

On the Dynamic Covariation Between Interpersonal Behavior and Affect: Prediction From Neuroticism, Extraversion, and Agreeableness

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It was posited that the traits of Neuroticism, Extraversion, and Agreeableness are predictors of dynamic intraindividual processes involving interpersonal behavior and affect. Hypotheses derived from the behavioral concordance model that individuals with high scores on a trait would experience more positively valenced affect when engaging in behavior concordant with that trait than individuals with low scores on the trait were tested. Participants completed a questionnaire measure of the traits and reported on behavior and affect during interpersonal interactions using event-contingent sampling forms approximately 6 times a day for 20 days. Trait scores were related to indexes of the association between each dimension of interpersonal behavior and affect calculated for each individual. Previous findings concerning the trait of Agreeableness were replicated, and results strongly supported the behavioral concordance model for the trait of Neuroticism. Thus, at least some traits can provide information about intraindividual processes that vary over time.

Recent theories posit that the major dimensions of personality are represented along a small number of factors, or traits. The number of factors varies; three, five, and seven are the most common suggestions (e.g., Almagor, Tellegen, & Waller, 1995; Eysenck, 1967; Goldberg, 1981; McCrae & Costa, 1987; Zuckerman, Kuhlman, Thornquist, & Kiers, 1991). All of these models share at a minimum factors resembling the traits of Neuroticism or Emotional Stability and Extraversion or Surgency (Zuckerman, Kuhlman, Joireman, Teta, & Kraft, 1993).

Although trait models of personality have been the focus of considerable research on interindividual differences, these models have been criticized. McAdams (1992, 1994) referred to the five-factor model as a psychology of the stranger. He argued that traits provide information that one would want to know about a stranger, prior to interacting with that person, but that one would want additional information about a person in a closer relationship. Additional information may include contextualized patterns of goals or elements of the person's life story. Other theorists, such as Block (1995) and Pervin (1994), questioned the relation between traits and dynamic aspects of

personality functioning. These theorists suggested that to further develop trait theory, traits should be related to indices of intraindividual processes that vary over time. Epstein (1994) similarly questioned whether the five factors would emerge from a factor analysis of intraindividual processes. Thus, a major task to further the theoretical rationale for trait models of personality must focus on dynamic intraindividual processes stemming from traits. In this study, we examined whether three traits, Extraversion, Neuroticism, and Agreeableness, are associated with dynamic processes that occur within a person over time.

Researchers have explored the relation between traits and long-term levels of affect aggregated over time and situations. This research suggests that levels of aggregated affect are associated with traits. The strongest and most consistent evidence indicates that individuals characterized by high scores on Extraversion typically experience pleasant affect and that individuals characterized by high scores on Neuroticism generally experience unpleasant affect (Costa & McCrae, 1980; David, Green, Martin, & Suls, 1997; McCrae & Costa, 1991; Meyer & Shack, 1989; Tellegen, 1985; Watson & Clark, 1992). There is also some evidence that the trait of Agreeableness is related to pleasant affect and negatively related to unpleasant affect (McCrae & Costa, 1991; Watson & Clark, 1992).

Affect, however, does not remain at a constant level reflected in either a single score or an aggregated score. Affect demonstrates considerable fluctuation for individuals both within days and across days (Brown, 1998; Larsen, 1987). Of specific interest for the present research was the possibility that traits might predict aspects of the intraindividual variability in affect. Prediction of some intraindividual processes such as the variability of affect, the cyclicity of affect, and the structure of affect from traits has been examined. Hepburn and Eysenck (1989) noted that individuals who have high scores on the traits of Extraversion and Neuroticism experience more variability in their affect than individuals who have low scores on these traits. Subsequently, Larsen and Kasimatis (1990) found that the affect of

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extraverts conforms less to a 7-day cycle than the affect of other individuals. Individuals also differ in the complexity of the structure of affect (Larsen & Cutler, 1996). More within-person factors are necessary to account for variance in the daily affect ratings of men who have high scores on the traits of Extraversion and Neuroticism than men who have low scores on these traits.

We sought to elaborate theoretical models of the relation between personality traits and dynamic intraindividual affective processes. The present research extends previous work by examining whether three traits, Neuroticism, Extraversion, and Agreeableness, predict the covariation of behavior and affect within persons over time. Both behavior and affect fluctuate within days and from day-to-day (Brown & Moskowitz, 1998; Larsen, 1987). Thus, it is possible that meaningful intraindividual covariation between behavior and affect exists and that the covariation is related to traits.

A model of the relation between personality characteristics, behavior, and affect was proposed by Moskowitz and Côté (1995). The behavioral concordance model posits that individuals differ in the affect associated with a given dimension of behavior, so that individuals with high scores on a personality characteristic experience positively valenced affect when engaging in congruent behavior compared with individuals with low scores on that personality characteristic. In contrast, individuals with high scores on a personality characteristic experience more negatively valenced affect when engaging in behavior discordant with the trait than individuals with low scores on that personality characteristic experience when engaging in that behavior. For example, the behavioral concordance model posits that dominant individuals experience more positively valenced affect than individuals low on dominance when engaging in dominant behavior. Conversely, submissive individuals are predicted to experience more negatively valenced affect than individuals low on submissiveness when engaging in dominant behavior. The behavioral concordance model assumes that both affect (Larsen, 1987, 1989) and behavior (Brown & Moskowitz, 1998; Mischel & Shoda, 1995; Shoda, Mischel, & Wright, 1994) exhibit variability within persons over time. The model posits that the valence of affect experienced at a given moment depends on the interaction between stable personality traits and transient behaviors. According to the behavioral concordance model, the covariation of affect and behavior represents a meaningful expression of personality that is predictable from relevant traits.

The behavioral concordance model has been tested previously for interpersonal circumplex traits and behaviors (i.e., Agreeableness, Quarrelsomeness, Dominance, and Submissiveness; Moskowitz & Côté, 1995). The hypotheses were fully supported for the traits of Agreeableness and Quarrelsomeness and partially supported for the trait of Dominance. For example, compared with agreeable individuals, individuals with high scores on the trait of Quarrelsomeness experienced relatively more positively valenced affect when engaging in quarrelsome behaviors and relatively more negatively valenced affect when engaging in agreeable behaviors.

Interpersonal Behavior

The focus of the present research was on interpersonal behavior and traits that correspond to interpersonal behavior. Interper-

sonal behavior can be organized around a circumplex characterized by the two orthogonal dimensions of agency and communion (Kiesler, 1983; Wiggins, 1979, 1980). Communal behaviors can be conceptualized as behaviors that promote interpersonal ties; agentic behaviors can be conceptualized as behaviors that give status relative to other individuals. Communion is represented by a bipolar axis ranging from agreeable behavior to quarrelsome behavior. Agency is represented by a bipolar axis ranging from assertive-dominant behavior to passive-submissive behavior (Wiggins, 1991).

Trait models represent comprehensive models of personality descriptors, and several traits included in these models are associated with interpersonal traits (McCrae & Costa, 1989; Saucier, 1992; Trapnell & Wiggins, 1990). The focus of the present research was on the traits of Extraversion, Neuroticism, and Agreeableness. There is strong evidence that the trait of Extraversion corresponds to the interpersonal plane defined by the interpersonal circumplex. Specifically, the trait of Extraversion is related to trait measures of friendly dominance (high agreeableness and high dominance; McCrae & Costa, 1989; Trapnell & Wiggins, 1990). The trait of Neuroticism has been found to be related to the interpersonal trait of Coldheartedness (Trapnell & Wiggins, 1990), and Coldheartedness is in turn related to quarrelsome behavior (Moskowitz, 1994). The trait of Neuroticism has also been associated with the interpersonal circumplex trait of Submissiveness and to questionnaire reports of submissive behavior (Gilbert & Allen, 1994; Trapnell & Wiggins, 1990). We also examined the trait of Agreeableness from the five-factor model because of its clear interpersonal correlates. The trait of Agreeableness from the five-factor model has been found to be related to the interpersonal circumplex traits of Agreeableness (Trapnell & Wiggins, 1990) and Friendly Submissiveness (McCrae & Costa, 1989). Combining the traits of Extraversion, Neuroticism, and Agreeableness with interpersonal traits that encompass specific interpersonal behaviors generates several combinations of possible trait-behavior concordance and trait-behavior discordance.

Affect

Affect was conceptualized as occurring along a dimension of pleasantness-unpleasantness (Larsen & Diener, 1992; Russell, 1980). We examined affect during short time intervals; thus, pleasant and unpleasant affect were expected to be negatively correlated (Diener & Emmons, 1984; Moskowitz & Côté, 1995). Our focus was on affect valence, which varied on a continuum from unpleasant affect to pleasant affect.

Interpersonal Behavior and Affect

Previous research (Moskowitz & Côté, 1995) found that most individuals generally experience pleasant affect when engaging in agreeable and dominant behaviors, and unpleasant affect when engaging in quarrelsome and submissive behaviors. Propositions about the relation between traits and associations between behavior and affect were tested in the present research in the context of a dynamic model that combines both within-person and between-person analyses. We expected that the traits of Extraversion, Neuroticism, and Agreeableness would each

predict variations from the normative patterns of association between interpersonal behavior and affect.

Hypotheses

We referred to the literature on the interpersonal manifestations of the traits of Extraversion, Neuroticism, and Agreeableness to derive hypotheses about the behavioral concordance model and these traits.

Extraversion

Behavioral facets of the trait of Extraversion include gregariousness, assertiveness, activity, and excitement-seeking (Costa & McCrae, 1992). The trait of Extraversion has been located between Dominance and Agreeableness within the interpersonal circumplex (McCrae & Costa, 1989; Trapnell & Wiggins, 1990), and Introversion has been associated with Submissiveness (Gilbert & Allen, 1994). Thus, it was expected that extraverts would experience more positively valenced affect than introverts when engaging in agreeable or dominant behaviors. Conversely, extraverts were expected to experience more negatively valenced affect than introverts when engaging in quarrelsome or submissive behaviors.

Agreeableness

Behavioral facets of the trait of Agreeableness include trust, straightforwardness, altruism, compliance, and modesty (Costa & McCrae, 1992). Five-factor Agreeableness is strongly related to the Agreeableness pole of the interpersonal circumplex (Briggs, 1992; McCrae & Costa, 1989; Trapnell & Wiggins, 1990). Previous work (Moskowitz & Côté, 1995) revealed that individuals who have high scores on interpersonal circumplex Agreeableness experienced more positively valenced affect than individuals with low scores on the interpersonal circumplex trait of Agreeableness when engaging in agreeable behavior, and these individuals experienced more negatively valenced affect than individuals low on interpersonal circumplex Agreeableness when engaging in quarrelsome behavior. The same relations were hypothesized for five-factor Agreeableness.

Neuroticism

Neuroticism has primarily been defined as a trait reflecting the propensity to feel negative affects, such as anxiety, angry hostility, depression, and vulnerability (Costa & McCrae, 1992). Although it has been argued that Neuroticism is not intrinsically interpersonal (McCrae & Costa, 1989), there is evidence that Neuroticism is related to the Submissiveness pole of the interpersonal trait circumplex and to questionnaire reports of submissive behavior (Gilbert & Allen, 1994; Trapnell & Wiggins, 1990). In addition, Neuroticism has been related to the Coldhearted pole of the interpersonal circumplex and to reports of frequent conflict (Bolger & Zuckerman, 1995; Trapnell & Wiggins, 1990). Thus, it was expected that individuals who have high scores on Neuroticism would engage in more submissive and quarrelsome behavior than individuals with low scores on Neuroticism. In accordance with the behavioral concordance model, it was also predicted that individuals with high scores

on Neuroticism would experience more positively valenced affect than individuals who have low scores on Neuroticism when engaging in quarrelsome or submissive behavior. Given the nature of the interpersonal circumplex, it also seemed plausible that individuals who have high scores on Neuroticism might experience less pleasant affect when engaging in agreeable or dominant behavior than individuals who have low scores on Neuroticism.

Overview

An event-contingent sampling methodology was used to measure behavior and affect in two distinct adult community samples. Two samples were obtained to examine whether results obtained with one sample could be replicated in another independent sample. The use of event-contingent sampling procedures provided several advantages for studying the relation between behavior and affect (Moskowitz, 1986; Wheeler & Reis, 1991). Specifically, it was possible to collect concurrent measures of interpersonal behavior and affect. These measures were collected several times daily for several days, thereby generating a large number of observations per person to obtain adequate estimates of within-person processes. Also, data were collected during individuals' regular daily lives in several contexts (e.g., work, home, and recreation). Finally, individuals reported on their behavior and affect soon after their occurrence, thereby minimizing retrospective biases. There is considerable evidence for the reliability and the validity of event-contingent sampling procedures to assess interpersonal behavior and affect (Brown & Moskowitz, 1998; Diener & Emmons, 1984; McAdams & Constantian, 1983; Moskowitz & Côté, 1995).

Method

Participants

Participants were recruited from the community. Advertisements in newspapers recruited individuals holding paid employment to take part in a study of social interaction. The first 50 male callers and the first 50 female callers who fit the selection criteria were invited to participate in Study 1. Of these, 89 people completed the study. Sample 1 was composed of 41 men (46%) and 48 women (54%), who ranged in age between 19 and 61 years ($M = 33.05$, $SD = 9.74$); 75 participants' (85%) first language was English, 14 participants (15%) had a first language other than English; 33 participants (38%) lived alone; 34 participants (39%) lived with a spouse, life partner, or family; 17 participants (19%) lived with friends, and 4 participants (5%) were in some other living situation. Results for this sample concerning behavior, affect, and traits derived from the interpersonal circumplex have previously been reported (Moskowitz & Côté, 1995). A second sample was recruited 2 years after Sample 1. The first 50 male callers and the first 50 female callers were also invited to participate in Study 2. For the purpose of another study, an additional 24 individuals were recruited to increase the number of participants in stable romantic relationships. The recruitment procedure for the extra 24 individuals was the same as for the first 100 people, except for the additional requirement to be involved in a stable romantic relationship. Of these 124 individuals, 115 completed the requirements for the present study. Sample 2 was composed of 61 women (53%) and 54 men (47%), and the age range was 20 to 69 years ($M = 33.83$, $SD = 10.19$); 84 participants' (74%) first language was English, 29 participants' (25%) first language was other than English, and 2 participants did not indicate their first language; 43 participants (37%) lived

alone; 59 participants (51%) lived with a spouse, life partner, or family; 10 participants (9%) lived with friends, and 3 participants (3%) were in some other living situation. Results for this sample concerning behavior, affect, and vulnerability markers for depression (i.e., dependency and self-criticism) have previously been reported (Zuroff, Moskowitz, & Côté, in press). Individuals in both samples held a variety of occupations (e.g., engineer, teacher, data analyst, and secretary).

Procedure

The general procedure was the same for both samples. Participants first attended a meeting during which procedures for the study were explained. Participants were informed of their responsibility to complete event-contingent sampling forms to monitor their social interactions every day for 20 days. Participants were asked to complete a form for each significant interpersonal interaction as soon as possible after the occurrence of the interaction. An interaction was considered significant if it lasted at least 5 min. Participants were provided with 10 forms per day. Participants were asked to distribute the completion of forms evenly throughout the day. In Sample 1, participants completed an average of 121 forms, or approximately 6 forms per day. Participants in Sample 2 completed an average of 125 forms, also about 6 forms per day.

Participants were also given beepers and told that they would be signaled three times a day during the week and twice a day on the weekend. Individuals did not complete forms when they were signaled. Rather, beepers were used to remind individuals of their responsibility to complete forms regularly; it was not expected that the completion of forms would necessarily match the signals. Participants were asked to record the times of the signal on a separate daily form. Records of signal times were kept so that we could be assured that participants were keeping records for the study throughout the day. Records of signals were approximately 90% accurate in Study 1 and 81% accurate in Study 2. Participants mailed each day's forms on the day following their completion. After instructions for the event-contingent sampling part of the study were given, participants completed a battery of questionnaires. After the 20-day testing period, participants were given \$100 compensation for their participation.

Measures

Trait measure. The revised NEO Five Factor Inventory (NEO-FFI; Costa & McCrae, 1992) was administered to measure the traits of Neuroticism, Extraversion, and Agreeableness. The NEO-FFI consists of five scales of 12 items each to measure the five-factor model of personality. Reliability of the trait measures were calculated using Cronbach's coefficient alpha. Coefficient alphas for extraversion were .73 (Sample 1) and .64 (Sample 2). Coefficient alphas for Neuroticism were .88 (Sample 1) and .84 (Sample 2). Coefficient alphas for Agreeableness were .76 (Sample 1) and .78 (Sample 2).

Event-contingent sampling. Event-contingent sampling forms requested information about the social interaction and also included measures of interpersonal behavior and affect.

Behavior. A total of 46 behavior items were derived from a study by Moskowitz (1994). There were 12 items for each of the four dimensions of interpersonal behavior. One item was used for both the Dominance and the Quarrelsomeness scales (i.e., "I criticized the other"), and one item was used for both the Submissiveness and the Agreeableness scales (i.e., "I went along with the other"). Examples of items measuring Agreeableness were "I smiled and laughed with others," and "I expressed affection with words or gestures." Quarrelsomeness was measured by items such as "I made a sarcastic comment," and "I confronted the others about something I did not like." Dominance was measured by items such as "I asked the other to do something," and "I made a suggestion." Examples of items measuring Submissiveness were "I gave in," and "I avoided taking the lead or being responsible."

For a complete list of items, see Moskowitz (1994). Validity evidence for the scales include demonstrations that the items produce behavior scale scores that generally conform to a circumplex model and that converge with a traditional self-report measure of interpersonal circumplex variables, and that changes in scale scores in response to different situations can be theoretically predicted (Moskowitz, 1994; Moskowitz & Côté, 1995; Moskowitz, Suh, & Desaulniers, 1994).

On each form, participants were asked to check the behavior items they had engaged in during the social interaction being recorded. Previous work had indicated that when participants are asked to complete the same form every day, they quickly adopt response sets. Therefore, four different versions of the form were used. Participants were given Form 1 on Day 1 to complete for all interactions on that day, Form 2 on Day 2, Form 3 on Day 3, Form 4 on Day 4, and the rotation was repeated for the 20 days of the study. The behavior items representing Dominance, Agreeableness, Submissiveness, and Quarrelsomeness were divided about equally among the four forms. Forms used for Sample 1 and Sample 2 were slightly different. For Sample 1, the forms included only items from the four behavior scales of Agreeableness, Quarrelsomeness, Dominance, and Submissiveness. For Sample 2, items from the four behavior scales were embedded in a list that included several extra items not used in the present research. The items used to measure agreeable, quarrelsome, dominant, and submissive behaviors were the same in both samples.

Affect. Nine affect items were listed on every form. These items had been previously used to assess affect valence by Diener and Emmons (1984) and represent each pole of the pleasant/unpleasant valence dimension of some circumplex models of affect (i.e., Larsen & Diener, 1992; Russell, 1980). The following items indicated pleasant affect: happy, pleased, enjoyment/fun, and joyful. The unpleasant affect items were worried/anxious, frustrated, angry/hostile, unhappy, and depressed/blue. Participants were asked to rate the extent to which they experienced each affect item using a 0 to 6 scale. The anchor labels for 0 and 6 were *did not occur* and *extremely*, respectively.

Construction of event-specific behavior scale scores. A score for each behavior scale was calculated for each participant for each episode. First, behavior scale scores were created for each episode by calculating the mean number of items (between 0 and 3) that were checked that corresponded to that dimension of behavior. Then, these scores were ipsatized to correct for individual differences in rates of checking items. An ipsatized score was constructed by subtracting the mean score for all of the behavior scales for that episode from each behavior scale score. Ipsatizing was performed because previous work suggests that individual differences in response rates for checking items exist. Ipsatized behavior scores reflect the frequency with which behavior items were checked, adjusted for a person's rate for endorsing items (cf. Horowitz, Rosenberg, Baer, Ureño, & Villaseñor, 1988). The validity evidence cited previously was based on the ipsatized scores.

Construction of aggregated behavior scale scores. To construct aggregated behavior scale scores, ipsatized scores were averaged across all episodes for each participant. Thus, an individual's aggregated behavior scale score represents the mean proportion of behaviors performed for each scale during the 20 days of the study, corrected for individuals' response rates.

Construction of event-specific affect scores. Affective valence scores were constructed for each participant for each episode. First, the intensity ratings of pleasant affect and unpleasant affect items were averaged separately. This procedure yielded two affect scores for each episode: one pleasant affect score and one unpleasant affect score. Then, an affect valence score was calculated by subtracting the unpleasant affect score from the pleasant affect score. Affect valence scores were calculated because evidence supports the bipolarity of positive and negative affect within short time periods (Diener & Emmons, 1984; Moskowitz & Côté, 1995).

Construction of aggregated affect scores. Aggregated pleasant affect and unpleasant affect scores were calculated for each participant by averaging mean pleasant affect and unpleasant affect intensity values across episodes. Pleasant and unpleasant affect scores were calculated separately because these scores are uncorrelated when based on records aggregated over long periods of time (see Diener, Smith, & Fujita, 1995; Moskowitz & Côté, 1995).

Validity of the event-contingent sampling method. Past research on a sample separate from the ones used here (Moskowitz, 1994) has presented considerable evidence for the convergent and discriminant validity of the event-contingent sampling method used to measure interpersonal behavior. The pattern of correlations between interpersonal behavior scales generally corresponded to structural predictions based on the interpersonal circumplex. Moskowitz (1994) also provided evidence for the reliability of the behavior items. Diener and Emmons (1984) provided support for the validity and the reliability of the pleasant and unpleasant affect items.

Results

Descriptive statistics and correlations between constructs are reported first. Then, analyses of within-person relations between behavior and affect are presented. Finally, tests of hypotheses derived from the behavioral concordance model are reported.

Descriptive Statistics

Means and standard deviations of trait, aggregated affect, and aggregated behavior scores are presented in Table 1. The descriptive statistics for the traits of Extraversion, Agreeableness, and Neuroticism were similar across samples and were consistent with values for means and standard deviations presented in the NEO-FFI scoring manual (Costa & McCrae, 1992). The descriptive statistics for the aggregated affect and aggregated behavior scores were highly similar across samples.

Relation Between Traits and Aggregated Affect

Correlations between traits and aggregated affect scores (see Table 2) were generally similar across the two samples and were consistent with previous findings (Costa & McCrae, 1980; Watson & Clark, 1992). The trait of Neuroticism was positively related to unpleasant affect but was unrelated to pleasant affect

Table 1
Descriptive Statistics for Traits, Aggregated Affect, and Aggregated Behavior Scores

Variable	M		SD	
	Sample 1	Sample 2	Sample 1	Sample 2
Extraversion	29.84	29.68	5.94	5.46
Agreeableness	31.54	30.37	6.29	7.13
Neuroticism	22.65	22.57	9.28	8.78
Pleasant affect	2.19	2.52	0.98	1.01
Unpleasant affect	0.69	0.67	0.51	0.54
Agreeable behavior	0.15	0.15	0.06	0.06
Quarrelsome behavior	-0.16	-0.16	0.05	0.06
Dominant behavior	0.08	0.08	0.06	0.05
Submissive behavior	-0.06	-0.07	0.06	0.05

Note. $N = 89$ in Sample 1; $N = 115$ in Sample 2.

Table 2
Correlations Between Five-Factor Traits and Aggregated Affect Scores

Trait	Pleasant affect		Unpleasant affect	
	Sample 1	Sample 2	Sample 1	Sample 2
Extraversion	.24*	.25**	-.09	-.14
Agreeableness	.20	.19*	-.19*	-.22*
Neuroticism	-.16	-.16	.36***	.40***

Note. $N = 89$ in Sample 1; $N = 115$ in Sample 2.

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

in both samples. The trait of Extraversion was positively related to pleasant affect but was unrelated to unpleasant affect in both samples. The trait of Agreeableness was positively related to pleasant affect and negatively related to unpleasant affect. Similar magnitudes of correlations were found for Agreeableness across the two samples, but the significance levels were different because of differing sample sizes.

Relation Between Traits and Aggregated Behavior

Correlations between traits and aggregated behavior scores are presented in Table 3. The trait of Extraversion was related to agreeable behavior in both samples but was not related to other behaviors, such as dominance, suggesting that Extraversion may primarily be manifested in agreeable behavior in interpersonal interactions. The five-factor trait of Agreeableness was positively related to agreeable behavior in Sample 2 and negatively related to quarrelsome behavior in both samples. Neuroticism was negatively related to agreeable behavior and positively related to submissive behavior in both samples. The trait of Neuroticism was also positively related to quarrelsome behavior and negatively related to dominant behavior in Sample 2, the larger of the two samples.

Relations Between Traits and Indexes of the Association Between Behavior and Affect

A multilevel data analysis procedure was used to test hypotheses from the behavioral concordance model. This procedure is consistent with multilevel approaches to personality; that is, within-person analyses were followed by between-person analyses (see Larsen, 1989; Michela, 1990). In this approach, psychological characteristics are first summarized within individuals, and then within-person characteristics are related to personality variables in a traditional nomothetic analysis (e.g., Larsen, 1989; Moskowitz & Côté, 1995; Zevon & Tellegen, 1982). The specific procedure used was similar to the hierarchical linear modeling approach advocated by Bryk and Raudenbush (1992), except that a weighted least squares statistic rather than an iterative maximum likelihood statistic was used to test significance (Kenny, Kashy, & Bolger, 1998).

Regression models were first calculated to characterize each individual separately. Then, parameters from the within-person (Level 1) regressions were used as dependent variables in the between-person (Level 2) regressions.

Table 3
Correlations Between Five-Factor Traits and Aggregated Behavior Scores

Trait	Behavior							
	Agreeable		Quarrelsome		Dominant		Submissive	
	S1	S2	S1	S2	S1	S2	S1	S2
Extraversion	.30**	.20*	-.20	-.12	.01	.04	-.13	-.15
Agreeableness	.17	.28**	-.30**	-.40***	.01	.17	.09	-.06
Neuroticism	-.29**	-.33***	.17	.36***	-.18	-.24**	.33**	.24*

Note. *N* = 89 in Sample 1; *N* = 115 in Sample 2. S1 = Sample 1; S2 = Sample 2.
* *p* < .05. ** *p* < .01. *** *p* < .001.

Level 1 analyses: Within-person regressions. For each participant, affect valence scores were regressed on behavior dimension scores across episodes. Separate regressions were performed for each behavior dimension. The number of data points for each participant corresponded to the number of event forms completed. Given the completion of event forms by participants, an average of 121 data points per participant were used in Sample 1 analyses and an average of 125 data points per participant were used in Sample 2 analyses. The unstandardized parameter estimates (*b* weights) represent indexes of the linear association between behavior and affect. A positive parameter estimate represents a positive slope between behavior and affect, indicating that the valence of affect becomes more positive as more behaviors are performed. A 0 parameter estimate indicates that affect is unrelated to the frequency of behaviors. A negative parameter estimate indicates that the valence of affect becomes more negative as the frequency of behavior increases. The unstandardized parameter estimates were used instead of correlation coefficients, or betas, because correlation coefficients and betas are affected by the range and variance of scores (Baron & Kenny, 1986; Duncan, 1975). The parameter estimates represent slopes and thus are independent of the range and variance of the scores; this permitted comparisons of the parameters across individuals, a step critical to our analyses.

Descriptive statistics for the parameter estimates are presented in Table 4.¹ Absolute values of parameter estimates were greater in Sample 2 than in Sample 1. In other words, affect was more strongly associated with behavior in Sample 2 than in Sample 1, both when the direction of the association was positive (i.e., for agreeable and dominant behavior) and negative (i.e., for quarrelsome and submissive behavior). The *t* tests indicated that parameter estimates were significantly more positively valenced for the relation of agreeable behavior to affect, $t(202) = 3.88$, $p < .001$, and for the relation of dominant behavior to affect, $t(202) = 2.74$, $p < .01$, in Sample 2 than in Sample 1. Similarly, parameter estimates were significantly more negatively valenced for the relation of quarrelsome behavior to affect, $t(202) = 2.66$, $p < .01$, and for the relation of submissive behavior to affect, $t(202) = 2.73$, $p < .01$, in Sample 2 than in Sample 1.

In both samples, the parameter estimates of the relation between agreeable behavior and affect were generally positive and significantly different from 0, mean $b = 4.24$, $t(88) = 17.41$, $p < .001$, in Sample 1, and mean $b = 5.63$, $t(114) = 22.15$, $p < .001$ in Sample 2. Two individuals exhibited a negative relation

between agreeable behavior and affect. Thus, most participants experienced pleasant affect when they engaged in agreeable behavior.

The parameter estimates of the relation between quarrelsome behavior and affect were generally negative in both samples and significantly different from 0, mean $b = -5.00$, $t(88) = -13.24$, $p < .001$, in Sample 1, and mean $b = -6.43$, $t(114) = -17.45$, $p < .001$, in Sample 2. There were five individuals who exhibited a positive relation between quarrelsome behavior and affect. Thus, most participants experienced negative affect to the extent that they engaged in quarrelsome behaviors.

The parameter estimates of the relation between dominant behavior and affect were generally positive in both samples and significantly different from 0, mean $b = 1.51$, $t(88) = 7.83$, $p < .001$, in Sample 1, and mean $b = 2.37$, $t(114) = 10.17$, $p < .001$, in Sample 2. About 15%, or 30 of 206 participants, exhibited a negative relation between dominant behavior and affect.

The parameter estimates of the relation between submissive behavior and affect were generally negative in both samples and significantly different from 0, mean $b = -2.68$, $t(88) = -8.32$, $p < .001$, in Sample 1, and mean $b = -4.14$, $t(114) = -10.41$, $p < .001$, in Sample 2. A total of 11 individuals, about 5%, exhibited a positive relation between submissive behavior and affect.

We performed *t* tests to examine possible gender and ethnic differences in patterns of association between behavior and affect. Results suggest that women and men exhibited similar patterns of association between behavior and affect, $t_s(87-113) = -1.27$ to 1.94, *ns*. Individuals whose first language was English and individuals whose first language was not English also exhibited similar patterns of association between behavior and affect, $t_s(86-111) = -1.20$ to 1.69, *ns*.

¹ The parameter estimates for Sample 1 differ from those presented in Moskowitz and Côté (1995). The procedure used for the construction of event-specific behavior and affect scores was more precise in the present analyses than in the previous analyses of interpersonal traits and the behavioral concordance model that was based on Sample 1 (Moskowitz & Côté, 1995). In the present study, behavior and affect were examined concurrently within single episodes rather than within time periods of morning, afternoon, and evening. Consequently, more data points were used in the calculation of within-person estimates in this study than in the analyses reported previously.

Table 4
Descriptive Statistics of Indexes of the Association Between Behavior and Affect

Behavior	<i>M b weight</i>		<i>SD of b weights</i>		Range	
	S1	S2	S1	S2	S1	S2
Agreeable	4.24	5.63	2.30	2.73	-2.25 to 10.31	-1.09 to 14.92
Quarrelsome	-5.00	-6.43	3.56	3.95	-18.56 to 3.60	-29.47 to 1.49
Dominant	1.51	2.37	1.81	2.50	-2.36 to 7.34	-2.51 to 11.21
Submissive	-2.68	-4.14	3.04	4.26	-16.33 to 1.54	-31.23 to 2.64

Note. $N = 89$ in Sample 1; $N = 115$ in Sample 2. The b weight was the unstandardized parameter estimate. S1 = Sample 1; S2 = Sample 2.

Level 2 analyses: Between-person regressions. The Level 2 regression equation used the trait scores as the independent variables to predict the unstandardized parameter estimates from the Level 1 analyses. Data points in the second regression were weighted by the covariance estimates from the Level 1 regressions to correct for differences in the precision of Level 1 estimates. So, observations with large covariance estimates in the Level 1 regressions had less impact than observations with small covariance estimates. The weight was the inverse of the covariance corresponding to each parameter estimate. The weighted least squares procedure provided a better linear unbiased estimate than ordinary least square regression. Results of the Level 2 regressions are presented in Table 5.

Extraversion. For Sample 2, most of the predictions were supported. The trait of Extraversion was related to indexes of the relation between agreeable behavior and affect. The trait of Extraversion was negatively related to indexes of the relation between quarrelsome behavior and affect. Extraversion was also negatively related to indexes of relations between submissive behavior and affect. Contrary to prediction, the trait of Extraversion was not related to indexes of the relation between dominant

behavior and affect. Thus, compared with introverts, extraverts in the larger of the two samples experienced relatively more pleasant affect when engaging in agreeable behavior and more unpleasant affect when engaging in quarrelsome and submissive behavior. Results for Sample 1 were in the same direction but weaker.

We calculated growth curves (see Rogosa, Brandt, & Zimowski, 1982) to represent two individuals, one with a score one standard deviation above the mean in Extraversion and one with a score one standard deviation below the mean in Extraversion. These growth curves are displayed in Figure 1. The participants represented in Figure 1 (and in Figures 2 and 3) were participants in Sample 2. Inspection of Figure 1 indicates that a person who has a high score on extraversion is characterized by a steep positive slope between agreeable behavior and affect. This person is also characterized by steep negative slopes between quarrelsome behavior and affect and between submissive behavior and affect. In contrast, a person with a low score on Extraversion is characterized by flatter slopes between all three dimensions of behavior and affect.

Agreeableness. Predictions were supported in both Sample 1 and Sample 2. As hypothesized, the trait of Agreeableness predicted indexes of the relations between agreeable behavior and affect valence in both samples. Also as predicted, the trait of Agreeableness was negatively related to indexes of the association between Quarrelsomeness and affect valence in both samples. Compared with individuals low in Agreeableness, agreeable individuals experienced more positively valenced affect when engaging in agreeable behavior and more negatively valenced affect when engaging in quarrelsome behavior. This pattern is illustrated in the growth curves represented in Figure 2.

We also explored the relation between the trait of Agreeableness and indexes of the association between dominant and submissive behavior and affect. These analyses generated two unexpected findings. The trait of Agreeableness predicted indexes of the relations between dominant behavior and affect valence in Sample 1 but not in Sample 2. The trait of Agreeableness was negatively related to indexes of the association between submissive behavior and affect valence in both samples. Compared with individuals with low scores on Agreeableness, individuals who had high scores on five-factor Agreeableness reliably experienced more negatively valenced affect when engaging in submissive behavior.

Neuroticism. Predictions concerning the trait of Neuroti-

Table 5
Prediction of the Covariation Between Behavior and Affect

Trait/behavior	<i>R</i>		<i>R</i> ²	
	Sample 1	Sample 2	Sample 1	Sample 2
Extraversion				
Agreeable	.08	.30**	.01	.09**
Quarrelsome	-.09	-.31***	.01	.10***
Dominant	.16	.06	.02	.00
Submissive	-.17	-.20*	.03	.04*
Agreeableness				
Agreeable	.21*	.23*	.05*	.05*
Quarrelsome	-.27*	-.30**	.07*	.09**
Dominant	.23*	.17	.05*	.03
Submissive	-.26*	-.20*	.07*	.04
Neuroticism				
Agreeable	-.28**	-.33***	.08**	.11***
Quarrelsome	.31**	.41***	.10**	.17***
Dominant	-.26*	-.24**	.07*	.06**
Submissive	.37***	.31***	.14***	.10***

Note. In Sample 1, $dfs = 1, 87$. In Sample 2, $dfs = 1, 113$.
 * $p < .05$. ** $p < .01$. *** $p < .001$.

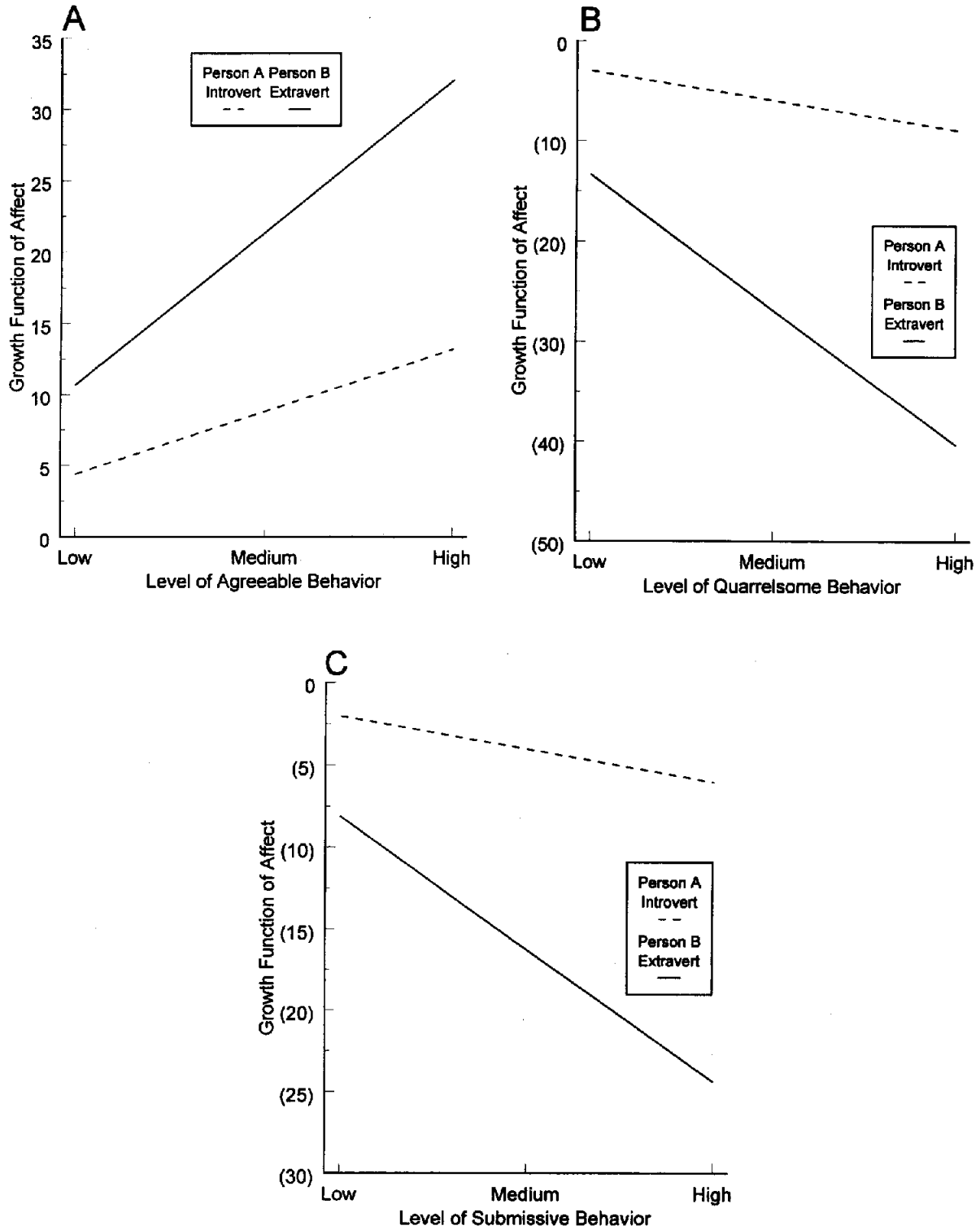


Figure 1. Growth curves representing an extrovert and an introvert and the separate relations of agreeable, quarrelsome, and submissive behavior to affect valence.

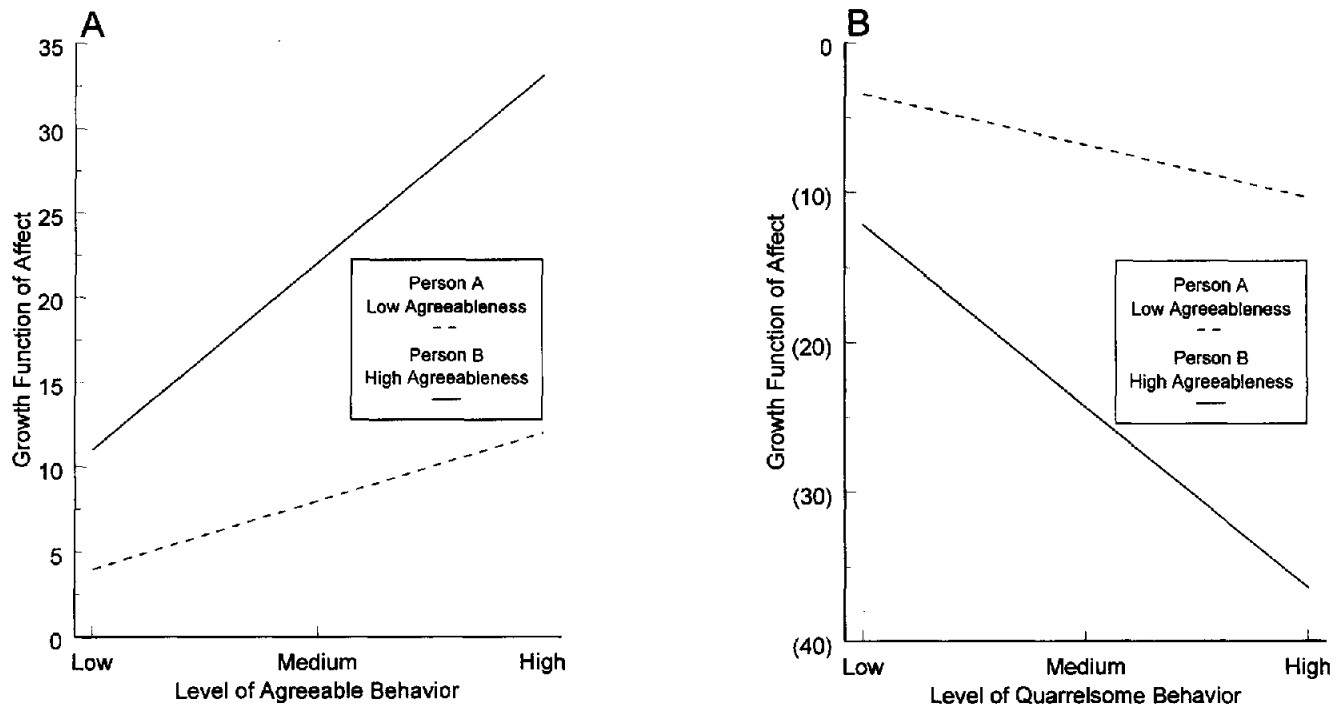


Figure 2. Growth curves representing an individual high on Agreeableness and an individual low on Agreeableness and the separate relations of agreeable and quarrelsome behavior to affect valence.

cism were supported in both samples. Neuroticism was negatively related to the indexes of the relation between agreeable behavior and affect valence. As previously reported, almost all indexes of the relation between Agreeableness and affect valence were positive, but some parameter estimates were close to 0. This result then suggests that individuals who have high scores on Neuroticism experience less pleasant affect when engaging in agreeable behavior than individuals who have low scores on Neuroticism, because there is little association between agreeable behavior and affect for individuals with high scores on Neuroticism. Also as predicted, the trait of Neuroticism was positively related to indexes of the relations between quarrelsome behavior and affect in both samples. These results suggest that individuals who have high scores on Neuroticism experienced less unpleasant affect than individuals with low scores on Neuroticism when engaging in quarrelsome behavior.

As predicted, Neuroticism was negatively related to the indexes of the relations between dominant behavior and affect valence in both samples. Also, as predicted, Neuroticism was positively related to indexes of the relations between submissive behavior and affect valence in both samples. Compared with individuals with low scores on Neuroticism, individuals with high scores on Neuroticism experienced relatively negatively valenced affect when engaging in dominant behavior and relatively positively valenced affect when engaging in submissive behavior.

Growth curves for the trait of Neuroticism are displayed in Figure 3. Inspection of Figure 3 indicates that the person with a high score on Neuroticism is characterized by relatively flat slopes between all four dimensions of behavior and affect. In

contrast, the person with a low score on Neuroticism is characterized by steep positive slopes between agreeable behavior and affect and between dominant behavior and affect. The person who has a low score on Neuroticism is also characterized by steep negative slopes between quarrelsome behavior and affect and between submissive behavior and affect. Thus it appears that there is little association between affect and behavior for an individual who has a high score on Neuroticism and strong associations between behavior and affect for a person with a low score on Neuroticism.

Multiple regression analyses. We conducted multiple regression analyses to examine whether different traits make unique contributions to the prediction of patterns of association between behavior and affect when entered simultaneously. Four models were tested, one for each of the four dimensions of behavior. In the four models, indexes of the association between behavior and affect were the dependent variables and the traits of Neuroticism, Extraversion, and Agreeableness were simultaneously entered as a set of predictors. The trait of Neuroticism made a unique contribution to the prediction of the association between agreeable behavior and affect in both samples, $\beta = -.06$, $t(1, 85) = -2.36$, $p < .05$, in Sample 1, and $\beta = -.06$, $t(1, 111) = -2.06$, $p < .05$, in Sample 2. In both samples, the trait of Neuroticism made a unique contribution to the prediction of the association between quarrelsome behavior and affect, $\beta = .09$, $t(1, 85) = 2.57$, $p < .05$, in Sample 1, and $\beta = .10$, $t(1, 111) = 2.68$, $p < .01$, in Sample 2. The trait of Agreeableness also made a unique contribution to the prediction of the association between quarrelsome behavior and affect, $\beta = -.10$, $t(1, 85) = -2.02$, $p < .05$, in Sample 1. The trait of Neuroticism

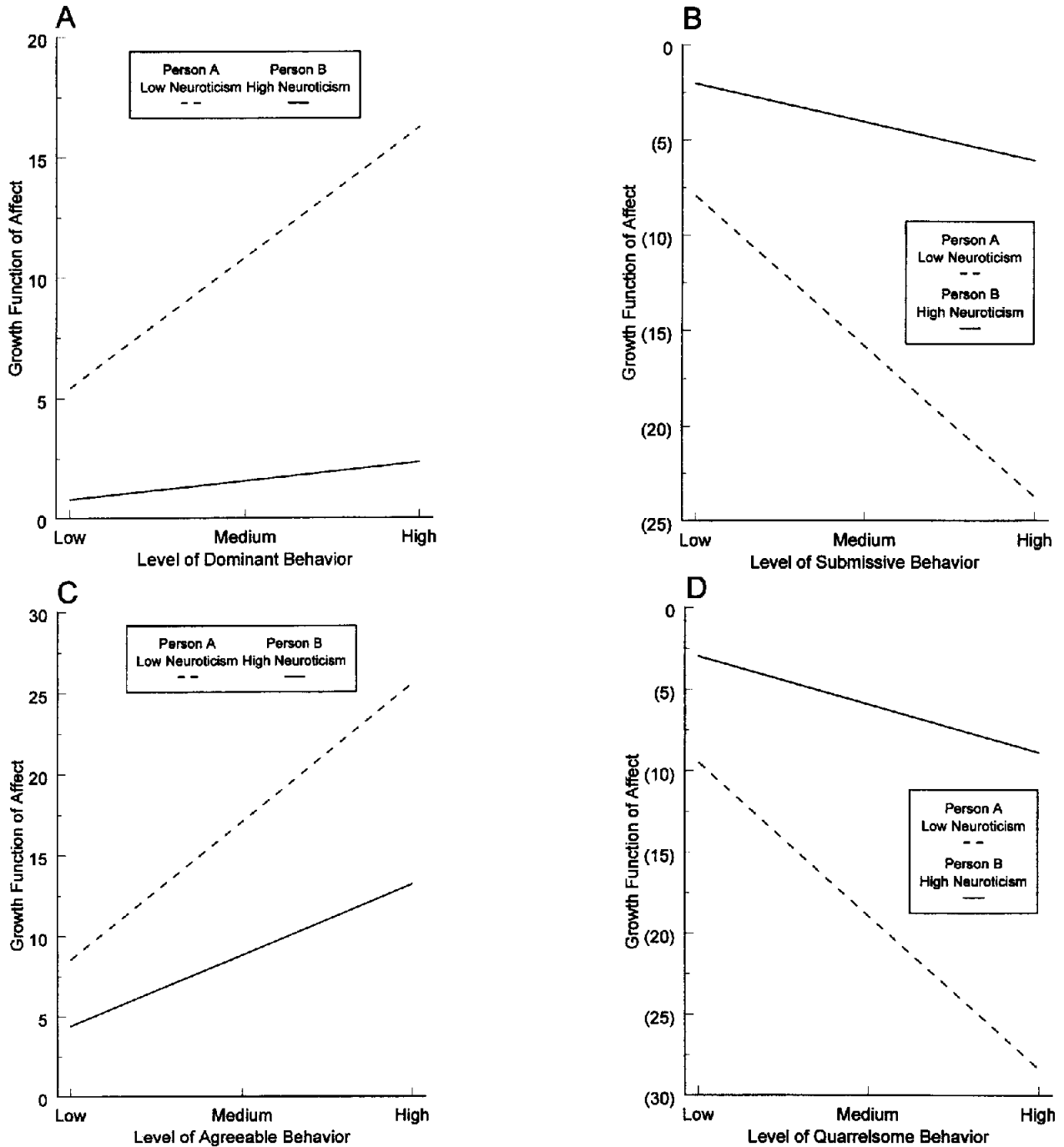


Figure 3. Growth curves representing an individual high on Neuroticism and an individual low on Neuroticism and the separate relations of agreeable, quarrelsome, dominant, and submissive behavior to affect valence.

made a unique contribution to the prediction of the association between dominant behavior and affect in Sample 2 only, $\beta = -.05$, $t(1, 85) = -2.08$, $p < .05$. Finally, the trait of Neuroticism made a unique contribution to the prediction of the association between submissive behavior and affect in both samples, $\beta = .08$, $t(1, 85) = 3.18$, $p < .01$, in Sample 1, and $\beta = .08$, $t(1, 111) = 2.19$, $p < .05$, in Sample 2.

We also examined whether relations of traits to patterns of association between behavior and affect were moderated by gender or ethnic background (native English speaker or nonnative English speaker). Hierarchical regression analysis with (a) a trait (i.e., either Extraversion, Neuroticism, or Agreeableness), (b) a background characteristic (i.e., either gender or ethnic background), and (c) the interaction between the trait and the

background characteristic as predictors of indexes of the association between behavior and affect were tested. Unique contribution of the interaction terms were examined.

Findings suggest that most interaction terms were not significant. No interaction effects were significant in both samples. There were no replicated interaction effects to indicate that gender and traits interacted to predict patterns of association between behavior and affect, $t_s(1, 85, \text{ and } 1, 111) = -1.04$ to 1.46 , *ns*. In Sample 2, men and women differed in the relation of Agreeableness to the association between dominant behavior and affect, $t(1, 111) = 2.13$, $p < .05$. In this sample, women exhibited larger increases than men in the association between dominant behavior and affect as their Agreeableness increased. There were no ethnic background differences in the relation of traits to the association between behavior and affect, $t_s(1, 84, \text{ and } 1, 111) = -1.31$ to 1.30 , *ns*.

Ruling out affective range as an alternative explanation of the findings. The findings previously described indicate that individuals who have high scores on Neuroticism or low scores on Agreeableness experience relatively unpleasant affect when engaging in agreeable or dominant behavior. Because the association between agreeable and dominant behavior and affect were generally positive, for some of these individuals it is more accurate to state that they experienced relatively low pleasant affect rather than actual unpleasant affect when engaging in agreeable or dominant behavior. These individuals experienced relatively low unpleasant affect when engaging in quarrelsome and submissive behavior. This pattern of results is generally consistent with the behavioral concordance model.

Even so, an alternative explanation of the findings is possible. Individuals who have high scores on Neuroticism or low scores on Agreeableness may exhibit relatively stable affect, with small variations from their baseline levels. For example, the affect of individuals who have high scores on Neuroticism may exhibit less variation than the affect of individuals low on Neuroticism; such individuals might then be characterized by relatively low indexes of association between any dimension of behavior and affect valence.

We tested the hypothesis that individuals who have high scores on Neuroticism, low scores on Extraversion, and low scores on Agreeableness exhibit less variation in their affect than individuals with opposite scores on each of these traits. Within-individual standard deviations of affect valence were correlated with scores on the traits of Neuroticism, Extraversion, and Agreeableness. Support for the alternative hypothesis could be inferred if scores on the trait of Neuroticism were negatively correlated with the standard deviations of affect scores, or if scores on the traits of Extraversion or Agreeableness were positively correlated with the standard deviation of affect scores. The traits of Extraversion and Agreeableness were not correlated with the standard deviations of the affect scores, $r_s(87-113) = -.03$ to $.07$, all $p_s > .10$. Findings for Neuroticism were opposite to that which would be predicted on the basis of the restricted range hypotheses; the trait of Neuroticism was significantly positively related to the standard deviation of affect in Sample 2, $r(113) = .28$, $p < .01$, and positively related to the variability of affect to a lesser extent in Sample 1, $r(87) = .19$, $p = .07$, suggesting that individuals with high scores on Neuroticism are indeed more emotionally unstable. Thus, the

findings reveal no support for the restricted range explanation of results concerning the traits of Extraversion, Agreeableness, or Neuroticism.

Discussion

Recent research on traits and affect has focused on the prediction of stable levels of affect (e.g., Costa & McCrae, 1980; McCrae & Costa, 1991; Watson & Clark, 1992; Watson & Walker, 1996). Findings from that line of research suggest that individual differences exist in long-term levels of affect, such that extraverts generally experience pleasant affect, and individuals who have high scores on Neuroticism generally experience unpleasant affect. Our results concerning aggregated affect are generally consistent with past research on the relation of the three traits studied to long-term levels of affect. However, individuals' affective experiences differ in ways other than their mean levels. We conceptualized personality traits as predictors of dynamic psychological processes involving behavior and affect occurring over time (McCrae & Costa, 1996; Moskowitz, Brown, & Côté, 1997). Findings suggest that traits characterize regularities not only in average levels of affect and behavior but also in the covariation between behavior and affect over time.

In particular, we tested hypotheses derived from the behavioral concordance model (Moskowitz & Côté, 1995). The behavioral concordance model posits that individuals with high scores on a trait that is consistent with a dimension of behavior experience more positively valenced affect when engaging in that behavior than individuals with low scores on that trait. In contrast, the model posits that individuals with low scores on a trait that is discordant from a dimension of behavior experience more negatively valenced affect when engaging in that behavior than individuals with high scores on that trait. The focus was on interpersonal behavior, and findings generally supported the behavioral concordance model for the traits of agreeableness and neuroticism. The findings concerning Neuroticism and Agreeableness were similar across two distinct adult community samples. Support for the behavioral concordance model for the trait of extraversion was found only in one of the two samples.

Our findings elucidate the mechanisms that may account for relations between these traits and long-term levels of affect. The predictive relation of Neuroticism, Agreeableness, and Extraversion to interpersonal behavior, affect, and the relation between behavior and affect are each considered subsequently. When results were distinct in the two samples, as they were for Extraversion, we focus our discussion on Sample 2. This sample was almost 30% larger than Sample 1, and consequently, the results based on this sample should be more robust.

Agreeableness

The results of the current study of five-factor Agreeableness replicate results found previously with the trait of Agreeableness derived from the interpersonal circumplex (Moskowitz & Côté, 1995). Agreeable individuals experienced more pleasant affect than low-agreeable individuals when engaging in agreeable behavior and more unpleasant affect than low-agreeable individuals when engaging in quarrelsome behavior.

One question that arises concerning the five-factor trait of Agreeableness is the extent of its relation to Submissiveness. Previous research (McCrae & Costa, 1989) suggested that the five-factor trait of Agreeableness is somewhat rotated from the interpersonal circumplex trait of Agreeableness, so that the five-factor trait of Agreeableness is more closely related to Submissiveness than the circumplex trait of Agreeableness. This rotation could affect predictions derived from the behavioral concordance model, so that individuals with high scores on the five-factor trait of Agreeableness might experience less unpleasant affect than individuals with low scores on the five-factor trait of Agreeableness when engaging in submissive behavior. However, the five-factor trait of Agreeableness did not predict the extent to which individuals engaged in submissive and dominant behaviors. Also, individuals with high scores on the five-factor trait of Agreeableness experienced relatively unpleasant affect when engaging in submissive behavior. These findings suggest that the five-factor trait of Agreeableness may not be closely related to Submissiveness at the level of behavior and, thus, may not appreciably differ from the circumplex trait of Agreeableness.

Extraversion

Past researchers have reliably found that Extraversion is associated with positive or pleasant affect (e.g., Costa & McCrae, 1980; David et al., 1997; McCrae & Costa, 1991; Watson & Clark, 1992). The present study demonstrated that extraverts engaged in agreeable behaviors more frequently than introverts. For most people, agreeable behavior is associated with pleasant affect, and in one of the two samples this association was even more pronounced for extraverts. Agreeable behavior has a relatively high base rate, and extraverts engage in agreeable behavior more frequently than others. It can be inferred from these results that one process by which extraverts experience relatively high levels of pleasant affect is that they derive more pleasant affect than other individuals from behaviors in which they (and most other individuals) engage relatively frequently. These findings are consistent with recent findings that extraverts perceive typical social interactions as more enjoyable than do introverts (Barrett & Pietromonaco, 1997; Berry & Hansen, 1996).

Neuroticism

The trait of Neuroticism has been reliably associated with general levels of negative or unpleasant affect (e.g., Costa & McCrae, 1980; David et al., 1997; McCrae & Costa, 1991; Watson & Clark, 1992) and level of affect during social interactions (Barrett & Pietromonaco, 1997). In the present research, the trait of Neuroticism was a robust predictor of the covariation between affect and all of the dimensions of interpersonal behavior. These findings suggest interpersonal processes by which individuals who have high scores on Neuroticism may come to experience higher levels of unpleasant affect than other individuals.

One set of such findings concerned Neuroticism and agreeable behavior. Individuals characterized by high scores on Neuroticism were less likely to engage in agreeable behavior. However, most individuals felt pleasant affect when engaging in agreeable

behavior. So, individuals who have high scores on Neuroticism were less likely than other individuals to engage in behavior that is normatively associated with pleasant affect. Perhaps even more important, when individuals with high scores on Neuroticism engaged in agreeable behavior, they experienced less pleasant affect than other individuals. Similarly, individuals with high scores on Neuroticism engaged in relatively few dominant behaviors. For most individuals, dominant behaviors were associated with mild pleasant affect, but neurotic individuals associated dominant behavior with unpleasant affect. Thus, individuals with high scores on Neuroticism engaged in fewer of the behaviors that are normatively associated with pleasant affect for most people, and when they did engage in these behaviors, they experienced relatively little pleasant affect. Because individuals with high scores on Neuroticism experience little pleasant affect when engaging in agreeable or dominant behavior, these behaviors may not frequently be reinforced with pleasant affect. The lack of reinforcement for agreeable and dominant behavior could in turn lead to relatively low frequency for these behaviors.

Interpersonal processes also came into play with respect to submissive and quarrelsome behaviors. Individuals characterized by high scores on Neuroticism engaged in relatively frequent submissive behavior. Normatively, submissive behavior should be associated with more unpleasant affect. However, neurotic individuals generally did not experience as much unpleasant affect as other individuals when engaging in submissive behavior, and for some neurotic individuals, submissive behavior was associated with pleasant affect.

Individuals with high scores on Neuroticism engaged in more frequent quarrelsome behaviors, another behavior that was normatively associated with unpleasant affect. For neurotic individuals, quarrelsome behavior was associated with relatively low unpleasant affect and was even sometimes associated with pleasant affect. Because individuals characterized by high scores on Neuroticism experience little unpleasant affect when engaging in quarrelsome or submissive behavior, these behaviors may rarely be negatively reinforced with unpleasant affect. The absence of the experience of negative reinforcement for quarrelsome and submissive behavior could in turn lead to relatively high frequency for these behaviors.

In other words, for individuals who have low scores on Neuroticism, sometimes referred to as Emotional Stability, there is a relatively tight, cohesive relation between interpersonal behavior and affect. When emotionally stable individuals engage in agreeable behavior and dominant behavior, they "feel good." When these individuals engage in submissive and quarrelsome behavior, they "feel bad." Because agreeable and dominant behaviors are more common in social interactions than submissive and quarrelsome behaviors, individuals with low scores on Neuroticism usually feel pleasant affect. Conversely, the relations between the behavior and affect of individuals with high scores on Neuroticism are weak. Only small changes in the affect of neurotic individuals are associated with changes in their behavior. Moreover, sometimes neurotic individuals associate unpleasant affect with the relatively high base rate behaviors of Agreeableness and Dominance. Over time, the absence of pleasant or positive affective experiences within social interactions accumulate in a preponderance of relatively aversive affective experiences for neurotic individuals.

Traits and the Association Between Valenced Behavior and Affect

We have argued that the traits of Neuroticism, Agreeableness, and possibly Extraversion, were related to patterns of association between interpersonal behavior and affect as predicted by the behavioral concordance model. For example, we predicted that Neuroticism would predict the associations between affect and all four dimensions of behavior because of the previously identified interpersonal correlates of Neuroticism (Gilbert & Allen, 1994; Trapnell & Wiggins, 1990). This is what we found. Yet, there were some surprises in the findings. The results for Extraversion were as predicted in the larger sample but not in the smaller sample. In past work (Moskowitz & Côté, 1995), we had found, as predicted, that the trait of Agreeableness from the interpersonal was related to the patterns of association between agreeable behavior and affect and quarrelsome behavior and affect, but not to patterns of association between other dimensions of behavior and affect. In the present research, we replicated that the five-factor trait of Agreeableness was related to patterns of association between agreeable behavior and affect and quarrelsome behavior and affect. However, contrary to prediction, the five-factor trait of Agreeableness was also related to patterns of association between dominant behavior and affect and submissive behavior and affect.

The unexpected findings concerning the five-factor trait of Agreeableness suggest an alternative explanation to the behavioral concordance model that could be explored. The traits of Agreeableness and Neuroticism may not necessarily predict the affect associated with the particular behavioral content of situations; rather, these individuals may generally be more reactive to the valence of situations. One aspect that may differentiate situations is whether situations are perceived as positive or negative (see McCrae & Costa, 1995). It is also possible that because behavior and affect are normatively associated within situations as found in the present results, it can be presumed that situations in which agreeable and dominant behaviors predominate for the individual are positively valenced and situations in which quarrelsome and submissive behaviors predominate for the individual are negatively valenced. Then a possibility to be explored is whether agreeable and emotionally stable individuals respond more favorably to positively valenced situations and less favorably to negatively valenced situations than individuals who have either low scores on Agreeableness or high scores on Neuroticism. The behavior dimensions examined in the present study are both concordant or discordant with the traits of interest and normatively positively or negatively valenced. Therefore, it is impossible to disentangle the alternative explanations of the results with the present data. To do so would require the identification of positively and negatively valenced situations that are valenced independently of the social behavior displayed in that situation. For example, situations characterized by high levels of autonomy could be characterized as positively valenced because such situations are conducive to the satisfaction of basic needs for autonomy (Deci & Ryan, 1985). Yet, autonomy is not necessarily concordant nor discordant with the traits of Agreeableness and Emotional Stability. So, in this situation, the behavioral concordance model would not predict relations between the traits of Agreeableness and Neuroticism and patterns of associa-

tion between environments characterized by high autonomy and affect. However, the "valence" hypothesis would predict that the traits of Agreeableness and Neuroticism are related to patterns of association between environments characterized by autonomy and affect because autonomy presumably represents a positively valenced characteristic of environments. Future research could focus on comparing the two alternative explanations, one based on the behavioral concordance model and one based on the alternative model based on the valence of situations.

Limitations and Future Research

This study focused exclusively on interpersonal dimensions of behavior. Thus, it is unclear whether the behavioral concordance model applies to behavior that is not interpersonal. For example, a more comprehensive test of the behavioral concordance model and the five-factor traits would involve examining behavior, whether interpersonal or not, consistent with all five-factor traits (e.g., Conscientiousness).

In our presentation and discussion of the results, we have framed the findings in terms of the association between behavior and affect. We prefer the interpretation that engaging in certain forms of social behavior has consequences for affect. For example, we prefer the formulation that agreeable behavior leads to pleasant affect for extraverts. However, the reverse direction of causality might also hold, so that pleasant affect causes agreeable behavior among extraverts. We should note though that the alternate temporal path is less plausible for some findings than others. For example, our data indicate that low-agreeable individuals are likely to engage in more quarrelsome behavior than high-agreeable individuals, but it seems unlikely that this effect is accentuated by experiencing pleasant affect. Instead, it seems more plausible that low-agreeable individuals experience more pleasant affect relative to high-agreeable individuals when they engage in more quarrelsome behavior.

The behavioral concordance model allows for the possibility of bidirectional effects between behavior and affect, but the extent to which behavior causes affect remains to be tested. It may be possible to test the temporal relations between behavior and affect under controlled laboratory conditions. However, it is also possible that behavior and affect may be sufficiently enmeshed that it will be difficult to identify a manipulation that unambiguously manipulates behavior prior to examining the subsequent effect on affect.

Finally, trait predictions of patterns of association between behavior and affect may differ across settings and across cultures. First, the mean and range of indexes of the association between behavior and affect may differ across settings. For example, dominant behavior may normatively be more strongly associated with pleasant affect in hierarchical business organizations than in close interpersonal relationships. Second, the relations between trait-behavior concordance and positively valenced affect and between trait-behavior discordance and negatively valenced affect may vary across settings and cultures. In collectivistic cultures, for example, behavior may be oriented toward group goals that are discrepant from unique features of the person (Markus & Kitayama, 1991; Triandis, Bontempo, Villareal, Asai, & Iucca, 1988). In collectivistic cultures, pleasant affect may be more strongly associated with behavior that

is consistent with group characteristics (e.g., goals) than with individual characteristics (Markus & Kitayama, 1994).

Conclusions

We have argued that the affective level of individuals is influenced by several processes: (a) the kind of interpersonal behaviors in which they engage, (b) the normative affect associated with these behaviors, and (c) the extent to which their particular association between affect and the specific form of behavior deviates from the normative relation. One determinant of the particular relation of traits to the intraindividual affect-behavior relation can be predicted from the behavioral concordance model. Trait-behavior concordance was associated with relatively pleasant affect and trait-behavior discordance was associated with relatively unpleasant affect. Other processes that may be involved are the positive or negative tone of the event.

The usefulness of the construct of traits to describe human personality has recently been criticized. Much of this criticism is based on the notion that traits have limited predictive utility, because traits only predict long-term behavioral and affective outcomes. In this study, we found that one trait present in all major trait theories, Neuroticism, reliably and uniquely predicted responses to short-term events. Neuroticism predicts the covariation between behavior and affect during interpersonal interactions. This effect may contribute at least a partial explanation to the processes by which Neuroticism may become associated with unpleasant affect. Individuals who have high scores on Neuroticism engage less often in the agreeable and dominant behaviors that most people associate with pleasant affect, and these individuals associate less pleasant affect than other people with these common social behaviors. Moreover, neurotic individuals engage relatively frequently in submissive and quarrelsome behaviors that are generally associated with unpleasant affect. Our results were less definitive for Extraversion, but it remains possible that similar processes operate among extraverts. Extraverts engage relatively frequently in agreeable behaviors, and they may experience higher than average levels of pleasant affect in association with these behaviors. Thus, it appears that broad trait concepts can be used to identify processes affecting regularly occurring events in individuals' daily lives.

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