test (TRM). In this case, the stories were created in a way so as to cover different aspects of Theory of Mind.

The findings were both surprising and interesting. On the one hand, it was proven that even 4-year-old children could understand the real meaning in an ironic comment. On the other hand, the children were unsuccessful in providing an explanation for the intentional use of irony. Concerning the test measuring Theory of Mind, the expectations were met. The results suggest that children who speak better about mental states also prove to be better at understanding the implied meaning of an ironic utterance.

5.3 Focus on the age-factor and on the comprehension irony

The next experiment conducted by Banasik-Jemielniak and Bokus (2019) has been again aimed at exploring irony comprehension by preschoolers. However, this one involved a much higher number of children. The full sample of 231 Polish-speaking children included three age groups: 77 four-year-olds, 89 five-year-olds, and 65 six-year-olds.

In this study, accuracy and response time differences in irony comprehension were also measured. Hence relevant information on the developmental progress of irony comprehension was collected. Nevertheless, the focus of their experiment was on the following factors: the role of symmetry (i.e. conversation between two children) or asymmetry (i.e. an adult addressing to a child) of the exchange in understanding an ironic utterance, and the role of reference to the recipient's action or manner in the ironic comment.

The questions at the heart of this investigation concentrated on the following: 4 year-old children's ability to understand simple ironic comments; differences in irony comprehension between the 3 age groups; differences in irony comprehension between these age groups depending on whether targeted or non-targeted irony is used; and differences in irony interpretation between these age groups as determined by the participant structure of an ironic conversation.

Concerning the procedure, the children were presented with the irony comprehension test described above. After that a series of close-ended questions followed from which two possible answers could be chosen. Extra information was gathered by asking the children with correct answers an open-question about what the speaker intended with the ironic comment.

In general, high irony comprehension scores were reached by all groups. According to the results, there was considerable difference in accuracy between the 4-year-olds and the 6-year-olds only. The youngest group turned out to understand ironic utterances that concerned the recipient's action more accurately than those that did not. However, it should be noted that only younger children showed these differences. The function of symmetric vs. asymmetric dyads was also important only for the youngest children. It can be concluded that their results touching upon participant structure, i.e. who is speaking to whom, and irony type yielded vital new insights into factors possibly affecting figurative language comprehension, including irony.

5.4 Relationship between parental use of irony and children's irony comprehension

It must be noted that the attitude of the child's immediate micro-environment, i.e. his or her immediate family, toward irony, can be assumed to have a strong influence on the quality of the child's understanding of irony, on the rate at which irony is acquired, whether faster or slower. However, this aspect has not been examined too often. Thus, Banasik-Jemielniak et al.'s (2020) research can be considered special and extremely important from the point of view that it examined how the frequency of parental use of irony influences the understanding of irony by children.

The study involved 46 families from Warsaw, Poland, all with monolingual Polish-speaking children of mean age 8 years 5 months attending elementary school grade 2. The middle-class families belonged to the same race and ethnicity and had similar socioeconomic status. Thus, a homogenous sample of 24 girls, 22 boys, 46 mothers, and 41 fathers was provided, which was important for the analysis of the understanding of irony in order to be able to assume similar language input that the children are exposed to at home.

Concerning the instruments employed in the research, there were tasks completed by the children and questionnaires filled in by the parents. To be able to gain input about children's social skills and higher order Theory of Mind, the Social Ambiguous Stories Task was used. This set covered two short stories each about a puzzling social situation with three characters. These were read to children and at the same time pictures were shown to them on a computer screen. With the help of this task, children's ability to comprehend mental states was measured. Following this, similarly to the previous research, the Irony Comprehension Task was used, however in a shorter form. It contained three stories recited where one of the characters utters an ironic comment to a child. The virtual stimuli were provided at the same time as pictures appeared on a computer screen. Following each story, the child answered a series of questions about the ironic utterance, for example 'Why do you think X said Y?'; 'When X said Y, did they mean Y or Z?' (Banasik-Jemielniak et al. 2020: 4).

Regarding parents, an Attitude Toward Irony (ATI) questionnaire was administered, in which situations were described where parents expressed an ironic comment toward their child. Participants had to choose an answer according to how likely they would use the given expression in the exact situation.

By means of these methods, the researchers were aiming to find relations between parental uses of irony and children's levels of irony comprehension, and between parents' attitude toward irony and their children's social skills such as ToM. Furthermore, the gender variable was also considered as a possible factor contributing to individual differences. The evaluation revealed a considerable difference between the families involved. Interestingly enough, on the

one hand, contradicting Banasik's (2013) research, where children with better mentalizing abilities reached higher scores on the irony comprehension test, their results have come up with no differences in ToM between children who understood irony correctly and those who did not. On the other hand, it was found that children proficient at irony understanding, had parents with more positive attitude toward irony use, furthermore they tended to produce more ironic comments toward their children.

In conclusion, positive links have been found between levels of mothers' irony use and children's levels of irony comprehension. However, no such positive association has been found for fathers. Thus, those children whose mothers pronounced a more positive attitude toward irony turned out to be more proficient in understanding irony. Gender-wise no difference was discovered regarding irony comprehension. This study can be considered a pioneer, as it provides a basis for future experiments to focus on the relationship between parents' and children's use of irony in different languages.

5.5 *Focus on verbal irony in family conversations*

The research of Recchia et al. (2010) is remarkable in the sense, that irony has rarely been investigated during naturalistic conversations. Their goal was to draw an outline on how ironic utterances are used and understood by young children in family conversations. They recorded parents and children in naturalistic family conversations at home monitoring four types of ironic language: sarcasm, hyperbole, understatement and rhetorical questions.

The study examined 39 families, representatives of the general population, each with two parents and two children whose average ages were 4 and 6. It was a large-scale observational study, as the scientists recorded more than 350 hours of speech, ranking all the non-literal utterances – amounting to a total sum of 1,661 – into one of the four categories. They coded how children responded to others' ironic comments for their comprehension of meaning and conversational role. An interesting observation made by them was based on comparing the speech of fathers, children, and mothers. They found that mothers used ironic language more in negative communication, for instance in conflictual contexts, than in positive ones, and they employed rhetorical questions more often than any other forms. By comparison, fathers applied ironic utterances equally in positive and negative interactions. The reason behind this may be that mothers usually act as teachers or managers.

The intriguing results suggest that even young children can understand and also produce ironic utterances. Moreover, all the children could use various forms of irony. Especially hyperbole and rhetorical questions were usually employed by them. Being involved in a conflict, children regularly applied rhetorical questions and understatement, however, during positive interactions, typically sarcasm and hyperbole were common. Furthermore, older children turned to sarcasm more frequently than to understatement. Irony was used more often by older children than by their younger siblings. Although children responded appropriately to ironic utterances in conversation, as pointed out by Banasik (2013) that does not necessarily mean that they can explain how they understand irony explicitly.

To sum it up, on the one hand, younger children were less likely to understand the meaning and function of the remarks, but on the other hand, the differences between older and younger children were not significant. In general, this research has highlighted and confirmed the importance of family conversations as a context for the nascent comprehension of irony by children.

6   Studies with Hungarian children

6.1   *Socio-cognitive and pragmatic aspects of language acquisition from a developmental perspective*

The starting point of Schnell's (2016) analysis was the assumption that a map of the developmental stages of pragmatic competence and cognitive milestones can be drawn up. The author presumed that the different aspects of pragmatic competence (namely processing of metaphor, simile, irony, humour and conversational skills) support the central role of mentalization in the dynamic interactive holistic process of meaning construction. Mentalization   abilities   and metaphor interpretation of a group of preschoolers aged 3-6 were measured with pragmatic tasks. The classic Wimmer-Perner (1983) task of 'false belief' was used to measure the ability to theorize using a puppet game version adapted to the age group.

Attributable to its distinctive features – i.e. ironical tone, mocking attitude, normative bias, irony is processed rather early in preschool years. In fact, the most intriguing conclusion of Schnell's (2016) work was that among all the non-compositional constructions tested, irony was found to be the easiest to comprehend. According to Schnell a shortcut strategy, simply assuming the opposite meaning to be true, is the key to successful irony interpretation at an early age. The results provided further evidence for the assumption that mentalization ability carries a predictive force to decode the intended meaning.

6.2   *Effect of metapragmatic awareness training*

Szűcs & Babarczy (2017) investigated the role of Theory of Mind, grammatical competence and metapragmatic awareness in irony comprehension. The relative roles of false belief attribution and receptive grammatical ability in irony comprehension were also examined. In addition, they were aiming to uncover evidence for a cause-and-effect relationship between metapragmatic awareness and irony comprehension unaffected by false belief attribution and grammatical abilities.

79 Hungarian-speaking children aged 5-8 were individually tested in one or two sessions in a quiet room in their kindergartens with the help of false belief tasks, receptive syntax and vocabulary tests, and an irony comprehension test, similar to Happé's (1993), where children had to assign intentions to an actor who articulated an ironic comment in the context of a story.

In the course of Experiment 1, the children were assigned to three different groups on the basis of their performance in the first- and second-order false belief tasks. The children who failed either or both of the first-order false-belief tasks were placed into the No-ToM group. Those taking both first-order false belief tests successfully, but, failing one or both of the second-order tests were classified in the 1st-ToM group. The third group, the so-called 2nd-ToM group, consisted of the children passing all four false-belief tasks.

The non-literal language comprehension test consisted of five short stories. Each of them was accompanied by a set of four pictures and involved a character giving an ironic utterance. The children had to choose from three possible options regarding the intentions of the characters after each story. The three possibilities included a correct ironic and a literal interpretation, as well as an interpretation of deception.

Concerning the results, no difference was found in irony comprehension between children at different stages of Theory of Mind ability. The second-order false belief attribution ability turned out not to be a sufficient condition for irony comprehension. The reason for this finding

might be that children had to comprehend both the ironic meaning and the ironic attitude to be able to correctly solve the task. It also must be noted that some of the children with very high scores on the language tests failed in the irony test, proving that good receptive grammar and vocabulary skills are apparently not sufficient for irony comprehension.

Based on the results of Experiment 1, Experiment 2 was aimed at examining the role of metapragmatic awareness in understanding irony over and above ToM and grammatical ability. 39 children without evidence of understanding irony were split into two groups. One group involving 19 children was the control group without any particular training within the field of metapragmatic awareness. The other group of 20 participants completed a metapragmatic awareness instruction programme explicitly discussing the aim and application of verbal irony in three sessions.

Subsequently, both groups completed an irony comprehension test. The training could be considered utmost successful as members of the metapragmatic training group provided 71% correct answers on the whole, amounting to a significant 53 % percent points improvement, compared to the irony test they had taken beforehand. The corresponding result of the control group was only 18 %, showing only a 3 percentage score improvement compared to the irony test taken earlier. Neither syntax and vocabulary performance, nor false belief task scores correlated with irony understanding skills. Nevertheless, it was shown that metapragmatic abilities provide significant and pronounced support in the development of irony comprehension.

To sum up, on the basis of the findings, the authors suggest that the lack of experience with irony is the reason for children's slow development in understanding ironic utterances. Metapragmatic knowledge seems to support not only the development of irony comprehension but that of a Theory of Mind. The exceptional contrast between scores at the irony tests prior and subsequent to the metapragmatic awareness programme proved its efficiency in a remarkable way.

Here it must be mentioned, that this crucial above-mentioned experience with irony can easily be gained at home. Thus, the impact of the family on the children's level of irony production and comprehension can be considered more than essential.

7   Concluding summary

Contemporary studies and developmental literature have provided important insights about the factors and cognitive processes supporting successful irony comprehension. Furthermore, lately the importance of family conversations as a context for the nascent comprehension of irony by children has also been confirmed. There is definitely a need to conduct experiments in different languages for further specification, to gain new insights about the cognition of irony, as well as to explore the effect of close family members' attitude toward irony on children's improvement of irony interpretation in a more detailed fashion.

Conclusively, there are still many open questions about the development of irony comprehension. These include the individual steps involved in the process, its cognitive background, and its central mechanisms. Exploring the different dimensions of pragmatic competence, understanding, and producing irony, should be addressed in further research.

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