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THE ART OF TELLING THE TRUTH TO DECEIVE: A MATTER OF INTENT

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ABSTRACT. When deciding to deceive, individuals carefully consider others' mental states to determine how their statements will be perceived by the recipient. In highly competitive contexts, deceptive intentions might be anticipated by others, so the use of false information to deceive might not be successful. Instead, using the truth can be a better strategy, anticipating that the recipient would consider the statements to be false. The present paper discusses the literature to date investigating the ability to tell the truth to deceive others in relation to the socio-cognitive processes that support it. We examine the emerging literature by discussing the differences between simple deception, sophisticated deception, and paltering. However, the lack of sophistication regarding the use of true vs. false information to deceive restricts the ecological validity of the findings. We propose a more elaborate truth-telling for deceptive purposes approach related to socio-cognitive correlates, such as theory of mind.

Keywords: *simple deception; sophisticated deception; paltering; intention.*

A truth that's told with bad intent
Beats all the lies you can invent
William Blake, Auguries of Innocence

Despite its contended nature, deception is an essential component of our social interactions. When deciding to deceive, individuals often consider both the goals that are motivating their actions (self-directed vs. other-directed goals) and the social context that would make their statements more or less credible. Verbal deception commonly entails the use of false information that others perceive to be true (i.e., *simple deception*; Debey et al., 2015; DePaulo et al., 2003). However, there are also contexts in which the recipient can anticipate others' intent to deceive. This is especially true for highly competitive contexts,

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where people know that others may try to trick them (e.g., poker games). In such circumstances, one can provide truthful information to others who are already skeptical to mislead them (i.e., *sophisticated deception*; Sutter, 2009).

Theoretical distinctions

While simple deception was the subject of many research studies attempting to shed light on its socio-cognitive mechanisms and the most suitable ways to detect it (Debey et al., 2015; Sternglanz et al., 2019), far less is known about sophisticated deception. To further complicate matters, telling the truth to deceive was investigated under many names, making it more difficult for researchers to obtain an integrative view.

Introducing the idea of telling the truth to deceive as a distinctive deceptive strategy, Sutter (2009) named it *sophisticated deception*. It was documented that people engage in this kind of deceptive plot both in individual decision-making settings and in team decisions while playing a cheap-talk sender-receiver game. The author proposed that "telling the truth should be counted as an act of deception when the sender expects the receiver not to follow the sender's message and when the true message is sent for precisely this reason" (Sutter, 2009, pp. 56). Building on this preliminary evidence, other researchers referred to this deceptive strategy as *manipulative truths* (Kireev et al., 2017; Zheltyakova et al., 2021), *second order lying behavior* (Ding et al., 2014; Sai, Ding, et al., 2018; Sai, Wu et al., 2018), or *paltering* (Powell et al., 2020; Rogers et al., 2017; Schauer & Zeckhauser, 2007). First, according to Volz et al. (2015), sophisticated deception differs from simple deception along two dimensions: the truth value of the statements (true vs. false) and the deceiver's belief about the recipient's expectations (to be deceived vs. not to be deceived). However, in both cases, the deceiver intends to mislead the recipient. Second, sophisticated deception differs from actual truth-telling based on the deceiver's intention (to deceive vs. not to deceive) and the deceiver's belief about the recipient's expectations (to be deceived vs. not to be deceived). Taken together, sophisticated deception can be considered a hybrid behavior, given that it conveys the truth while intended to be perceived as a lie (Volz et al., 2015).

In the present context, a more conceptually ambiguous strategy is the case of *paltering,* which refers to the active use of truthful statements to convey a mistaken impression (Rogers et al., 2017). Paltering is part of the "less-than-lying" practices, designating those "morally and socially problematic statements and actions in which one or more of the elements of the true lie is missing, but one or more of the elements of authentic truth-telling is missing as well."

(Schauer & Zeckhauser, 2007, pp. 2). It is a broad concept encompassing "fudging, twisting, shading, bending, stretching, and selective reporting" (Schauer & Zeckhauser, 2007, pp. 3), often encountered in political discourses or as an active negotiation strategy (Rogers et al., 2017). Given the joint concept of using truth-telling to mislead, one might consider paltering as a synonym with sophisticated deception. Let us consider the following examples of paltering: A furniture maker receives a visit from a friend who comments on the excellent workmanship of a store-bought desk in his office, to which he responds by saying, "Thank you". Thus, he has paltered because he left the false impression that he made the desk himself (which is untrue). Alternatively, an estate agent who says they received “lots of inquiries” about a certain property or the child who answers his mom’s question “Did you finish your homework?” by saying that he wrote an essay (while the rest of the homework is still not done) are other examples of paltering, revealing its essential role in impression management or evading negative consequences, like actual lie-telling.

However, by comparing the defining elements of sophisticated deception and paltering, we can argue that there are two essential differences between them. Firstly, *the sender's belief about the receiver's expectation*. In the case of sophisticated deception, the sender predicts that the recipient is expecting to be deceived, and that the offered truthful information will be considered false. In contrast, by engaging in paltering, the sender expects the recipient to believe that the information provided is accurate. Second, the other difference between these strategies is *the sender's intention*. In sophisticated deception, the deceiver's intention is always to mislead the other, to create a false belief in one's mind, whereas in paltering, the deceptive intent is not always evident. For instance, the furniture maker could say "Thank you" with the intent to be polite, not necessary to instill a false belief in others. In line with the present arguments, Ewuoso (2019) argued that paltering should not be considered a form of deception, but rather a non-disclosure strategy with a more ambiguous intent than simple or sophisticated deception.

Socio-cognitive processes involved in sophisticated deception

The shared perspective upon deception considers it more cognitively demanding than telling the truth, the latter being viewed as the default response tendency (Farah et al., 2014; Suchotzki et al., 2015). To employ simple deception, individuals must be able to inhibit the prepotent truth responses, while keeping track of what information they provide to ensure consistency (Botvinick et al., 2001). Moreover, individuals must control their own and others' mental states, inferring what the recipient might think about their intention (Ding et

al., 2014). Again, less is known about what cognitive processes support telling the truth to deceive. In the experimental paradigms measuring sophisticated deception, telling the truth, or telling a lie entail naming an object, a hand, or choosing between two different predetermined messages that can be send to the opponent. For example, some studies asked participants to hide a coin in one of their hands and then try to prevent the opponent from guessing the location of the coin by telling the actual whereabouts of the coin when the recipient was aware of their deceptive intention (Ding et al., 2014; Sai, Ding, et al., 2018; Sai, Wu et al., 2018). In other experimental settings, participants had to indicate the true or the false graphic sign that appeared on the forehead of the opponent (circle or square; triangle or square) to prevent them from guessing the original one. The information was provided by pressing a button corresponding to the desired information, and such, the deceptive action was non-verbal (Carrion et al., 2010; Leng et al., 2019).

Attempting to unfold the socio-cognitive factors involved in adults' sophisticated deception, past research mainly focused on the neural correlates involved in the socio-cognitive processes supporting deception. Employing different types of methodologies (e.g., ERP, fMRI, or fNIRS), researchers found that if the communicator intends to deceive the recipient, telling the truth entails a similar cognitive load as false statements (Carrion et al., 2010; Kireev et al., 2017; Sip et al., 2010; Volz et al., 2015; Zheltyakova et al., 2020, 2021). For example, Carrion et al. (2010) demonstrated that a misleading intent is the key to the cognitive demand imposed by deception, irrespective of how it is carried out (using truthful or false statements). Furthermore, they found that both truthful and false claims made with a deceptive intent elicited more extensive event-related potentials (ERPs). In line with these findings, Sip et al. (2010) showed that in a zero-sum dice game, participants' decision to deceive was associated with higher activation of the frontopolar cortex, which is involved in managing competitive goals, decision making, working memory, and conflict management (Mansouri et al., 2017), key aspects of deception.

The involvement of theory of mind (ToM) in deception is a well-supported finding. Some researchers even argue that deception is ToM in action (Lee, 2013). However, concerning its contribution to sophisticated deception, the evidence so far is mixed. On the one hand, there is evidence showing that compared to plain truth-telling, deceptive intentions were associated with higher activation of the right tempo-parietal junction (rTPJ), the (pre)cuneus (CUN), and middle temporal gyrus (MTG). These regions have repeatedly been shown to contribute to people's ability to integrate socially relevant information and infer others' mental states (Decety & Grezes, 2006). Supporting these findings, Zheltyakova et al. (2020, 2021) also showed that ToM nodes (TPJ, left precuneus, left dorsomedial prefrontal cortex, and right superior temporal

sulcus) functionally interacted in association with simple and sophisticated deception. Comparing these forms of deception in experimental settings, researchers also argued that sophisticated deception is associated with a higher demand for socio-cognitive processes than simple deception, because it requires greater anticipation of others' mental states. This was highlighted by the increased functional interactions of the right TPJ with the right precuneus, primary ToM nodes (Volz et al., 2015; Zheltyakova et al., 2020).

On the other hand, Carrion et al. (2010) provided earlier evidence showing that the better the participants performed in the mentalizing task, the worse they were at deceiving their opponent using sophisticated deception. A possible explanation was that higher ToM imposed more conflict in their decision to lie, hindering their ability to do it. Other researchers argued that Carrion et al.'s finding was partly influenced by the experimental paradigm, which increased the psychological burden of deception (e.g., making eye contact with the opponent the whole time during the deceptive task; Leng et al., 2019). Additional research is needed to have a clearer image of how ToM supports sophisticated deception in adults.

Another line of research involving sophisticated deception in the adult population addressed the cognitive processes participating in its outcome evaluation. Deception is frequently driven by self-interest to increase gains, and thus, deceivers monitor the outcome of deception by engaging in reward-related processes. Reward positivity (RewP) is an ERP component that has been associated with reward processing, primarily when people evaluate their performance in terms of success or failure (Proudfit, 2015). Supporting this idea, Ding et al. (2014) found that adult participants responded to their sophisticated deception's failure (i.e., not being able to mislead the confederate by specifying to the correct location of a coin, while aiming to be perceived as incorrectly saying it) more strongly than in the case of simple deception. This is likely because truth-telling to deceive could be considered more "artful", and thus, they may care more about their failure.

Developmental precursors

Advancing to the *developmental side of deception*, it is well established that children as young as 3½ years of age can tell lies in various social situations. According to the three-stage model proposed by Talwar and Lee (2008), children as young as 2 years of age can tell primary lies, which are mainly meant to avoid punishment (Talwar & Crossman, 2011; Visu-Petra et al., 2022). Later, with their increasing cognitive maturation, children become more capable of maintaining consistency between statements to succeed in their deceptive attempts (Evans & Lee, 2011; Talwar et al., 2017).

However, most of the previous studies have examined children's simple deception, in which participants make a false statement to intentionally mislead an unsuspecting target (Lee & Imuta, 2021; Sai et al., 2021). To our knowledge, there are only three empirical studies so far investigating the emergence of sophisticated deception in children. In the first one, Sai, Ding, et al. (2018) explored 4- to 6-year-old children's ability to use truthful and untruthful claims to mislead a confederate in relation to their socio-cognitive development (e.g., second-order ToM and cognitive flexibility). Using a modified "hide-and-seek" task, researchers found that children as young as 4 can tell second order lies (correctly indicating the location of a coin to mislead the opponent). They also showed that this deceptive behavior was only related to second-order ignorance, which is a prerequisite of second-order ToM, and not to cognitive flexibility or second-order false-belief understanding. We argue that this might be because children's second-order ToM is just starting to develop in that age range, as well as their cognitive flexibility.

The other study addressing sophisticated deception in children involved school-age participants between 12-14 years of age (Leng et al., 2019). The authors were interested in the brain mechanisms of sophisticated deception, engaging children in instructed truth/lie trials vs. chosen truth/lie trials. During these trials, they measured participants' response times (RT) and event-related potentials (ERPs). Results were in line with previous research on adult samples, showing that deception intentions, rather than simply making counterfactual statements, increased the demand for cognitive control in liars. This is also confirmed by additional evidence showing that inhibitory control, verbal working memory, and shifting ability positively predicted school-aged children's sophisticated deception (Prodan & Visu-Petra, 2022).

Implications

The investigation of sophisticated deception across development has important methodological and practical implications. Further research would enrich the understanding of how intentions and social contexts may modulate interpersonal deception's neurocognitive processes. Moreover, this line of research extends the investigation of deception by highlighting that instead of classifying statements as true or false, it may be more insightful to consider the intention driving the use of true or false statements when examining the cognitive and neural markers of deception (Carrion et al., 2010; Sai, Wu et al., 2018).

From a practical standpoint, the investigation of sophisticated deception can also inform practitioners' work in applied settings. For instance, in legal interviewing settings, it is essential to acknowledge that people can also use

truthful information to deceive if they perceive that the recipient is skeptical about the veracity of their statements. This can inform interviewers on their best practices regarding rapport building and how their attitude towards the interviewee can impact the quality of the information obtained. On the other hand, if we think about children's demonstrated ability to use sophisticated deception for personal gain (Leng et al., 2019), the ecological investigation of this type of deception can shed light on promising ways to facilitate education. For example, moral education can also focus on teaching children how to identify the intentions of others and not just focus on their behaviors (Sai, Ding, et al., 2018).

Limitations of the past research

In real-life situations, telling the truth often involves elaborate descriptions of a situation, providing specific details that would inform our recipient about different aspects of the discussed topic. There are few occasions in which the decision between telling the truth and lie-telling involves a simple choice between naming a straightforward thing (e.g., indicating the right or the left hand), such as the one presented in most experimental paradigms investigating sophisticated deception. Moreover, we are often questioned by others on our statements, which requires us to make additional arguments to convince the recipient.

Reviewing the literature to date on sophisticated deception, we observe a big difference in how truth-telling and lie-telling were tested. For example, past developmental research distinguished different deception sophistication levels employed using counterfactual statements, ranging from simple denials of things to elaborate false statements meant to ensure consistency (Evans & Lee, 2011). In contrast with this refined perspective on simple deception, all the studies investigating sophisticated deception are based on a more rudimentary usage of the truth/lie. In the tasks described above, the truth entailed a concise claim that was carried out sometimes by simply pressing a button, pointing in a direction, or telling a simple truth. For example, Sutter (2009) instructed participants to choose between two response options to maximize their monetary gains. More specifically, participants had to send a message to an opponent regarding the monetary consequences of two different options: Message A: "Option A will earn you more money than Option B." or Message B: "Option B will earn you more money than Option A.". Participants had to send one of the messages to the other to maximize their own gains depending on their expectation that the other will follow their recommendation. As such, to use sophisticated deception, people had to make a simple choice between two predetermined messages without needing to give further arguments to convince the others, as would happen in real life.

We argue that this basic level of using the truth does not always align with what truth-telling involves in more realistic social situations. The previous literature on sophisticated deception does not address the higher sophistication of telling the truth with bad intent, but merely reflects a simple choice that may be less cognitively demanding than an elaborate truth in a realistic context.

Future directions in the investigation of sophisticated deception

Future research could address the sophistication of truth-telling with a malicious intent to underly the socio-cognitive associated with it in a more ecological context that would mimic the real-life situations in which we might use it. One possibility would be to use vignettes including imaginary scenarios, such as the "Strange stories" developed by Happe (1994). One of the stories included a double-bluff scenario, where children were presented with a situation in which a soldier captured during war by his enemies was questioned about the position of his troops, the enemies being convinced that the soldier will try to deceive them. Given that the soldier chooses to tell the truth about his troops, children were asked to explain why he did that. This story was further used in other studies to measure higher-order ToM understanding (Osterhaus & Koerber, 2021; White et al., 2009) and is a prototype of a more ecologically valid procedure designed to measure sophisticated deception skills and their perception.

Furthermore, taking inspiration from developmental paradigms used to examine children's ability to maintain their initial lies, such as the temptation resistance paradigm (TRP; Lewis et al., 1989), sophisticated deception could also benefit from adding some subsequent questions meant to evaluate people's ability to argument their initial truthful response to convince a recipient to follow their saying. For example, in the TRP, children's ability to ensure consistency between an initial denial (e.g., *No, I did not peek at the toy*) and subsequent statements are evaluated through additional questioning. Researchers are asking children some questions, such as "How did you know the toy's identity?" (in a situation where children could not know what toy was it if they would not peek at it). Likewise, when investigating people's ability to use truthful statements with a malicious intent, future search could add follow-up questions made to test the deceptive consistency needed to be successful in their attempt to mislead the recipient. Following up on the methodology used by Sutter (2009) to investigate sophisticated deception, after choosing to send message A or B, participants could be asked to argue their initial message depending on their expectation that the other will follow or not their recommendation. Using neuroimaging methodologies, we could also test if trying to maintain sophisticated deception through subsequent arguments is

more cognitively demanding than simple deception, as some researchers are sustaining (Volz et al., 2015; Zheltyakova et al., 2020).

Besides the investigation of how sophisticated deception can be employed, people's attitudes towards this form of deception and children's understanding and moral evaluation thereof can also be an interesting future direction. For example, if we try to make sense of William Blake's poem from the beginning of this paper, sophisticated deception might be perceived as more hurtful than a full-bore lie, as it is shaking the way we perceive the conventional rules of our social interactions (e.g., the convention of always being sincere without any malicious intent). Furthermore, when people convey truthful messages to mislead others, they may not experience strong negative emotions such as guilt that are typically associated with deception (Sai, Wu et al., 2018). Thus, future studies could also investigate the possible differences in emotional consequences of different types of deception.

Conclusions

Sophisticated deception represents another facet of the complex act of verbal deception. Individuals can tell the truth to mislead another based on careful considerations of the recipient's expectations and the social context. This kind of deceptive strategy is more frequently used in highly competitive contexts, in which people may be suspicious of others' deceptive intentions.

Being known by many names in the previous literature, empirical evidence concerning sophisticated deception, although scarce, showed that as well as making false claims, telling the truth with bad intent can impose a higher cognitive load than simple truth-telling. These studies highlight the importance of deceptive intent and the socio-cognitive processes involved in acting on that intent and evaluating the outcome. Processes such as cognitive control, theory of mind, and inhibition are the most well-documented so far, neuroimaging studies showing the neural correlates associated with them (Carrion et al., 2010; Ding et al., 2014; Kireev et al., 2017; Leng et al., 2019; Sai, Wu et al., 2018; Sip et al., 2010; Volz et al., 2015; Zheltyakova al., 2020, 2021). However, the ecological validity of these studies should be enhanced, given the fact that they are studying the basic level of truth-telling and lie-telling, and do not include more sophisticated strategies that could be informative for real-life situations, such as negotiations, legal interviewing, moral education, or economics.

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