Abusing Good Intentions: Machiavellians Strive for Exploiting Cooperators

Tamas Bereczkei¹, Zsolt Peter Szabo¹, and Andrea Czibor¹

Abstract
The present study aims to understand how Machiavellians switch from one kind of response to another in different circumstances to maximize their profit. We set up a specific experimental paradigm that involved both a cooperative and competitive version of a public goods game. We found that Machiavellianism accounts for the total amount of money paid by the players (N = 144) across five rounds in the cooperative but not in the competitive game. Compared with the others, individuals with higher scores on Mach scale contributed less to the public goods in the cooperative condition, but no difference was found in the competitive condition. Finally, this relationship was influenced by the sequence of the games. These results indicate that Machiavellians skillfully evaluate social environments and strive to exploit those with abundant contributions to public goods.

Keywords
manipulation, public goods game, cooperation, competition

Introduction
Machiavellian persons behave in a self-interested way by manipulating others for personal gain (Christie & Geis, 1970; Wilson, Near, & Miller, 1996). Scales measuring individual differences in Machiavellianism were introduced by Christie and Geis (1970), and they have been frequently used so far. Individuals with high scores on Mach scales—that is “high Machs” (HM) in short or “Machiavellians”—have a tendency to be callous, selfish, and malevolent in their interpersonal dealings (Paulhus & Williams, 2002). They have a cynical view of human nature in that they see others as weak and untrustworthy and have a disregard for conventional morality (Fehr, Samsom, & Paulhus, 1992). Although these individuals are particularly successful in short term social interactions, recent studies have revealed that they can adjust their behavior to the changing situations even in the long run (Czibor & Bereczkei, 2012; Jones & Paulhus, 2009). They change their behavior when faced with the risk of being punished and gain a high amount of money in a 10-rounds game (Spitzer, Fischbacher, Herrnberger, Grön, & Fehr, 2007), pretend to cooperate when it is advantageous for them in the future (Bereczkei, Birkas, & Kerekes, 2010), and steadily monitor others’ behavior in a social dilemma situation to maximize the benefit they receive in subsequent rounds (Bereczkei & Czibor, 2014; Czibor & Bereczkei, 2012).

These studies have demonstrated the tactical skills of Machiavellians and the flexibility of their responses to various situations. However, an important question has been left unanswered: How Machiavellians switch from one kind of response to another in different circumstances? More specifically, how do they change their decisions in a social dilemma situation when they alternate between a competitive and a cooperative social condition?

To answer these questions, we set up a specific experimental paradigm. Previous research using social dilemma situations (Trust Game, Public Goods Game [PGG]) has mostly investigated Machiavellian strategies within a single context, primarily in mixed motive situations where a certain level of cooperation was predictable (Bereczkei & Czibor, 2014; Gunnthorsdottir, McCabe, & Smith, 2002). Under these circumstances, Machiavellians were the winners, due to their self-oriented and cynical character. What happens, however, when the players have to face the norm of competition as well as that of cooperation, as is the case in everyday life? We designed our experiment to ensure that every subject participated in both a cooperatively framed game (where everybody received the money they collected during the game) and a competitively framed game (where only the winner received money).

¹University of Pécs, Hungary

Corresponding Author:
Tamas Bereczkei, Institute of Psychology, University of Pécs, Ifjusag street 6, Pécs 7624, Hungary.
Email: bereczkei.tamas@pte.hu
We hypothesize that when everyone is competing for a limited amount of resources, exploitation does not appear so profitable and effective than in a situation where the others’ willingness to cooperate is expected and predictable. First, unlimited competition has an obvious cost: When each participant contributes a minimal amount of money to the group’s account in PGG, the redistributed sum will also be very small per individual. Second, when everybody seeks to acquire as much profit as possible, Machiavellians simply will not have enough dupes to manipulate. Therefore, they may restrict themselves in manipulative tactics and restrain from escalating competition at any price. They are expected to limit their self-interested attitude and play rather for avoiding defeat, that is, to prevent others from obtaining a higher profit.

Under cooperative circumstances, however, Machiavellians are expected to switch to another tactic. When the other players—following the expected norms of cooperation—are likely to contribute high amounts to public goods, Machiavellians will have a large stage for exploitation. As former research has confirmed, they are not bound by this norm and can freely defect the others (Christie & Geis, 1970; Jones & Paulhus, 2009; Wilson et al., 1996). In the hope of obtaining high profit, Machiavellians in this condition will attempt to maximize this exploitative strategy.

Method

Participants

A total of 144 undergraduate students (66 males and 78 females, $M_{age} = 22.16$ years, $SD = 2.59$) participated in the study. All volunteered to participate in the experiment. The participants received remuneration in the form of the amounts they won in the experimental games.

Experimental Games

In the experiment, the participants had to face two social dilemma situations as different versions of the PGG. The cooperative condition was basically equal to the “traditional” version of PGG, whereas the competitive condition represented a different situation where cooperation was not expected by the players. Some previous studies used competitive and cooperative framings and payoff structures in two-person (Cone & Rand, 2014; Engel & Rand, 2014) or in group-level (Augenblick & Cunha, 2015) social dilemma tasks. These studies have indicated that the manipulation of the framing has measurable effect on the participants’ decisions. The average level of contributions in the cooperatively framed social dilemma tasks exceeded the average level of contributions in the competitively framed social dilemma situations, respectively.

Five subjects participated in each game. The participants received a code which ensured anonymity. They received an initial monetary endowment at the beginning of each round (Hungarian Forint [HUF] 200). They had to make a decision about how much money they would transfer to their own account and how much to put into the group’s public account, in five rounds. At the end of each round, the experimenter doubled the amount that had been sent to the public account and redistributed it to the five players in equal proportion, irrespective of their actual contribution. Each of the participants could monitor the contribution of their group members—identified by a code listed on a board—to the public account and the profit they netted. We used folding screens to ensure that the players could not see each other’s contribution and identify who was behind the codes (Figure 1).

The two experimental situations differed in several ways. In the situation that encouraged cooperation (cooperative condition), each player received instructions with a cooperative framing. In addition, each player was given the ending amount of their private account at the end of the game. Therefore, the profit within the group could be maximized through cooperation: The more the players transferred to the public account, the larger the redistributed amount was per person, hence, the final profit was also larger.

In the situation encouraging competition (competitive condition), only one of the five players received money: the one who accumulated the largest amount in his or her private account by the end of the fifth round. In this situation, cooperation did not pay off. The winning strategy was to minimize the amount to be transferred to the public account and maximize the amount that remained in the private account. In the
instructions they received prior to the game, they found a
script that encouraged them to compete with the other
players.
As there was a significant difference between the average
values of contribution paid by each group of five members,
to ensure objective comparability we calculated individual
profit in proportion to the average prize money of the group
rather than the face value.

**Mach-IV Scale**

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 in connection with the
rules and principles that may cover relationships with others.
The participants used a 7-point Likert-type scale to indicate
the degree of agreement with each item. In the present study,
the mean score on Mach-IV was 102.20, the standard devia-
tion was 16.33, and Cronbach’s α was .77.

**Procedure**

Five subjects participated in the experiment on each occasion.
First, we asked them to fill out the 20-item Mach-IV Test.
Subsequently, they participated in a PGG under the guidance
of an experimenter. Every subject participated in both situ-
ations (competitive and cooperative) in a randomized order.
The amounts won by the participants were paid individually,
on the basis of their codes, ensuring anonymity.

**Results**

In general, the average contribution to the public goods was
significantly higher in the cooperative-oriented than compet-
itive-oriented game (557 ± 354 HUF vs. 456 ± 293 HUF, t =
−2.83, p < .01, Cohen’s d = 0.41). This suggests that, as
expected, in the cooperative condition, the players trans-
ferred a higher amount of money to the public account of the
group than in the competitive condition.

A significant relationship was found between Mach scores
and the total amount of money transferred to the group’s
account by the players during the game in the cooperative
condition, F(1, 142) = 3.97, p < .05, but not in the competi-
tive condition, F(1, 142) = 0.26, p > .05. This result shows
that individuals with higher and lower Mach scores differ-
ently contribute to the public goods in cooperative and com-
petitive conditions. Whereas the average contribution of both
group declines across rounds—for cooperative game: F(4, 568) = 8.90, p < .001; for competitive game:
F(4, 568) = 53.76, p < .001—Mach scores have an effect on
the total amount of money paid by the players in the coopera-
tive game but not in the competitive game (Figure 2).

Considering the sequence of the games, additional rela-
tionships appeared. When the experimental procedure began
with the competitive game (and then came the cooperative
game), no significant differences were found between
Machiavellianism and the total contribution in both game—
competitive condition: F(1, 73) = 0.28, p > .05; cooperative
condition: F(1, 73) = 0.32, p > .05. In contrary, when the
cooperative condition was the first (and the competitive the
second), the relationship became strong between total contri-
bution and Mach scores in the cooperative condition—coop-
erative condition: F(1, 67) = 9.27, p < .01; competitive
condition: F(1, 67) = 2.25, p > .05.

When the total payoff was considered at the end of the
game, scores on the Mach-IV scale were significantly related
to the profit gained by the players in both the cooperative and
competitive conditions (r = .28, p < .01; r = .19, p < .05,
respectively).

![Figure 2. The relationships between Machiavellianism and the
players’ total contribution across five rounds in competitive (a)
and cooperative (b) conditions.](image-url)
Discussion

Research in recent years reveals that while Machiavellians are characterized by a relatively low level of mind reading ability and emotional intelligence (Ali & Chamorro-Premuzic, 2010; Paal & Bereczkei, 2007), they can flexibly adapt to some challenges of the social environment (Bereczkei, Deak, Papp, Perlaki, & Gergely, 2013; Czibor & Bereczkei, 2012; Jones & Paulhus, 2009; Spitzer et al., 2007). However, there has been relatively little research on how Machiavellians switch from one strategy to another when social circumstances change.

Competitive Versus Cooperative Condition

In the present study, the subjects had to make a decision in competitive and cooperative conditions. We wanted to know whether Machiavellians use the same strategy in both cases and whether there is any difference in how successfully they can exploit others. Our analyses revealed that Mach scores had an effect on the players' contributions only in the cooperative, but not in competitive, condition. Those with higher scores on Mach scale made lower contribution than those with lower scores under the circumstances where cooperation was encouraged.

It is possible that in the competitive situation—where each player strives to win because only the winner of the game could take home the prize money—Machiavellian attitudes play a relatively small role in profoundly influencing the final payoff. If each player would radically cut his or her contributions in the process of rivalry, the amount of money in the public account of the group will sharply diminish. Therefore, less money could be redistributed among the players in the subsequent rounds and everybody will lose by the end of the game. Thus, when everyone is competing for a limited amount of profit, exploitation does not appear to be effective. Everybody wants to achieve the same thing: win the money of the others. Therefore, Machiavellians cannot make good use of their manipulative tactics. They might adjust to this social condition by raising the amount of money they transferred to avoid the extreme escalation of competition.

In the cooperative situation, on the contrary, it is worthwhile for Machiavellians to exploit the others' abundant offers, contribute less, and win more by the end of the game. This situation is one in which the others are supposed to pay a lot to the public account, following the norm of cooperation. Machiavellians are not bound by this norm, as suggested by their relatively low cooperativeness score measured in former studies (Bereczkei & Czibor, 2014; Czibor & Bereczkei, 2012). In this condition, they are likely to reduce their contribution to the public goods that, consequently, may lead to successful exploitation of the other players.

This result coincides with the findings of a recent fMRI study (Bereczkei et al., 2015) revealing that the social environment involving opportunities for exploiting others may be more demanding for Machiavellians. They showed elevated brain activities in the fair condition (where the partner made a cooperative initiation) but not in the unfair condition (in which the others did not reciprocate). The authors argued that Machiavellians handle social dilemmas in a utilitarian manner by judging—and approving—moral violations.

Sequence of the Game

The relationship between Machiavellianism and the players' total contribution across the five rounds of the games was influenced by the sequence of the games: When the competitive-oriented game was the first in the experimental procedure, no significant associations were found between Mach scores and the total contribution in both types of the games. Large difference was measured, however, in the cooperative condition when it was the first game (and the competitive game was the second). These results raise a question that we cannot answer at the moment. It is possible that playing first in a competition-oriented situation (where only the winner received money) deeply influenced the players' decisions in the subsequent cooperative-oriented game. It may be a certain kind of “priming”: Machiavellian individuals learn that exploitation is not effective when everyone is competing for a limited amount of resources, and they extend this attitude to the second game. Obviously, more studies should be done to clarify this effect.

In general, a lot of studies have demonstrated that participants in social dilemma games can manage to adjust their strategic behaviors depending on the games they are playing. A recent study, using a very large sample, found strong correlations among cooperative decisions across various games (Peysockhovich, Nowak, & Rand, 2014). The players kept cooperative motivation when moving from dictator to ultimatum to PGGs. At the same time, no significant relationships were found between any cooperation decisions and competitive behavior. The authors argue that “cooperative phenotype” does not extend to other social behaviors, such as competitiveness. Both cooperative and competitive behavior appear stable over time; defectors (those who give nothing) and “super-cooperators” (those who give the maximum amount) in their first game are likely to make the same decision in their last game. These findings coincide with the results of a Machiavellian study: Persistence, as a main personality factor, had a large positive effect on the amount of money that both high Mach and low Mach players contributed to the group in PGG (Czibor & Bereczkei, 2012). We speculate that Machiavellians shifting to competitive condition face a decreasing chance of getting reward, therefore, abandon their strong and enduring striving for higher accomplishments.

Individual Payoff

We found a positive relationship between Machiavellianism and the individual payoff in both the competitive and cooperative conditions. It is a surprising result given that in the competitive condition there was not a significant relationship between Machiavellianism and individual contribution. However, as a
former analysis using high Mach–low Mach dichotomy has shown, Machiavellians even in the competitive circumstances can exploit others (Czibor & Bereczkei, 2012). They started the game with a relatively low contribution and then strived not to exceed the others’ contribution throughout the game. As a result, they gained a higher profit by the end of the game compared with the others. We think that Machiavellians facing the challenges of different social environments weigh the related costs and benefits. When all players engage in rivalry and the amount of the redistributed sum would be relatively low, they do not take the risk of radically decreasing their contribution. Instead, they offer a slightly lower amount than the others round by round that may still lead to a higher profit at the end of the game. In the cooperative condition, however, where the other players pay higher amounts of money and no punishment is at risk, Machiavellians more sharply reduce their contribution, and as a consequence, they maximize their profit.

In sum, our results indicate that Machiavellians show a flexible strategy in that they can adjust their behavior to the prevailing conditions. They switch from one strategy to the other when the circumstances change. They pursue one strategy when it is useful in one situation and follow the other if it is more profitable in the other situation. Obviously, more studies should be done in the future to learn more about the specific social and cognitive mechanisms underlying the alternation between these strategies used by Machiavellians.

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Author Biographies

Tamas Bereczkei is a professor of psychology who has also graduated as a biologist and philosophy teacher. He has conducted studies in various topics, such as altruism, mate choice, parental care, and others. Recently, he is engaged in experiments focusing on mindreading, Machiavellianism, and social intelligence.

Zsolt Peter Szabo, PhD, is an assistant lecturer of social and organizational psychology at the University of Pécs. His main interests are group-based emotions, the relationship between psychology and history, and social identities.

Andrea Czibor, PhD, is an assistant lecturer of social and organizational psychology at the University of Pécs. Her main research interests are evolutionary psychology, cooperation and competition and the situational and personality predictors of decisions in social dilemma situations.