

## Machiavellianism and Spontaneous Mentalization: One Step Ahead of Others

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*Abstract:* In spite of the Machiavellians' successful strategies in exploitation of others, they show cognitive deficiencies, especially reduced mind-reading skill. Theory of mind is usually regarded as an ability to make inferences about the mental states of others and thus to predict their behaviour. In our study, we have instead emphasized a motivation-based approach, using the concept of spontaneous mentalization. This concept is construed solely in a motivational context and not in relation to the automaticity of mind-reading ability. It entails that people in their social relations make efforts to explore the thoughts and intentions of others and are motivated to make hypotheses about the mental state of the other person. We assumed that what is peculiar to Machiavellianism is spontaneous mentalization as a kind of motivation rather than mind-reading as an ability. To measure spontaneous mentalization, we created a set of image stimuli and asked our participants to describe their impressions of the pictures. The results show that individual differences in spontaneous mentalization correlate positively with the scores of Machiavellianism. These results suggest that those who have a stronger motivation for putting themselves into the mind of others can be more successful in misleading and exploiting them. Further research should be carried out to clarify how spontaneous mentalization and mind-reading ability relate to each other. Copyright © 2011 John Wiley & Sons, Ltd.

Key words: manipulation; theory of mind; social cognition

### INTRODUCTION

#### Machiavellianism

Davies and Stone (2003) argue that the advanced capacity of mind-reading as a 'neutral cognitive device' brings advantages in two important areas of interpersonal relations. First, it makes it easier to develop the exchange of perspective between two individuals that is necessary for successful cooperation. Second, a well-developed ability to attribute mental states to others enhances competitive skills because it enables individuals to gain advantageous positions or, in certain cases, to manipulate others.

Machiavellianism, which involves manipulation and deceit, is regarded as a behavioural strategy that people employ to use others as a tool for achieving their own goals (Wilson, Near, & Miller, 1996). Psychological research has revealed that Machiavellian thinking and behaviour play important roles in our social relations (Bereczkei, Birkas, & Kerekes, 2010; McIllwain, 2003; Repacholi et al., 2003), and various experimental tools — called Mach tests — were designed to measure this type of behaviour (Christie & Geis, 1970).

Current psychological research clearly shows that Machiavellianism is a complex pattern of behaviour that can be characterized by several essential personality, cognitive and social features. The Machiavellian personality can be analyzed essentially in three different aspects (Gunnthorsdottir, McCabe, & Smith, 2002; McIllwain, 2003; Repacholi

et al., 2003; Wilson, Near, & Miller, 1996). First, it is interpreted as an expressly manipulative behaviour whereby people give nearly absolute priority to their own interests, and the damage or benefit to others hardly matters. Second, it comprises a world view governed by the principle of 'the end justifies the means'. Third, it involves a cynical and suspicious attitude toward others with the conviction that if you do not exploit others, they will abuse you. All these features are strongly related to the ability of Machiavellians to stay away from the emotional influences of situations and events (a type of cold-bloodedness), and as a result, it is more difficult to influence them emotionally (Paal & Bereczkei, 2007).

#### Machiavellianism and theory of mind

Several authors assumed that the manipulative behaviour characteristic of Machiavellianism cannot work efficiently without the refined use of the theory of mind (McIllwain, 2003; Paal & Bereczkei, 2007). Good mind-readers — that is, people who can easily project themselves into the thoughts of others and understand their intentions, beliefs and knowledge — can use this ability more efficiently for achieving their goals than people with weaker mind-reading capacity. Hence, humans with outstanding mentalizing skills are always one step ahead of others and can mislead them more easily than those with poor mind-reading ability. Therefore, the authors predicted that people who can be characterized as Machiavellian — those with high scores on the Mach IV test — make fewer mistakes in theory of mind tests than those who are characterized as less Machiavellian.

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However, surprisingly, this prediction has not been confirmed. The first study did not find a significant relationship between Machiavellianism (measured on the Mach IV scale) and adult mind-reading ability in social relations (measured by a comprehension task consisting of 14 stories and 53 questions; Paal & Bereczkei, 2007). Further studies found that Machiavellianism was negatively correlated with mind-reading test scores based on the 'Imposing Memory Task' (IMT) and the 'Reading the Mind in the Eyes' test (Ali & Chamorro-Premuzic, 2010; Lyons, Caldwell, & Shultz, 2010). The authors concluded that high Machs are performing poorly on both cognitive and affective tasks of mind-reading.

Several studies on clinical samples also confirm the Machiavellians' deficits in social cognition. Some of these studies have revealed that scores on Mach IV correlated strongly with both primary and secondary psychopaths (Ali et al., 2009; Jacobowitz & Egan, 2006). Psychopathic patients, especially secondary psychopaths, have been shown to exhibit a mentalization deficit in connection with recognizing emotions and handling intentional problems (Dolan & Fullam, 2004; Hare, 1993).

In spite of these cognitive failures, Machiavellian people appear to be successful in the exploitation of others. Individuals high on Mach scale ('high Machs') were found to gain higher profit in experimental games, take advantage of misleading cooperation and efficiently deceive others to be able to acquire money, recognition and status (Bereczkei, Birkas, & Kerekes, 2010; Gunthorsdottir, McCabe & Smith, 2002; Sakalaki, Richardson, & Thepaut, 2007; Spitzer et al., 2006; Williams, Nathanson, & Paulhus, 2010).

### Theory of mind as an ability

The controversy between the Machiavellians' successful manipulation and their deficit in mind-reading may lie in our limited comprehension of theory of mind. Theory of mind is regarded as an ability that determines how precisely we can see the mental states of others. This ability might have provided our ancestors with an obvious advantage in interpersonal relations when they had to understand and predict the expected behaviour of others and enabled them to adjust to the constantly changing challenges posed by the groups in which they lived (Brüne & Brüne-Cohrs, 2006; Mithen, 1996).

There is plenty of research on pathological manifestations that are related to the dysfunctions of the theory of mind (Baron-Cohen, 1995; Corcoran, Mercer, & Frith, 1995; Hare, 1993; Rajendran & Mitchell, 2007). Studies on healthy individuals have also focused on mind-reading as an ability. In one study, in which participants read short stories that involved problems about intentionality, large individual differences were found in adult theory of mind (Kinderman, Dunbar, & Bentall, 1998). Paal and Bereczkei (2007) who used a similar experimental paradigm came to the conclusion that mind-reading ability is strongly correlated with the willingness to cooperate and with empathy and consciousness as personality factors (which were measured by one subscale of Cloninger's Temperament and Character Inventory). Studies of experimental games provide some support for the impact

of mind-reading ability on success in cooperation and personality traits linked to prosocial behaviour (Ali & Chamorro-Premuzic, 2010; Nettle & Liddle, 2008; Stiller & Dunbar, 2007).

### Theory of mind as a motivation

The aforementioned studies tend to regard theory of mind as a cognitive ability that is used to predict others' mental contents and to measure how precisely one can infer the internal states of other persons. In many cases, mind-reading can indeed assist adaptation to the social environment so we can make better predictions about the internal world of others as precisely as possible. Our mind-reading ability provides invaluable help for performing social interactions in a smooth and effective way (Paal & Bereczkei, 2007).

However, the question arises of whether the only thing that really matters in our everyday life is how precisely we can predict the thoughts, desires and knowledge of other people. Several authors suggest that the ability to attribute mental states and its precision is not the only criterion that should be taken into account for understanding mind-reading. Tomasello, Carpenter, Call, Behne, and Moll (2005) worked out the notion of 'collective intentionality' that includes, in addition to ability, a special kind of motivation that urges us to share our subjective experience with others. Children reach the level of collective intentionality at an average age of 14 months, which enables them to participate in social relations and collective thinking (Tomasello et al., 2005). The motivation inherent in collective intentionality can be bidirectional: first of all, it urges us to share our psychological states with others. At the same time, it encourages us to focus on the psychological states of others. In the present study, we put the emphasis on the latter.

In the present study, we use the notion of spontaneous mentalization for the willingness to explore the mental states of others. The ability-level aspects of the theory of mind will be differentiated from the motivational aspect that works by urging us to make hypotheses in our everyday lives about others' minds. We hypothesize that there are differences among individuals not only at the level of abilities but also in terms of spontaneous mentalization focus: some people are more, others are less motivated to assess the thoughts and intentions of others in a spontaneous way. It is important to note that we use 'spontaneity' to refer to the hypothesized intrinsically motivated nature of mind-reading attempts, not to predict a certain degree of automaticity of mind-reading ability. We approach mind-reading from a motivational point of view, and not in the sense of an automatic or unconscious cognitive ability.

### Hypotheses

We assume that there may be different strategies at work in mentalization depending on how strongly individuals focus on the mental states of others and how much they are motivated spontaneously to use their own mind-reading ability — irrespective of how refined their skills are in this respect. We define spontaneous mentalization as a drive to try to

attain the fastest and most elaborate internal representation of the mental states of others in various social situations. We assume that the successful use of the manipulative behaviour strategy definitely requires that the information inferred on the basis of psychological states should be available as soon as possible. Therefore, it is hypothesized that it is the Machiavellians who need to take the first step: they have to make efforts to recognize the thoughts of others if they wish to manipulate them successfully. This concept would give an explanation why Machiavellians are so successful in the competition for material and social resources in spite of their reduced ability of mind-reading. In the light of this theoretical framework, we wish to test two predictions: We assume that there are significant individual differences in spontaneous mentalization, that is, in how strongly individuals are motivated to read the mind of others. We assume that people characterized as Machiavellian — those who receive high scores on the Mach IV test — focus more strongly on the mental states of others and take steps to explore the internal world of others earlier than less Machiavellian persons.

## METHODS

### Participants

Our research is based on the data of 112 participants, full-time students at various faculties of the University of Pécs. Fifty of them were men and 62 were women, with an age range of 18–25 years ( $M = 20.6$  years;  $SD = 1.8$ ). They participated in the study voluntarily without any compensation. Participants were tested in small groups consisting 10 to 20 persons.

### Procedure

The participants first saw a set of stimuli consisting of 12 pictures projected onto the screen. They had 20 minutes to react to the pictures in writing (100 seconds for each picture).

Then, we asked them to complete the Mach IV questionnaire. All participants were subsequently informed about the purpose of the research.

### Materials

For the study of spontaneous mentalization, a set of visual stimuli consisting of 12 pictures was compiled (Figure 1). Some of the pictures were made by the authors, and the others were non-copyrighted images downloaded from the Internet. These pictures depicted everyday situations (e.g. a wedding procession, children playing). We assumed that focus set on the picture may influence the participants' mentalization to a certain degree; therefore, we did not use close-ups that could intensify the focus on the emotional states of the people in the pictures. As a first step of the experiments, the pictures were projected on a  $170 \times 127$ -cm screen for the participants. The distance between the participants and the widescreen was approximately 3 m. Short, handwritten descriptions were requested for each picture. Every picture was displayed for 100 seconds on the screen (this duration was optimal for participants to write their responses based on our pilot investigations). We used time pressure to standardize investment in the task and to rule out the possibility that individual differences in responses would be a function of time. The written and verbal instructions were as follows: 'In the first part of the experiment you will see pictures projected onto the screen. Please write 2 to 3 sentences about each picture. The only expectation is that you should write legibly. We do not wish to draw a conclusion about any personality traits from what you write.'

To measure Machiavellianism, we used the Mach IV scale developed by Christie and Geis in 1970. It consists of 20 items that contain short statements related to the rules and principles that may cover relationships with others (e.g. 'The best way to handle people is to tell them what they want to hear'; 'Anyone who completely trusts anyone else is



Figure 1. The four elements of the 12 picture stimuli. The pictures are either our own or have been downloaded from free Internet sites. They do not contain extreme situations; all of them represent situations that people can encounter in their everyday life. We also avoided using close-up shots because they do not reflect real-life situations.

asking for trouble'). The participants used a 7-point Likert scale to indicate the degree of agreement with each item. As was mentioned previously, several studies confirm that high-Mach persons are very successful in competition with rivals; those participants who obtained high scores on the Mach IV scale proved to be more effective in the manipulation of others (Christie & Geis, 1970; Gunnthorsdottir, McCabe, & Smith, 2002) and gained a larger sum of money in experimental games (Czibor & Bereczkei, 2010; Spitzer et al., 2006) than did others.

Although the use of the Mach IV scale is an accepted method in the literature, we decided to verify the reliability of the questionnaire in our study as well, and the result proved to be acceptable (Cronbach alpha = 0.72).

### Coding spontaneous mentalization

The texts written by the participants were entered into a computer and then we conducted psychological content analysis on them (Holsti, 1968) using the ATLAS/ti software. The analysis was inductive, using the Code-by-List functionality of ATLAS/ti. This function allowed independent coders to identify those words and sentences that represented the participants' mentalization, rather than selecting certain phrases from a pre-written list. The basic units of the coding procedure were either single words or phrases and whole sentences. The single words or phrases always referred to mental states, whereas the whole sentences, when participants wrote them in quotation marks, were taken as basic units as if they were thought bubbles belonging to the persons on the pictures.

The frequency of passages that showed that the participant was concerned with the internal states of the person(s) in the picture was coded. Thus, every such passage was interpreted as an element of spontaneous mentalization, and every participant received as many points as such elements were found in the text they had written. The coding of the whole corpus was carried out by the first author. Then, the texts were divided between two independent coders. All responses of a single participant were assigned randomly to one of the coders. Responses from the same participant were not split. The independent coders were blind to the hypotheses of the research. After discussing the concepts, the coding principles and the techniques, they worked with the text on their own. There was high correlation between our coding and the results of the independent coders (Pearson  $r = 0.90$ ,  $p < 0.01$ ). When analyzing the texts containing a total of 11 514 words, we recorded 517 elements in our coding, whereas the independent coders recorded 488 elements. The results of independent coders were used only for ensuring the reliability of the first author's coding, and these results were not used for further statistics.

## RESULTS

### Individual differences in spontaneous mentalization

On the basis of the coding process, we calculated how many mentalization elements appeared in the participants' texts.

For this purpose, we divided the spontaneous mentalization results of the participants in four equal groups in accordance with the frequencies received. The lowest and highest results — falling into the first and fourth quarters — were put into two groups for further analysis (first quarter:  $N = 34$ , 19 women, 15 men; fourth quarter:  $N = 42$ , 19 women, 23 men). After establishing the group variable, the independent sample  $T$  test revealed a significant difference between the values of the two groups ( $t = -20.91$ ,  $p < 0.01$ ,  $d = 0.89$ ): the results of the first quarter proved to be significantly lower than those in the fourth quarter. Another analysis revealed that the number of mental state attributions used by the participants showed normal distribution in the samples (Shapiro–Wilk  $Z = 0.939$ ,  $p > 0.05$ ; Figure 2). So, we can claim that our introductory hypothesis, which assumes that significant individual differences can be demonstrated for spontaneous mentalization, is confirmed. Figure 3 gives an insight into the qualitative data.

### Spontaneous mentalization and Machiavellianism

We found a positive correlation between spontaneous mentalization and Machiavellianism (Figure 4). More specifically, there was a moderate correlation between the number of mental state attributions and the scores achieved in the Mach IV questionnaire (Pearson  $r = 0.40$ ,  $p < 0.01$ ). In addition to the correlation method, we used the previously established group variable in a  $T$  test to examine the difference between the two groups from the point of view of Machiavellianism. The results of the mental state attributions falling into the fourth quarter have significantly higher Machiavellianism values than those of the first quarter ( $72.41 \pm 12.14$  vs  $85.33 \pm 13.7$ ,  $t = -3.98$ ,  $p < 0.01$ ,  $d = 0.35$ ). Nevertheless, a median split comparison on the basis of spontaneous mentalization scores was not significant from the point of view of Machiavellianism ( $75.49 \pm 11.51$  vs  $79.26 \pm 11.63$ ,  $t = -1.16$ ,  $p > 0.05$ ).

Next, we analyzed the possible moderation effects on the relationship between Machiavellianism and spontaneous

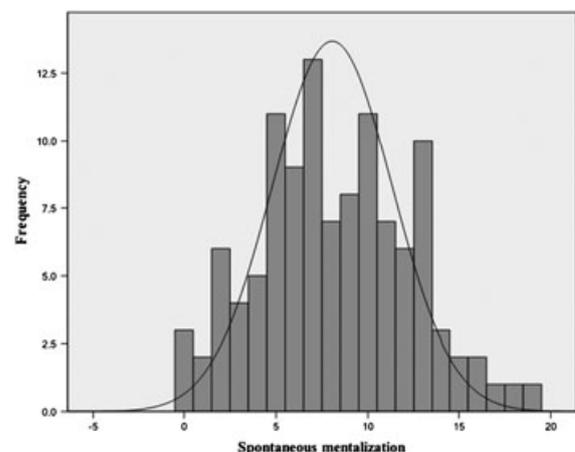


Figure 2. The quantitative distribution of mental state attributions in *spontaneous mentalization* with a normal distribution curve placed over it. The minimum spontaneous mentalization score was 0; the maximum score was 19. The mean score was 8.5.

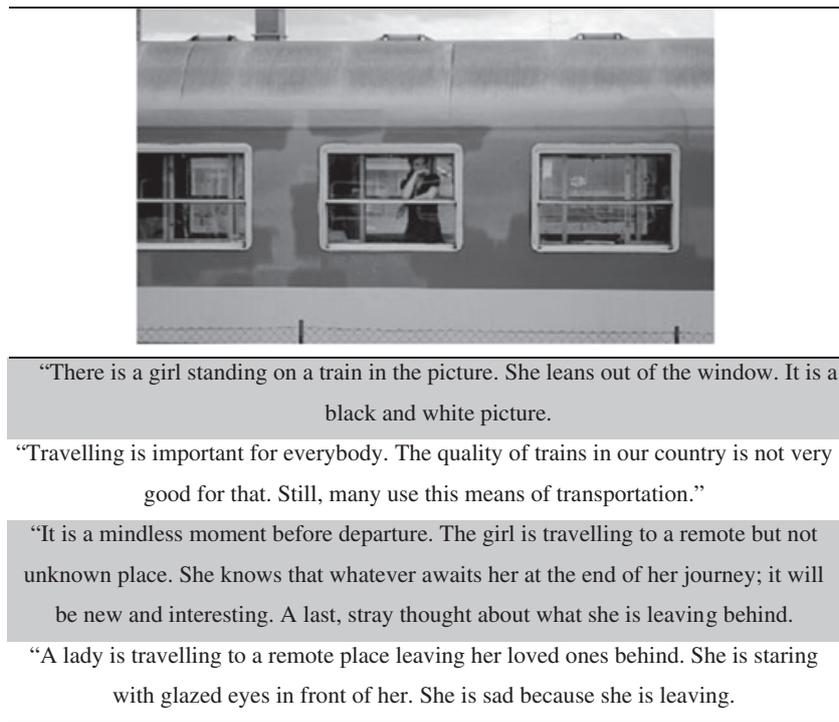


Figure 3. Answers given by four different participants to the same item. The first two cases exemplify the lack, and the other two, the presence of mentalization focus.

mentalization, using the available data. First, we took a closer look at gender differences. In line with the results of previous research (Andrew, Cooke, & Muncer, 2008), the Machiavellianism value was higher for male than for female participants ( $t=3.07$ ,  $p < 0.05$ ,  $d=0.28$ ). At the same time, there was no difference between the sexes for the spontaneous mentalization that we measured ( $9.77 \pm 4.73$  vs  $8.66 \pm 3.95$ ,  $t=0.89$ ,  $p > 0.05$ ).

Positive correlations have been found between spontaneous mentalization and Machiavellianism for both male and female subjects ( $r=0.51$ ,  $p < 0.001$ ;  $r=0.35$ ,  $p < 0.01$ ,

respectively), and these correlations did not show a significant difference ( $z^* = 1.02 < 1.96$ ). Additionally, when we ruled out the possible effect of sex by using partial correlation, we found that the values for the relationship between Machiavellianism and spontaneous mentalization (Pearson  $r=0.46$ ,  $p < 0.01$ ) were not significantly different from the original correlation values.

Then, we also looked at the possibility of whether the participants who wrote more about the pictures attributed more mental states in their texts. This possible correlation should be addressed because if it turns out that the number of mentalizations depends on the length of the texts, the result on the relationship between spontaneous mentalization and Machiavellianism should qualify as a mere artefact. However, we managed to provide evidence against the artefact hypothesis. Using partial correlation, we ruled out the effect of the number of words, and the original correlation value (Pearson  $r=0.41$ ,  $p < 0.01$ ) did not change as a result. This result shows that the spontaneous mentalization strategy proves to be efficient irrespective of the length of the texts written by each participant — that is, of the possible differences in verbal abilities.

## DISCUSSION

Our results suggest that spontaneous mentalization, a more motivation-based aspect of mind-reading, (i) shows large individual differences and (ii) plays an important role in the manipulation of others. Individuals high on Mach scale were found to focus more strongly on the mental states of others than those low on Mach scale. The individual differences

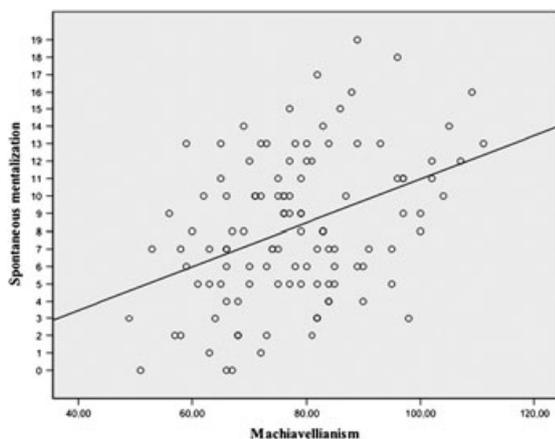


Figure 4. Graphic representation of the positive correlation between Machiavellianism and spontaneous mentalization. The horizontal axis represents the scores achieved in the Mach IV test, and the vertical axis shows the number of mental states attributed to the people in the pictures by the participants as the variable of spontaneous mentalization.

measured in spontaneous mentalization lead us to conclude that in the case of everyday, real-life situations, people may have initial strategies that help them focus on the mental states of others. All this may be related to Machiavellianism; using spontaneous mentalization, people with an inclination to manipulate others may always try to be one step ahead of the other and gain important knowledge that can later be profitable in deceit and fraud. In line with this interpretation, several authors doing research on the topic stress the belief of Machiavellian people that if they do not exploit the other, the other will abuse them instead (Jones & Paulhus, 2009; McIllwain, 2003; Paal & Bereczkei, 2007; Wilson et al., 1998).

Our results suggest that it is not only mind-reading as an ability that can characterize the adult theory of mind, as has been suggested by previous research, but a sort of motivation to make hypotheses regarding the other's mind. In the history of the empirical research of mind-reading, this is by no means the first time when experimental conditions have been set up to measure the spontaneous manifestations of mind-reading ability. Heider and Simmel (1944), in their pioneer study, showed that adult participants are inclined to employ mental terms to describe the relative movements of geometric shapes. Springer, Meier, and Berry (1996) found that 5-year-old children, similarly to adults, use mentalizing terms to describe stimuli employed in the Heider and Simmel's study. The conjunction of stimuli based on the self-propelled objects and functional brain imaging later provided a more detailed study of 'online' mind-reading ability (Castelli, Frith, Happé, Frith, 2002; Castelli, Happé, Frith, Frith, 2000). It turned out that the participants tended to describe the animated objects in terms of mental states, and their brain activity showed increased activation in regions that former studies had linked to mentalizing functions. In these studies, the inclination towards mentalization was handled as a so-called 'online' performance, which was characteristic of mind-reading ability and intentional stance, and not of motivation.

It was an important prerequisite for the present study that the subjects had not been encouraged at all to use their mind-reading ability. Yet, some of them showed a strong willingness to use their mind-reading ability, whereas others had much less willingness to do so. Obviously, we cannot infer from this that those who focused less on the mental states of others have a weaker ability in this respect. What we suggest is that spontaneous mentalization might exhibit some independence from the mind-reading ability. It is quite possible that somebody is a good mind-reader but is not too motivated to view the world from the perspective and on the basis of the thoughts of others.

A contrary cognitive disposition may also be quite frequent: some people may feel constantly inclined to think the thoughts of others, but his or her abilities do not enable him or her to understand these thoughts. Machiavellian people — or some of them — may sometimes belong to this type. They make efforts to figure out the intentions and knowledge of another person to use her/him as an instrument for achieving their goals. This hypothesis could explain why previous studies were unable to show a positive correlation between mind-reading ability and Machiavellianism (Ali &

Chamorro-Premuzic, 2010; Lyons, Caldwell, & Shultz, 2010; Paal & Bereczkei, 2007).

In spite of their reduced mind-reading capacity, high-Mach persons — as mentioned previously — may be successful in a competition with others for gaining resources (Jones & Paulhus, 2009; Spitzer et al., 2006). Perhaps the mind-reading disposition — the ambition to gain access to the internal states of others — can be seen as a kind of training that helps us arrive at more precise judgments about the interpretation of different mental contents. It is possible that the development of the disposition for spontaneous mentalization also has an influence on the ability itself, although this hypothesis requires further research.

However, the question remains: How can successful manipulation be achieved when one does not have an outstanding ability to understand what others believe, feel and think? One possible hypothesis is that a malfunctioning theory of mind enables high Machs to manipulate others for their own benefit. Several studies have revealed that Machiavellian individuals have deficits in understanding emotions (Ali & Chamorro-Premuzic, 2010; Austin et al., 2007). Because pro-social emotions, such as empathy, guilt and shame, may be tools that prevent people, in general, from overt manipulation of others, the lack of understanding these emotions might even enable Machiavellians successfully to exploit others. Another possibility for explaining Machiavellian people's efficient manipulative behaviour is that they are highly sensitive to reward and punishment. Spitzer, Fischbacher, Herrnberger, Gron, and Fehr (2006) found that participants' Machiavellian scores were strongly correlated with an increase in non-compliance in the social punishment condition and with activations in brain regions associated with evaluation of punishing stimuli. High-Mach people may experience stronger negative affect in response to punishment, which might explain why these participants earned more money in their experiment than did low-Mach persons. These possibilities should be tested in future research.

It is possible that the cynicism and 'cold' mentality that is specific to high-Mach persons derives from the fact that their highly developed spontaneous mentalization ability is not coupled with other mentalization elements. More specifically, it may be that they do not have the ability to focus on their own psychological states. For most people, there is another tendency at work in addition to the spontaneous mentalization directed at others that involves their own intuitions and impressions, which enables them to experience emotional effects. Perhaps individuals with high Machiavellianism lack this kind of self-reflection, so their own emotions remain concealed from them, and it is also possible that it prevents them from recognizing emotions in others too (Davies & Stone, 2003, Lyons et al., 2010). Our own results cannot help in solving this problem, because what we did was that we separated the focus on the psychological states of others from the description of the subjects' own psychological states, but we did not take a thorough look at the latter in the analysis of the texts. However, future research may be organized in a way that can address this issue as well.

An obvious limitation of our study is that we related spontaneous mentalization only to Machiavellianism. Three

overlapping personality variables — Machiavellianism, narcissism and subclinical psychopathy — have come to be known as the ‘Dark Triad’ of personality. Individuals with these traits share a tendency to be callous, selfish and malevolent in their interpersonal dealings (Paulhus & Williams, 2002). Several studies have found significant negative correlations between Machiavellianism and primary psychopathy, secondary psychopathy, and narcissism (Ali et al., 2009; Jacobwitz & Egan, 2006). At the moment, we do not know if spontaneous mentalization is unique to Machiavellianism, or whether the other variables of the Dark Triad are also involved in this motivational superiority. Future studies could clarify these relationships and the possible mediating processes among them.

Another limitation to the current study was the lack of measuring mind-reading ability in association with Machiavellianism. Administering a Theory of Mind (ToM) measure on the visual stimuli we used in the present experiment would answer the question on what relationship exists between mind-reading as a motivation and mind-reading as an ability in high-Mach people. Similarly, future studies could measure the reaction time to social versus non-social stimuli, with a predicted result that individuals scoring higher on the Mach IV scale are reacting faster to figuration requiring mentalization.

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