

Lies and Irony Understanding in Deaf and Hearing Adolescents

Abstract

Lies and irony are paradigmatic examples of nonliteral communication; many deaf children and even adults have difficulty in understanding them. The present study assessed the understanding of lies and irony in 96 adolescents living in Spain in urban settings (58 deaf participants, 38 hearing participants; 10-19 years old). We investigated whether deaf and hearing participants differ in their performance, and the effects of age, theory of mind (ToM), and language on the understanding of these nonliteral meanings in deaf participants. The results show that deaf participants do not find it difficult to detect nonliteral statements, but they experience difficulty in attributing the real motivation to the speaker. ToM and language explained performance in the understanding of nonliteral communication in the deaf group. The results suggest the need to focus on promoting the ability to attribute real motivations to speakers. We propose an assessment sequence that differs from those used in other studies. In the proposed sequence, ToM skills would be combined with other skills that intervene in the understanding of lies and irony and would be sequenced according to observed performance in deaf adolescents.

Keywords: nonliteral communication, lies, irony, deaf adolescents, theory of mind, language

Lies and irony are paradigmatic examples of nonliteral communication. Lying can be thought of as the speakers' intentional attempt to manipulate the hearers' mental state or behaviour by causing them to believe something that is false (Perner, 1991). The most widely studied lies are selfish lies, which are antisocial by nature. On the other hand, white lies are prosocial by nature, are often polite lies, and have the aim of benefitting others. White lies are commonly used to maintain social cohesion, avoid hurting other peoples' feelings, or protect interpersonal relationships (Ennis, Vrij, & Chance, 2008; Ma, Xu, Heyman, & Lee, 2011; Talwar & Crossman, 2011). Irony is continually present in our daily lives, for example in the family environment (Recchia, Howe, Ross, & Alexander, 2010), and is a resource commonly used in interpersonal exchanges to convey criticism (Sperber & Wilson, 1986). Sarcasm is a frequently used form of ironic expression where the speaker makes a positive affirmation that conveys a negative meaning. Irony is also used as a polite strategy to buffer the impact of a literal critical commentary (Dews & Winner, 1997). Ironic speaker typically expresses the opposite of what they mean, often conveying disapproval of the hearer, he expects the listener to recognize the statement as false (Colebrook, 2004).

Many deaf people have difficulty understanding these nonliteral meanings, even in adulthood (Gregory, Bishop, & Sheldon, 1995; Marschark, Edwards, Peterson, Crowe & Walton, 2019; O'Reilly, Peterson, & Wellman, 2014). The present study analyzes the understanding of lies and irony in deaf and hearing participants old enough to have developed these kinds of understanding (10-19 years). Possible links between theory of mind (ToM), age, and language on understanding lies and irony also are explored in deaf participants.

The Development of Understanding Lies and Irony

Although lies and irony have the common aim of conveying meanings that should not be interpreted literally, they differ from each other. When lying, what speakers literally say does not contradict the knowledge they want to share with the hearers; what they say is the same thing that they want the hearers to believe. Unlike lying, when speakers use irony what they say literally contradicts the knowledge they want to share with the hearers; the users of irony want the hearer to not believe what they are saying. Thus, irony has been considered to be more difficult to understand than lies (Bucciarelli, Colle, & Bara, 2003; Bosco & Bucciarelli, 2008; Bara, 2010). Demorest, Meyer, Phelps, Gardner, and Winner (1984) observed that very young children often tend to interpret ironic statements as white lies, suggesting that the understanding of lies develops before that of irony. Filippova and Astington (2008, 2010) suggested that understanding irony is a skill that develops relatively late in life and continues to develop beyond the age of 9 years.

Irony understanding matures with age over a relatively long time course from preschool through adolescence (Agostino, Im-Bolter, Stefanatos, & Dennis, 2017; Angeleri & Airenti, 2014; Bosco & Gabbatore, 2017; Broomfield, Robinson, & Robinson, 2002; Filippova & Astington, 2008, 2010; Nilsen, Glenwright, & Huydeer, 2011). Demorest et al. (1984) suggested that children undergo sequential development in their understanding of nonliteral language. At 6 years, children interpret nonliteral statements in a literal manner; that is, they think that the literal meaning is sufficient to infer what the speaker wants to convey. At most, these children may think that although the speaker has made a mistake, the speaker is sincere. By age 9, children begin to understand that the meaning of the statement is not literal. However, they are not fully aware of the intention of the speaker until 11 to 12 years, which is the age at which they fully recognize the purpose of the speaker's statement; only then are they able to

accurately distinguish between deception and irony. In addition to the role of age, Massaro, Valle, and Marchetti (2013) introduced another element that could affect the understanding of irony. They showed that irony is easier to understand in adult-child relational contexts than in child-child relational contexts: at 10 years of age, 89% fulfilled mother-child irony tasks, while 77% fulfilled sibling irony tasks.

Multiple theories have attempted to explain the understanding of nonliteral meanings. The most representative of these are the Speech Act Theory (Austin, 1962; Searle, 1969), the Theory of Cooperation (Grice, 1957), and Relevance Theory (Sperber and Wilson, 1986, 1995). Their common aims are to offer explanations of how receivers recognize and interpret a communicative intention in the sender. Specifically, Relevance Theory (Sperber & Wilson, 1986, 1995; Wilson & Sperber, 2004, 2012) suggests that several deductive mechanisms may come into play when a person interprets a lie or an irony. These mechanisms can serve to explain the development of nonliteral understanding. This theory proposes three types of strategies that may be used to interpret a nonliteral statement. The first and least sophisticated strategy is called Naive Optimism, in which the hearers seek an interpretation that seems relevant. If they find such an interpretation, they assume it to be the meaning the speaker wants to convey. The second strategy is called Cautious Optimism, in which the hearers do not assume that the first interpretation available is sufficient but ask themselves which interpretation the speaker considers to be relevant. The third strategy is called Sophisticated Understanding, in which the hearers ask themselves which interpretation the speaker considers that the hearers consider to be relevant.

Filippova and Astington (2010) suggested an explanation of the development of understanding nonliteral communication that involves both social-cognitive and social-

communicative aspects. During a nonliteral communicative exchange, the understanding of intention, motivation, and attitude involves an active construction of the mental representation of the participants. On the other hand, a relevant role is played by familiarity with the situation and early exposure to social norms, which allow children to understand the pragmatic function of irony in a more intuitive manner.

Lies and Irony: Their Relationship with Theory of Mind and Language

The relationship between understanding nonliteral statements and developing the ability to attribute mental states to others (ToM) was first proposed by Perner and Wimmer (1985). A characteristic of mental states is that they are applied recursively. For example, a classic task used to assess the attribution of false belief to others requires a simple application of recursivity (i.e. thinking that "X believes that the ball is in the basket"). However, a second-order false-belief attribution task requires the application of double recursivity (i.e. thinking that "X believes that Y believes that the ball is in the basket"). Thus, the person performing the first task has to take into account the mental state of X; however, in the second task the person has to consider the mental state of X regarding the mental state of Y. There is wide consensus that the attribution of first-order false beliefs develops between 4 and 5 years of age (see meta-analysis of Wellman, Cross, & Watson, 2011) and that the attribution of second-order false beliefs develops several years later. The study by Perner and Wimmer (1985) showed that most children are able to represent second-order beliefs between 7 and 9 years, and are fully capable of doing so by 10 years. These authors suggested that second-order representation could be a key element in resolving ambiguous pragmatic situations, such as jokes, lies, irony, or misunderstandings.

Hancock, Dunham, and Purdy (2000) and Filippova and Astington (2008) found a relationship between ToM and irony. Maas (2008) and Cheung, Siu, and Chen (2015) found one between ToM and lies. The two-step theory proposed by Ackerman (1983) suggests that first-order false-belief attribution is related to the first step (i.e. detecting whether the message is literal or not), because it implies thinking about what the speaker is thinking. Second-order reasoning would be related to the second step (i.e. interpretation of intentions), because it requires representing the speaker's beliefs about the hearer's beliefs.

However, other studies have shown that understanding second-order false beliefs does not fully guarantee the correct interpretation of nonliteral statements, and that ToM is a necessary but insufficient factor (Agostino et al., 2017). It has been suggested that "social scaffolding" (Broomfield et al., 2002) may be highly relevant to the development of the understanding of white lies, finding that social and interactive factors were more relevant than the attribution of false beliefs. This was demonstrated by the fact that children who were not successful in second-order false-belief tasks were able to understand the prosocial reasons for white lies. Regarding irony, Massaro, Valle, and Marchetti (2013) reported that second-order ToM played a modest predictive role in children's understanding of irony, and they suggested that difference in interlocutors (mother or child) appears to be crucial in irony understanding .

In summary, the studies reviewed suggest that second-order ToM is insufficient to understand the motivations of speakers in nonliteral communication and that other factors, such as social experience or language, may play a relevant role.

Regarding the role of language skills in the development of the understanding of nonliteral messages, Filippova and Astington (2008) found that linguistic skills

(receptive vocabulary) strongly contributed to the understanding of irony. These authors found that children use more semantic cues than prosodic cues in the interpretation of ironic statements. Angeleri and Airenti (2014) also found that receptive vocabulary had a simultaneous effect on understanding irony and performance in ToM. These authors suggest that linguistic proficiency allows a more active role in communicative interactions thus facilitating the acquisition of knowledge necessary to the comprehension of irony.

In children of hearing parents, severe or profound hearing loss before language is acquired typically leads to significant difficulties in the development of communication and language (Lederberg, Schick, & Spencer, 2013). These difficulties extend from childhood to adulthood and have a negative impact on several areas of development, such as ToM (O'Really, Peterson, & Wellman, 2014) and the understanding of nonliteral communication (Peterson, Wellman, & Slaughter, 2012). Advances in the early detection of hearing loss and in hearing technologies (e.g. cochlear implants, CI) have led to improvements in the perception of language that were inconceivable 25 years ago. However, not all deaf people benefit equally from these technologies (Sundqvist, Lyxell, Jönsson, & Heinmann, 2014). Although promising results have been observed in new generations of deaf children, they continue to show atypical development (Lederberg, Schick, & Spencer, 2013).

ToM, Language, and Deaf People's Understanding of Nonliteral Meaning

The understanding of nonliteral communication has been little studied in deaf people. In contrast, since 1995, many studies have investigated the development of ToM in deaf children. We now present some of the conclusions of these studies.

The majority of deaf children of hearing parents have delays in the development of the cognitive aspects of ToM, such as the attribution of false beliefs. A developmental lag ranging from 4 to 7 years has been observed in these children compared to hearing children (González, Quintana, Barajas, & Linero, 2007; Russell, Hosie, Gray, Scott, Hunter, Banks, & Macaulay, 1998; Schick, de Villiers, de Villiers, & Hoffmeister, 2007).

It is worth further examining the relationship between language and ToM in order to show that it is not deafness itself that leads to difficulties in ToM. Different arguments have been used to explain the relationship between linguistic ability and ToM: a) language skills are needed to understand ToM tasks (Schick, de Villiers, de Villiers & Hoffmeister, 2007); b) language is needed in order to understand that people have representations of the world and therefore language is a prerequisite of ToM (Farrar, Benigno, Tompkins & Gage, 2017); and c) a language is needed that allows individuals to participate in conversations with others in order to understand other people's representations of the world (Jones, Gutierrez, & Ludlow, 2015; Moeller & Schick, 2006; Peterson, Wellman & Liu, 2005;). It is also relevant to identify the aspects of language that are related to ToM. Some studies, including some with deaf participants, have drawn attention to the role of specific grammatical aspects (de Villiers, 2005, 2007; de Villiers & de Villiers, 2012; de Villiers & Pyers, 2002). In a study with deaf signing adults, Pyers and Senghas (2009) showed that vocabulary was relevant to the understanding of false beliefs. Peters, Rimmel, and Richards (2009) studied deaf schoolchildren with CIs, finding that general linguistic ability (syntax and vocabulary) were strong predictors of performance on false-belief tasks. Levrez, Bourdin, Le Driant, d'Arc, and Vandromme (2012) also showed that there was a relationship between spoken language (lexicon and morphosyntax) and the

understanding of false beliefs in deaf children even when they performed nonverbal ToM tasks.

Connected with the foregoing, it should be noted that deaf children who share the same linguistic system as those in their environment undergo typical ToM development. This conclusion is supported by studies of natively signing deaf children of deaf parents (Courtin, 2000; Meristo, Falkman, Hjelmquist, Tedoldi, Surian, & Siegal, 2007; Peterson, Wellman, & Liu, 2005; Schick et al., 2007). Studies of deaf children with CIs have also provided information on the role of the linguistic code shared with the family in the development of ToM. Remmel and Peters (2009) observed better ToM performance in children who had used CIs over a long period, and Sundqvist, Lyxell, Jönsson, and Heimann (2014) found an association between having a CI implanted at approximately 18 months of age (early CI) and better ToM performance. Both studies suggested that CIs are associated with greater access to language and communication in social settings.

Recent studies on the development of ToM in deaf people have included tasks to assess the understanding of nonliteral communication, because these tasks are considered to demand a more sophisticated level of mentalistic ability than false-belief tasks (Hao, Su, & Chan, 2010; O'Reilly, Peterson, & Wellman, 2014; Peterson, Wellman, & Slaughter, 2012).

Peterson et al. (2012) assessed performance on five items from ToM scale developed by Wellman and Liu (2004) and added a sarcasm task (the picnic task from Happé, 1995). They studied three groups of children between 6 and 12 years of age: late-signing deaf children born to hearing families (who had acquired sign language at school from deaf peers), children with autism, and children with typical development.

The deaf children had poor performance on the sarcasm task, and had even worse scores than the children with autism (Peterson, Wellman & Slauhger, 2012). In fact, only 3% (1 of 31) of the deaf group succeeded at this task versus 23% (10 of 44) in the autism group. Regardless of linguistic maturity, age had an effect on performance in the six ToM tests across all groups.

Research conducted by O'Reilly et al. (2014) assessed basic and advanced ToM in children and adults with prelingual deafness. The study with children (5 to 12 years) comprised two subgroups. The first subgroup was composed of native signing-children who were born into deaf signing families; 10% of these children had a CI. The second subgroup was composed of late-signing children of whom 50% had CIs. The authors found that these children had strikingly poor performance on sarcasm tasks. Compared to hearing children, native signers had a worse understanding of sarcasm. Although this group performed better than the late signers, the difference between the two groups did not reach statistical significance. Only 21% of the deaf children fulfilled at least one of the four sarcasm tasks compared with 41% of the hearing group. Furthermore, a correlation was found between performance on the sarcasm and false-belief tasks in both deaf and hearing children, even after statistically controlling for the effect of age in hearing children, and for the effect of age and language skills in deaf children. The study with deaf adults comprised native signers and late signers, although no data are available on the use of CIs. The authors found that the late signers had severe difficulty in understanding sarcasm: 48% were not able to pass any of the sarcasm test tasks. However, no differences were found between native signers and hearing adults, even on the most complex sarcasm tasks (the picnic task).

Hao et al. (2010) also assessed the understanding of nonliteral communication to evaluate advanced ToM in deaf adults. These authors used stories based on the work of Happé, Brownell, and Winner (1999), as well as false-belief tasks in a sample of 53 college students. They found that in the understanding of nonliteral meaning tasks the prelingual deaf children of hearing families had worse performance than the hearing group; however, performance was similar in the postlingual deaf children of hearing families, the prelingual children of deaf families, and the hearing group. The authors suggested that the best performance was achieved by the participants who had the internal resources to activate the implicit reasoning about mental states required to understand nonliteral stories. These internal resources derived from better linguistic skills in the post-lingual group, or from very early interpersonal experiences in the participants with deaf parents.

The study of Marschark, Edwards, Peterson, Crowe and Walton (2019) included 94 deaf college students (CI users and nonusers) and evaluated the understanding of sarcasm, ToM and other cognitive abilities. They also found that deaf participants scored significantly below hearing peers, and that CI users and nonusers did not differ in performance for the sarcasm test questions. Furthermore, the only significant predictor of understanding of sarcasm was self-rated spoken language skills.

The Current Study

This literature review shows that the understanding of nonliteral meaning involves the development of cognitive and communicative skills. We also know that the development of these skills is sequential and typically takes place from childhood to adolescence. Deaf people in general do not always develop these cognitive and communicative skills which underlie the understanding of nonliteral communication.

Although research is scarce, it seems that deaf children, and also many adults, have difficulty in understanding nonliteral meaning. In the deaf population, these difficulties have been associated with variables such as age, the development of ToM, linguistic level, and interpersonal communication experience. However, the few studies conducted with deaf participants have been heterogeneous regarding the ages of the participants, the communication modalities they used to communicate, and the type of hearing device they used. These studies mainly addressed the understanding of irony; and when they addressed other types of nonliteral meaning they did not report the results for each type separately.

The present study included participants who were old enough to understand lies and irony (10-19 years). In order to obtain comparative data, we assessed prelingual deaf participants from hearing families and participants of the same age with typical development. Deaf participants with CIs were included to assess whether the use of CIs lowered the risk of difficulty in the development of the understanding of lies and irony. We assessed the effect of ToM, age, and language on understanding lies and irony in deaf participants. The study was designed to answer the following questions:

1. Given that there is little research on the performance of deaf participants on their understanding of nonliteral meaning tasks, and that CIs have been shown to improve spoken language perception, the questions are: "Will there be differences between the three groups of participants?, and "How do students with and without CIs compare in their understanding of nonliteral meaning?"

2. According to the literature, the process of understanding nonliteral meaning involves a sequence of different stages of development. Thus, “Would there be differences between deaf and hearing people in the performance of these levels?”

3. Based on comparisons of the understanding of lies and irony, another question is “Do deaf and hearing adolescents understand lies better than irony?”

4. In relation to the role of contextual elements, such as the type of interlocutors (adult or child), in understanding irony, the question is “Do contextual elements facilitate irony understanding in deaf and hearing adolescents?”

5. "Will the type of lie (white or selfish) influence the understanding of nonliteral meanings in deaf and hearing participants?"

6. Finally, other studies have differed in their conclusions regarding the relationship between age, language, ToM, and the understanding of nonliteral meanings in deaf people. Given these differences, “Do age, ToM, and language make independent contributions to understanding of nonliteral meanings in deaf adolescents?”

Method

Participants

The study participants comprised 96 children and adolescents aged 10 to 19 years living in Spain in urban settings, most of whom came from low to middle socioeconomic backgrounds (Table 1). The participants were divided into three groups.

INSERT TABLE 1

Group 1 comprised 38 severe or profoundly deaf participants who did not have CIs. In total, 17 were male and 21 were female (age range: 10.8 - 19.7 years; $M = 15.6$; $SD = 2.3$). All participants had hearing parents, Spanish was the only spoken language

in their family, and 11 of the participants had acquired a medium level of sign language (Spanish Sign Language) through contact with their schoolmates or with a deaf family member. All the members of Group 1 studied with a spoken language program at a school for deaf students.

Group 2 comprised 20 profoundly deaf participants with a unilateral CI and without a contralateral hearing aid. Implantation was performed between the ages of 1.5 years and 9.5 years ($M = 5$; $SD = 2.7$). In total, eight of the participants were male and 12 were female, with ages very similar to those of Group 1 (age range: 10.5 - 19.7 years; $M = 14.7$; $SD = 3.6$). All participants had hearing parents, Spanish was the only spoken language in their families, and only four children had acquired a medium level of sign language through having older signing siblings. All the members of Group 2 attended mainstream schools.

The schools provided information on the level of the participants in Spanish Sign Language. Each school keeps records of each student. In the case of deaf students, these records include information on whether or not to use sign language. Based on information provided by the support teacher, the records also indicate if their level is high, medium, or low.

Group 3 comprised 38 hearing children and adolescents. In total, 20 of the participants were male and 18 were female, with ages very similar to those of Groups 1 and 2 (age range: 10.6 - 19.7 years; $M = 15.6$; $SD = 2.3$). All hearing participants had hearing parents and families that spoke Spanish as their only language. The hearing participants were recruited from mainstream schools in the same urban area which contained the schools from which Groups 1 and 2 were recruited. No member of Group 3 had any diagnosed disability.

An analysis of variance (ANOVA) confirmed that the three groups were age equivalent ($F [2, 96] = .87; p = .424$). Tukey post hoc tests showed the same values for all pairwise comparisons ($p \geq .450$ for each pair of groups). All groups had a similar composition by sex ($\chi^2 [2] = .95; N = 96; p = .62$). All the participants from all groups provided written parental consent to participate in the study.

The participants' level of linguistic understanding had to be adequate for them to be able to comprehend the different tasks. Thus, the study only included the participants who passed the control questions, which were designed to determine their general understanding of the story in the task. Other than hearing loss, no deaf participant in Group 1 or Group 2 had any diagnosed disability.

Tasks and Scoring

A set of tests was used to obtain information on language, ToM, and nonliteral communication. As described below, (a) language was assessed using an oral receptive vocabulary test; (b) ToM was assessed using two standard tests of the understanding of first-order false belief and one for second-order; and (c) nonliteral communication was assessed using two tests of the understanding of lies (selfish and white lies) and two tests of the understanding of critical irony (adult/child and child/child). Appendices A and B show the second-order false-belief task and the nonliteral meaning tasks.

Language. The Peabody Picture Vocabulary Test (PPVT-III) (Dunn, Dunn, & Arribas, 2010) is well-suited to the deaf population because it only requires a small number of verbal instructions to be understood. This test was used to assess the linguistic competence of the participants. The raw scores adjusted for age was used.

First-order false belief. Two tasks were used to assess the attribution of first-order false belief: the deceptive box task (Hogrefe, Wimmer, & Perner, 1986), and the

Sally-Anne task (Baron-Cohen, Leslie, & Frith, 1985), in which the names of the characters were changed. English names were changed to common Spanish names.

In the deceptive box task, the participant starts from a previous personal experience about the false belief that must then be attributed to another person when faced with the same situation. The task includes two experimental questions, one on the understanding of first-order false belief (“What will the child believe is inside?”) and one on justification (“Why will the child believe that?”), and three control questions on understanding the essential elements of the story (“What is really in the box?”, “Has that child seen what's inside?”, “When I showed you the box, what did you say was inside?”).

The Sally-Anne task includes two experimental questions, one on the understanding of first-order false belief (“Where does Maria go to look for her ball, the basket or the box?”), one on justification (“Why will she look for it there?”), and three control questions on understanding the essential elements of the story (“Where is the ball now?”, “Where was Maria when Carlos put it there?”, and “Did Maria see how Carlos put it there?”).

In both tasks, the answer to the experimental question on the understanding of false beliefs was scored taking into account the justification provided. If the answers were correct, the task received 1 point, but if they were incorrect the task received 0 points. Thus, scores on the first-order false belief tasks ranged from 0 to 2.

Second-order false belief. Second-order false belief was assessed using the window task (Núñez, 1993). This task is a modification of the Sally-Anne task (Baron-Cohen et al., 1985), which is used in a setting in which the participants must represent to themselves a character's mental state of false belief regarding what another character

is thinking of. Two experimental questions, and three control questions were used (see Appendix A).

The answer to the experimental question on the understanding of second-order false beliefs was scored taking into account the justification provided. If the answers were correct, the task received 1 point, but if they were incorrect the task received 0 points.

Total ToM scores. The global score (0-3) on ToM performance of the participants was the sum of their scores on their understanding of first-order and second-order false beliefs.

Nonliteral communication. The understanding of nonliteral communication was assessed using four stories from the Strange Stories battery (Happé, 1994). Minor changes were made to the stories (Spanish names were used for the characters). The battery comprises a set of short stories in which the characters, for certain reasons, say something that is not literally true. The correct identification of the meaning of what they say is only possible if their true communicative intention is attributed to them and the contextual elements are correctly interpreted. We chose two stories that assess the understanding of lies and two others that assess the understanding of irony (see Appendix B).

There were five questions per story. The first two questions (“Is what X said true?” and “Why did X say that?”) appear in the battery (Happé, 1994). The first one addresses the issue of whether the participants detect nonliteral meaning, the second whether they identified motivation. As we determined that two questions alone were insufficient to assess deaf participants, two more questions were included to encourage the participants to reflect and produce more complete answers (numbers 4 and 5). A control question (number 3) was also added to test whether the participants had

understood and retained the essential element of the story (see these questions in Appendix B).

The answers were categorised using the following criteria:

- a) The participant does not detect the nonliteral meaning; that is does not perceive the discrepancy between what the protagonists say and what they think.
- b) The participant detects that the meaning is not literal, but does not explain the speaker's motive.
- c) The participant detects that the meaning is not literal, but incorrectly offers a motive that is not appropriate to the context.
- d) The participant detects that the meaning is not literal and offers a pertinent motive. In the selfish-lie task, the motive must refer to the intention of getting more food, lying to get it, or awaking a sense of pity in the other to get the food. In the white-lie task, the motive should refer to the character's intention of not hurting their parents' feelings. In the adult-child irony task, the motive must refer to the intention of scolding the daughter. In the child-child irony task, the motive must refer to the intention of disparaging or making fun of the child.

A reliability coder, who was blind to the respondents' group membership, performance on other tasks, and the study hypothesis, independently scored the responses of 33 participants who had been randomly selected from each group. Agreement with the primary coder was 95%. All discrepancies were resolved to a final resolution accepted by both coders.

Total nonliteral scores. The participants received three total scores summarizing their performance on the lying tasks (range 0-2), the irony tasks (range 0-2), and on the nonliteral communication tasks (range 0-4).

Assessment Procedure

Each participant was assessed individually in a quiet area in the school. Before beginning the assessment, they were provided with information on the type of tasks they were going to perform and their consent was requested.

In the ToM tasks the stories were represented using dolls and objects, whereas in the nonliteral communication tasks the stories were represented using pictures (one picture for each story). Some of the members of Groups 1 and 2 had reached an intermediate level of sign language, and so they were given the choice of using sign language or oral language during the ToM and nonliteral tasks. In total, 11 participants from Group 1 chose sign language, whereas none from Group 2 chose this option. A qualified sign language interpreter provided these 11 participants with sign language interpretation because none of the researchers were familiar with Spanish Sign Language. The interpreter, who was familiar to the participants, had been thoroughly trained in the procedure and methodology used to apply all the assessment tasks. In addition, the interpreter was a member of the school's teaching team, had the appropriate qualifications to conduct this task, and knew and accepted the conditions of confidentiality of the study. During the process, the interpreter was seated in front of the participant and translated the researcher's words using a style of interpretation that the participant would encounter in everyday life (i.e. the interpreter was familiar with the signed language style of the participants). Messages were provided in oral or sign language when the materials were ready. The questions were first stated by the researcher and then signed by the interpreter to prevent the effect of divided attention. The participants pointed, signed, or orally expressed their answers.

As a general rule, all the tasks included control questions on understanding. Only five participants were excluded from the study sample because they did not answer any of the control questions correctly.

Results

Differences Between Groups in Understanding Nonliteral Meanings

Table 2 shows the means of the four nonliteral meanings tasks. Significant differences were found between the three groups on total tasks scores ($F [2, 93] = 55.71, p = .000$) in a one-way analysis of variance. The Scheffé post hoc test showed significant differences between the hearing and CI deaf participants ($p = .000$) and between the hearing and No CI deaf participants ($p = .000$); however, no significant differences were found between the two deaf groups ($p = .227$).

Based on these data, subsequent analyses were conducted by grouping the deaf participants into a single group.

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Analysis of the Levels of Understanding of Nonliteral Meanings in the Deaf and Hearing Groups

Table 3 shows the level of understanding reached by deaf and hearing participants on each task in percentages and the means of the percentages for all four tasks. The mean percentages of each group show that the differences between them increase as the levels of understanding become more complex.

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The 97.85 % of deaf participants had no difficulty in detecting that the meaning was not literal. In the white lie task, only four of the 58 deaf participants did not understand that it was a lie, and in the selfish lie task only one participant did not understand that it was a lie. In the irony tasks, all the deaf participants understood that what was said was not true. Deaf participants had difficulty in attributing the motive to the speaker, and particular difficulty in attributing the real motive that made the speaker use lies or irony. Specifically, in the child-child irony and white lie tasks, a far higher

percentage of participants failed to identify the real motive of the speaker (69% and 89.7% respectively).

Only the 7.33 % hearing participants found it difficult to correctly interpret the speaker's motive in any of the tasks. Errors only occurred on the child-child irony and white lie tasks. These errors were almost equally distributed between making a literal interpretation, understanding that it was not literal but not giving any reason, and understanding that it was not literal but giving a reason even if it was not the relevant one.

Comparison of performance between lies and irony tasks within each group

The Wilcoxon test was used to investigate differences between participants in their understanding of lies and irony. The performance of deaf participants differed on the lie and irony tasks ($Z = -2.84$; $N = 58$; $p = .004$). More participants passed the lie tasks than the irony tasks. No significant differences were found in performance between hearing participants ($Z = -1.00$; $N = 38$; $p = .317$).

Effect of type of irony (adult-child vs child-child) and lying (white vs selfish) on understanding in deaf and hearing participants

The Wilcoxon test was used to compare the performance of the participants on the two irony tasks in order to determine whether the setting in which irony is produced influences the probability of success. Significant differences between tasks were found in both groups ($Z = -5.66$; $N = 58$; $p = .000$, and $Z = -2.65$; $N = 38$; $p = .008$, respectively). The best performance was obtained on the adult-child irony task.

Likewise, the Wilcoxon test was used to investigate whether the type of lie (selfish or pro-social) had an effect on the participants' understanding. Significant differences were found in performance between the two lying tasks ($Z = -4.60$; $N = 58$;

$p = .000$, and $Z = - 2.00$; $N = 38$; $p = .046$, respectively). In both groups, more participants understood the selfish lie than the pro-social lie.

Analysis of the relationships between age, language, ToM, and the understanding of nonliteral meanings in the deaf participants

Table 4 shows the mean age and mean linguistic age of the deaf participants, and their mean scores on the ToM and understanding of nonliteral meaning tasks.

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Table 5 shows the correlations (Pearson test) between age, language, total scores on ToM tasks, and total scores on the understanding of nonliteral meaning tasks. Strong correlations were found between age and ToM, language and the understanding of nonliteral meanings, and ToM and the understanding of nonliteral meanings. Weaker correlations were found between age and the understanding of nonliteral meanings.

PLEASE INSERT TABLE 5 AROUND HERE

Given the correlation between ToM and age, we investigated whether the association between ToM and the understanding of nonliteral meanings was influenced by age. Having controlled for the effect of age, partial correlation analysis supported the correlation between ToM and understanding of nonliteral meanings ($r [58] = .31$; $p = .017$).

Independent contributions of age, ToM, and language on the understanding of nonliteral meanings in deaf adolescents

A stepwise regression analysis was used to examine in more detail the separate contributions of age, language, and ToM to the participants' performance on the nonliteral meanings tasks. The analyses showed that in Step 1 the significant variable was performance on ToM ($R^2 = .18$; $\beta = .43$; $F [1, 56] = 12.61$; $p = .001$). In Step 2 the entry of language scores resulted in a statistically significant increase in the prediction

(R^2 change = .01; F change [1, 55] = 7,18; p = .010); the full regression equation also remained significant ($R = .53$; $R^2 = .28$; Adj. $R^2 = .25$; F [2, 55] = 10.59, p = .000). The age variable was excluded from the model because it did not reach statistical significance (p = .536).

Discussion

The results suggest that the deaf adolescents with or without CIs experienced more difficulty in understanding lies and irony than their hearing peers. Our results are similar to those obtained by O'Reilly et al. (2014) and Marschark et al. (2019).

Furthermore, in our study performance was not significantly better in deaf participants with CIs than in those without CIs, according to the cited study of Marschark.

Nevertheless, in our study the participants were adolescents, whereas in that of Marschark et al. the participants were young adults.

However, the main objective of the present study was not to simply show that deaf participants experience difficulties in understanding everyday nonliteral meanings; rather, it attempted to provide information that would contribute to understanding this difficulty. Hence, unlike other studies on the understanding of nonliteral meaning in the deaf population, our study not only assessed whether the deaf and hearing participants correctly solved lies and irony tasks, but it also analysed the type of mistakes they made. The results suggest that the majority of the deaf participants experienced difficulties at the step that requires the participant to determine the true intention of the speaker. However, the deaf participants had no difficulty in understanding that what the speaker of the story said should not be interpreted literally. That is, they were capable of performing at the level of 9-year-old children in the sequence proposed by Demorest et al. (1984); however, despite their age range (10-19 years), they still had difficulty in

recognizing the real purpose of the speaker, which most children between 11 and 12 years can already accomplish.

Only deaf participants had statistically significant better performance on understanding lies than on understanding irony. Based on previous studies with hearing children (Bosco & Bucciarelli, 2008; Bosco & Gabbatore, 2017), this difference in performance would have been predicted in both groups. These studies included children less than 10 years of age. The present study included hearing participants with ages between 10 and 19 years, and so it is likely that this difference was absent in this group because they had developed an almost complete understanding of both types of nonliteral use of language. As mentioned, we observed this difference in the deaf adolescents, which is typical of children less than 10 years.

The study of differences in performance between the same nonliteral meaning tasks also sheds light on the difficulties inherent to the group of deaf participants. In the two lying tasks, both the deaf and the hearing groups found it significantly easier to understand the selfish lie than the pro-social lie. However, in the hearing group, 100% understood the selfish lie and 89% the pro-social lie, whereas in the deaf group, 76% understood the selfish lie and only 31% understood the pro-social lie. Pro-social lies play a relevant role in the maintenance of interpersonal relationships, whereas selfish lies are antisocial by nature; therefore, the potential influence of the observed difficulty on the social competence of deaf participants should be taken into account. Broomfield et al. (2002) suggested that experience in social relationships plays a relevant role in understanding white lies. If we add to this that deaf adolescents' lack of understanding of nonliteral meanings may have an effect on their social competence, then a vicious circle exists that needs to be broken. Thus, we suggest that direct intervention is needed to help deaf adolescents understand nonliteral meanings, such as white lies.

Regarding the two irony tasks, both the deaf and hearing participants performed significantly better on the adult-child task than on the child-child task (i.e., the picnic task). Although this difference was statistically significant in both groups, it was much greater in deaf participants (only 10% of the participants understood child-child irony, whereas 65% understood adult-child irony) than in hearing participants (82% understood child-child irony and 100% adult-child irony). The deaf adolescents found it particularly difficult to understand the use of irony in the picnic task. This result is similar to that found in a previous study (Peterson et al., 2012), which highlighted the strikingly poor performance of deaf children (age range: 6-12 years old) on this task. In that study, 3% passed the test, whereas in the present study 10% passed.

Deeper reflection on the two irony tasks suggests that they are differentiated by two aspects: firstly, in one task, irony is expressed by the mother to her daughter, whereas in the other, it is expressed by a peer; secondly, in the first one, the mother uses irony because the daughter has violated a shared social norm (i.e. she does not thank her mother), whereas in the second one, there is no transgression of a shared social norm (i.e. an activity is proposed without ensuring that it can be done). Massaro et al. (2013) showed that children aged between 6 and 10 years (i.e., in the acquisition phase of understanding of irony) better understood the ironies expressed by mothers than those produced by siblings. In another study, Massaro et al. (2014) found that it was easier for 7-year-old children to interpret ironies based on a shared norm than ironies in which the norm was situational. Taking into account their conclusions, we suggest that the adult-child irony task in the present study was easier for the participants for two reasons. Firstly, the participants probably had more experience of nonliteral language during communication with adults than with their peers. It may also be the case that it was easier for them to interpret the motivation behind an adult's use of irony because adults

are assumed to be expert communicators who often engage in irony. Secondly, adult-child irony is motivated by the violation of an easily recognizable and generalizable shared social norm. However, child-child irony, in addition to being produced by a peer, is motivated by the transgression of a norm that is not socially shared. This norm could be defined as situational because it applies to each specific situation and is therefore not generalizable.

The analysis of the effect of age, ToM, and language on the understanding of nonliteral language in deaf participants showed that the above mentioned difficulties were not resolved by the passage of time given that age was not an explanatory variable of differences in performance. These results differ from those of previous studies on the development of understanding lies and irony in hearing children cited in introduction, which showed an evolutionary sequence between the ages of 3 and 15 years that concludes with the receiver having full awareness of the intention of the speaker who uses nonliteral language. Regarding studies with deaf participants, our results are in line with those of O'Reilly et al. (2014), who showed that difficulties in understanding nonliteral language were not only observed in deaf children (5-12 years), but also in deaf adults (late signers with a mean age of 40 years).

We found that the variables ToM and language explained performance in the understanding of nonliteral language in deaf adolescents. We consider that these results support Filippova and Astington's (2010) proposal that a complete understanding of irony involves the participation of both the socio-cognitive and the socio-communicative components. The understanding of nonliteral language is facilitated by the ability to adopt the perspective of others and by the linguistic development provided by social experience. One interpretation of our results is that the understanding of selfish lies and adult-child irony in deaf participants could be somewhat intuitive in the

sense of their having previous personal and social experiences that are generalizable. However, white lies and child-child irony could have been a less common experience in the deaf participants due to their linguistic challenges, they may have had fewer opportunities to encounter the type of communicative experiences in which these nonliteral meanings are expressed. Thus, there may be a direct relationship between a relative lack of communicative experience and the linguistic difficulties encountered by the deaf participants in this study. As mentioned in the Introduction section, our results suggest that language is related to performance in ToM (de Villiers & de Villiers, 2012; Pyers and Senghas, 2009; Peters et al., 2009; Levrez et al., 2012), and that language adds 10 per cent to ToM by predicting variance in performance in understanding nonliteral meanings. In summary, we suggest that it is the lack of language and its use in social interaction, and not deafness, which leads to difficulties in the understanding of nonliteral language.

The foregoing argument is based on the analysis of the errors made by the deaf participants. On the one hand, the most common error observed in the white lie task was that the speakers were thought to be lying because they were liars and liked to lie. On the other hand, the most common error observed in the child-child irony task was that the speakers used irony because they were angry because it was raining. In both cases, the participants remained within the speakers' perspective, rather than taking into account the feeling that the speaker of the lie or ironic statement wanted to make the receiver feel (i.e., feel happy in the case of the white-lie and embarrassed in the case of child-child irony). Based on the perspective of the theory of relevance (Wilson & Sperber, 2012), we suggest that the majority of the deaf adolescents correctly interpreted the stories involving selfish lies as well as the mother's use of irony with her daughter because what is relevant in these stories is a matter of everyday experience and

is therefore easier to recognize. However, regarding white lies and irony among peers, experience may not have helped the deaf participants to distinguish the relevant aspects. Hence, most of them employed the Cautious Optimist strategy, in which they only questioned the intention of the speaker, but failed in their interpretation because they did not develop Sophisticated Understanding: That is, they did not question what the speaker of the story may have thought that the receiver would think was relevant. However, this aspect gives rise to two questions: “Why did they not apply double recursion?”, and “Given that almost 60% of the deaf participants understood second-order ToM, why did only 30% pass the white lie task and only 10% understand the child-child irony task?”. We suggest that the answers to these questions reside in the complexity of these two tasks, in that they do not only require second-order ToM, but also sufficient social experience to guide the use of this cognitive skill. All the foregoing leads us to a conclusion that has already been pointed out by studies using children with typical development (Astington, 2003; Massaro et al., 2013; Agostino et al., 2017): although ToM is sometimes necessary to achieve social competence, it is never sufficient.

Given the performance of the deaf participants on each nonliteral language task and ToM task, we propose a reorganization of the sequence of assessment that differs from those of other studies (O'Reilly et al., 2014; Peterson et al., 2012). The assessment sequence used in the cited studies was as follows: 1) first-order ToM; 2) second-order ToM; and 3) understanding irony. Peterson et al. included one irony task (child-child type), whereas O'Reilly et al. included four irony tasks (three child-child and one adult-child). Nevertheless, our proposal combines the understanding of ToM and nonliteral language, and orders tasks according to the observed performance of deaf adolescents. We propose the following sequence of tasks: first-order false belief, selfish lie, adult-

child irony involving a socially shared norm, second-order false belief, white lie, and child-child irony involving a situational norm. Thus, after assessing first-order false beliefs, rather than assessing second-order false beliefs, we would then assess nonliteral meanings that are simpler than second-order false beliefs. We would then assess second-order false beliefs. Finally, the most complex nonliteral meanings would be assessed. We suggest that this proposed sequence would involve the use of socio-cognitive and socio-communicative skills. In a forthcoming study, we will investigate whether this developmental sequence can be confirmed in a larger group of hearing and deaf participants, and if the results are as expected we will design an intervention program which fosters the development of this sequence of skills.

Limitations

The present study has some limitations, one of which is related to the statistical data obtained. Although the sample size was relatively large, the correlation and stepwise regression analyses would have had greater interpretive strength if there had been more participants. In addition, the percentage of variance explained by the independent variables was not very high, leaving much unexplained variance. Our study showed that variations in performance in understanding nonliteral language by deaf participants were partly explained by their performance in ToM and by their linguistic level. Another part of the unexplained variance could be explained by other variables that were not included in this study, such as signing families or early cochlear implantation, both of which are linked to wider communicative experience. Specifically, in the group of participants with CIs, the age range at the time of implantation was very wide and very few participants had undergone early implantation.

We matched the age of the participants included in the three groups, but not their socioeconomic status; however, the majority came from families with a low-to-medium

socioeconomic level. At the time of selecting the sample, priority was given to variables such as the degree of hearing loss, the use or otherwise of CIs, and age. Thus, it was not possible to compare the participants by socioeconomic status, even though it would have been desirable to do so, given the effect of this variable on development.

Finally, it should be noted that the tasks used to assess the understanding of lies and irony have been widely used in studies on this topic. Specifically, irony tasks have been used in most of the studies with deaf participants that used oral language or sign language with an interpreter (see citations in the Introduction). However, it should be acknowledged that the translation of oral language into sign language, even when performed by a professionally qualified interpreter, may entail limitations (e.g. the signs used may not faithfully represent what is transmitted by oral language).

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Table 1 Group characteristics

Non-cochlear implant			Cochlear implant			Hearing	
Age	Degree of hearing loss	Socio-economic status	Age	Degree of hearing loss	Socio-economic status	Age	Socio-economic status
10.8	Sev	Med	10.7	Prof	Med	10.8	Med
11.1	Pof	Med	10.7	Prof	Low	11	Low
12.3	Sev	Med	11	Prof	Low	12.3	Med
13	Sev	Low	11	Prof	Low	13	Med
13.3	Sev	High	12	Prof	Low	13.1	Low
13.3	Prof	Med	12.4	Prof	Low	13.4	High
13.5	Sev	Low	13	Prof	Med	13.5	Med
13.7	Sev	High	13.6	Prof	Low	13.5	Low
13.8	Prof	Low	14.8	Prof	Med	13.6	Low
13.8	Prof	Low	14.8	Prof	Med	13.6	Low
14.1	Prof	Med	15.3	Prof	Low	14.2	Med
14.5	Sev	Low	15.8	Prof	Low	14.5	Low
14.7	Prof	Med	16.2	Prof	Med	14.6	Low
14.7	Prof	Low	16.3	Prof	Low	14.7	Low
14.8	Prof	Low	17	Prof	Low	14.7	Low
15.3	Prof	Low	17.8	Prof	Low	15.5	Med
15.5	Sev	Med	18.3	Prof	Med	15.6	High
15.5	Prof	Med	18.9	Prof	Low	15.7	Med
15.8	Prof	Low	19.8	Prof	Low	15.7	High
15.8	Prof	High	19.9	Prof	Med	15.7	Med
16	Sev	Low				16	Med
16.2	Prof	Low				16.1	High
16.3	Sev	Low				16.6	Low
16.3	Sev	Low				16.8	Low
16.6	Sev	Low				16.8	Med
17.4	Sev	Med				16.8	High
17.5	Prof	Low				17.5	Low
17.6	Prof	High				17.6	Low
17.8	Sev	Low				17.6	High
17.9	Prof	Low				17.7	Med
18.1	Prof	Med				18.2	Med
18.4	Sev	Med				18.5	Low
18.5	Prof	Low				18.7	Low
19	Prof	Low				19.1	Low
19.1	Prof	Med				19.4	Med
19.6	Sev	Med				19.5	Med
19.8	Prof	Med				19.5	Med
19.9	Prof	Low				19.9	Med

Note. Prof: profound deafness; Sev: severe deafness; Med: medium socioeconomic status.

Table 2 Group's Mean and Standard Deviation Scores on Non Literal Meanings Tasks

<i>Group</i>	<i>IC Deaf</i> (<i>n</i> = 20)	<i>No IC Deaf</i> (<i>n</i> = 38)	<i>Hearing</i> (<i>n</i> = 38)
Total tasks (out of 4)	2.10 (1.21)	1.68 (0.93)	3.71 (0.52)
Total lie (out of 2)	1.35 (0.75)	0.92 (0.59)	1.89 (0.31)
Total irony (out of 2)	0.75 (0.64)	0.76 (0.63)	1.82 (0.39)
Selfish lie	0.80 (0.41)	0.74 (0.45)	1.00 (0.00)
White lie	0.55 (0.51)	0.18 (0.39)	0.89 (0.31)
Irony ad-ch	0.65 (0.49)	0.66 (0.48)	1.00 (0.00)
Irony ch-ch	0.10 (0.39)	0.11 (0.31)	0.82 (0.39)

Note. IC Deaf: Implant Cochlear Deaf Participants; No IC Deaf: Non Implant Cochlear Deaf Participants;

Table 3 Percentages and Mean of Different Responses on Non Literal Meanings Tasks for Deaf (N=58) and Hearing Participants (N= 38)

<i>Task</i>	<i>SL</i>	<i>WL</i>	<i>Ia-ch</i>	<i>Ich-ch</i>	<i>Mean</i>
	D-H	D-H	D-H	D-H	D-H
No detection of non literal meaning	1.7%-0%	6.9%-0%	0%-0%	0%-5.3%	2.15%-1.32%
Detection of non literal meaning but no motivation	5.2%-0%	17.2%-2.6%	0%-0%	27.6%-13.2%	12.5%-3.95
Detection of non literal meaning and non pertinent motivation	17.2%-0%	44.8%-7.9%	34.5%-0%	62.1%-0%	39.65%-1.97%
Detection of non literal meaning and pertinent motivation	75.9%-100%	31.0%-89.5%	65.5%-100%	10.3%-81.6%	45.67%-92.77%

Note. SL: Selfish Lie; WL: White Lie; Ia-ch: Irony adult-child; Ich-ch: Irony child-child; D: Deaf; H: Hearing

Table 4 Deaf Participants' Mean and (Standard Deviation) on Different Variables

<i>Group</i>	<i>Deaf Participants</i> (<i>n</i> = 58)
Age (in years)	15.15 (2.95)
Raw scores adjusted to age	64.41 (40.02)
Unexpected content (out of 1)	0.95 (0.22)
Sally-Anne false belief (out of 1)	0.76 (0.43)
Second order false belief (out of 1)	0.59 (0.50)
Total false belief (out of 3)	2.29 (0.94)
Total non literal meaning tasks (out of 4)	1.83 (1.04)
Total lie (out of 2)	1.07 (0.67)
Total irony (out of 2)	0.76 (0.63)
Selfish lie (out of 1)	0.76 (0.43)
White lie (out of 1)	0.31 (0.47)
Irony ad-ch (out of 1)	0.66 (0.48)
Irony ch-ch (out of 1)	0.10 (0.31)

Table 5 Correlations Between Chronological Age, Language, Total ToM and Total Non-Literal Meaning Tasks in Deaf Participants

	Chronological Age	Language	Total ToM
Chronological Age	---		
Language	.15	---	
Total ToM	.58**	.24	---
Total Non-Literal Meaning Tasks	.31*	.41**	.42**

* $p < .05$, ** $p < .01$

Appendix A. Second-Order False Belief Window Story

- This is Maria and this is Carlos
- Maria has a box and Carlos has a basket
- Maria has a ball and puts it in her box. Carlos has nothing in the basket
- Maria leaves the room. Carlos puts the ball in his basket
- Maria sees through the window that Carlos moves the ball from the box to the basket, but Carlos does not see that Maria is looking through the window.
- Now Maria returns. Maria wants her ball.

Experimental questions:

- 1) Where does Carlos think Maria will look for her ball? In the basket or in the box?
- 2) Why does Carlos believe that?

Control questions:

- 3) Where does Maria think the ball is?
- 4) Did Maria see Carlos put the ball in his basket?
- 5) Did Carlos see Maria looking through the window while he changed the ball from the box to the basket?

Appendix B. Nonliteral Stories

Selfish Lie

Bruno is always hungry. At school today they served his favorite food: sausages and potatoes. He is a very greedy boy and would like more sausages than the others, even though his mother will give him a great meal when he gets home. But there are only two sausages for each child. When it's Bruno's turn, he says: "Oh, could you give me four sausages? I'm not going to have anything to eat when I get home ..."

1. Is what Bruno says true?
2. Why did he say that?
3. How many sausages are there for each child?
4. Is it true that Bruno won't have anything to eat when he gets home?
5. So, why did Bruno say: "Oh, could you give me four sausages? I'm not going to have anything to eat when I get home..."

White Lie

Elena had been waiting all year for Christmas because she knew that she could then ask her parents for a rabbit as a present. Elena wanted to have a rabbit more than anything in the world. At last, Christmas Day came and Elena ran to unwrap a large packet that her parents had given her. She was sure there was a rabbit inside in its cage. But when she opened it in front of the whole family, she found that her present was a boring old encyclopedia that she didn't want at all. Still, when her parents asked her if she liked the present, she said: "It's wonderful, thank you. It's just what I wanted."

Questions

Is what Elena said true?

1. Why did she say that to her parents?
2. What did Elena want for Christmas?
3. Did Elena like getting the encyclopaedia?
4. So, why did she say: "It's wonderful, thank you. It's just what I wanted"?

Adult-Child Irony

Ana's mother has spent a long time preparing the girl's favorite food: fish and chips. But when she serves her, Ana is watching TV and does not even look at her or say thank you. Ana's mother gets annoyed and says: "That's really nice isn't it, that's what I call being polite!"

Questions

1. Is what Ana's mother says true?
2. Why did Ana's mother say that?
3. What did Ana do when her mother brought her food?
4. Is it true that Ana has a good education?
5. So, why did Ana's mother say: "That's really nice isn't it, that's what I call being polite!"?

Child-Child Irony

Sara and Tomas are going to the countryside today. It was Tomas' idea, he says that it's going to be a great day to go to the countryside. But just when they are unpacking the food it starts to rain and soon they are both soaked. Sara is annoyed. She says: "Oh, yes, perfect, it's a great day to go to the countryside!"

Questions

1. Is what Sara says true?
2. Why did she say that?
3. What happened when the children arrived in the countryside?
4. Is it true that it was a great day to go to the countryside?
5. So, why did Sara say: "Oh, yes, perfect, it's a great day to go to the countryside!"