Individual Differences in Machiavellianism as a Mix of Cooperative and Exploitative Strategies

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Subjects who score high on Machiavellianism are often charming and attractive in short-term social interactions. It is unclear from their behavior whether they are using a deceptive strategy of exploitation or whether they are merely exceptionally capable social actors. We used a story-telling method to explore aspects of Machiavellianism that are not obvious from short-term social interactions. Subjects who scored high and low on Machiavellianism wrote stories in the first person, whose main characters (referred to as "I") were evaluated by another set of subjects. The stories reveal the cooperative nature of low-Machs and the exploitative nature of high-Machs in particularly sharp focus. Judged by their fictional creations, high-Machs were rejected as social partners for most relationships, except when their exploitative skills could be directed against members of other groups. © 1998 Elsevier Science Inc.

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T erms such as "selfish," "manipulation," and "Machiavellian" have acquired two sets of meaning in evolutionary biology. The first set refers to any adaptive social behavior that evolves, as illustrated by the following quote from Dawkins and Krebs (1978); "Natural selection favours

individuals who successfully manipulate the behavior of other individuals, whether or not this is to the advantage of the manipulated individuals." Similarly, Byrne and Whiten (1988) define "Machiavellian intelligence" as those aspects of intelligence that evolved in response to social interactions, regardless of whether the interactions are primarily cooperative or exploitative.

The second set of meanings uses the same words to refer to behaviors that are specifically exploitative, as opposed to cooperative. For example, Hirschleifer (1987) and Frank (1988) developed a theory of emotions as commitment devices. People who blush every time they tell a lie might seem to be at a disadvantage, but blushers will benefit as attractive social partners if others know they are incapable of concealing a lie. This theory predicts that warm-hearted individuals and more calculating cold-hearted individuals will coexist in a stable equilibrium.[1] The cold-hearted individuals would be called selfish, manipulative, and exploitative in everyday terms and by Hirshleifer and Frank. However, *both* warm-hearted and cold-hearted individuals are adaptively "manipulating" their social partners and count as examples of "Machiavellian intelligence" according to the first set of meanings.

Semantics aside, the question of whether single populations consist of a mixture of cooperators and exploiters, who coexist with each other in a kind of intraspecific predator-prey relationship, is one of the most fundamental questions that can be asked about the social behavior of humans or any other species. We recently reviewed the psychological literature on Machiavellianism in search of empirical answers for humans (Wilson et al. 1996; see Mealey 1995 for the related subject of sociopathy). Unfortunately, as with so many other aspects of human behavior such as mate choice (Buss 1994) and child abuse (Daly and Wilson 1988), the psychological literature often does not address the questions that are most important from an evolutionary perspective. Psychologists have not converged on a multi-strategy view of cooperation and exploitation, and evidence for this view must be pieced together from studies that were conducted for other purposes.

Studying cooperation and exploitation is complicated by the fact that exploiters must often disguise their intentions to achieve their goals. Subjects who score high on Machiavellianism (referred to as high-Machs) are perceived as charmers by both their peers and the scientists who study them, at least over the short term (Bochner et al. 1975; Cherulnik et al. 1981; Christie and Geis 1970; Geis 1970; Okanes and Stinson 1974). Cherulnik et al. (1981) reported that high-Machs were perceived to be more "charming" and "intelligent" than low-Machs, despite the fact that Machiavellianism does not correlate with any standardized measure of general intelligence (Wilson et al. 1996). In their review of the literature through 1970, Christie and Geis (1970) concluded that "high Machs are preferred as partners, chosen and identified as leaders, judged as more persuasive, and appear to direct the tone and content of interaction—and usually the outcome" (p. 313). Indeed, Christie and Geis (1970) themselves admitted to "a perverse admiration for high-Machs" (p. 339). Thus, it is

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[1]Individual differences at the phenotypic level can be caused by a variety of proximate mechanisms, including genetic polymorphisms and developmental plasticity. See Wilson (1994) for a general discussion, Wilson et al. (1996) for a discussion with respect to Machiavellianism, and Mealey (1995) for a discussion with respect to the related subject of sociopathy.

unclear from the psychological literature whether high-Machs should be viewed as wolves in sheep's clothing or as exceptionally capable social actors.

The present research is in the same spirit as that by Ellis and Symons (1990), who used fantasies to test evolutionary predictions about human sexual attitudes. Fantasies are unconstrained by the demands of interacting with other people and therefore can be, in some respects, more revealing than actual behaviors. For example, men and women have roughly the same mean number of sexual partners. In fact, with an even sex ratio and heterosexual relationships, the means are necessarily exactly the same. However, if men fantasize about having many more sexual partners than women, this tells us something interesting about human psychology that was not forthcoming from actual behavior. In this study we use a similar method to investigate differences between high-Machs and low-Machs. Our results support the interpretation of low-Machs as cooperators and high-Machs as exploiters in a multi-strategy human population.

METHODS

The experiment consisted of two phases. In Phase 1, subjects were asked to write fictional stories in the first person singular on a specified theme. Then they were asked to complete the Mach IV questionnaire (Christie and Geis 1970) so they could be rated for Machiavellianism. In Phase 2, stories by high- and low-Mach authors were read by another set of subjects, who then evaluated the main character in each story (referred to as "I") as a potential social partner.

Subjects

The subjects were 54 male and 68 female undergraduates from Binghamton University, who received either research participation credit or a small stipend ($5.00) for participating. All subjects were volunteers who read and signed a consent form.

Procedure

The story writers were 30 of the male and 26 of the female subjects, who were naive with regard to the intent of the experiment. Each story writer was provided with a word processor and the following written instructions:

> You find yourself shipwrecked on a deserted island with two other passengers from your ship, Mary and Jane [for female subjects; John and Peter were used for male subjects]. You recall seeing them on board the ship, but you never actually met them. A three day supply of food and fresh water has washed up on shore with you. In a first person narrative (refer to yourself as "I"), write a story describing the next few days on the island. Be sure to include any specific interactions that may occur between Mary, Jane, and yourself. You will be given 50 minutes to enter your story into a personal computer that has already been set up. Enter your assigned number and immediately begin your story. Grammar and spelling are not important, so please do not waste time trying to construct a perfect essay.

After completing the writing exercise, Christie's Machiavelli IV (Mach IV) questionnaire was administered to each subject (male mean score = 98.1, SD = 16.3; female mean score = 90.1, SD = 13.1).

The story readers were the remaining 24 male and 42 female subjects. Stories by the five highest and five lowest scoring authors of each sex on the Mach IV test were selected for evaluation by the readers. One of the male high-Mach stories was discarded because the content of the story did not relate at all to the prescribed scenario; this story was replaced with the story from the sixth highest male scorer on the Mach IV test. The final ranges of Mach IV scores for authors of the selected stories were 111–124 for male high-Machs (mean = 116), 104–125 for female high-Machs (mean = 110), 78–90 for male low-Machs (mean = 82), and 59–81 for female low-Machs (mean = 75).

Each reader received a folder containing two stories in random order, one written by a high-Mach author and the other by a low-Mach author of the same sex as the reader. High-Mach/low-Mach story combinations were randomly paired within sex. The readers were naive with respect to the purpose of the experiment. They were told only that the stories were written by other undergraduates in response to the previously stated scenario.

After reading both stories, readers were given an affiliation questionnaire for each story, requesting them to indicate on a scale of +3 to −3 their willingness to enter into the following social relationships with each main character:

1. Partner in a small business
2. Sharing an apartment
3. Confidante (someone with whom to share problems and secrets)
4. Member of your debating team
5. Employer (someone who directly supervises your work)
6. Someone to whom you would loan money.

These relationships were chosen to vary in their potential for exploitation within and between groups, with confidante and member of a debating team at opposite extremes. A debating team is presumably structured so that manipulative skills are directed against other teams and not against members of one's own team. We predicted that the main characters of high-Mach authors would be rejected as social partners in direct proportion to the potential for exploitation within groups, but might actually be favored when their skills were directed against other groups.

Next, each reader was asked to rate the main character of each story (referred to as "I") for a list of specific advantages and disadvantages of the reader entering into a relationship with the main character. The list was created by the act nomination method of Buss (1988). First, a subset of readers (male n = 9, female n = 23) was asked to list advantages and disadvantages in an open-ended format. Their responses were used to generate the list shown in Table 2, which was given to a second subset of readers, who were asked to indicate how well each term described the main character on a scale from −3 (highly inappropriate) to +3 (highly appropriate). Statistical analysis for this part of the study was restricted to the second subset of readers (male n = 15, female n = 19). Some of these advantages and disadvan-

tages are clearly opposites of each other and should not be regarded as independent traits. They were included because they were identified by the first subset of subjects and we wanted to alter the subject-generated list as little as possible.

Finally, all readers were requested to complete the Mach IV questionnaire as they thought the main character of each story that they read would have filled out the questionnaire. These ratings were compared with the Mach scores of the authors obtained in the first phase of the experiment.

To summarize, the experiment was designed to see if naive subjects: (1) could accurately discriminate between high- and low-Mach authors through their fictitious main characters (referred to as "I" in the stories); (2) would have differential interest in entering into various interpersonal relationships with the creations of high and low-Mach authors; and (3) would differentially attribute specific advantages and disadvantages to associating with high- and low-Mach main characters.

RESULTS

Reader Judgment of Machiavellianism in Main Characters

Story readers accurately discriminated between the stories of high- and low-Mach authors. Male readers scored the main character of the high-Mach author an average of 30.1 points higher on the Mach test than the main character of the low-Mach author ($t(23) = 13.67$, $p < .001$). Female readers scored the main character of the high-Mach author an average of 15.6 points higher than the main character of the low-Mach author, ($t(41) = 15.87$, $p < .001$). The average Mach score for main characters (as judged by the readers) did not differ from the average Mach score of the authors for high-Mach males (Kruskal-Wallace $U = 68$, $df = 1$, $p = .64$), low-Mach males ($U = 75$, $df = 1$, $p = .39$), and high-Mach females ($U = 120$, $df = .60$). However, main character scores were significantly higher than author scores for low-Mach females (means = 97 vs. 75; $U = 185$, $df = 1$, $p = .005$).

Because the two stories read by each reader were paired at random, the actual difference between the Mach scores of the authors of the two stories given to the same reader varied from 22 to 46 points for male readers (mean = 32.6) and 23 to 66 points for female readers (mean = 33.8). Multiple regression analyses were performed to determine if the difference in Mach IV scores estimated for main characters by each reader correlated with the true difference in Mach scores between the authors of the two stories given to that reader. The regression was significant for males ($r = .421$, $p < .05$), but not for females ($r = .110$, $p < .10$).

Willingness to Associate with Main Characters

Overall, the story readers were more willing to enter into interpersonal relationships with the main characters of low-Mach authors than with the main characters of high-Mach authors (Table 1). The only exception to this general finding was the response to the question concerning membership on a debating team. In this case, both male and female readers exhibited a nonsignificant tendency to prefer having the main

character of the high-Mach author on their debating team. For all five of the other questions, male readers were significantly more willing to enter into relationships with the main character of a low-Mach author (Table 2). Female readers were significantly more willing to enter into three of the five remaining relationships with the main characters of low-Mach authors. The same trend was indicated for two of the other relationships, but it was not significant in these two cases.

Attribution of Specific Advantages and Disadvantages

Overall, readers attributed more advantages to associating with the main characters of low-Mach authors and more disadvantages to associating with the main characters of high-Mach authors (Table 2). Male readers perceived the main characters of low-Mach male authors to be more trustworthy, capable of being a good friend, cooperative, and helpful than the main characters of high-Mach male authors (resulting in negative values for the difference between high- and low-Mach scores). In contrast, the main characters of male high-Mach authors were perceived to be more selfish, uncaring, judgmental, overbearing, untrustworthy, aggressive, undependable, and suspicious than the main characters of male low-Mach authors (resulting in positive values for the difference between high- and low-Mach scores). The only disadvantage attributed to the main characters of low-Mach male authors was shyness, and not a single advantage was attributed to associating with the main characters of high-Mach male authors. Results for female readers were similar to those for male readers, although they were slightly weaker.

DISCUSSION

Evolutionary accounts of human behavior often have the curious property of being obvious and new at the same time. The facts that men prefer youth and beauty in women (Buss 1994) and that children are at greater risk from their step parents than their natural parents (Daly and Wilson 1988) are surely "common knowledge." Yet,

Table 1. Differences in Readers' Willingness to Enter into Relationships with Main Characters in Stories by High-Mach and Low-Mach Authors

Relationship	Males				Females			
	Mean difference	t	df	p	Mean difference	t	df	p
1. Partner in a small business	−1.58	−3.49	23	<.002	−1.39	−3.44	40	<.001
2. Sharing an apartment	−1.46	−3.39	23	<.002	−1.36	−3.40	40	<.001
3. Confidante (someone to share secrets with)	−1.48	−3.40	23	<.002	−0.58	−1.19	40	ns
4. Member of your debating team	0.37	0.90	23	ns	0.12	0.34	40	ns
5. Employer (your immediate supervisor)	−1.33	−2.55	23	<.018	−1.36	−3.40	40	<.001
6. Someone to whom you would lend money	−1.71	−3.74	23	<.001	−0.56	−1.49	40	ns

Table 2.   Advantages and Disadvantages of Associating with the Fictional Characters of High-Mach and Low-Mach Authors

	Males (*df* = 14)			Females (*df* = 18)		
	Difference	*t*	*p*	Difference	*t*	*p*
Advantages						
1. Realistic	−0.93	−1.73	<0.11	−0.52	−0.78	*ns*
2. Leadership	−0.60	−0.85	*ns*	−1.74	−2.61	<.02
3. Effective	0.13	0.24	*ns*	−1.21	−1.90	*ns*
4. Trustworthy	−2.13	−2.98	<0.01	−1.37	−2.17	<.05
5. A good friend	−1.60	−2.51	<0.03	−1.37	−2.33	<.04
6. Self-confident	0.53	1.14	*ns*	−1.05	−1.57	*ns*
7. Cooperative	−2.20	−3.70	<0.01	−1.01	−1.71	*ns*
8. Optimistic	−0.66	−1.03	*ns*	−1.58	−2.28	<.04
9. Intelligent	0.40	0.88	*ns*	−0.42	−0.83	*ns*
10. Caring	−1.33	−2.09	*ns*	−1.53	−2.57	<.02
11. Hard worker	0.73	1.43	*ns*	0.37	0.63	*ns*
12. Helpful	−1.53	−2.92	<0.01	−1.58	−2.97	<.01
13. Makes best of situation	−0.41	−0.59	*ns*	−1.01	−1.71	*ns*
Disadvantages						
1. Selfish	2.27	3.44	<0.01	1.42	2.13	<.05
2. Uncaring	1.87	3.84	<0.01	1.58	3.01	<.01
3. Immoral	0.53	1.67	*ns*	1.32	2.32	<.04
4. Unintelligent	−0.20	−0.44	*ns*	0.16	0.39	*ns*
5. Judges others	2.01	3.68	<0.01	2.32	4.51	<.01
6. Pessimistic	0.87	1.21	*ns*	1.32	1.69	*ns*
7. Overbearing	1.20	2.13	<0.05	0.58	1.05	*ns*
8. Untrustworthy	2.33	3.36	<0.01	0.11	0.17	*ns*
9. Aggressive	2.53	4.40	<0.01	0.89	1.55	<.14
10. Not dependable	1.53	2.14	<0.05	1.09	2.01	<.05
11. Irritable	0.33	0.77	*ns*	0.53	1.14	*ns*
12. Shy	−1.13	−2.74	<0.02	−1.68	−2.58	<.02
13. Distrustful of others	2.73	4.20	<0.01	1.74	2.66	<.02

as empirically supported conclusions, they are new and even revolutionary against the background of the human social sciences. Our study has the same property: in some sense it is "obvious" that human populations include a mix of cooperators and exploiters, but the Machiavellianism literature in particular and the social sciences in general have not arrived at this multi-strategy view (Wilson 1998; Wilson et al. 1996).

The interpretation of Machiavellianism by evolutionary biologists and psychologists has been complicated by two factors. First, evolutionary biologists themselves use the term to refer to all forms of social intelligence, including cooperation as well as exploitation (Byrne and Whiten 1988). This broad use of the term may be useful to emphasize the importance of social interactions in the evolution of human intelligence, but, by grouping cooperative and exploitative strategies together, it impedes the study of human social behavior as a *community* of social strategies that coexist in the same way that species coexist in biological communities. A taxonomy of specific strategies needs to be developed, rather than lumping them all under the generic term "Machiavellian intelligence." Indeed, the basic categories "cooperate" and "exploit" probably need to be subdivided into a diversity of cooperative and ex-

ploitative strategies that are pursued in different ways (see Wilson et al. 1996 for a more extensive discussion of this issue).

The second complicating factor is that exploitation must often be disguised in socially attractive ways to succeed. The deceptive element is probably strongest in short-term face-to-face interactions among strangers, which describes most social psychology experiments. Thus, the basic question of whether high-Machs are exceptionally capable social actors, as opposed to exploiters using the art of deception, has not been resolved.

The main significance of our study is that it shows the cooperative nature of low-Machs and the exploitative nature of high-Machs in particularly sharp focus. Just as sexual fantasies reveal differences between men and women that are obscured by the constraints of real social interactions (Ellis and Symons 1990), story writing reveals differences between low-Machs and high-Machs of both sexes that are not obvious from short-term face-to-face interactions. The main characters of high-Mach authors *could* have been described as exceptionally capable social actors-willing to bend the rules, perhaps, but definitely the kind of take-charge person that one would want to have on a desert island. Instead, high-Mach authors tended to invent characters that clearly regarded the other two people on the island in adversarial terms. The following passages from the stories show why the readers found it so easy to distinguish between high-Mach and low-Mach authors.

> We are all together in this plight . . . We realize that we must all cooperate, and John, Peter and I decide to equally distribute the limited supplies (low-Mach male author).

> Mary, Jane and I seem to be getting along pretty well . . . It's funny how we immediately began to trust each other (low-Mach female author).

> I didn't particularly care for John and Peter, and I suspected that there were going to be problems real soon . . . They are two and I am one . . . I hope that I can get rid of the human threat soon (high-Mach male author).

> Mary and Jane are cold bitches who constantly complain . . . when I got really hungry I wondered how I could cook them with the limited cooking equipment we had (high-Mach female author).

Our study does not directly address the question of how low-Machs and high-Machs interact with each other in the real world, but there is little doubt that they can be classified as primarily cooperative and exploitative at the fantasy level. McHoskey et al. (1998) provide additional evidence for the interpretation of high-Machs as exploiters. Sociopaths are antisocial by definition, and the psychological literature on sociopathy (reviewed from an evolutionary perspective by Mealey 1995) has developed independently of the literature on Machiavellianism. McHoskey et al. (1998) show that Mach scales and sociopathy scales measure essentially the same set of personality traits. Thus, Machiavellianism might be regarded as a dilute form of sociopathy.

Our study indicates that the main characters of high-Mach authors are avoided for most kinds of social interactions (Table 1), for reasons that are obvious from the specific personality traits attributed to them (Table 2). Nevertheless, they are not

avoided and may even be preferred as members of alliances who use their talents to exploit other groups. The specific relationships listed in Table 1 were intended to vary in their potential for exploitation within and among groups. For example, it would be useful to have a business partner who is skillful at exploiting other businesses, but that same person might also exploit you. Only one relationship in Table 1 seemingly was completely protected from exploitation within groups (member of a debating team), and this was the only relationship in which the characters of high-Machs were rated as acceptable social partners. Apparently, the ability to exploit can be attractive to others, but only if it is carefully constrained.

A number of important factors were excluded from our study for lack of resources, but could be explored by similar methods in the future. We deliberately confined our study to intrasexual interactions, but intersexual interactions could be explored by having both males and females wash up on the island and by having the stories read by readers of both sexes. Impression management skills could be studied by asking the authors to imagine that they are writing the story as part of a job interview to see how they would react in an emergency situation. High-Machs would presumably present a much more flattering portrait of the character referred to as "I" than they did in our study. Finally, it would be interesting to control for the Mach score of the readers in addition to the authors. Our prediction would be that both high- and low-Mach readers would prefer to affiliate with the characters of low-Mach authors, but for different reasons. In general, stories and fantasies provide a powerful method for exploring the beliefs and attitudes that motivate behavior, which has been underutilized in the past and should be developed more fully in the future (Carroll 1994).

Of course, stories do not directly reflect the behavior of high- and low-Mach authors, any more than sexual fantasies directly reflect the behavior of males and females. Presumably there is a *relationship*, but the relationship is *complex* because of the numerous constraints imposed by actual social interactions. It is therefore important to study internal beliefs in conjunction with external behaviors to fully understand the diversity of predispositions toward, and implementation of, social strategies that coexist in human populations.

REFERENCES

Bochner, A.P., Di Salvo, V., and Jonas, T. A computer-assisted analysis of small group process: an investigation of two Machiavellian groups. *Small Group Behavior* 6:187–203, 1975.

Buss, D.M. The evolution of human intrasexual competition: tactics of mate attraction. *Journal of Personality and Social Psychology* 54:616–628, 1988.

Buss, D.M. *The Evolution of Desire.* New York: Basic Books, 1994.

Byrne, R.W., and Whiten, A. (Eds.). *Machiavellian Intelligence: The Evolution of Intellect in Monkeys Apes and Humans.* Oxford: Claredon Press, 1988.

Carroll, J. *Evolution and Literary Theory.* Columbia: University of Missouri Press, 1994.

Cherulnik, P.D., Way, J.H., Ames, S., and Hutto, D.B. Impressions of high and low Machiavellian men. *Journal of Personality* 49:388–400, 1981.

Christie, R., and Geis, F. *Studies in Machiavellianism.* New York: Academic Press, 1970.

Daly, M., and Wilson, M. *Homicide.* Hawthorne, NY: Aldine de Gruyter, 1988.

Dawkins, R., and Krebs, J.R. Animal signals: information or manipulation. In *Behavioral Ecology: An Evolutionary Approach,* J.R. Krebs and N.B. Davis (Eds.) Oxford: Blackwell 1978, pp. 282–309.

Ellis, B.J., and Symons, D. Sex differences in sexual fantasy: an evolutionary psychological approach. *Journal of Sex Research* 27:527–555, 1990.

Frank, R.H. *Passions Within Reason* New York: W.W. Norton, 1988.

Geis, F. The con game. In *Studies in Machiavellianism,* R. Christie and F. Geis (Eds.). New York: Academic Press, 1970, pp. 106–129.

Hirschleifer, J. On the emotions as guarantors of threats and promises. In *The Latest on the Best: Essays on Evolution and Optimality*, J. Dupre (Ed.). Cambridge, MA: MIT Press, 1987, pp. 307–326.

McHoskey, J.W., Worzel, W., and Szyarto, C. Machiavellianism and psychopathy. *Journal of Personality and Social Psychology* 74:192–210, 1998.

Mealey, L. The sociobiology of sociopathy: an integrated evolutionary model. *Behavioral and Brain Sciences* 18:523–599, 1995.

Okanes, M.M., and Stinson, J.E. Machiavellianism and emergent leadership in a management simulation. *Psychological Reports* 35:255–259, 1974.

Wilson, D.S. Adaptive genetic variation and human evolutionary psychology. *Ethology and Sociobiology* 15:219–235, 1994.

Wilson, D.S. Game theory and human behavior. In *Game Theory and Animal Behavior*, L.A. Dugatkin and H.K. Reeve (Eds.). Oxford: Oxford University Press, 1998, pp. 261–282.

Wilson, D.S., Near, D., and Miller, R.R. Machiavellianism: a synthesis of the evolutionary and psychological literatures. *Psychological Bulletin* 119:285–299, 1996.