Predicting Divorce among Newlyweds from the First Three Minutes of a Marital Conflict Discussion

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This study tested the hypothesis that how a discussion of a marital conflict begins—in its first few minutes—is a predictor of divorce. The marital conflict discussion of 124 newlywed couples was coded using the Specific Affect Coding System, and the data were divided into positive, negative, and positive-minus-negative affect totals for five 3-minute intervals. It was possible to predict marital outcome over a 6-year period using just the first 3 minutes of data for both husbands and wives. For husbands this prediction improved as the groups diverged in the remaining 12 minutes; for wives the prediction remained equally powerful for the remaining 12 minutes as it had been in the first 3 minutes.

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I N a series of reports from our laboratory, it was possible to predict marital stability or divorce in longitudinal samples from marital interaction during a discussion in which the couple attempted to resolve a major area of continuing marital disagreement (Buehlman, Gottman, & Katz, 1992; Gottman, 1993, 1994; Gottman & Levenson, 1992). This work has now been replicated in another laboratory (Matthews, Wickrama, & Conger, 1996).

Gottman & Levenson (1992) used a weighted sum of observational categories to compute "point graphs" of the marital conversation. Couples on a trajectory toward divorce initially had far more negative and less positive interaction than couples who were on a trajectory characterized by marital stability. In the present article, we explore the possibility that even the first 3 minutes of the discussion are adequate for this prediction. We explore this question in a new longitudinal sample of newlywed couples.

The very beginning of a marital discussion may be particularly important because these first few minutes are the "startup" phase of the discussion, when the agenda of the marital discussion is described and discussed (Gottman, 1979). We explore whether negative affect, positive affect, or the balance between negative and positive affect are most important in this prediction. We also explore the linear trajectory of the conversation over the entire 15 minutes.

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METHOD

Participants

Between 1989 and 1992, we used a 2-stage sampling procedure to draw a sample of newlywed couples from the Puget Sound area in Washington. Couples were initially recruited using newspaper advertisements. To be eligible for the study, the couples had to have married for the first time within 6 months of participating in the study, and they had to be childless. Couples were contacted by phone and administered our telephone version of the Marital Adjustment Test (MAT; Krokoff, 1987; Locke & Wallace, 1959) and surveyed to determine their eligibility on the other criteria. The MAT measures marital satisfaction. Higher scores on the MAT represent higher marital satisfaction. There were 179 newlywed couples who met the research criteria and participated in the initial survey phase of the study. In this phase, the husbands and wives were separately mailed a set of questionnaires to complete, which included measures of demographic characteristics and indices about their marriage, well-being, and health.

In the second phase of the study, 124 newlywed couples, who represented an even distribution of marital satisfaction, were invited to participate in a marital interaction laboratory session and to complete additional questionnaires. These couples fit perfectly the demographic characteristics of the major ethnic and racial groups in the greater Seattle areas, according to the Seattle City Metropolitan Planning Commission Report. The demographic characteristics for these newly married couples were: wife's age = 25.4 years (SD = 3.5); husband's age = 26.5 years (SD = 4.2); wife's marital satisfaction = 120.4 (SD = 19.7); husband's marital satisfaction = 115.9 (SD = 18.4). These 130 couples were brought into the laboratory over the course of 3 years (approximately 43 a year), and followed for 6 years, so that the followup period varied from 4 to 6 years.

Marital Status

Once each year, the marital status of the 124 couples in the study was assessed. At the end of the 6-year period (called Time-2 in this article), there had been 17 divorces—6 in the first cohort, 6 in the second, and 5 in the third. The mean number of years married among the divorced couples was 3 (SD = .79).

Procedures and Measures

Marital Interaction Assessment

The marital interaction assessment consisted of a discussion by the husband and wife of a problem that was a source of ongoing disagreement in their marriage and in the two recall sessions in which the couples viewed their discussion of their marital disagreement. After the couple completed a problem inventory, the experimenter reviewed with the couple the issues they rated as most problematic, and helped them to choose several issues to use as the basis for the discussion. After choosing the topics for the discussion, couples were asked to sit quietly and not interact with each other during a 2-minute baseline. The couples discussed their chosen topics for 15 minutes, and then viewed the video recording of the interaction. In counterbalanced order, the husband and wife first viewed and rated their own affect during the discussion, and then viewed and rated their spouse's affect. Both the husband and wife used rating dials that provided continuous self-report data. We collected continuous physiological measures and video recordings during all of the interaction sessions, and data were averaged over 1-second intervals.

Behavioral observation: Two remotely controlled cameras filmed both spouses

during the interaction sessions. The images from the two cameras were combined in a split-screen image. VHS video recorders were used to record the behavioral data and microphones were used to record the couple's audio interactions. The computer synchronized the physiological data with the video data by using the elapse time codes imposed on the video recordings. The Specific Affect Coding System (SPAFF; Gottman, McCoy, & Coan, 1996) was used to code the couples' conflict interactions. The system was used to index specific affects expressed during the session of marital problem resolution. SPAFF focuses solely on the affects expressed. The system draws on facial expression based on Ekman & Friesen's (1978) system of facial action coding, vocal tone, and speech content to characterize the emotions displayed. Coders categorized the affects displayed using five positive codes (interest, validation, affection, humor, joy), 10 negative affect codes (disgust, contempt, belligerence, domineering, anger, fear/tension, defensiveness, whining, sadness, stonewalling), and a neutral affect code. Every videotape was coded in its entirety by two independent observers using a computer-assisted coding system that automated the collection of timing information; each coder noted only the onset of each code. A time-locked confusion matrix for the entire videotape then was computed using a 1-second window for determining agreement of each code in one observer's coding against all of the other observers' coding (see Bakeman & Gottman, 1986). The diagonal versus the diagonal-plus-off-diagonal entries in these matrices then were entered into a repeated measures analysis of variance using the method specified by Wiggins (1977). We computed the Cronbach alphas for each code as the ratio of the mean square for observers minus the error mean square and the mean square for observers

plus the error mean square (see also Bakeman & Gottman, 1986). The Cronbach alpha generalizability coefficients ranged between .651 and .992, and averaged .907 for the entire coding of all 130 video tapes.

Weighting of the SPAFF Codes: Using a weighting scheme derived from previous prediction research (Gottman, 1994), the SPAFF codes were converted to numbers for each 6-second time block (see Table 1). The 15-minute interaction was then divided into five 3-minute time periods. For each 3-minute time period the total sum of the positive codes, the total sum of the negative codes, and the total sum of the positive codes minus the total sum of the negative codes were computed for both husband and wife.

RESULTS

The data were analyzed in two steps. To be conservative, in the first step, each of the five 3-minute time blocks were analyzed separately using t-tests comparing the Time-1 interaction of the 17 couples, who eventually divorced, with the 107 couples who stayed together over the 6-year period. These analyses were conservative because they did not employ the smaller mean square error term that would be obtained from a repeated measures multivariate analysis of variance.

TABLE 1
Weighting Scheme for the SPAFF Codes

Positive Emotions		Negative Emotions	
Joy	+4	Contempt	−4
Humor	+4	Disgust	−3
Affection	+4	Defensiveness	−2
Validation	+4	Belligerence	−2
Interest	+2	Stonewalling	−2
		Domineering	−1
		Anger	−1
		Whining	−1
		Sadness	−1
		Tension/fear	0
	Neutral +0.1		

Although the predictions were specific, two-tailed *t*-tests were used instead of one-tailed tests to provide a more conservative alpha level for comparisons.

The repeated measures analysis of variance was used only to assess whether there were interactions over time for any variables between the group and time effects. That is, we were interested in assessing whether, for any variables, the data for the two groups for the initial 3-minutes became larger or smaller over time.

Group differences for each 3-minute time block: Tables 2 and 3 provide data summaries of the husbands' and wives' displays of emotion for each of the 3-minute time blocks. Couples who later divorced started off their conflict discussions with significantly greater displays of negative emotion and fewer expressions of positive emotion when compared with couples who remained married over the course of the 6-year study. Both husbands and wives showed these differences in negative and positive emotional communication patterns. At the beginning of the conflict discussion, these husbands and wives who later divorced also had a greater proportion of negative emotions relative to the positive affect they expressed. These significant differences in positive and negative emotional communication patterns between the two groups of couples continued over each of the 3-minute time blocks in the 15-minute conflict discussion. The one exception to this was during the second 3-minute time block when husbands who later divorced had greater levels of negative emotions than husbands who remained married, but this difference was not significant, $t(122) = 2.04, p = .055$.

Linear trends over the entire 15-minutes: Using multivariate repeated measures analyses of variance, the interaction of the linear trend over time with the group variable (divorced/stable) was examined. For the husband's negative SPAFF scores, the interaction was significant, with $F(1, 122) = 4.10, p = .045$. Both groups increased in negativity across the conflict discussion, $F(4, 488) = 4.20, p =$

TABLE 2

Summary of t(122) Analyses for Husbands' Positive and Negative Emotions Displayed during Marital Conflict

Time Blocks	Negative M (SD)	Negative t	Positive M (SD)	Positive t	Positive Minus Negative M (SD)	Positive Minus Negative t
First 3-Minute Block						
Married Husbands	−33.54 (37.35)	2.55*	85.71 (90.84)	3.48**	52.17 (104.70)	3.98***
Divorced Husbands	−59.65 (38.71)		45.93 (29.65)		−13.72 (52.88)	
Second 3-Minute Block						
Married Husbands	−44.17 (47.43)	2.04	86.53 (89.66)	4.67***	42.35 (108.99)	3.82***
Divorced Husbands	−75.41 (59.50)		37.75 (23.09)		−37.66 (73.43)	
Third 3-Minute Block						
Married Husbands	−44.75 (48.99)	2.90**	82.19 (85.77)	4.23***	37.44 (110.94)	4.21***
Divorced Husbands	−80.82 (46.06)		36.96 (27.18)		−43.86 (64.81)	
Fourth 3-Minute Block						
Married Husbands	−44.89 (45.33)	3.92**	79.78 (87.51)	4.03***	34.90 (107.90)	4.15***
Divorced Husbands	−95.94 (60.67)		34.61 (30.65)		−61.33	
Fifth 3-Minute Block						
Married Husbands	−39.27 (−39.27)	2.45*	81.19 (95.05)	4.56***	41.92 (113.82)	3.86***
Divorced Husbands	−87.94 (78.57)		30.75 (26.82)		−57.19 (95.77)	

*$p < .05$; ** $p < .01$; *** $p < .001$

TABLE 3

Summary of t(122) Analyses for Wifes' Positive and Negative Emotions Displayed during Marital Conflict

Time Blocks	Negative		Positive		Positive Minus Negative	
	M (SD)	t	M (SD)	t	M (SD)	t
First 3-Minute Block						
Married Wives	−38.05 (44.57)	2.18*	83.99 (105.36)	2.86**	45.94 (122.68)	3.30**
Divorced Wives	−66.94 (52.86)		46.05 (35.23)		−20.89 (68.46)	
Second 3-Minute Block						
Married Wives	−47.47 (46.64)	2.66*	84.73 (104.59)	4.09***	37.26 (125.92)	4.09***
Divorced Wives	−90.76 (62.45)		36.19 (24.76)		−54.58 (75.51)	
Third 3-Minute Block						
Married Wives	−51.06 (50.23)	2.27*	75.22 (92.78)	3.71***	24.16 (115.41)	3.36**
Divorced Wives	−92.24 (72.40)		36.38 (23.55)		−55.86 (87.33)	
Fourth 3-Minute Block						
Married Wives	−54.11 (54.17)	2.51*	80.81 (99.72)	4.34***	26.70 (123.12)	3.94***
Divorced Wives	−93.82 (60.90)		33.39 (21.55)		−60.44 (76.25)	
Fifth 3-Minute Block						
Married Wives	−43.61 (43.58)	2.91**	85.18 (102.77)	5.12***	41.57 (120.27)	4.82***
Divorced Wives	−80.06 (48.80)		29.44 (20.25)		−50.62 (63.68)	

$* p < .05; ** p < .01; *** p < .001$

.002, but the group of husbands who eventually divorced increased linearly in negativity significantly more rapidly than the group of husbands whose marriages remained stable over the 6-year period. These data are graphed as Figure 1.

For the husband's positive SPAFF scores, the interaction was also significant, with $F(1, 122) = 4.17, p = .004$. Overall, there was no decrease in positivity across the conflict discussion, $F(4, 488) = .62$, n.s., but the interaction effect was caused by the group of husbands who eventually divorced, who decreased significantly linearly in positivity over time. These data are graphed as Figure 2.

For the husband's total SPAFF scores, the interaction was not significant, with $F(1, 122) = 2.49$, n.s. Both groups decreased in overall scores across the conflict discussion, $F(4, 488) = 3.05, p = .017$, and the total scores showed no divergence over time across groups. These data are graphed as Figure 3.

For the wives' data, none of the interaction of group-by-time effects was significant (negativity: $F[1, 122] = .13$, n.s.; positivity: $F[1, 122] = 1.00$, n.s.; total score: $F[1, 122] = .77$, n.s.). Over time, both groups showed the following time effects: an increase in negativity over time, $F(4, 488) = 3.54, p = .007$, no change in positivity over time, $F(4, 488) = .73$, n.s., and a marginal decrease in positive-minus-negative total score, $F(4, 488) = 2.36, p = .052$.

Gender effects and interactions with gender: None of the analyses of gender or gender-by-group interactions was statistically significant at any time point.

DISCUSSION

These results show that, using quantitative data of affect obtained from newlyweds in the first few months after the wedding, it is possible to predict who will divorce and who will remain married, even using the first 3 minutes of marital interaction. The prediction concerned both positive affect and negative affect.

This suggests that for both husbands and wives the *startup* of the conflict discussion is critical in predicting divorce or marital stability. Both husbands and wives
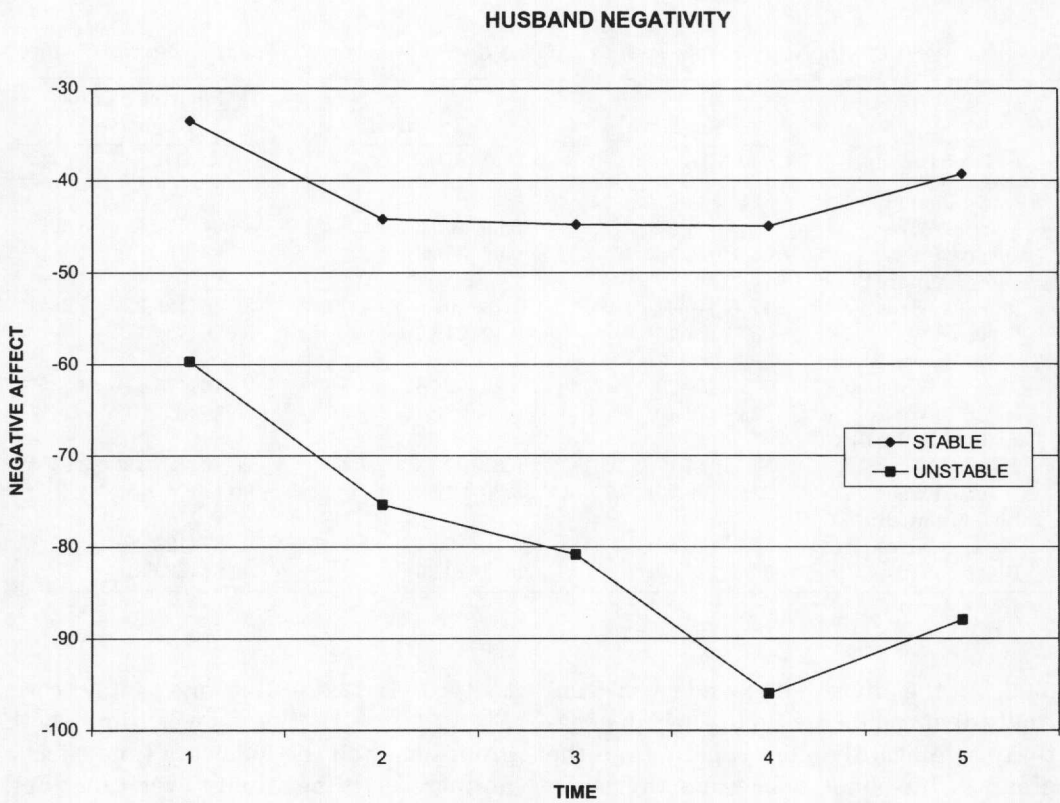
FIG. 1. Husband's negative affect over time for stable and unstable couples.

in stable marriages display less negative affect and more positive affect in the very beginning of the marital conflict discussion. For husbands, these initial differences between groups are amplified over the remaining 12 minutes of interaction, so that prediction of divorce becomes increasingly easier from the husband's data as the interaction progresses. All husbands become increasingly more negative over the interaction, but husbands who will eventually be divorced become more negative more quickly than husbands whose marriages turn out to be stable.

Interestingly, husbands in stable marriages become somewhat more negative over the 15-minute interaction, but they do not become less positive, whereas husbands who will eventually wind up divorced become increasingly more negative and increasingly less positive over the 15-minute interaction. For wives none of the initial group differences was amplified over time. Hence, while the nature of the startup is just as critical for wives as for husbands, these initial differences remain throughout the interaction, but they are not amplified over time.

It would be helpful to specify precisely what different social processes are engaged in the start of a marital conflict discussion for couples who wind up divorced or in stable marriages. It appears to us, in viewing our videotapes, that most interactions begin with the wife's description of the problem, followed by the husband's initial reaction. It is well known that women typically start most of the marital conflict discussions in laboratories that use observational methods (Ball,
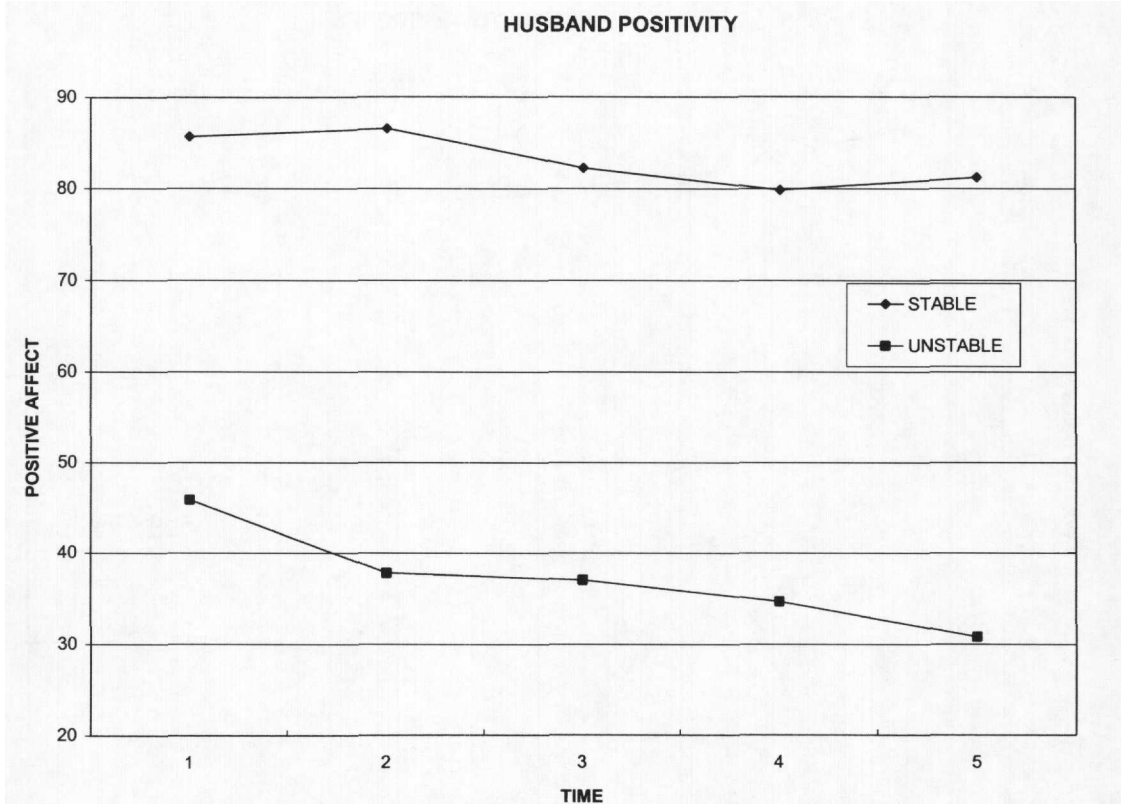
FIG. 2. Husband's positive affect over time for stable and unstable couples.

Cowan, & Cowan, 1995; Oggins, Veroff, & Leber, 1993). Based on Gottman (1994), in couples heading for divorce versus stable couples, the wife's initial opening presentation of the problem is usually a criticism, rather than a complaint. A criticism differs from a complaint in implying that this is a global issue reflecting something defective in the husband's character that has caused the problem, whereas the complaint is more specific and does not suggest that the problem is with the husband's defective personality. The husband's initial reaction to the wife's opening is then either defensive (in marriages headed for divorce) or shows him not escalating her negativity (Gottman, Coan, Carrère, & Swanson, 1998). We expect that subsequent work with these newlywed interactions will bear out this combination of

events that characterize either *harsh* or *softened* startup (primarily by the wife), and *rejecting* or *being open to influence* (primarily by the husband).

It would also be helpful to investigate the causal mechanisms that operate to create harsh or softened startup by the wife and rejecting influence by the husband. We expect that these processes in the beginning of a conflict discussion would be predictable from the nonconflict interactions of the couple, for example, in talking about how their day went. Thus, we suggest a study in which the conflict discussion is preceded by a nonconflict discussion. We expect that harsh startup by the wife during conflict would be predicted by a disinterested, nonresponsive husband, whereas softened startup during conflict would be predicted by an interested and

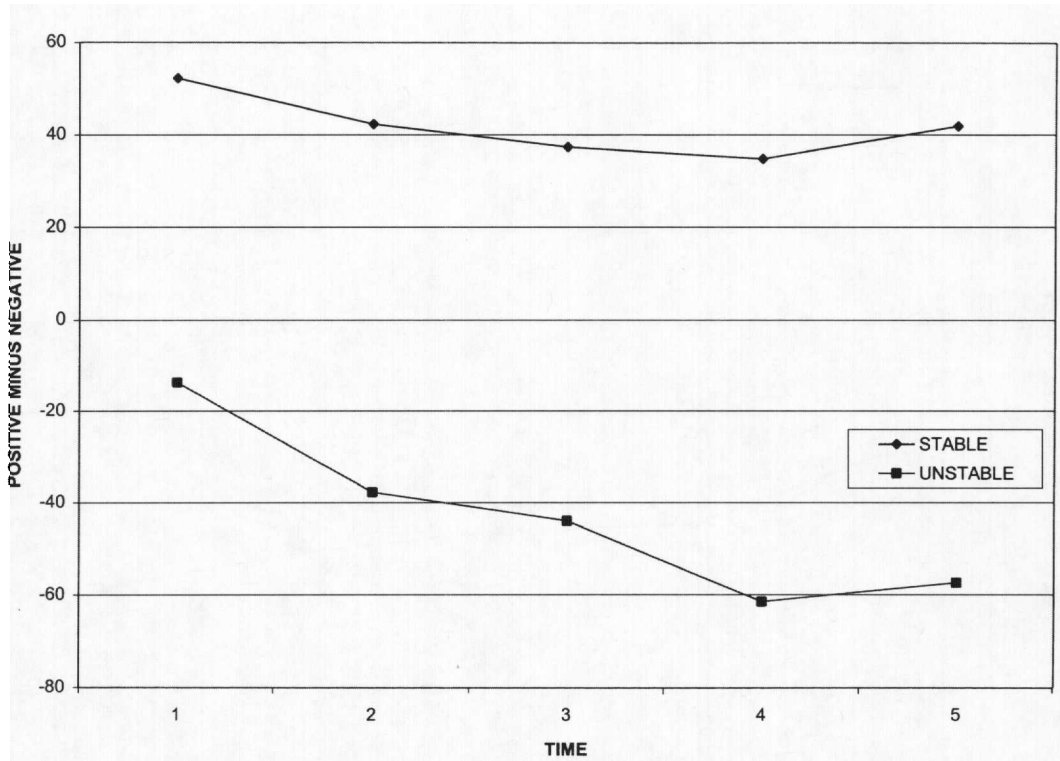*Fam. Proc., Vol. 38, Fall, 1999*

HUSBAND TOTAL SCORES

FIG. 3. Husband's total positive minus negative affect over time for stable and unstable couples.

affectionate husband. Similarly, we expect that the nonconflict predictors of the husband being open to his wife's influence following his wife's opening gambit during conflict would be his wife's interest and affection.

In closing, we wish to mention that R. Levenson (personal communication) has been conducting a study using a stimulus videotape (with another sample of couples) consisting of just the first 3 minutes of the conflict discussion of 5 couples who eventually divorced and 5 couples who remained married. After viewing the videotape, groups of subjects have been asked to guess which couples stayed married and which eventually divorced. So far, in this study in progress, marriage researchers, marital therapists, clergymen, unmarried undergraduates, and married people of various ages have all scored at chance levels. The current report thus suggests that the quantitative data perform significantly better than chance even with just the first 3 minutes of videotape, even when qualitative judgments do not.

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