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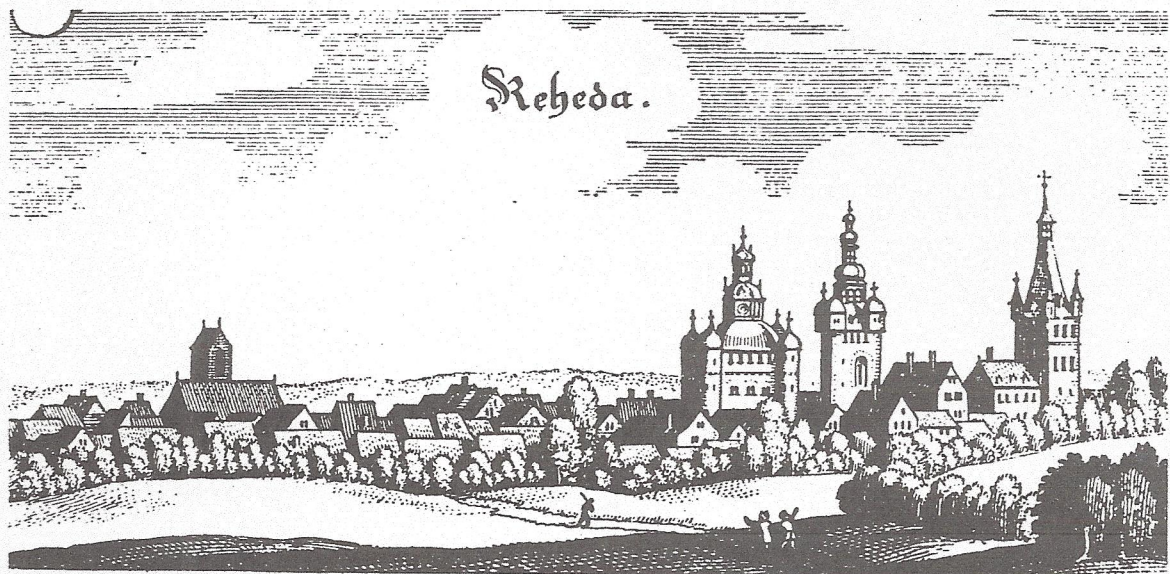
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Adresse/Address:

Schloß Rheda

484 Rheda

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Federal Republic of Germany

MACHIAVELLIANISM AND COMPETITIVE SOCIAL CONTACTS
IN A LIMITED INFORMATION CONVENTION GAME.

Lawrence H. Nitz *
Department of Political Science
University of Hawaii

Jack Dawson
Department of Psychology
Alfred University

James L. Phillips
Department of Psychology
Michigan State University

May, 1975

* Visiting Professor, Institute of Mathematical Economics,
University of Bielefeld, West Germany,
Associate Professor, Department of Political Science,
University of Hawaii, Honolulu, Hawaii 96522

Results from many investigations of coalition formation in the triad, beginning with Vinacke and Arkoff (1957) and Gamson (1961b) can be reliably accounted for by Gamson's (1961a) Minimum Resource Theory (MRT) ¹. The theory predicts that the prospective coalition which has the smallest winning combination of resources will form. In the situation where three subjects have resources in the proportion 4-3-2, the theory predicts the 3-2 coalition rather than the other (4-3 and 4-2) winning coalitions. Two assumptions underly this prediction. First, subjects are hypothesized to act in a way designed to gain the largest possible share of the reward for themselves. Second, subjects expect that their share of the reward should be in proportion to the amount they contribute toward obtaining it ². In the example above, subjects 3 and 2 would choose each other because each expects to obtain a larger proportion of the reward than he would in a coalition with the player holding 4/7 or 4/7 (respectively) of the coalition resources.

Although Minimum Resource Theory has proven to be the best predictor of much experimental data, most studies have found a sufficient variation from the predictions to require a probabilistic as opposed to deterministic interpretation of the theory. (See particularly Chertkoff, 1966, 1970, 1971). One weakness of the theory seems to be the assumption that the subject acts strictly to maximize his own payoff (i.e. points, money, etc.) Vinacke (1959) observed that coalition tactics of the male subjects were more consistent with MRT predictions than were the tactics of female subjects. He theorized that females played an accommodative strategy in which they do not attempt strict reward maximization but rather try to limit

¹ An early analysis of contrasting theoretical approaches is found in Gamson's (1964) review article. A more current enumeration of studies supporting MRT is provided by Crosbie and Kullberg (1973) who demonstrate the predictive superiority of MRT over a balance theoretic model of coalition formation in all of the triadic cases in which the predictions of the two theories differ. A hypothesis comparable to MRT is also found in Selten's (1972) Equal Share Analysis of Characteristic Function Experiments.

² This assumption, variously designated as the parity norm or the rule of distributive justice, was first discussed in the context of coalition theory by Gamson (1961a).

interpersonal friction. Nitz and Phillips (1969) and Nitz (1969), using a different experimental paradigm, detected a similar form of intracoalition conflict minimization among males subjects. Chaney and Vinacke (1960) found similar differences between subjects high in need for achievement and subjects high in need for nurturance. Subjects high in need for achievement were closest to the predictions of MRT.

A 1963 study by Geis (denoted "the con game") suggests that players' Machiavellianism may have a predictable influence on confederative strategies. Using Christie's Machiavellianism scales, Geis (1963, 1970b) classified male subjects as high, medium and low Machiavellians. Experimental groups consisting of one subject from each of these categories played a three person competitive game patterned after Vinacke's Pachesi adaptation. The game was designed so that subjects who entered a coalition and secured it from defection of their partner via the bargains they struck for payoff shares would obtain the most points over a series of games. The information available to the subject about his opponent's resources was manipulated by constructing both full information and ambiguous versions of the game. She found that in both games high Machiavellians (High Machs) won significantly more points than medium Machiavellians (Medium Machs) who won significantly more points than low Machiavellians (Low Machs). (Geis 1963, 1970b).

In Geis' "con game" experiment the High Machs won primarily at the expense of the Low Machs, even in the unambiguous resource distribution version, in which such deviations from MRT were not expected.

Extensive analysis of the strategies of the three classes of Machiavellian subjects indicated seemingly few differences in the bargaining tactics and apparent underlying decision processes at work. Tests for differences across Mach groups in the number of coalition offers made, number of offers accepted by other, number of offers received, number accepted, number of coalitions entered, and number of coalitions broken by subject were not

significant at better than the $\alpha=.10$ level. Only the number of coalitions broken by partner differed significantly across Mach groups, with High Machs enjoying coalitions kept to completion of the game more frequently than Low Machs. (Geis, 1970a).

This analysis suggests that the High Mach discovered some critical strategy for keeping his partner from breaking a coalition. Yet this strategy is a consequence of some set of tactics, not an act itself. If it were noted that High Machs tended to make higher offers than Low Machs, the High Mach success in coalition maintenance formed could be attributed to ameliorative bargaining strategy. Geis's (1963) examination of the distribution of payoffs to each power position by Mach type is not adequate to support this interpretation. A competitive rather than ameliorative interpretation of Machiavellian tactics might be offered if the High Mach's winnings were attributed to "hard" handling of weaker partners. Although the bargaining process has been analyzed across Mach groups, the nature of the choices involved in tactical play by the three Mach levels is not demonstrated beyond the determination that High Machs apparently "time" or pace their tactical moves more appropriately within the context of the game at hand (Geis, 1970a). An understanding of the strategic behavior of High and Low Mach subjects would seem to require a more detailed analysis of the decisions leading to the competitive stances from which bargaining proceeds.

In the Geis game, as in most extensive tactical bargaining games, an informed player's choice of tactic at any time t is in the simplest bargaining models dependent upon the actions of his fellow players at time t-1, and (most likely) upon his own action at time t-2. The complexity of such a sequence of plays even in a simple triadic game makes essentially post-hoc examinations of decision data summed over

trials a doubtfully legitimate basis for inference about tactical decisions processes. The summation itself confounds the data, since common responses with different experiential antecedents are cumulated within cells defined by the original design's independent variables. More conservative game procedures which specifically control for antecedent experiences have been used in a number of studies of competitive decision processes.

Psthas and Stryker (1965), Nitz and Phillips (1969), Ofshe and Ofshe (1970) and Cole (1971) have offered an analytical distinction between two phases of the "bargaining process" by treating the subject's initial contact with a potential coalition partner as a decision separate from the interchange of offers and counteroffers. Experimental manipulation of the competitive environment which leads to varying choices at this contact stage represents a relatively powerful device for assessing the sort of judgement players used in selecting competitive strategies.

The lines of research cited above suggest two independent sets of hypotheses. The coalition strategy studies suggest that subjects' choices in an unambiguous resource game should follow the predictions of MRT. The Machiavellianism studies suggest that the High Mach ought to be expected to be more attuned to the structural elements of a competitive situation than the Low Machs, and make differential use of these elements. Hypotheses may be formulated predicting MRT strategy choices in the social contact game as follows:

Hypothesis 1. Subjects holding competitive levels of resources will contact potential coalition partners in such a fashion that they maximize their own share of the total resources committed to the coalition.

And, following Phillips and Nitz (1968), the existence of ameliorative choices is indicated by:

Hypothesis 2. Subjects holding competitive levels of resources will contact a potential coalition partner with fewer resources more frequently when they have high resources themselves than when they have few resources themselves.

Here competitive levels of resources are understood to be resources sufficient, in combination with those of one other player, to secure the decision in the game. The question of whether High Mach's are in general more sensitive to structural characteristics of competitive situations than are Low Machs is addressed by the prediction of more frequent MRT strategy choices for High Machs than for Low Machs:

Hypothesis 3. High Machs will tend to contact the potential coalition partner with fewer resources more often than will Low Mach.

Hypothesis 2 may be reformulated to predict responsiveness to variations in structural conditions as a consequence of differing levels of Machiavellianism. If the High Mach is assumed to be less ready to pursue ameliorative strategies than the Low Mach, that is, if he is more willing to seek out opportunities for "hard" bargaining with partners who may according to the norms of the situation be in a weak position, we have:

Hypothesis 4a. High Machs holding competitive levels of resources will contact a potential coalition partner with fewer resources more frequently when they have low resources themselves than when they have high resources themselves.

Hypothesis 4b. Low Machs holding competitive levels of resources will contact a potential coalition partner with fewer resources more frequently when they have high resources themselves than when they have low resources themselves.

Thus High Machs are seen to be more sensitive than Low Machs to the norms of the situation insofar as their bargaining

partners' anticipated adherence to such norms (here the parity norm) can be used as cues to initiate a confrontation strategy. The proposition that High Machs utilize ameliorative rather than confrontative strategy is given by the converse of these two hypotheses.

M E T H O D

Subjects were 77 male students in an introductory psychology course at Michigan State University during the Spring of 1968. Procedure Each subject was given a seven page form. The first two pages, which were similar to the instrument used by Phillips and Nitz (1968), described a political convention situation of the type used by Chertkoff (1966). The form was labeled "Political Decision Questionnaire," and was further described as a test of some basic political abilities. The instructions given to the subject were as follows:

Assume you are the manager for a candidate in a political party convention. There are a total of 300 votes among the delegates, and at least a majority (151) of these are required to win the nomination. Your man, Candidate A, has _____ votes pledged to him. Candidate B has _____ votes and Candidate C has _____ votes. Which of the other two candidates, B or C, will you approach first to try to make a deal?

B

C

(Circle one)

In the blank after Candidate A was a number $[n(A)]$ which was either 149, 132, 102, 98, 85, 77, 75 or 73. The numbers of votes committed to the subject's candidate (A) are partitioned into three regions with different competitive characteristics. Points $n(A) = 149, 132$ and 102 constitute a competitive region in which the subject has resources equivalent to those of his stronger opponent and greater than those of his weaker opponent.

Points $n(A) = 98,85$ and 77 represent a competitive region in which the subject's resources are equivalent to those of his weaker opponent and fewer than those of his stronger opponent. Points $n(A) = 75$ and 73 constitute a dictatorial region in which the subject and his weaker opponent cannot form a winning coalition³, and are not represented in the analysis.

Forms on which $n(A)$ equalled the number of votes pledged to Candidate B and forms on which $n(A)$ equalled the number of votes pledged to Candidate C were counterbalanced. After the first question, the subject was asked why he had chosen to contact the candidate he did. The remaining seven questions did not ask the subject for his information. There were nine different forms of the questionnaire varying the order in which the questions were presented. The remaining five pages of the questionnaire consisted of Christie's Mach V scale.

RESULTS

Subjects were divided into three groups on the basis of their Mach V scores. The divisions followed those of Geis (1963): Scores of 5-8 defined the Low Mach group; scores of 9-12 defined the Medium Mach group; and scores of 13-16 defined the High Mach group. For each Mach group the proportion of subjects choosing to contact the weaker of the two candidates was calculated for each of the 8 points on the vote distribution. These proportions were designated $P(W)$, where W stands for the weaker candidate. (Conversely, $P(W')$ stands for the proportion choosing the remaining candidate). Table 1 shows the distribution of $P(W)$ across Mach categories and votes within competitive regions.

³ This region was omitted because preliminary studies of behavior in this region had shown that choices of the weaker opponent always differed markedly from choices of the weaker opponent in competitive regions.

TABLE 1

P(W) by Resources Position and Machiavellianism Level

Vote Resource [n(A)]	Mach Group			Mean
	High Mach n = 21	Medium Mach n = 43	Low Mach n = 13	
149	.810	.767	.692	.756
132	.905	.837	.538	.760
102	.857	.884	.462	.737
98	.952	.814	.385	.717
85	.952	.791	.769	.837
77	.905	.698	.412	.688

The test of Hypothesis 1 is properly an examination of the confidence intervals surrounding the probability of contacting the weaker candidate [P(W)] for each point in the two competitive regions. Since the data are proportions and are taken over the same number of observations, it is sufficient to compute the confidence interval for the point with the highest variance, P() = .688.

Hypothesis 1 may be stated operationally as follows:

$$P(W)_i > .50 \text{ for all points } i \text{ in the competitive region.}$$

The .9995 confidence interval surrounding the point $P(W)_{77} = .688$ is $\pm .182$, which does not include the indifference probability of .50. Since all other competitive region points have smaller variances and are farther from $P(W) = .50$, the null hypothesis of no significant differences from equiprobability must be rejected.

Hypotheses 2,3 and 4a,b may be tested via a single factorial analysis of variance. A split plot design nests 3 n(A) observation points within each of 2 competitive regions; these are

administered to each of the three different Machiavellianism level groups.

Hypothesis 2 predicts that $P(W)$ will be greater when subjects have higher resources ($n(A) > 100$) than when subjects have lower resources ($75 < n(A) \leq 100$). It is tested via the mean squares for the Resource main effect and the Observations-Within-Groups error term (see Table 2). Since the obtained F is less than 1, Hypothesis 2 lacks support; the experiment thus fails to replicate the finding of Phillips and Nitz (1968).

Hypothesis 3, although expressed in terms of High Low Mach differences, is more conservatively tested over all three Mach groups. Hypothesis 3 predicts

$$P(W)_{\text{High Mach}} > P(W)_{\text{Low Mach}}$$

The overall Machiavellianism main effect is tested via the residual within cell variance. The $F_{2,8}$ obtained is 16.9, with $\alpha \leq .005$. Thus Machiavellianism accounts for significant differences in subjects' choice of the weaker contender.

Hypothesis 4 and 4b may also be tested conservatively over the complete set of Machiavellianism groups. The original statement of the hypotheses

$$P(W)_{\text{HR}} < P(W)_{\text{LR}} \text{ for High Mach Subjects}$$

$$P(W)_{\text{HR}} > P(W)_{\text{LR}} \text{ for Low Mach Subjects}$$

may be interpreted as a Resource Level by Machiavellianism interaction effect. The $F_{2,8}$ obtained by this conservative technique, however, is .79. By this interpretation Hypotheses 4a and 4b fail of support. The test may be conceived as an a priori comparison of the means $[P(W)_{\text{HR}} - P(W)_{\text{LR}}]$ specified by hypothesis. The t value for the High Mach difference is -2.63 ($\alpha \leq .025$), for the Medium Mach 1.29 ($\alpha \leq .10$) and for

TABLE 2

P(W) by Resources and Mach Level⁴ Means

	High Mach	Med Mach	Low Mach	Sum of Means
High Resource	857	829	564	2250
Low Resource	933	767	539	2239
Sum of Means	1790	1596	1103	

Analysis of Variance

Source of Variation	SS	df	MS	F
Resource Level	304	1	304	<1
Observations within Groups	45137	4	11284	-
Machiavellianism	400295	2	200147	16.9*
Resource Level by Machiavellianism	17401	2	8700	.74
Within Cell	94675	8	11834	-

* $\alpha \leq .01$

⁴ Means and observations in thousandths; computations given in whole numbers of thousandths and respective squares, to minimize rounding error.

the Low Mach < 1.0(ns). Both High and Low Mach effects the predicted direction, and the High Mach effect is significant; the Medium Mach responses parallels the prediction for the Low Machs and approaches significance.

A more conservative a posteriori test of the order of Machiavelianism effects within the resource levels leads weak support to the a priori comparison. Scheffe's test for the difference between High Mach and the pooled⁵ Medium and Low Mach scores is given in Table 3. The F obtained for the Low Resource level lies in the .10 and .05 confidence interval and describes a behavior predicted by Hypothesis 4a (see Figure 1).

TABLE 3
Scheffe's Test⁶ for the Equality of Mach Means
at Each Resource Level

$$F_i = \frac{(C_1(HM_i) + C_2(MM_i) + C_2(LM_i))^2}{MS \text{ within cell} \cdot \frac{1}{n} [C_1^2 + C_2^2 + C_3^2]}$$

Design effects:

$$C_1 = 1 \quad C_2 = -.754 \quad C_3 = -.256$$

$$MS \text{ within cell} = 11834 \quad ; \quad n = 3$$

$$F_{\text{High Resource}} = 1.37$$

$$F_{\text{Low Resource}} = 7.74$$

$$\text{Critical } F = 2 \cdot F_{\alpha; 2, 8}$$

$$2 \cdot F_{\alpha=.10} = 6.22$$

$$2 \cdot F_{\alpha=.05} = 8.92$$

⁶ Kirk (1958), p.269

⁵ Scores were weighted by the ratio of the number of subjects in each of the two groups to their combined total.

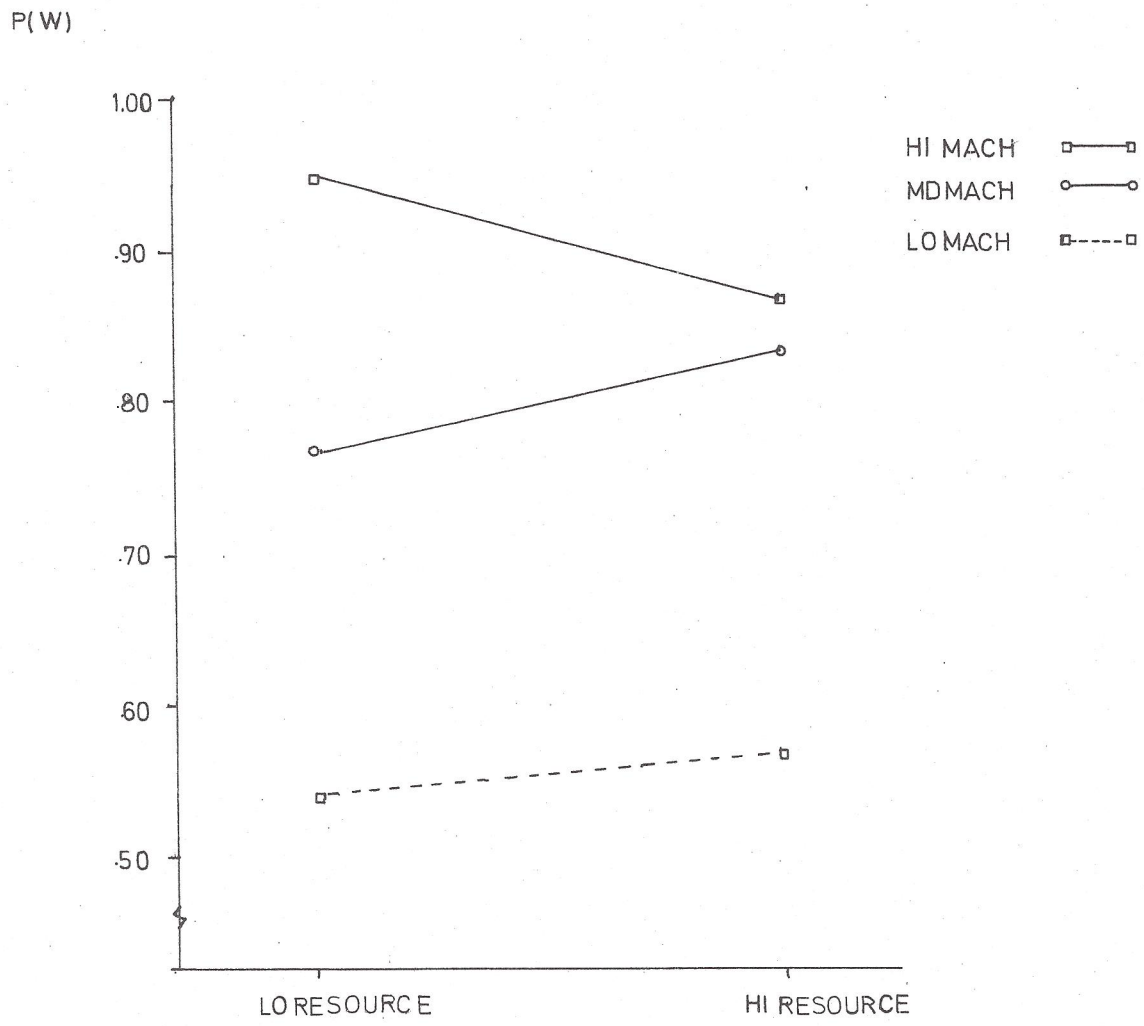


FIGURE 1.

DISCUSSION

The confirmation of Hypothesis 1 is consistent with the results of preceding social contact experiments. The failure to replicate the findings of Phillips and Nitz (1968) was not anticipated but should not be surprising since the subject population is appreciably smaller than the 300+ used in that study.

In the Phillips and Nitz (1968) study the potential divisibility of the payoff was ambiguous; the behavior specified by Hypothesis 2 is altered with the manipulation of this ambiguity in Nitz and Phillips (1969) and Nitz (1969). In the latter studies, situations with easily divisible outcomes produced markedly different behaviors from situations in which outcomes could only be unevenly divided. The lack of control over such ambiguity of payoff conditions may also, therefore, be responsible for the weak effects observed under Hypotheses 4a and 4b.

The significant overall Machiavellianism effect in a minimal information political decision situation, however, appears in spite of the situation's failure to meet Christie's (1970) stipulation of the importance of interpersonal involvement. The possibility for irrelevant affect to develop among participants must not be, therefore, a precondition for the success of the High Mach.

There was an element of ambiguity in the nature of the payoff and the expectations that subjects might entertain about the future of coalitions formed. But the experiment reported here afforded no involvement and offered little basis for the development of affect beyond the subject's projection of equity expectations onto his opponents. Nevertheless, High Mach subjects apparently identified the tactic which would permit the greatest likely bargaining gain against opponents who might be thought to hold equity norms. Moreover, Medium Mach subjects showed a non-significant tendency to choose coalition contacts in accordance with the equity expectations and in such a way that intracoalition conflict over (indivisible) payoff division would be minimized. This observation is consistent with Geis, Wertheimer and Berger's (1970) finding that Low Machs more frequently

than High Mach acted against their own payoff interests in a legislative game role in which their highest payoffs were associated with successful negotiation of personally disgusting emotional policy positions. The hypothesis that irrelevant affective elements interfere with Medium and/or Low Mach subjects' tactical decisions is supported by Blumstein's (1973) observation that:

" An important feature of (the High Mach's) successful manipulation is his ability to put on whatever face is necessary ... By contrast, the Low Mach seems to be distant and intransigent, altering himself from the interaction --- without regard to important situational contingencies and he, thereby, fails at his interpersonal task."

No similarity of this observation and that made here would have been expected by Christie, for Blumstein's (1973) experiment was rich in interpersonal contact.

While the conflict-addressing behavior of the High Machs in this study is consistent with MRT, it is not wholly interpretable in the context of previous studies of Machiavellian tactical behavior. On the one hand, Geis (1970b) notes that when High Machs break coalitions they appear to do so at more opportune moments than do Low Mach subjects, as indicated by more favorable post-defection payoff agreements. While on the other hand Christie, Gergen and Marlowe (1970) note that High Mach players in a modified Prisoner's Dilemma game decreased their uncooperative choices over a transition from a ten trial series played for "points" to the initial trials of a second series played for small dollar amounts (ranging from \$ 1 to \$ 5 per trial).

In Geis con game High Machs tended to make more moderately large offers (50% to 60% of the payoff) than did Low Machs.

Moreover, High Machs made more large offers than small offers, while Low Machs made more small than large offers. The apparent conflict between Machiavellianism as ingratiation and Machiavellianism as confrontation suggests competing explanations for the behavior of the High Mach subjects in this study.

High Mach's initiation of potential coalitions which contain inherent elements of conflict over division of payoff rather than coalitions leading to relatively simple (albeit non-maximal under MRT) divisions of payoff may be explained by one of the following conjectures. First, the High Machs in this situation might be behaving in the same fashion as the High Machs of Christie, Gergen and Marlowe's (1970) Prisoners' Dilemma game: treating competition for intangible payoffs as a wholly different situation from competition for money or some other tangible object of value. Thus amelioration may be a tactic reserved for competition over substantial tangible outcomes. (Kline (1968) explores this phenomenon in a study of coalition game strategies under varying forms of inducements.) Second, the decision to contact a potential coalition partner may be an initial stage of a contingent strategy: contacting the actor with few resources when one has few resources himself may make possible the sort of coalition-securing ameliorative strategy similar to that inherent in the apparent magnanimity of cooperative initial Prisoner's Dilemma trials or the High Mach's pattern of high offers in Geis' con game. Third, the pursuit of the more aggressive coalition contact may be principally an information-seeking strategem designed to create merely an opportunity to assess the bargaining skills of the party with whom the best would be expected under an equity norm of the situation. The choice in this instance might be seen as evidence of superior skill in assessing the expectations of others or norms of the game. Such an interpretation would not be inconsistent with the results of Christie and Boehm's (1970) identification of High Machs' ability to learn stereotypic features of the likely winners in an advertising beauty contest judged by the customer of a metropolitan brewery.

The manipulation of resource conditions in this study tends some support to the latter conjecture. Machiavellianism appears to be related to discriminatory use of the apparent norms and conditions of the situation, even in the very earliest stages of tactical choice, before the onset of an informationally rich bargaining sequence. This seems indeed to be the matter about which Machiavelli wrote.

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