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Attributions restore consistency in bargaining with liked/disliked partners

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Abstract

The experiment deals with the impact of self-esteem and liking for the partner on the attribution of agreement and deadlock in bargaining. Fifty-eight male and 70 female students played the Harsanyi-Selten bargaining game with incomplete information eight times, allegedly each time with a randomly selected partner. In fact in four games a computer program simulated the partner. Combining an experimental variation of liking (liking–disliking), own costs (low, high), partner costs (low, high) the experiment followed a 2×2×2 repeated measures design.

As predicted by a path model from balance theory (a) failure (deadlock) was attributed more to the partner and less to self than success (agreement), (b) success was attributed more to the liked than the disliked partner, whereas failure was attributed more to the disliked than the liked partner.

INTRODUCTION

We know from a series of group discussion experiments (Brandstätter, 1978, in press) that the impact of liking for the partner on the influence process depends on the partner's behaviour during the discussion.

Liking for a partner, as it was induced by informing the subject that the partner shared his/her values or that the subject was judged as likeable by the partner, was helpful in finding an agreement in a controversial issue only if the partner met the subject's expectations. Partners who like each other should be ready to compromise. If this expectation is unfulfilled the initial liking becomes a hindrance in solving the conflict. The same was true for bargaining situations: liking facilitated agreement only when the partner made concessions in the early stages of the bargaining process. Otherwise disappointment over the partner's uncooperative behaviour led to more resistance of the subject with an initially liked than with an initially disliked partner (Brandstätter and Hoggatt, 1982; Brandstätter, Kette and Sageder, 1983).

The present analysis refers to the same experiment as Brandstätter *et al.* (1983). However, this time the focus is not on the impact of liking on bargaining outcome

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(deadlock or agreement), but (a) on comparing the attribution of responsibility for bargaining failure (deadlock) with attribution of responsibility for success (agreement), (b) on the moderating effects of self-esteem on the attribution of responsibility for failure and success, and (c) on the moderating effects of liking for the partner on the attribution of responsibility for failure and success.

By having each subject play four bargaining games with the robot (that was believed to be a person) and four games with another person, it was possible (a) to implement sharper contrasts in the partner's concession-making in the games with a simulated partner, (b) to use the individual instead of the dyad as the unit of analysis without loss of subjects, (c) to compare simulated with real interaction.

Attribution research often neglected the emotional and motivational components, although Heider (1958) was fully aware of the fact that 'attributions and cognitions are influenced by the mere subjective forces of needs and wishes, as well as by the more objective evidence presented in the raw material' (pp. 120–121).

Balance theory (Heider, 1946, 1958, 1978) deals primarily with those social situations where a person p likes or dislikes another person o, at the same time likes or dislikes an object x, and perceives the other person o as positively or negatively related to object x. The perceived relation between the other person o and the object x can be a sentiment relation (o likes or dislikes x), or some kind of unit relation (e.g. o owns x or o caused x).

It follows from Heider's theory that only those p–o–x structures are balanced and experienced as harmonious by person p where the product of the signs (+, −) of the three relations, i.e. p→o, p→x, o→x, is positive. If a p–o–x structure is unbalanced, the person tends to change a sentiment or unit relation in such a way that the relational structure becomes balanced.

Heider's concept of unit relation links his theory of cognitive balance to his theory of attribution: perceiving another person (o) or oneself (p) as the cause of an event (x) means establishing a kind of unit relation between o and x, or p and x, respectively.

Given two sentiment relations one can predict which unit relation (attribution) will render the cognitive structure balanced. The naive observer assumes that likeable (or attractive) persons bring about positive actions or events and that unlikeable (or unattractive) persons produce negative effects.

The same reasoning applies to the attributions of success or failure to oneself. Again we have two sentiment and one unit relation: p likes or dislikes p, p likes or dislikes x, and p has or has not brought about x.

Adjusting the balance model to quantitative data

In studying attribution processes depending on liking within the framework of Heider's theory, one has to be aware of the fact that in its original design the p–o–x-model does not allow for a variation of intensity in sentiment or unit relations. Congruence between the experimental data and the model can be achieved either by dichotomizing the data at the neutral point of the scales, or by adapting the model to degrees of liking and of partner and self attributions. In the first approach, testing the model would simply mean counting how often liked and disliked partners are made responsible for an agreeable or disagreeable bargaining outcome and comparing the relative frequencies by some non-parametric significance tests. We chose the second

approach in order to preserve the information on the intensity of liking and on the salience of attribution.

How can Heider's model be adapted to our quantitative data? We have to show that all three hypotheses on which we will elaborate in the next section can be derived from a modified balance model. Let us first see how this works with the first hypothesis (success in a bargaining situation is predominantly attributed to self and failure to the partner).

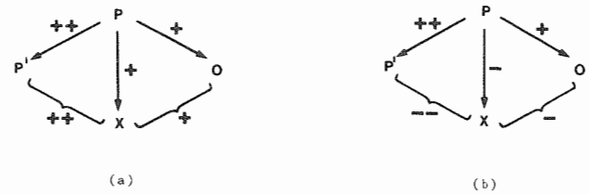

Figure 1. (a) Subject p likes himself (p′) and likes event x (success), therefore perceives event x as caused by himself If (p′). (b) Subject p dislikes another person o and dislikes event x (failure), therefore perceives event x as caused by the other person o. Arrows represent liking relationships, braces represent unit relationships

As we can easily derive from Figure 1, the original balance theory will predict the forementioned attribution bias only under the assumption that p likes himself and dislikes o. However, we could modify Heider's model by assuming that the sentiment and unit relation can be measured on a bipolar interval scale extending from an indifference point in a negative and a positive direction. For the unit relation this makes sense only if we interpret the zero point as 'no relation at all between p or o and x', negative values as 'p or o prevented x', and positive values as 'p or o promoted x'.

Now we can try to redefine balance in quantitative terms. By doing so, we come close to the congruity model of Osgood and Tannenbaum (1955) which refers to the degree a person likes or dislikes another person (generally: a source of a message) and the degree a person agrees or disagrees with the attitude towards an object uttered by the other (by the source).

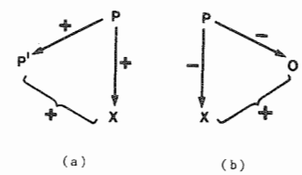

Figure 2. Extension of the balance model to attributions of (a) success and (b) failure in dyadic interaction

We assume a binary sentiment relation between p and x by distinguishing only failure and success (not degrees of failure and success), but allow for degrees of liking of p for p′ (self-evaluation) and of p for o (liking for the partner), and for the degree p or o is preventing or promoting x.

In the case of success, a triad p–p′–x or p–o–x is (optimally) balanced if in each triad the liking relationship (p–p′, p–o) and the unit relationship (p′–x, o–x) have the same sign as well as the same degree. Therefore, if a subject p likes himself more than his bargaining partner, he will perceive his contribution to the success as more important than the contribution of the partner. In the case of failure, the liking and unit relation must have opposite signs, but the same absolute value in order to be balanced. Therefore, if a subject p likes himself more than he likes his partner o, he should attribute the failure more to his partner than to himself[1].

We reckon that most people like themselves more than others or at least dislike themselves less than others (otherwise the bible would tell us: You should love yourself as you love the other next to you). So we must not wonder if people tend to attribute success more and failure less to themselves than to others.

It should also be clear from Figure 2 that with higher self-esteem success should more clearly be attributed to oneself, whereas failure should be less attributed to oneself. A variation of liking for the partner should have analogue effects. Therefore we can conclude that all three hypotheses can be derived from a modified balance model.

As yet the influence of liking on attribution of success and failure has not been studied with real social interaction, but only with subjects responding to descriptions of social interactions (Gruemaier, 1978; Kanitschar, 1979; Regan, Strauss and Fazio, 1974) or experimenterwise manipulated feedback of success or failure (Streufert and Streufert, 1969). We can expect that causal attributions are particularly important to the subjects if failure or success is brought about by real interaction (Berscheid, Graziano and Monson, 1976). What we want to know is whether causal attributions to the partner of success and failure in bargaining is merely a veridical perception of the partner's actual cooperative or competitive behaviour, or a misperception of the facts, induced by a component of liking which cannot be explained by the partner's rewarding or frustrating behaviour.

The study to be reported here used a bargaining game with incomplete information where the players have to arrive at an agreement, how to divide a total number of 20 money units among themselves. In such a game, the subject is informed only on his own pay-off but not on that of the partner. Thus, the subject is free to attribute the outcome of the bargaining (agreement resulting in different amounts of pay-off for both players or deadlock with zero pay-off for both players) to the partner's unknown advantageous or restrained economic conditions, or to his personality (e.g. egotism or altruism).

HYPOTHESES

Hypothesis 1: Failure is attributed more to the partner and less to oneself than success

A person may feel less responsible for failure than for success at least for two different reasons (*cf.* Snyder, Stephan and Rosenfield 1976): (1) Persons strive for success and tend to avoid failure, therefore success is brought about by the person's effort, failure in spite of the effort. This would suggest more internal attribution of success than of failure. Such an attribution would be based on a realistic evaluation of the subject's contributions (ability and effort), and the contributions of external causes (task difficulty, chance). (2) However, *perceiving oneself* as the cause of success and attributing a failure to external causes could also be a misperception, a self-serving-bias, motivated by the desire for positive self-evaluation (Bradley, 1978; Gollwitzer, Earle and Stephan, 1982; Greenberg, Pyszczynski and Solomon, 1982 Stephan & Gollwitzer, 1981; Weary, 1980; Weiner, Frieze, Kukla, Reed, Rest and Rosenbaum, 1971; for a review of recent work on motivational influences on attribution see Harvey and Weary, 1984, pp. 439–445). Our hypothesis refers to the second cause of the asymmetry in attributions of success and failure. By analysing the difference between partner and self attributions we can get rid of the first cause of attribution asymmetry which is common to both self and partner attribution of success and failure, since there is no reason to assume that the other is trying less hard to reach a positive outcome than oneself. One should remember here that reaching agreement is a positive outcome for both players, while ending in deadlock is a negative outcome for both players.

[1]A different, not quite implausible theory would be that people who like themselves have no need to enhance their self evaluation by unjustified success attribution. It may well be that each theory is true for a subset of people differentiated by some additional personality characteristics. The importance of personality differences in responding to social reward and punishment has recently been shown by Brandstätter and Cielecki (1984). However, for the present analysis we will not go into a further differentiation of predictions.

Hypothesis 2: With increasing self-esteem success is attributed more, failure less to self

The more abstract formulation of this hypothesis derived from the p–o–x model is: If the two sentiment relations (self-evaluation of p, evaluation of outcome x by p) have the same sign, then a unit relation between p and x will be established, i.e. p will perceive himself/herself as the cause of x. Empirical support for this hypothesis, although not from interaction settings was found by Feather (1969), Fitch (1978), Kuiper (1978), and Stroebe (1978).

Hypothesis 3: Success is attributed more to the liked than the disliked partner, whereas failure is attributed more to the disliked than the liked partner

In more abstract terms of the p–o–x model the hypothesis would take the following form: If the two relations from observer o to the result of bargaining x have the same sign, then o is perceived as having caused x, but not in the other cases.

METHOD[2]

Subjects

The subjects were 58 male and 70 female students from the University of Linz and from a local high school, aged between 17 and 26. All of them were told that they were participating in a psychological experiment concerning bargaining

[2]The reader should be aware that some features of the rather complex experimental design, in particular dependency manipulation, outcome expectations, cost estimates, and ratings of satisfaction with bargaining outcome, are not dealt with in the present report. For their theoretical significance and empirical evidence see Brandstätter *et al.* (1983).

behaviour. They were randomly grouped into 16 mixed sex groups of eight persons.

Bargaining game

In the bargaining game with incomplete information (Hoggatt and Selten, 1978) two players have to negotiate how to divide 20 monetary units between themselves, 1 unit equalling 2 Austrian Schillings. At the beginning of the game, the subject is merely informed of his own cost (high cost = 9 monetary units/low cost = 0 monetary units). His information regarding the other person is limited to the knowledge that the other's cost is either low or high, with a probability of $p = 0.50$. They understand that each subject's cost is deducted from his bargaining outcome. At each stage in the game the individual players will decide independently upon the demand they are about to make. When both demands have been made, the players are informed of these simultaneously. A guess is made as to the cost of the partner and the game proceeds to the next stage. An agreement is reached when the total of the individual demands does not exceed 20 monetary units. Here the subject would receive the sum of his last demand less his cost. When the demand is less than 20, the difference is divided evenly. A conflict could occur at any stage in the game, should both players refuse to make a concession. This would mean that the demands of both players remain at the level set in the previous stage. In this case both players would have a net pay-off of zero.

Variation of liking

Upon arriving at the laboratory the eight players were asked to take a seat at a table and to introduce themselves by talking about their work and their hobbies. As identification, each player had a card with a letter (A to H) placed in front of him/her. The subjects had to give ratings from 0 (very close) to 9 (very remote) to indicate how close they felt to each of the others, taking first impressions and/or prior personal experience into consideration. Before the start of each game, the subjects were informed on the screen that their partner was a person who had rated them as either likeable or dislikeable. The alleged purpose of this was to determine 'how liking based on first impressions is affected by a bargaining situation'. The players were asked if they had understood the information.

We know from social reinforcement theory of liking (Lott and Lott, 1974) as well as from a preceding experiment (Brandstätter and Hoggatt, 1982) that an initially liked partner may lose its attractiveness if he or she does not meet the subject's expectations. Therefore, in testing the influence of liking on attribution we refer to the liking ratings given by the subjects before the bargaining comes to an end.

Variation of cost

Each subject had in half of his/her games high costs, i.e. 9 money units, and in the other half low costs, i.e. 0 money units, and met a parter (robot or person) who had either high or low costs.

Dependency

The participants of half of the groups were informed that, at the end of each game, they could award a bonus payment of 0, 2, or 4 money units (1 money unit = 2 Austrian Schillings) to the other player if they wished to, but without being charged for the bonus. They were told that they would find out about the received bonus only after all the games were completed[3].

Person and robot games

Based on data obtained from previous experiments (Hoggatt and Selten, 1978; Brandstätter and Hoggatt, 1982) the laboratory computer was programmed to simulate a person's bargaining behaviour[4] (for further information see Hoggatt, Brandstätter and Blatman, 1978). The subjects expected to bargain each time with a randomly chosen partner and were unaware that they were occasionally playing with a robot. Each subject played eight games, out of which, games 1, 4, 5, and 8 were played with a robot, the other games were played with a real partner.

Continuous ratings

At the beginning of each game, data concerning the expected outcome of each individual game were collected. After every second stage of the game, the subjects rated the liking they experienced for the partner at that particular point, and their assumptions about his costs[2]. In addition, the players had the opportunity to exchange 'remarks' at each stage of a game (e.g. after each feedback of the partner's demand). Each remark was equivalent to a specific point on a 10-point scale (e.g. 1 = 'it is fun to be your partner', 5 = 'wait and see', 10 = 'you are an opinionated and egoistic person'). These remarks appeared on both screens immediately after being typed in.

Personality measures

As Ickes and Layden (1978), Herkner, Pesta, Maritsch and Massoth (1983), and Stroebe (1978) among others have shown, positive or negative self-evaluation is connected with typical attributional patterns. Therefore, it seemed justified to interpret individual differences in attribution tendencies as indicators of individual differences in self-esteem. High self-esteem was defined as high scores in attributing success internally and failure externally. The test used is a modification of the Stanford Preschool Internal–External Scale (Mischel, Zeiss & Zeiss, 1974) which was adapted for adults and analysed by Fleischmann (1982).

Final ratings

At the end of each of the eight games the subjects rated their satisfaction with their bargaining outcome on an 8-point scale, ranging from very satisfactory to very

[3]We will not deal with the dependency manipulation in this report. For its moderating effects on the relation between liking and yielding to the partner's demands see Brandstätter *et al.* (1983).
[4]The bargaining strategy of the robot is determined by his costs, the liking condition, the subject's remarks and the difference of demands in the preceding stage.

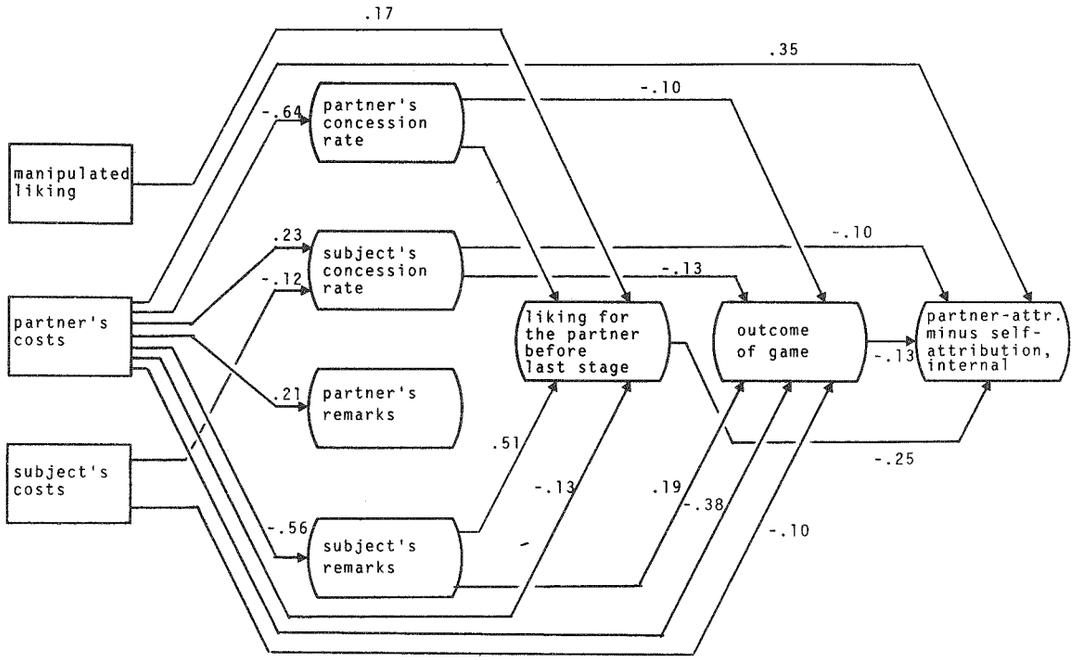

Figure 3. Path model with path coefficients (beta) from the path analysis for partner minus self attribution as dependent variable (hypothesis 1). Nonsignificant paths were removed from the model (robot games)

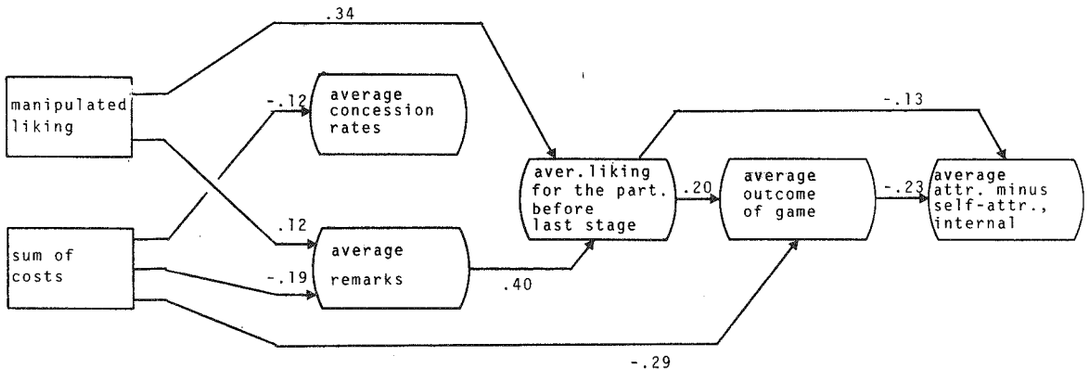

Figure 4. Path model with path coefficients (beta) from the path analysis for partner minus self attribution as dependent variable (hypothesis 1). Nonsignificant paths were removed from the model (person games)

unsatisfactory. Then the subjects answered five questions about the causal attribution of the bargaining outcome on a 6-point rating scale (1 = to a low extent . . . 6 = to a high extent): Is the bargaining outcome a result of my bargaining behaviour, my partner's bargaining behaviour, my or my partner's cost situation, or of other reasons (e.g. noise). The subjects always had to make use of all five scales[5].

The incomplete block design

An incomplete block design with repeated measures was chosen in order to balance the effects of major importance—type of partner (robot–person), liking, own cost, partner's cost and time order.

RESULTS

As previous experiments with the Harsanyi-Selten game have shown, manipulated liking/disliking is often drastically changed when the partner's bargaining behaviour is unexpected, for example when a liked partner turns out to be an unfriendly or tough bargainer, or a disliked partner becomes friendly and compromising (Brandstätter and Hoggatt, 1982; Brandstätter *et al.*, 1983). Therefore, in testing the influence of liking for the partner on causal attribution of bargaining success or failure we had to draw on the liking ratings given immediately before the bargaining turned out as success or failure. Of course, this liking measure was influenced partly by the initial liking manipulation, partly by the partner's bargaining behaviour.

Both person and robot games were analysed. In the person games we used the dyad as unit of analysis; for each dyad the average of the relevant variables was calculated. In robot games only the subject's measures were used.

As each subject played eight games it was necessary to partial out the dependency between these games. This was achieved by calculating the regression of the subject's average score over the eight games and using the residuals of these regressions as new dependent variables.

Obviously, it would not be wise to analyse the data for hypothesis 1 simply by a *t*-test of the means for partner minus self attribution which are $M = -0.77$ for success and $M = 1.3$ for failure (robot games) and -1.57 and -0.52 for person games, respectively. In our experiment, this difference between partner and self attribution has partially objective reasons, since in the successful games the concession rates of the subject and the robot are about the same (Tables 1 and 2) suggesting equal distribution of responsibility between self and partner, whereas in the unsuccessful games the concession rate of the robot is remarkably smaller than that of the subject providing objective facts as reasons for blaming (*cf.* Tables 1 and 2). Therefore, we have to partial out the effects of the subject's and the partner's bargaining behaviour. This can best be accomplished by a path model including design variables, the interaction variables, final liking[6], the bargaining outcome and finally the difference between partner and self attribution.

[5]Using a questionnaire on a person's attribution tendencies as a substitute for a scale measuring more directly self-esteem may appear somewhat questionable. However, it may be justified as operationalization of that component of the self-esteem which should be most closely related to actual attributions. Taking the scale not as an indicator of self-esteem but just as a self-report measure of a person's attribution tendencies would lead to the same predictions although they were not rooted anymore in the balance theory.

[6]Final liking is defined as the liking before the last stage.

Figures 3 and 4 present the results of the path analysis. Since the path from outcome to partner minus self attribution is negative ($p = -0.13$ for robot and -0.23 for person games) and significantly different from zero ($F = 6.38$; $p = 0.01$ for robot and $F = 12.81$; $p = 0.00$ for person games) we can say that there is a tendency to attribute failure to the partner and success to self, which is not justified by the partner's concession rate. One may remember here that paths to the final dependent variable partner minus self attribution are standardized partial regression coefficients indicating the influence of a variable while holding constant the influence of the other variables in the model.

From Figure 3 we can see that there are other significant paths to partner minus attribution, i.e. final liking ($p = -0.25$ for robot and $p = -0.13$ for person games) indicating that with increasing final liking rate the partner is made less responsible for the outcome, may it be failure or success.

The path model for testing hypothesis 2 comprises on the first level the design variables and self-esteem, on the second the interaction variables, and on the third level self-attribution. The data were separately analysed for failure and success.

Since there is in both data sets (computer and person games) neither a significant path from self-esteem to self-attribution, nor a significant difference between the partial regression coefficients, hypothesis 2 is not supported by the data.

Hypothesis 3 was tested by a path model with initial (manipulated) liking, subject's costs, partner's costs as (orthogonal) variables which affect the subject's and the partner's concession making and remarks, then the liking for the partner as assessed before the final stage of bargaining and finally the partner attribution. Such a model enables us to show that attribution of success and failure follows in part from a veridical perception of the partner's behaviour, in part from a misconception caused by emotional responses to the partner. As a partial regression coefficient the path from final liking to partner attribution tells us, what final liking contributes to the prediction of the partner attribution when we partial out the effects of the design variables (liking, costs) and the effects of the process variables (concession rates, remarks).

Figures 5 to 8 show the results of the path analysis for success and failure, respectively. It can be seen that the design variables partner's cost and subject's cost, modify the 'behaviour' of the computer program (concession rate and remarks) and the behaviour of the subject (subject's concession rate and remarks), while some of these variables influence final liking for the partner and the attribution of success or failure to the partner. As predicted, the path from final liking to partner attribution is positive in the case of success ($p = 0.16$) and clearly negative ($p = -0.25$) in the case of failure for robot games, while the path from final liking to partner attribution is negative in both cases for person games ($p = -0.06$ for success and $p = -0.22$ for failure). While the difference (*t*-test for unequal variances) between the two path coefficients for the robot games from final liking to partner attribution, $p = 0.16$ versus $p = -0.25$, is significant ($t = 5.24$; $df = 197$), the two path coefficients are not significantly different in the case of person games ($t = 1.62$; $df = 126$). Thus hypotheses 3 is only confirmed in part.

Tables 1 and 2 present the means and standard deviations, Tables 3 and 4 the correlations of all variables used in the path models in order to give some additional

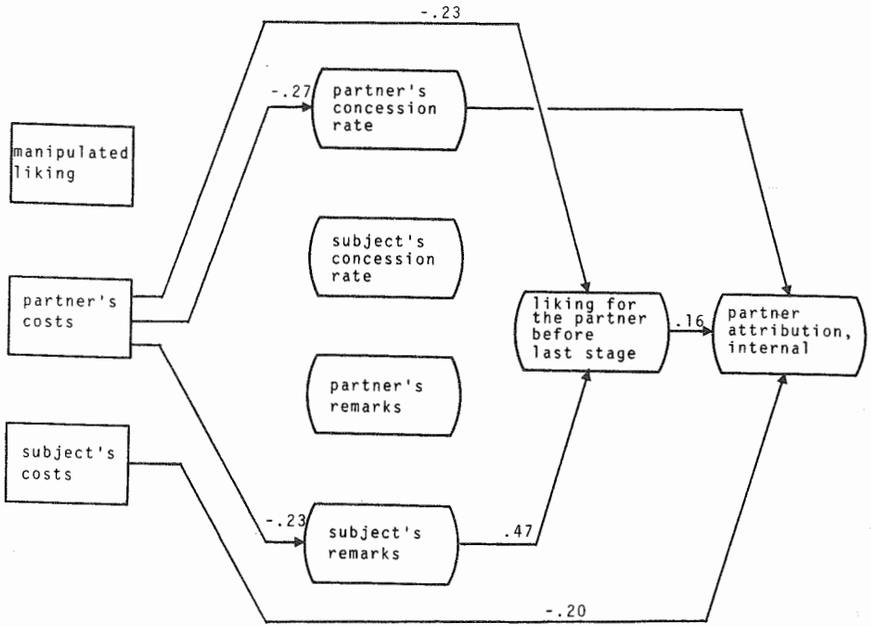

Figure 5. Path model with path coefficients (beta) from the path analysis for success and with partner attribution as dependent variable (hypothesis 3). Nonsignificant paths were removed from the model (robot games)

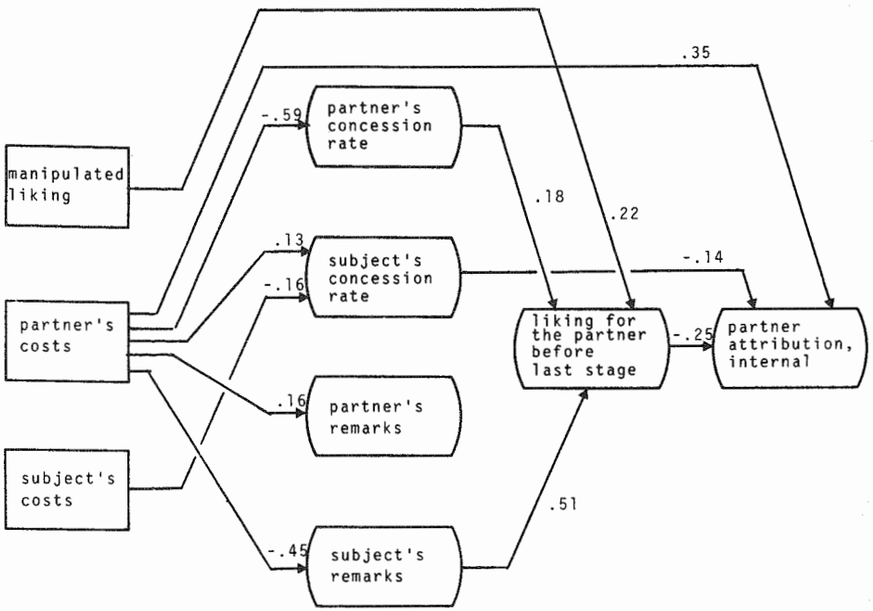

Figure 6. Path model with path coefficients (beta) from the path analysis for failure and with partner attribution as dependent variable (hypothesis 3). Nonsignificant paths were removed from the model (robot games)

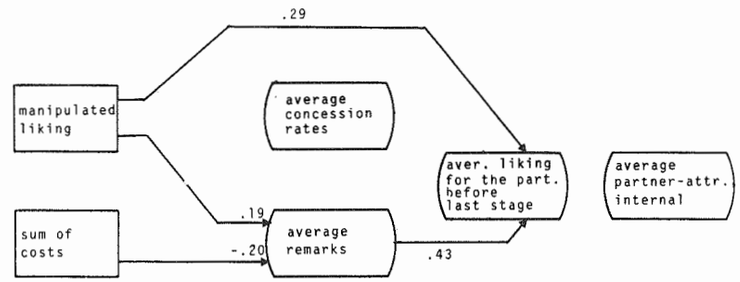

Figure 7. Path model with path coefficients (beta) from the path analysis for success and with partner attribution as dependent variable (hypothesis 3). Nonsignificant paths were removed from the model (person games)

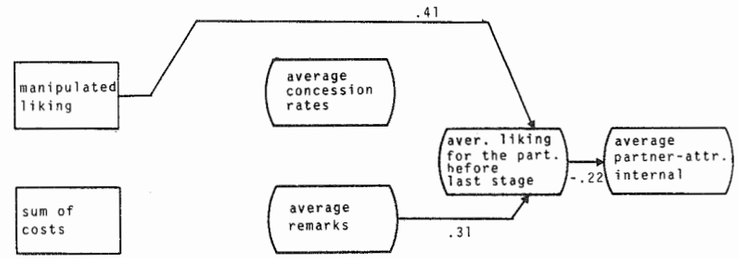

Figure 8. Path model with path coefficients (beta) from the path analysis for failure and with partner attribution as dependent variable (hypothesis 3). Nonsignificant paths were removed from the model (person games)

information in a way that may be more convenient to readers who are not so familiar with path analysis. One can see from Tables 1 and 2 that in most variables there is a clear difference between success and failure.

DISCUSSION

As to hypothesis 1 we found that subjects tend to blame the partner for failure more than it is justified by his behaviour, and to share the credits for success evenly with the partner. This is in line with the prediction. Nevertheless, one may wonder why the responsibility for success is equally distributed between self and partner. Is it that successful subjects can be generous because they feel strong, while unsuccessful subjects feel weak and need a scapegoat in order to restore self-esteem? One would like to separate the affective antecedents from the affective consequences of attributions (*cf.* Gollwitzer *et al.*, 1982; McFarland & Ross, 1982; Weiner, Russel and German, 1978) in order to find an answer to this question. Unfortunately, our design does not allow for such a separation. Although we measured the satisfaction with the bargaining outcome before we asked the subjects for their causal attributions of outcomes, we have to assume that the satisfaction ratings were already influenced by spontaneous attributions preceding the attributions elicited by our questions.

Table 1. Means and standard deviations of the variables used in the path model for games that end in agreement (success) or deadlock (failure) for a liked or disliked 'partner' (roboter-games)

	Success $N=145$				Failure $N=300$			
	Liked p $N=116$		Disliked p $N=29$		Liked p $N=130$		Disliked p $N=170$	
	M	S.D.	*M*	S.D.	*M*	S.D.	*M*	S.D.
Design variables								
(1) Liking	0.03	1.00	−0.03	1.02	0.23	0.98	−0.21	0.98
(2) Subject's costs	−0.05	1.00	−0.38	9.4	0.03	1.00	0.06	1.00
(3) Partner's costs	−0.98	0.19	−0.72	0.70	−0.03	1.00	0.46	0.89
Interaction variables								
(4) Subject's concession rate	−0.49	0.76	−0.30	0.43	−0.39	1.10	0.11	1.10
(5) Partner's concession rate	−0.07	0.44	−0.15	0.36	−0.44	0.58	−0.63	0.53
(6) Subject's remarks	0.84	0.99	−0.49	1.24	−0.15	1.44	−1.56	1.44
(7) Partner's remarks	0.23	0.89	0.00	0.75	0.57	1.28	0.60	1.36
Rating variables								
(8) Final liking	1.18	1.25	−1.44	1.20	0.78	1.31	−2.31	1.63
(9) Attribution to self	0.57	1.57	0.80	1.52	−0.38	1.70	−1.35	1.37
(10) Attribution to partner	−0.14	1.36	−0.32	1.49	−0.12	1.46	0.81	1.05
(11) Partner minus self attribution	−0.70	1.30	−1.09	2.03	0.20	2.46	2.15	1.95

Table 2. Means and standard deviations of the variables used in the path model for games that end in agreement (success) or deadlock (failure) for a liked or disliked 'partner' (person games)

	Success $N=348$				Failure $N=136$			
	Liked p $N=270$		Disliked p $N=78$		Liked p $N=91$		Disliked p $N=45$	
	M	S.D.	*M*	S.D.	*M*	S.D.	*M*	S.D.
Design variables								
(1) Liking	0.16	0.99	−0.36	0.94	−0.01	1.00	0.51	0.87
(2) Sum of costs	−0.26	1.36	−0.15	1.36	0.70	1.34	0.53	1.38
Interaction variables								
(3) Average concession rate	0.15	0.74	−0.06	0.72	−0.14	0.62	−0.12	0.64
(4) Average remarks	0.30	1.00	−0.66	1.06	−0.07	1.08	−0.57	1.32
Rating variables								
(5) Average final liking	1.11	1.28	−0.61	1.15	0.44	1.31	−0.98	1.15
(6) Average self attribution	0.57	0.96	0.46	1.04	0.08	0.90	−0.17	0.86
(7) Average partner attribution	−0.24	0.85	−0.24	0.72	−0.35	0.99	−0.10	0.88
(8) Average partner minus self attribution	−0.81	1.06	−0.71	1.12	−0.43	1.52	0.07	1.36

Table 3. Correlations of variables used in the path model for games that end in agreement (success; $N = 145$) or deadlock (failure; $N = 300$) (robot games)

		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Design variables											
(1) Liking	S	0.06	0.03	0.00	−0.03	−0.03	−0.07	0.07	−0.02	0.08	0.09
	F	−0.03	0.01	−0.06	0.00	0.07	0.08	0.26	−0.02	−0.01	0.00
(2) Subject's costs	S	...	−0.17	−0.09	−0.03	−0.07	−0.03	0.01	−0.18	−0.20	0.00
	F	...	−0.05	−0.17	0.11	0.08	0.01	0.05	0.04	−0.03	−0.05
(3) Partner's costs	S	...	...	0.12	−0.27	−0.23	0.07	−0.33	−0.12	0.11	0.24
	F	...	...	0.13	−0.59	−0.45	0.16	−0.38	−0.26	0.43	0.41
Interaction variables											
(4) Subject's concession rate	S	...	...	...	0.33	−0.05	0.01	0.03	0.14	0.14	0.04
	F	...	...	...	0.15	−0.09	0.01	0.06	0.08	−0.07	−0.08
(5) Partner's concession rate	S	...	...	...	...	0.06	0.01	0.13	0.28	0.19	−0.01
	F	...	...	...	...	0.31	−0.07	0.33	0.30	−0.37	−0.36
(6) Subject's remarks	S	...	...	...	...	...	0.29	0.52	0.02	−0.10	−0.06
	F	...	...	...	...	...	0.09	0.58	0.23	−0.34	−0.31
(7) Partner's remarks	S	...	...	...	...	...	...	0.19	0.02	−0.06	0.08
	F	...	...	...	...	...	...	0.02	0.00	−0.03	0.00
Rating variables											
(8) Final liking	S	...	...	...	...	...	...	...	0.10	0.13	−0.04
	F	...	...	...	...	...	...	...	0.34	−0.38	0.43
(9) Attribution to self	S	...	...	...	...	...	...	...	...	0.52	−0.48
	F	...	...	...	...	...	...	...	...	−0.42	−0.84
(10) Attribution to partner	S	...	...	...	...	...	...	...	...	...	0.44
	F	...	...	...	...	...	...	...	...	...	0.80
(11) Partner minus self attribution											

S = success, F = failure.

Table 4. Correlations of variables used in the path model for games that end in agreement (success; $N = 348$) or deadlock (failure; $N = 136$) (person games)

		(2)	(3)	(4)	(5)	(6)	(7)	(8)
Design variables								
(1) Liking	S	0.05	0.08	0.18	0.36	0.01	0.05	0.04
	F	0.00	0.00	−0.03	0.40	0.04	−0.02	−0.03
(2) Sum of costs	S	...	−0.08	−0.18	−0.08	−0.17	−0.13	0.04
	F	...	−0.09	−0.09	0.00	0.07	−0.15	−0.14
Interaction variables								
(3) Average concession rate	S	...	...	0.10	0.11	−0.07	0.03	0.08
	F	...	...	0.15	0.05	−0.04	−0.02	0.01
(4) Average remarks	S	...	...	...	0.54	0.14	0.10	−0.05
	F	...	...	...	0.33	0.15	−0.10	−0.16
Rating variables								
(5) Average final liking	S	...	...	...	...	0.11	0.05	−0.06
	F	...	...	...	...	0.18	−0.19	−0.23
(6) Average attribution to self	S	...	...	...	...	...	0.30	−0.68
	F	...	...	...	...	...	−0.28	−0.79
(7) Average attribution to partner	S	...	...	...	...	...	...	0.49
	F	...	...	...	...	...	...	0.82
(8) Average partner minus self attr.								

S = success, F = failure.

Hypothesis 2 ('With increasing self-esteem success is attributed more, failure less to self') has not been confirmed. This is somewhat surprising. Even if we conceived of our so-called self-esteem scale as a measure of attribution tendency and not primarily as a measure of self-esteem, we would expect that a person will behave in a concrete social situation concordant with his/her behaviour in similar social situations. Instead of rejecting hypothesis 2, which after all is theoretically reasonable, we should doubt the construct validity of the scale.

From Figures 3 and 4 we can see that the path from final liking, i.e. the last liking before the game ended in agreement or deadlock, is negative both in robot and person games. This means that there is a general tendency to feel responsible for the outcome of interaction, may it be failure or success, with a liked, but not with a disliked partner. If this result were replicated in future experiments, it would certainly be of theoretical and practical importance. It may be that the closer one feels to the interaction partner, the more one is involved and the more one feels responsible.

The predictions derived from balance theory concerning causal attributions of agreement (success) and deadlock (failure) in bargaining with a liked or disliked partner (hypothesis 3) were clearly supported by the data from games that ended in deadlock. The less liked the partner, the more he is made responsible for the failure. The path from final liking to partner attribution is $p = -0.25$ ($F = 22.0$; $p = 0.00$) for robot games and $p = -0.22$ ($F = 3.51$; $p = 0.05$) for person games. One should remember that this path represents the emotional component of the attribution which causes

a misperception of the reality. The subjects blame the partner for his/her uncooperative behaviour more than it is justified by his/her real behaviour.

The attribution of success is only in the robot games clearly in line with the predictions; in the person games the path is virtually zero. We have no convincing explanation for this unexpected difference between robot and person games.

On the whole, we can say that we were successful in separating perceptual from motivational components of responsibility attribution in an interaction situation. There is clear evidence that subjects generally underestimate the interaction partner's contribution to success, and overestimate his contribution to failure. This is particularly true when the subject does not like his partner because of 'prejudice' (liking manipulation before the interaction started!) or unpleasant experience.

A few comments should be made on the model that we have chosen for our theory and data analysis. The four levels of our path model comprise the design variables on the first level, the subject's and the partner's bargaining behaviour, concession rates and remarks, on the second level, the subject's liking for the partner, assessed before the game ends in agreement or deadlock, and the causal attribution of success or failure on the third and fourth level. These levels represent stages of the bargaining process, and we can assume that the design variables influence (in the sense of cause and effect) the bargaining behaviour, that both types of variables influence the liking ratings followed the bargaining behaviour, and that the final dependent variable, i.e. the attribution of success and failure, is influenced by all these preceding variables.

However, one may object that ordering the variables according to the time sequence of measurement is no guarantee of the right order as to cause and effect. Liking for example, as measured at a later stage in the bargaining process, may have persisted from an earlier stage where it could have influenced not only own behaviour, but also the partner's behaviour. Or the subject may have started with attributions long before they were asked for, and their attributions during the bargaining process may have influenced their behaviour towards their partner and their liking for them. Well, all this could have happened indeed, but there are enough reasons for the ordering of variables we have chosen in our models. First we must remember that the subject's attributions refer to bargaining success and failure which, of course, was not known to them before the bargaining ended in agreement or deadlock, sometimes with surprise, sometimes after some forebodings of a happy end or a disaster. Second, reversing the order of level 2 (bargaining behaviour) and level 3 (liking) would contradict earlier findings (Brandstätter and Hoggatt, 1982) showing that liking is stepwise revised as a consequence of the partner's behaviour. Third, even if some doubts about the right causal order remained, any other order that could be suggested would be even more doubtful. The least we can do is to look if the correlation between liking and attribution is compatible with the balance theory without worrying too much about which is the cause and which the effect.

Did we include in the model all theoretically important variables for which we have data? For the sake of simplicity we had to exclude some. Since we were not primarily interested in the effects of the design variables on the process and outcome of bargaining, but in the causal attributions of bargaining success and failure, we did not include products of design variables which would represent the interactions between cost conditions and liking. On the level of bargaining behaviour we also kept the number of variables small. By combining initial offer and concession rate ('20 minus second to last offer divided by the number of bargaining stages') into one

variable which according to Rubin and Brown, (1975, p. 266) should better be separated we might have lost a little bit, but probably not too much in predicting liking and attribution from bargaining behaviour. Otherwise we would miss our aim to separate a subject's veridical perception of own and partner behaviour from emotional misperceptions as components of attributions.

The paths from the design variables to the variables of the partner's behaviour mirror the 'character' of the robot built in by the program. Differences between games that end in agreement and games that end in deadlock are caused by the fact that games with high costs end more often in failure than games with low costs.

The liking for the partner, assessed before the subjects made their last offer bringing about agreement or deadlock, is partly influenced by the experiences with the partner during the bargaining, particularly by his concessions, partly by the original manipulation of liking. This is in line with Brandstätter and Hoggatt (1982) and with Brandstätter *et al.* (1983) who found about the same changes in liking during the bargaining process. It is for this reason that the hypothesis relating liking and attribution has to be tested with liking ratings collected at a later stage of the bargaining process, not with the experimental manipulation of liking. That the subject's remarks during the bargaining announce already the final liking ratings is shown by rather high positive paths from partner's remarks to final liking ($p = 0.47$) for success and $p = 0.51$ for failure in robot games and $p = 0.43$ and $p = 0.32$ for person games respectively).

With a determination coefficients of $R^2 = 0.67$ (robot) and $R^2 = 0.55$ (person) a large portion of the variance of final liking remains unexplained. We may think of specific expectations, mood states, social desirability response sets, or personality characteristics as further causes of the variations in liking. To know the components of liking in more detail would be useful for a better understanding of the relation between liking and attribution. Unfortunately, our data tell us nothing about those other components of liking.

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RÉSUMÉ

L'expérience a trait à l'impact de l'estime de soi et de l'attraction pour le partenaire sur l'attribution d'accords et d'impasses dans la négociation. Cinquante-huit étudiants masculins et 70 féminins ont joué le jeu de négociation Harsanyi-Selten avec huit fois des informations incomplètes et prétendûment à chaque fois avec un partenaire sélectionné de manière aléatoire. En fait, dans 4 jeux, un programme d'ordinateur simulait le partenaire. L'expérience suivait un design 2 (attraction- non attraction) × 2 (propres coûts élevés ou bas) × 2 (coûts du partenaire élevés ou bas) avec mesures répétées. Comme prédit à partir d'un modèle de pistes causales dérivé de la théorie de la balance (a) l'échec (impasse) est davantage attribué au partenaire et moins à soi que le succès (accord): (b) le succès est attribué davantage au partenaire aimé que non-aimé, alors que c'est l'inverse qui se produit pour l'échec.

ZUSAMMENFASSUNG

Der Einfluss von Selbstachtung und Achtung des Partners auf die Attribution von Uebereinstimmung und Ausweglosigkeit in einer Verhandlungssituation bildet das Untersuchungsobjekt. 58 Studenten und 70 Studentinnen spielten achtmal Harsanyi-Selten mit unvollständigen Informationen und vorgegebenerweise jedesmal mit einem zufällig ausgewählten Partner. Bei je vier Spielen simulierte ein Komputer den Partner. Die Untersuchung folgte einem wiederholten 2 × 2 × 2-Experimentalschema: Partnerachtung (noch-niedrig), Eigenkosten (noch-keine) und Kosten des Partners (noch-keine). Wie vom 'path model' der Gleichgewichtstheorie vorausgesagt, (a) wurde der Verhandlungsabbruch mehr dem Partner als sich selbst zugeschrieben während Verhandlungserfolg mehr sich selbst als dem Partner zugeschrieben wurde (b) wurde Erfolg eher dem geachteten als dem missliebigen Partner zugeschrieben, währenddem der Verhandlungsabbruch eher dem missliebigen als dem geachteten Partner zugeschrieben wurde.