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Wrongness and Representational Thought

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Abstract

This paper examines the concept of wrongness as a violation of intention, convention, or fact. We demonstrate that wrongness is an underlying factor in mistakes, jokes, pretense, lying, metaphor, and irony. We argue that children's use and understanding of wrongness evolves in four steps through a developing understanding of representation. First, children understand that a wrong act can *refer* to a right act, through mistakes and basic jokes. Second, this leads to understanding that a wrong act can *represent* a right act, through pretense, puns and metaphor. Third, this leads to understanding mental representation, which in combination with understanding reference allows understanding of intentional jokes and lies. Finally, this leads to understanding mental representation in combination with representation, allowing an understanding of irony, and intentional pretense, metaphor, and puns.

Keywords: Wrongness; Representation; Mistakes; Jokes; Pretense; Lying; Metaphor; Irony

Wrongness and Representational Thought

Parents, educators, and even psychologists generally assume that an important goal of development is learning to do the right thing. In this paper, we consider the value of learning to do the wrong thing. We propose that learning about wrongness proceeds through four stages, each of which plays a critical role in the development of representational thought.

What is wrongness?

Most analyses of wrongness focus on the moral aspects of doing the wrong thing. For example, philosophers have argued that wrongness is something prohibited by morality (e.g. Calder, 2005), such as murder or cheating (e.g. Feezell, 1988; Marquis, 2001). The moral concept of wrongness is also examined in research on lying (e.g., Sorenson, 2007). Similarly, psychologists interested in wrongness have focused on deontic reasoning, that is, the speaker's attitude towards what she is saying, and in particular, how necessary a speaker deems some condition or act. This includes permission (*what one may do*), and obligation (*what one must do*), thus wrongness might violate what one is obliged or expected to do (Cummins, 1996; Tomasello, 2003).

Morality is not, however, the only basis for wrongness. Wrongness can be evaluated as a violation of fact, irrespective of moral issues. For example, if you eat the last cookie, and say that you did not, your statement, "I did not eat the last cookie" is wrong simply because it does not

reflect truth-values in the world (Carson, 2006). Similarly, metaphors, pretending, and joking all involve wrongness because they do not represent the true state of affairs (Amsel, et al., 1996; Kazmerski, Blasko, & Desalegn, 2003; Leekam, 1991).

Wrongness extends beyond truth values, and can also describe violations of convention. Conventions do not have absolute truth values. Nonetheless an action which breaks convention, such as moving 6 places on a board game after having rolled a 5, is also wrong. Conventions can apply to how we speak, use objects, eat, dress, play games, interact with others, and hence permeate many aspects of our daily lives. Searle (2005) posits that there are two types of conventions in regards to objects. One type includes causal usage functions, in which we have the convention of using an object in a certain way, supported by the physical features of the object (e.g., knives are sharp, and so are used to cut things). Status functions are more conventional and attach arbitrary functions to objects, for example, in the case of paper used as money. Thus while you could technically try to use a knife as a paper weight, or tissues to pay for your purchase, this would be wrong according to convention. Children as young as 2 years demonstrate sensitivity to the conventions associated with objects, displaying what is called functional fixedness, where they refuse to use objects in unconventional ways, after only one exposure to how an object should be used (Casler & Kelemen, 2005). Language itself is also a set of conventions where certain words happen to be paired with certain actions, objects, and so on (Searle, 1969). Furthermore, different languages have different conventions, and within a language one must adhere to the specific labels given to specific objects and actions. Infants and toddlers respect the conventionality of language, demonstrating hesitance to assign the same label to multiple objects (e.g. Markman & Wachtel, 1988). Thus using the wrong words can be wrong by violating convention.

Wrongness can also describe violations of intentions. For example, it is not more right to request chocolate versus vanilla ice cream. However if you intend to eat chocolate, and instead ask for vanilla, such an utterance would be wrong in terms of the current goal. Thus mistakes embody a form of wrongness that violates one's intentions.

Wrongness as Violation

We define wrongness as a violation of intention, convention, or fact, independent of the moral standing of the act. Several concepts involve understanding wrongness. In

the next section we review relevant empirical findings on mistakes, jokes, pretending, lies, irony, and metaphor, which all involve wrongness (e.g., Carpenter, Akhtar, & Tomasello, 1998; Hoicka, Jutsum, & Gattis, 2008; Kazmerski, et al., 2003; Leekam, 1991).

Mistakes

Mistakes by definition involve doing the wrong thing. This type of wrongness necessarily involves a violation of intention: you meant to perform one act, but performed another instead. This could be for one of two reasons: you could do something in an accidental fashion, such as fall over, which might be considered a true mistake. You could also truly believe that what you are doing is the right thing, even though it is not, and perform what might be better called an error, where you violate your intention because of lack of knowledge (e.g., Lee & Cameron, 2000). As an example of a mistake (or error), you may wish to turn on the television, but press the wrong button (either through an accidental physical movement or a false belief that it is the right button), such that it does not light up, and the goal of turning on the television is not achieved. Additionally, mistakes could involve a violation of convention (accidentally driving on the wrong side of the road, either because you falsely believed that that is the convention in that country, or perhaps because the road is poorly lit), as well as a violation of fact (e.g., Saying that Tony Blair is the Prime Minister of the United Kingdom either because you did not realize that Gordon Brown had taken his place, or because the wrong name came out). However mistakes need not require a violation of convention or fact, for example, when accidentally requesting the wrong object the request cannot be wrong, but it still violates an intention.

Mistakes may be the earliest understood form of wrongness. Meltzoff (1995) found that when adults performed incomplete actions with objects (i.e., failed attempts, which could be viewed as a mistake) 18-month-olds completed (or corrected) those actions. From 14 months, infants avoid actions accompanied by the expression “Whoops!” (Carpenter, et al., 1998) and by rising intonation (Sakkalou & Gattis, in press). Finally, infants as young as 9 months (but not 6 months) react differently to someone unwilling to give an object, versus unable, due to an accident or failed attempt, a.k.a., a mistake, through looking and reaching less (Behne, et al., 2005).

Jokes

Basic jokes, which involve saying or doing something wrong, violate convention or fact (Hoicka & Gattis, 2008; Hoicka, et al., 2008). For example, one could joke that ducks say, “moo” (violating fact) or one could point to a duck and call it a “moogy” (violating English language conventions). Jokes by definition cannot violate intention since joking involves intentionally doing or saying the wrong thing.

Basic jokes are another form of wrongness that is understood early in development. Three- to 5-year-olds primarily laugh at events that others, or they themselves, intend to be humorous, such as clowning or being silly (Bainum, Lounsbury, & Pollio, 1984). This suggests that they appreciate that others do the wrong thing in order to joke. As early as 30 months, children copy mislabelling behaviors when couched in a humorous context, but not in a non-humorous context (Hoicka & Akhtar, 2010). From 25 months children copy incorrect actions followed by laughter, but correct the same incorrect actions followed by the expression, “Whoops!” indicating that they interpret others’ wrong actions as humorous (Hoicka & Gattis, 2008). Finally, 15-month-olds match humorous cues to humorous actions, and from around 10 months, infants laugh when their mothers perform incongruous actions, such as putting socks in their mouths (Hoicka & Wang, 2010; Sroufe & Wunsch, 1972). Finally, observational evidence suggests that infants may not only appreciate others’ jokes, but may create jokes as well. From 15 months, infants have been observed to create jokes such as putting sponges in their mouths, and from 8 months, repeat incongruous actions, such as screwing up their faces, in order to re- elicit laughter (Loizou, 2005; Reddy, 2001).

More complex joking, such as puns, involves saying something that initially appears to violate fact or convention, but upon further reflection is consistent with fact or convention (e.g., Shultz, 1974). By initially appearing to be unrelated, puns appear to be wrong answers to questions as they violate conventions of communication, specifically Grice’s Maxim of relation, and by being ambiguous (having two meanings), puns also violate Grice’s maxim of Manner (e.g., Grice, 1975). These types of jokes are not normally understood until later. From 8 years, children choose joke endings with double meanings as more humorous than non-sequitor joke endings. However 6-year-olds judge both joke endings to be equally humorous, demonstrating that they only find a violation of the Maxim of relation humorous, or put another way, saying something wrong in the context of the previous utterance (Shultz, 1974). However using cartoons instead of words, even 4-year-olds appreciate jokes involving double meanings (Pien & Rothbart, 1976).

Pretense

Pretense involves understanding that someone has done the wrong thing, but has represented this action as right in a possible world (Nichols & Stich, 2003). In particular, pretense violates conventions and facts. For example, one might pretend that a block is a bar of soap, and violate convention by rubbing the block on one’s body. One might also make statements which violate fact, for example, if a child says, “I can fly”, which is not technically true. Like joking, pretense cannot violate intention, since pretense involves intentionally doing the wrong thing by its very nature (Hoicka & Gattis, 2008; Hoicka, et al., 2008).

Lillard (1998) found that 4- and 5-year-olds did not understand intentions to pretend. However the task involved hearing stories illustrated by pictures or dolls, and verbal responses were required. In experiments using an action-based task, 36-month-olds, but not 26-month-olds, differentiated intentions to pretend from trying (Rakoczy, Tomasello & Striano, 2004). Additionally, children can tell whether someone else is pretending or doing the real thing from 2.5 years (Ma & Lillard, 2007). Finally, using a looking-time paradigm, infants as young as 15 months detected violations in a pretense scheme (Onishi, Baillargeon, & Leslie, 2007). Children themselves pretend from around 18 months (e.g., Elder & Pederson, 1978; Ungerer, et al., 1981).

Lies

Lying involves understanding that someone has said the wrong thing for the purpose of deceiving someone (e.g., Leekam, 1991). Lying can be a violation of fact (e.g., saying one has not eaten cake when one has) and could also be a violation of convention (e.g., telling someone that they should drive on the left side of the road whilst in Spain). Lee and Cameron (2000) argue that a lie need not actually violate a fact as long as the liar thinks that the lie violates fact. Thus one could argue that lying either involves violating fact or convention, or having false (or wrong) beliefs about facts and conventions.

In order to truly understand that someone is lying, it is necessary to understand their intention to lie. While joking, pretending, and metaphor can be detected without understanding the intention behind an action or utterance, for example, by finding the joke funny, or noticing a similarity between a pretend act or metaphor and its representation, this is not the case for lying. If one simply notices that someone has said the wrong thing, this could be due to their lying, or it could be due to them having made a mistake. What is crucial is thus whether the liar intended to deceive.

Depending on how studies are performed, children start to understand lies between 3 and 5 years. Lee, et al., (2002) conducted an experiment in which young children were told lies that violated a reality-fantasy distinction. Five- and 6-year-olds identified the lies, and hence did not believe them, while 3- and 4-year-olds accepted the lies. Wimmer, Gruber, and Perner (1985) used a story-based method to assess what young children understood about lying. When asked whether the character should be punished, children as young as 4.5 years assigned punishment to liars, but not to people who were mistaken. However when asked whether the person had lied, children did not reliably distinguish the liar from the mistaken person. Thus 4.5-year-olds have a moralistic understanding of lies, without necessarily understanding the lexical term relating to lies. Using a picture-based method, 4-year-olds differentiated lies from promises (Maas, 2008). Finally, children as young as 3 years distinguished lies from mistakes, (Siegal & Peterson, 1996, 1998). Considering when children begin to lie, from around 3 or 4 years children lie in order to hide a

transgression of peeking when they were not supposed to, and tell white lies when receiving an unwanted gift (Talwar, et al., 2002; Talwar, Murphy, & Lee, 2007).

Metaphor

Metaphor involves intentionally saying the wrong thing, (e.g., Harris, Friel, & Mickelson, 2006) for purposes such as to provoke thought, compare similarities, and add interest, describe, and clarify (e.g., Gardner & Winner, 1986; Roberts & Kreuz, 1994; Sperber, 1984). Metaphor can violate fact, for example, saying, "Your room is a pig sty" when in fact it's just a room (e.g., Andrews, et al., 1986).

It is not until school age that children understand that people can intend to create metaphors. Eight-year-olds, but not 6-year-olds, differentiate metaphors from mistakes (Andrews et al., 1986). When one does not consider intentions, younger children appear to understand metaphors. In one task, 3-, 4-, and 5-year-olds were told stories that used time-based metaphors, and were then asked comprehension questions based on the metaphors. From 4 years, children correctly answered questions relating to metaphors (Ozcaliskan, 2005). In another task, 3- and 4-year-olds produced significantly more errors when repeating anomalous versus metaphorical utterances, and made the same number of errors when producing metaphorical and literal utterances, suggesting that the children understood the metaphors (Pearson, 1990). Finally, in terms of metaphor production, from 3 years children can produce appropriate metaphorical compounds. For example, if a stick-shaped bug is called a "leaf-bug" children might make a more appropriate metaphor by calling it a "stick-bug" (Gottfried, 1997).

Irony

Like metaphor, irony involves intentionally saying the wrong thing. Irony can violate fact, for example, saying, "That bungalow is the tallest building in the world" (e.g., Andrews, et al., 1986). Irony can also violate convention, for example, saying, "Driving on the right side of the road in London was a great idea." Again, irony cannot involve a violation of intention as irony is intentional in nature. Indeed, like lying, intention is the most important part of irony. An utterance is only ironic if the person meant it to be (e.g., Andrews, et al., 1986; Winner & Leekam, 1991).

Irony, like metaphor, is notoriously difficult for children to understand. It is not until school age that children understand intentions to be ironic. Eight-year-olds, but not 6-year-olds, differentiated irony from lies (Andrews et al., 1986). Winner and Leekam (1991) tested 7-year-olds on their ability to distinguish irony from deception. They found that children's ability to do so was contingent on their ability to distinguish second order intentions, that is, that the liar intended for the audience to believe the falsehood, whereas the ironist did not.

Wrongness, Reference, and Representation

Understanding the various types of wrongness involves understanding representation at different levels, and this understanding develops in stages (see Figure 1). The first stage involves understanding that a wrong act refers to a right act. While representation makes one think *of a wrong act as* a right act, reference only makes one think *of* a right act. Reference should be easier to understand since it can be accomplished by considering two different acts sequentially rather than simultaneously. Without being able to make a reference between a wrong act and a right act, it would be difficult to determine that an act was wrong in the first place: reference allows comparison between two acts. The ability to compare two acts appears to be present by 9 months, as children are first able to detect mistakes at 9 months (Behne, et al., 2005), and jokes at 10 months (Sroufe & Wunsch, 1972).

The second stage in understanding wrongness involves understanding representation, such that a wrong act can represent a right act (e.g., Nichols & Stich, 2003). Thus one act can have two meanings at the same time: the literal, and the imagined. This should be more difficult to understand than reference as representation requires simultaneous, rather than sequential processing. Understanding representation is essential for understanding pretense, metaphor, and pun-type jokes (e.g., Leslie, 1987; Shultz, 1974). Pretense is likely the first instance of understanding that a wrong act represents a right act. As metaphors and verbal puns require advanced linguistic skills as compared to pretense, understanding of metaphor and verbal puns should be delayed compared to pretense, but should involve the same underlying representational skills. Since children generally understand pretense from around 18 months (e.g., Ungerer, et al., 1981) this should mark when children understand the representation of wrong acts as right acts. Once children understand that a wrong act can represent a right act, then they have the possibility to distinguish mistakes and jokes from pretense. Thus a wrong act for which children cannot determine how it represents a right act could be thought of as a mistake or joke, and a wrong act for which children could determine how it represents a right act could be thought of as a general “as-if” for pretending (perhaps if action based). Later, when children’s language abilities develop, they should also be able to distinguish metaphors from puns as well. At this point, lies and irony, if the verbal content were to be understood, might still be thought of as mistakes or jokes, since they (at least appear) to refer to right acts, instead of representing them.

The third stage involves a basic understanding of mental representation. This involves processing a mental representation and its reference sequentially: understanding that an *intended* wrong act refers to a right act. The earliest instance of this may be when children understand that others can intentionally do the wrong thing through joking from 25 months (Hoicka & Gattis, 2008), since both the actor’s intention, and the reference between right and wrong acts are detected.

For the fourth stage, children must understand mental representation in terms of representations themselves. This requires understanding a representation in relation to mental representation, or in other words, understanding that an *intended* wrong act represents a right act. This may first be understood when children understand that others’ can intend to pretend, at 36 months (Rakoczy, et al., 2004), when both the actor’s intention, and the corresponding representation are detected.

Irony is more complex still. Like metaphor, it involves saying something wrong which represents something right. However, in metaphor, the similarity between concepts can lead a child to infer that a metaphor was made, without reference to the speaker’s mental state. In contrast, like lying, irony is about the attitude of the speaker, and cannot be inferred without understanding intention and belief (e.g., Andrews, et al., 1986; Winner & Leekam, 1991). Thus irony involves understanding two mental representations simultaneously: the wrong act (what the ironist intended to say) and the right act (what the ironist believed). At this point, when children can simultaneously process two mental representations: the intention to perform a wrong act, and the belief of a right act, children should be able to distinguish all types of wrong acts from each other.

We propose that these four stages of representation are linked. First, understanding the reference point between right and wrong, through mistakes and basic jokes, could help children later understand the representation of a wrong act as a right act, through pretense. By processing two acts sequentially when detecting jokes or mistakes, children may get used to considering two ideas in relation to each other. This may bootstrap an understanding of representation as it involves a shift from considering two ideas sequentially to considering two ideas simultaneously. This should be easier than making a bigger shift of never processing two ideas in relation to each other, to processing two ideas simultaneously.

Second, we propose that understanding that a wrong act can represent a right act (e.g., through pretense) is a precursor to mental representation (following, Leslie, 1987), since understanding mental representations, such as intentions, involves understanding something that is inferred, and not concretely perceivable. At this point, children should already understand reference, and should thus bootstrap their understanding that a wrong act refers to a right act, to understanding that an intended wrong act refers to a right act. This would be a simpler cognitive leap versus having no understanding or reference, and then suddenly having an understanding of reference in terms of mental representations. Finally, once children can process an intentional wrong act, and a (belief-based) right act, sequentially, this should create a smoother transition for processing an intentional wrong act, and a (belief-based) right act, simultaneously.

Figure

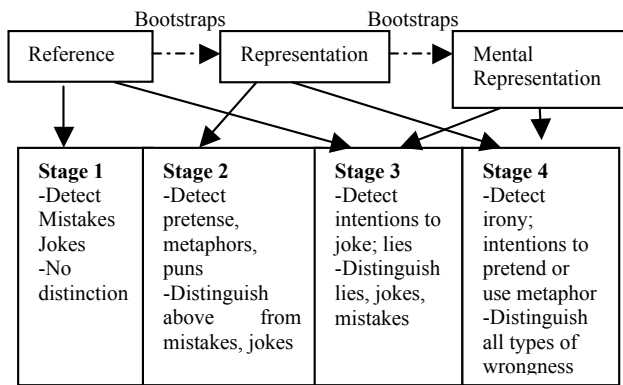


Figure 1. Stages of wrongness understanding.

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