AGENCY AND COMMUNION AS FUNDAMENTAL DIMENSIONS OF SOCIAL ADAPTATION AND EMOTIONAL ADJUSTMENT

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June 2002

A thesis submitted to the Faculty of Graduate Studies and Research

in partial fulfillment of the requirements of the degree of

Doctor in Philosophy

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ISBN: 0-612-85707-7

to

JERRY S. WIGGINS

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ACKNOWLEDGEMENTS

The supervision I have received from Debbie Moskowitz has above all enabled me to establish my identity as a researcher; the elegance and sophistication of her own research stands as the example by which I will judge all of my future research endeavors. David Zuroff's introductory course on personality first introduced me, ten years ago, to the subject to which I have dedicated my research career; since then, I have followed his example and instruction in the hope of one day acquiring his conceptual clarity. Debbie Moskowitz's past students —Kirk Brown and Eun Jung Suh—set the standards to which I have aspired over the course of graduate school; her current students—Jennifer Archambault and Elizabeth Foley—encouraged me to think down paths I might otherwise have overlooked. Kirk, E. J., Ximena Bernardin, and Stéphane Côté undertook the painstaking task of collecting the data presented in this thesis; Jen, Liz, Ella Vanderbilt, and my sister Martine helped me prepare the figures, reproduce the appendices, and translate the abstract. The clinical and graduate secretaries, Chantale Bousquet and Giovanna LoCascio, helped me overcome the countless obstacles of day-to-day life as a graduate student; for their assistance through the years, I am grateful. Freedom to conduct this research came in part from a McGill Major Fellowship and from a Faculty of Graduate Studies and Research Fellowship; for this assistance, I am grateful. Finally, I extend my deepest thanks to my parents for their unfailing support and encouragement, and to Emily—my compass, my lighthouse, my port—whose love has enabled me to weather the storms along this difficult journey.

ABSTRACT

It has been argued that *agency* and *communion* define the fundamental dimensions of human existence. Agency represents strivings for expansion and elevation that surface as efforts to pursue social dominance. Communion represents strivings for contact and congregation that surface as efforts to preserve social bonds. From an evolutionary perspective, agency and communion define the problems of group living to which our ancestors were historically required to adapt. From a dyadic-interactional perspective, agency and communion organize the domain of behavior that individuals in contemporary societies are presently able to demonstrate. The purpose of this research was to explore the agentic and communal dimensions underlying social adaptation and emotional adjustment; this objective was pursued through the use of event-contingent recording procedures that require respondents to report upon their behavior in significant social interactions over extended time intervals. I first propose that emotional adjustment is optimized through *mitigation processes* that balance the expression of agency and communion in everyday behavior. Findings indicated that a balance within agency and within communion—achieved through moderate levels of agentic and communal expression—predicted optimal emotional adjustment. I then propose that the dark aspects of agency and communion—the human propensities to quarrel and submit—are equally relevant to social adaptation. In this regard, I argue that these propensities represent *social rank strategies* through which individuals grapple with and defend themselves against feelings of threat and inferiority. Consistent with an evolutionary perspective upon social competition, individuals tended to quarrel when threatened by subordinates and to submit when threatened by superiors. Consistent with an evolutionary perspective upon defeat and depression, individuals who typically felt more inferior tended to quarrel more frequently with subordinates and to submit more frequently with superiors. The following conclusions were put forward: (1) the balanced expressions of agency and communion contribute to the emotional adjustment of the individual; and (2) the human propensities to quarrel and submit are equally relevant to social adaptation, enabling the individual to resolve the inevitable and inescapable tensions between the agentic and communal dimensions of everyday life.

RÉSUMÉ

Il est argumenté que la *domination* et l'*affiliation* définissent les dimensions fondamentales de l'existence humaine. La domination représente les besoins d'expansion et d'élévation qui se manifestent dans les efforts à poursuivre la position sociale. L'affiliation représente les besoins de rapport et de rassemblement qui se manifestent dans les efforts à préserver les liens sociaux. D'une perspective évolutionniste, les problèmes de regroupement auxquels nos ancêtres étaient obligés de s'adapter sont définis par la domination et l'affiliation. D'une perspective d'interaction dyadique, la domination et l'affiliation organisent le domaine de comportement que les individus dans les sociétés contemporaines sont capables de démontrer. Le but de ces recherches s'avère à documenter l'importance de la domination et de l'affiliation dans la réussite de l'adaptation sociale et l'ajustement émotionel; cet objectif était poursuivi avec l'usage des procédures d'enregistrement qui demandent aux participants à faire des rapports écrits sur leurs comportements dans les interactions sociales. Je propose d'abord que l'ajustement émotionel est optimisé par les *processus de mitigation* qui tiennent en équilibre les expressions dominantes et affiliatives. Les résultats indiquent qu'un équilibre dans les expressions dominantes ainsi que dans les expressions affiliatives ont prédit l'ajustement émotionnel optimal. Je propose ensuite que les tendances à se battre et à se soumettre sont également importants dans l'adaptation sociale. A cet égard, je soutiens que ces tendances représentent les *stratégies d'échelle sociale* avec lesquelles les individus s'occupent de, et se défendent contre, les sentiments d'infériorité et les évaluations de menace à leur sécurité. En correspondance avec une perspective évolutionnaire sur la compétition sociale, les individus ont tendance à se battre quand ils se sentent menacés par leurs subordonnés et à se soumettre quand ils se sentent menacés par leurs supérieurs. En correspondance avec une perspective évolutionnaire sur la défaite et la dépression, les individus qui se sentent plutôt inférieurs ont tendance à se battre plus fréquemment contre leurs subordonnés et à se soumettre plus fréquemment à leurs supérieurs. Les conclusions tirées sont les suivants: (1) un équilibre parmi les expressions dominantes et affiliatives contribue à l'ajustement émotionnel de l'individu; et (2) les tendances à se battre et à se soumettre sont également importantes pour l'adaptation sociale, permettant à l'individu de résoudre les tensions inévitables entre la domination et de l'affiliation.

THESIS GUIDELINES*

As an alternative to the traditional thesis format, the dissertation can consist of a collection of papers of which the student is an author or co-author. These papers must have a cohesive, unitary character making them a report of a single program of research. The structure for the manuscript-based thesis must conform to the following:

1. Candidates have the option of including, as part of the thesis, the text of one or more papers submitted, or to be submitted, for publication, or the clearly-duplicated text (not the reprints) of one or more published papers. These texts must conform to the "Guidelines for Thesis Preparation" with respect to font size, line spacing and margin sizes and must be bound together as an integral part of the thesis.

2. The thesis must be more than a collection of manuscripts. All components must be integrated into a cohesive unit with a logical progression from one chapter to the next. In order to ensure that the thesis has continuity, connecting texts that provide logical bridges between the different papers are mandatory.

3. The thesis must conform to all other requirements of the "Guidelines for Thesis Preparation" in addition to the manuscripts. The thesis must include the following: a table of contents; an abstract in English and French; an introduction which clearly states the rational and objectives of the research; a comprehensive review of the literature (in addition to that covered in the introduction to each paper); a final conclusion and summary.

4. As manuscripts for publication are frequently very concise documents, where appropriate, additional material must be provided (e.g., in appendices) in sufficient detail to allow a clear and precise judgement to be made of the importance and originality of the research reported in the thesis.

5. In general, when co-authored papers are included in a thesis the candidate must have made a substantial contribution to all papers included in the thesis. In addition, the candidate is required to make an explicit statement in the thesis as to who contributed to such work and to what extent. This statement should appear in a single section entitled "Contributions of Authors" as a preface to the thesis. The supervisor must attest to the accuracy of this statement at the doctoral oral defense. Since the task of the examiners is made more difficult in these cases, it is in the candidate's interest to clearly specify the responsibilities of all the authors of the co-authored papers.

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* Reprinted from "Guidelines for Thesis Preparation," Faculty of Graduate Studies and Research, McGill University.

CONTRIBUTIONS OF AUTHORS

The present research constitutes an original contribution to our understanding of agency and communion as dimensions underlying social adaptation and emotional adjustment.

Although interpersonal theorists have historically advocated a mitigated balance of agency and communion, evidence of mitigation has been equivocal at best. In Chapter 2, I introduce the distinction between interdimensional and intradimensional mitigation processes in the effort to address discrepancies in the empirical literature.

Although evolutionary theorists have extensively discussed the adaptive function of depression, the fundamental tenets of the social competition hypothesis—that combatants display down-hierarchy aggression and up-hierarchy subordination in social rank contests —have yet to be empirically substantiated in a human sample of participants. In Chapter 3, I translate these hypotheses into terms relevant to agency and communion and provide evidence to suggest that individuals display these strategies in their everyday environments.

Portions of the research reported in Chapter 2 originally appeared in an article[1] co-authored by myself and Prof. D. S. Moskowitz (Fournier & Moskowitz, 2000). Portions of the research reported in Chapter 3 are to appear in a forthcoming article[2] co-authored by myself, Prof. D. S. Moskowitz, and Prof. David C. Zuroff (Fournier, Moskowitz, & Zuroff, in press). In the preparation of these articles, the co-author(s) served in an advisory capacity during the formulation of research questions, the planning of data analyses, and the revision of the text. In the preparation of this thesis, I alone have undertaken the planning of the research agenda, the conducting and reporting of all data analyses, as well as the writing and revision of the text.

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CHAPTER 1

INTRODUCTION

The terms *agency* and *communion* were adopted by David Bakan (1966) "to characterize two fundamental modalities in the existence of living forms, agency for the existence of an organism as an individual, and communion for the participation of the individual in some larger organism of which the individual is a part" (pp. 14-15). Agency refers to a focus upon the self, to the formation of separations, and to striving for self-expansion and self-elevation. Communion refers to a focus upon others, to the formation of connections, and to striving for contact and congregation with others. From an evolutionary perspective on human personality (Buss, 1991, 1995, 1996, 1997), agency and communion define the fundamental problems to which our ancestors were required to adapt. Group living requires humans to compete for position in the social hierarchy (agency) and to cooperate for the preservation of reciprocal alliances (communion). From a dyadic-interactional perspective on human personality (Wiggins, 1979, 1980, 1982, 1991), agency and communion define the universe of content for the domain of interpersonal behavior. As "coins in the realm of interpersonal exchange" (Wiggins & Trapnell, 1996, p. 101), agency and communion signify the granting and denying of social (status) and emotional (love) resources between dyadic interactants.

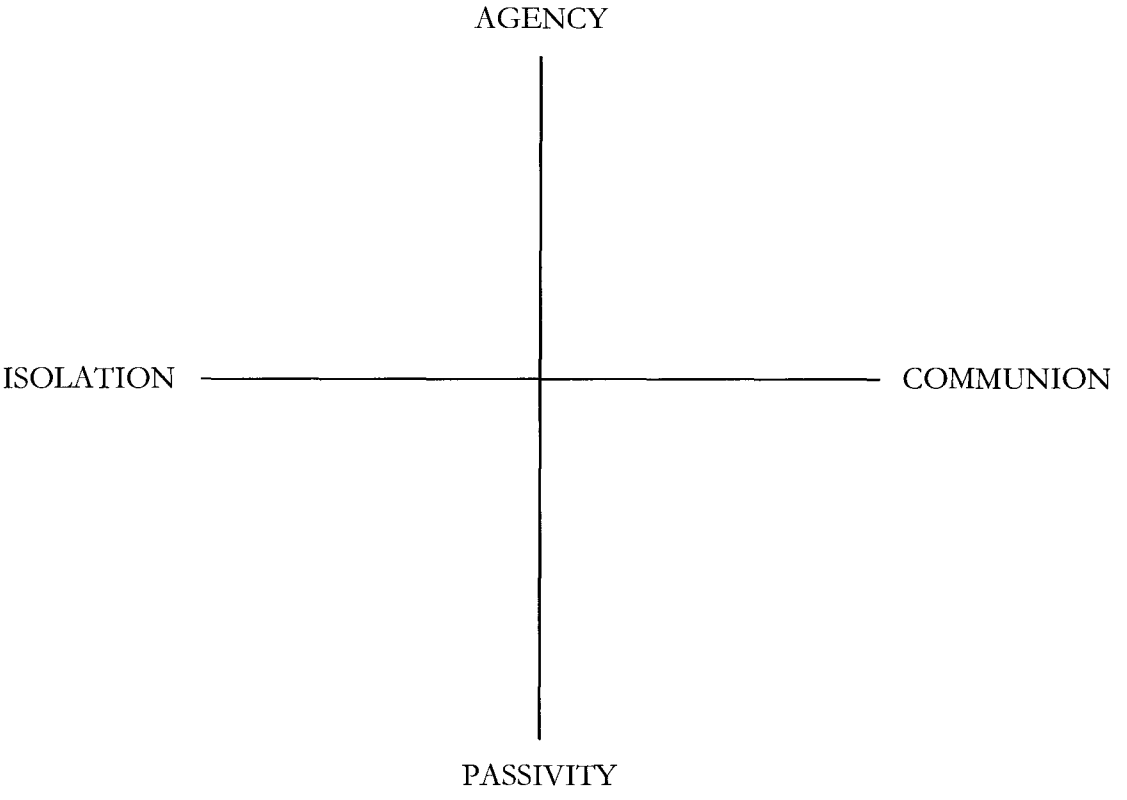

Figure 1.1. The dimensions of human existence.

The purpose of the present research was to explore the agentic and communal dimensions underlying social adaptation and emotional adjustment. In this introductory chapter, I first provide a historical overview of the evolutionary and dyadic-interactional perspectives upon the agentic and communal dimensions of human personality (see Figure 1.1). I then discuss agency and communion as dimensions underlying social adaptation and emotional adjustment. I first propose that emotional adjustment is optimized through *mitigation*

processes that balance the expression of agency and communion in everyday behavior. In this regard, I articulate two contrasting models of mitigation processes to address discrepancies in the empirical literature. I then suggest that the undesirable aspects of agency and communion —the human propensities to quarrel and submit—are equally relevant to social adaptation. In this regard, I argue that these propensities represent *social rank strategies* through which humans grapple with and defend themselves against feelings of threat and inferiority. In subsequent chapters, these hypotheses are substantiated empirically with records of behavior sampled ecologically from the everyday lives of individuals through the use of event-contingent recording procedures.

Evolutionary Perspectives on Agency and Communion

Charles Darwin's (1859) *The origin of species* first put forward his theory of evolution by natural selection, which remains today the only viable scientific process capable of accounting for the complex functional design apparent in all organic life. Although the assumptions of classical Darwinism—(1) that natural selection operates at the level of the organism, and not at the level of genes or at the level of the species; (2) that natural selection is the exclusive mechanism through which adaptive evolutionary change occurs; and (3) that changes are continuous and incremental rather than punctuated and abrupt—have come under scrutiny, the logical structure of classical Darwinism has remained essentially intact (Gould, 2002). Central to Darwin's theory of natural selection are the following tenets (Tooby & Cosmides, 1990): (1) *reproduction of design* (i.e., that the defining property of life is the reproduction by systems of new systems capable of reproduction); (2) *variation in design* (i.e., that systems differ

in their design specifications); and (3) *differential rates of reproduction attributable to design differences* (i.e., that the properties of designs have an impact on their rate of reproduction, resulting in an organized relationship between the properties of historically encountered environments, the properties of designs, and their frequency in the present environment).

"All of us," Buss (1996) wrote, "are the end products—collections of mechanisms and design features—of a long and unbroken chain of ancestors who succeeded in reproducing relative to those possessing alternative mechanisms or design features" (p. 7). Design features fall into one of three categories as products of the evolutionary process (Tooby & Cosmides, 1990): (1) *adaptations*, or design properties selected and coordinated toward solving recurrent problems posed by the physical, ecological, and social environments encountered by ancestors of the species; (2) *concomitants of adaptation*, or design properties that do not directly contribute to adaptation, but that are linked to adaptive properties and so are incidentally incorporated into the design specifications; and (3) *random effects*, or design properties resulting from entropic processes that have either benign or disruptive effects upon system functioning.

In contrast to random effects and adaptational concomitants, adaptations are apparent in the nonarbitrary coordination between the enduring properties of designs and the recurrent properties of the ancestral environment (Tooby & Cosmides, 1990). An adaptation is defined as: (1) a set of design properties that became established and organized in the species (or population) over evolutionary time; (2) because the design systematically interacted with stable and recurrent properties of the ancestral environment; (3) in a way that promoted its propagation at a rate superior to those of alternative designs existing in the species (or population) during the ancestral period of selection (Tooby & Cosmides, 1990). As repeated

encounters with enduring properties of the environment constitute the history of selection for a given design feature, adaptations thus represent "condensed records" (Tooby & Cosmides, 1990, p. 390) of ancestral environmental conditions. An adaptation surfaces developmentally as a function of its genetic specification in systematic interaction with stable and recurrent properties of the present environment (Tooby & Cosmides, 1990). As adaptive design features evolved from past environments, present selection pressures are causally irrelevant to their design specifications; present design features remain adaptive only to the extent that present circumstances continue to resemble past circumstances (Tooby & Cosmides, 1990).

Adaptations can be arbitrarily classified as referencing either physical or psychological design features. Buss (1991) has defined an evolved psychological adaptation as a set of innate processes that: (1) exists in the form it does because it solved a specific problem of individual survival or reproduction recurrently over human evolutionary history; (2) takes only certain classes of environmental cue information as input, where input specifies to the organism the particular adaptive problem it is facing; and (3) transforms that information through an algorithm or decision rule (i.e., *if... then ...*) into output, where output regulates the behavior of the organism in order to solve the particular adaptive problem. For Buss, the description of evolved psychological adaptations defines the fundamental objective of personality theory: "There is no reason to believe that humans are exempt from the organizing forces of evolution by natural selection. Personality theories inconsistent with evolutionary theory stand little chance of being correct" (Buss, 1991, p. 461).

Given that heritable adaptations tend to propagate so as to become species-typical, the question arises as to how evolutionary theorists account for intraspecies differences. Buss

(1991) has proposed four evolutionary paths to the expression of individual differences: (1) *frequency-dependent selection* (i.e., alternative strategies are sustained in the species if the impact of each strategy upon rates of reproduction declines as its frequency in the species increases); (2) *heritable threshold calibration* (i.e., alternative ancestral environments yield differences across individuals in the optimal threshold settings for the execution of a given strategy); (3) *developmental threshold calibration* (i.e., alternative developmental histories yield differences across individuals in the optimal threshold settings for the execution of a given strategy); and (4) *situational threshold calibration* (i.e., alternative strategies constituting a species-typical repertoire are differentially executed across individuals due to stable and recurrent differences in their physical or social ecologies).

In evolutionary terms, the psychological design architecture of humans can be viewed as an organized structure that exists today in its present form because it successfully solved the ancestral environmental problems of survival and reproduction. Darwin extensively discussed the survival problems presented by "the hostile forces of nature": predators, parasites, food shortages, environmental hazards, and climatic conditions. The adaptive solution to several of these survival problems was achieved through group living. Although groups afforded protection from predation as well as opportunities to share limited and perishable resources, groups imposed costs and defined several of the social problems to which our ancestors were required to adapt (Buss, 1991, 1995, 1997). Two defining characteristics of human groups are: (1) competition/hierarchical stratification; and (2) cooperation/reciprocal alliance formation. Successful competition allowed for priority of access to limited resources and improved reproductive opportunities. Successful cooperation allowed for the optimal usage of perishable

resources and coordinated hunting opportunities. Parallels have been drawn between these two defining features of the human adaptive landscape—competition and cooperation—and the agentic and communal axes that define and organize, from a dyadic-interactional perspective, the structure of interpersonal behavior in contemporary societies (Buss, 1991, 1995, 1997; Wiggins, 1991; Wiggins & Trapnell, 1996).

Dyadic-Interactional Perspectives on Agency and Communion

Origins of the dyadic-interactional perspective reside in the radical interpersonalism of Harry Stack Sullivan (1940, 1953), who defined personality as "the relatively enduring pattern of recurrent interpersonal situations which characterize a human life" (pp. 110-111). References to an explicit interpersonal system of personality then appeared in a series of papers published by Leary and colleagues at the Kaiser Foundation Hospital (Freedman, Leary, Ossario, & Coffey, 1951; LaForge, Leary, Naboisek, Coffey, & Freedman, 1954; LaForge & Suczek, 1955). Their publications were intended to formalize Sullivan's (1940, 1953) radical interpersonalism and present a circular arrangement of operationally defined interpersonal variables that would afford a content description of normal and maladaptive interpersonal behavior. The Kaiser Group selected *verbs* for describing the actions of actors (e.g., dominate) and *adjectives* for describing the traits of actors (e.g., dominating). Segments of action verbs and trait adjectives were selected to encompass both everyday (i.e., statistically frequent) and extreme (i.e., statistically infrequent) categories of behavior. Sixteen categorical segments in all were selected, lettered A through P, and then ordered in a circular arrangement around the orthogonal axes of dominance–submission and love–hate.

Circular representations of interpersonal behavior proliferated in the years following these three papers and Leary's (1957) seminal *Interpersonal diagnosis of personality* (Carson, 1969; Lorr & McNair, 1963, 1965; Schaefer, 1957, 1959, 1961). Although subsequent categorical systems often collapsed adjacent segments into either octants (e.g., PA, LM, HI, DE, etc.) or quadrants (e.g., friendly-dominant, friendly-submissive, hostile-submissive, hostile-dominant), a common paradigm for the investigation of interpersonal behavior emerged across different populations, instruments, and theoretical perspectives. The paradigm underwent a period of refinement and theoretical elaboration over the decades that followed (e.g., Wiggins, 1979), arguably culminating with Kiesler's publication of the 1982 Interpersonal Circle (Kiesler, 1983).

The paradigm itself came to be known as the interpersonal circumplex (Wiggins, 1979). Circumplex geometry assumes the following tenets (Gurtman, 1994): (1) differences among variables reduce to differences along two dimensions; (2) all variables have equal projections (the constant radius property); and (3) variables are uniformly distributed along the circumference of the circle (the equal spacing property). In factor-analytic terms, a circumplex requires that two principal components serve as coordinates for the circular ordering of variables over an area determined by the proportion of variance accounted for by the two principal components. Variables that are located opposite to each other on the circle represent bipolar contrasts (e.g., assured-dominant behavior is the opposite of unassured-submissive behavior; cold-quarrelsome behavior is the opposite of warm-agreeable behavior). The origin of the circle itself represents the mean standard score of a normative population, so that scores upon a given vector (variable) represent deviations from that mean. Distance from the origin therefore provides an index of intensity in circumplex space. Although a range of terms have

been used to refer to the axes of the interpersonal circumplex, the dimensions are described from a dyadic-interactional perspective (Wiggins, 1991) in terms of their reference to the larger domains of agency and communion.

Although a circular arrangement of variables presumes that their factor structure can be described upon a two-dimensional surface, a circumplex further requires an inter-relationship among the factors. Foa (1961, 1965; Foa & Foa, 1974) formalized this requirement in terms of Guttman's (1958) facet analysis, and proposed that the structure of interpersonal behavior can be understood in terms of the facets of *directionality* (granting vs. denying), *object* (self vs. other), and *resource* (status vs. love). Wiggins (1979, 1980, 1982), operating from a definition of interpersonal traits and behavior as having reference to *dyadic interactions that have relatively clear-cut social (status) and emotional (love) consequences for both participants (self and other)*, elaborated upon this facet analysis (see Table 1.1). Directionality is represented by values of + 1 and – 1, which denote granting and denying, respectively. Object refers to the directional target of the behavior, either the self or the other. Together, the facets of directionality and object permit discrimination among four categories of reference in the interpersonal domain (granting to the self vs. denying from the self; granting to the other vs. denying from the other). The resources of status (esteem/regard) and love (care/affection) supply the content for the four categories, yielding an eight-fold taxonomy of interpersonal variables corresponding to the eight octants of the interpersonal circumplex.

As can be seen in Table 1.1, a facet analysis of interpersonal variables informs circumplex structure in three significant respects. First, the closer two variables appear on the circumference of the circle, the more similar their facet structure; PA (assured-dominant

behavior) thus differs from NO (gregarious-extraverted behavior) and BC (arrogant-calculating behavior) with respect to a single facet. Second, variables appearing in opposition to each other on the circumference of the circle have opposing facet structures. Third, *all* categories of behavior have both social (status) and emotional (love) implications for both participants; thus, the agentic dimension of behavior has emotional (love) as well as social (status) implications, and the communal dimension of behavior is of social (status) as well as emotional (love) importance.

Table 1.1
Facet Composition of Interpersonal Variables

		Self		*Other*	
		Status	*Love*	*Love*	*Status*
NO	gregarious-extraverted	+ 1	+ 1	+ 1	+ 1
PA	assured-dominant	+ 1	+ 1	+ 1	– 1
BC	arrogant-calculating	+ 1	+ 1	– 1	– 1
DE	cold-quarrelsome	+ 1	– 1	– 1	– 1
FG	aloof-introverted	– 1	– 1	– 1	– 1
HI	unassured-submissive	– 1	– 1	– 1	+ 1
JK	unassuming-ingenuous	– 1	– 1	+ 1	+ 1
LM	warm-agreeable	– 1	+ 1	+ 1	+ 1

Key
+ : grants
– : denies

The circumplex framework has several limitations. First, the alignment of facets to circumplex octants is based entirely upon intuition. The alignments put forward initially by Foa (1961) and subsequently by Wiggins (1979, 1980, 1982) differ by a 30-45 degree rotation, and alternative alignments to these could additionally be postulated. Second, inventories of interpersonal characteristics differ in the extent to which they demonstrate circumplexity. Although LaForge and Suczek's (1955) Interpersonal Check List exhibits poor fit to the structural requirements of the circumplex (Paddock & Nowicki, 1986) relative to Wiggins' Interpersonal Adjective Scales (1979, 1995), the excellent fit to circumplex structure exhibited by Wiggins' Adjectives (Gurtman & Pincus, 2000) is perhaps achieved through the inclusion of both real (e.g., sly) and imaginary (e.g., unsly) descriptive terms. Third, there is little consensus to date as to whether one or more planes are required to provide a comprehensive representation of the interpersonal domain. In an attempt to reconcile historical differences in the interpretation of the agentic axis either as dominance–submission (Leary, 1957) or as control–autonomy (Schaefer, 1965), Benjamin (1974, 1984, 1994) operationalized interpersonal and intrapsychic transactions in a three-tiered circumplex comprising: (1) a *transitive* plane for active (parentlike) behavior; (2) an *intransitive* plane for reactive (childlike) behavior; and (3) an *introjective* plane for intrapsychic behavior. Hailed as "the most detailed, clinically rich, ambitious, and conceptually demanding of all contemporary models" (Wiggins, 1982, p. 193), Benjamin has offered a compelling alternative to the prevailing single-plane circumplex representations of interpersonal behavior. These limitations aside, the interpersonal circumplex remains a convenient and adequately comprehensive heuristic for conceptualizing the interpersonal domain.

Innovations in the Assessment of Agency and Communion

Historically, interpersonal traits have been indexed through self-reported intensity ratings of trait attributes corresponding to the eight octants of the interpersonal circumplex (Wiggins, 1979, 1995; Wiggins, Trapnell, & Phillips, 1988). These ratings are assumed to accurately summarize the relative frequency with which individuals display everyday acts that are categorized by the trait. For instance, an individual's self-reported intensity rating of dominance is assumed to approximate the relative frequency with which that individual displays everyday acts of dominance.

Buss and Craik (1980, 1981, 1983a, 1983b, 1983c, 1986) provided the first evidence to suggest that this assumption is tenable. Their *act frequency approach to personality* defined trait constructs as cognitive categories of topographically dissimilar acts that vary from core to peripheral in terms of their prototypicality. Buss and Craik conducted act frequency analyses for six of the eight traits that correspond to the octants of the interpersonal circumplex (dominance–submissiveness; gregariousness–aloofness; agreeableness–quarrelsomeness) through a three-stage process: (1) *act nomination* (panels of nominators are asked to generate acts counting as manifestations of a trait); (2) *prototypicality ratings* (panels of judges are asked to rate the prototypicality of nominated acts); and (3) *act sorting* (nominated acts are sorted in terms of their prototypicality, from core to peripheral). Buss and Craik found evidence for a step-wise increase in the correlations obtained between the intensity ratings of attributes and the frequency ratings of acts across subsets of acts sorted in terms of increasing prototypicality.

The traditional trait approach and the act frequency approach share in common the use of one-occasion assessment procedures. Use of these procedures assumes that respondents can

accurately recall and adequately summarize their behavior over long time intervals, and that differences between respondents in terms of these categorical-summary statements provide the most relevant information regarding their behavior. To test these assumptions, Moskowitz (1994) developed event-contingent recording procedures allowing respondents to report upon their behavior over the course of their everyday social activity. These procedures require respondents to report the behavioral acts they performed in significant social interactions (i.e., lasting five minutes or longer) over the course of a 20-day period; record forms are completed just after the social interaction to limit retrospective biases.

Development of the behavioral inventory itself followed a three-stage process (Moskowitz, 1994). From personality inventories, behavioral observation systems, and interviews with managers at a large telecommunications firm, a preliminary pool of 83 items was assembled to sample the agentic (dominant–submissive) and communal (agreeable–quarrelsome) dimensions of interpersonal behavior. Where necessary, items were rewritten to be independent of situation and context; for instance, "I demanded a back rub" —a dominant act—appeared as "I demanded that the other(s) do what I wanted." Psychology professors and graduate students, with expertise and interest in the interpersonal circumplex, then rated these items in terms of their prototypicality as anchored by adjectives obtained from the relevant scales of Wiggins' Revised Interpersonal Adjectives Scales (IAS-R; Wiggins, Trapnell, & Phillips, 1988). A final pool of 46 items was then determined on the basis of their prototypicality ratings and subsequent analyses correlating IAS-R self-reports with self-reports of act frequencies over a 20-day period. Dominance was sampled through such items as "I expressed an opinion" and "I made a suggestion." Submissiveness was sampled through such

items as "I did not state my own views" and "I gave in." Agreeableness was sampled through such items as "I expressed affection with words or gestures" and "I expressed reassurance." Quarrelsomeness was sampled through such items as "I confronted the other about something I did not like" and "I made a sarcastic comment."

Event-contingent recording procedures have allowed Moskowitz and colleagues to capture the running stream of interpersonal behavior. The behavioral scales demonstrate convergent and discriminant validity, yielding a pattern of correlations that generally correspond to predictions based on the interpersonal circumplex (Moskowitz, 1994). Aggregated scores on the behavioral scales correlate with self-reports on traditional trait questionnaires (i.e., IAS-R; Moskowitz, 1994), while disaggregated scores on the behavioral scales remain sensitive to situational variations in social status (Moskowitz, Suh, & Desaulniers, 1994), acquaintanceship (Moskowitz, Suh, & Côté, 1996), and the gender composition of friendships (Suh, Moskowitz, Fournier, & Zuroff, 2001).

Social Adaptation and Emotional Adjustment

The constructs of adaptation and adjustment are central to virtually all theories of personality. Typically, these constructs signify the capacity to cope effectively with the demands of everyday life. In reference to agency and communion, the constructs of adaptation and adjustment can be investigated through one of two approaches. Traditionally, agentic and communal indices have been correlated with indices of emotional adjustment. It has been argued that the hedonic or valence dimension of emotional experience (pleasure–displeasure) emerged over the course of human evolution as a fundamental capacity allowing individuals

to appraise ongoing events as either positive (reflecting appraisals of incentive or reward) or negative (reflecting appraisals of threat or punishment) in reference to successful adaptation (Lazarus, 1991). Alternatively, the constructs of adaptation and adjustment can be anchored in the extent to which agentic or communal strategies solve the problems of survival or reproduction posed by particular environments. This approach implies that behavioral strategies are not cross-situationally adaptive, but rather serve specific functions in particular environments.

Traditionally, agentic and communal indices have been correlated with indices of emotional adjustment. However, agency and communion are unlikely to combine in a simple linear fashion in the prediction of emotional adjustment. From the standpoint of both evolution (Hogan, 1983) and socialization (Bem, 1974) theorists, a tension is thought to exist between the agentic and communal dimensions of human existence. The unrelenting pursuit of agency can have costs in terms of communal life, leaving the individual to feel alienated, isolated, and alone. The unrelenting pursuit of communion can have costs in terms of agentic life, leaving the individual to feel subjugated, empty, and lacking a sense of self. Theorists have argued that the tension between agency and communion can be resolved through *mitigation processes*, whereby a balance of agency and communion is achieved. The failure to mitigate renders the individual vulnerable to the social and emotional hazards of *unmitigated agency* and *unmitigated communion*. Unmitigated agency represents a focus on the self to the exclusion of concern for others (Bakan, 1966; Helgeson, 1994), whereas unmitigated communion reflects a focus on others at the expense of care for the self (Helgeson, 1994; Helgeson & Fritz, 1998).

Mitigation processes have been investigated to date through one of two strategies. One

strategy has been to estimate statistical interaction effects between separate single-time indices of agency and communion (e.g., the Personality Attributes Questionnaire; Spence, Helmreich, & Stapp, 1974) in the prediction of adjustment indices. The line of investigation presumes that optimal adjustment shall be achieved through the integration of agentic and communal characteristics, and that either agentic or communal expression alone shall have adaptive costs for the individual. However, evidence for such statistical interaction effects has been equivocal at best; studies have typically not found significant effects (Helgeson & Fritz, 1999; Lubinsky, Tellegen, & Butcher, 1981; Orlofsky & O'Heron, 1987) or instead have found significant effects in the unanticipated direction (Lubinsky, Tellegen, & Butcher, 1983; Saragovi, Koestner, Di Dio, & Aubé, 1997). An alternative strategy has been to correlate single-time indices of unmitigated agency and unmitigated communion (e.g., the Extended Personality Attributes Questionnaire; Spence, Helmreich, & Holahan, 1979) directly with adjustment indices. This line of investigation has found that trait measures of unmitigated agency and unmitigated communion predict emotional distress, relationship difficulties, and poor health behavior (Helgeson & Fritz, 1999).

In Chapter 2, I introduce the distinction between *interdimensional* and *intradimensional* mitigation processes in the effort to address this discrepancy. Statistical interaction effects presume that mitigation processes should manifest interdimensionally and that optimal adjustment should be achieved through a balance *between* agency and communion. This line of theorizing suggests that the adaptive components to agency and communion should combine synergistically, and that the combination of agency and communion should demonstrate adjustment benefits above and beyond those accrued from its separate components. However,

the alternative conceptualization of mitigation as an intradimensional process posits that optimal adjustment should be achieved through a balance *within* agency and *within* communion. Evidence of significant quadratic effects for agency and communion would suggest that optimal adjustment is achieved through moderate levels of agency and communion, and that extreme levels of agency or communion present hazards to adjustment. In Chapter 2, these two contrasting models of mitigation processes are examined in reference to the hedonic or valence dimension of emotional experience, one facet of adjustment.

If evolutionary selection pressures have equipped humans with the agentic and communal capacities to pursue social dominance and preserve social bonds, then why are humans equally equipped with the capacities to threaten their cooperative alliances (quarrelsome behavior) and relinquish their hierarchical standing (submissive behavior)? Addressing this question requires anchoring the constructs of adaptation and adjustment in the efficacy with which a specific strategy solves the problems of survival or reproduction posed by particular environments. This approach implies that the propensities to quarrel and submit are not inherently maladaptive, but rather serve specific functions in particular environments. To further explore how the human capacities to quarrel and submit potentially represent evolutionary adaptations, we must first turn to evolutionary perspectives on depression and depressive vulnerability.

Price (1967, 1969) was the first to observe the similarities between the behavior of depressed individuals and the behavior of animals who have lost in competitive hierarchical encounters. "For their stability," he wrote, "hierarchies require certain behavior patterns from their members: irritability towards inferiors, anxiety towards superiors, elation on going up the

hierarchy and depression on going down" (Price, 1967, p. 243). He continued: "It is difficult to think of a behavior pattern more likely to result in adjustment to a lower level in the hierarchy than the sort of behavior and symptoms we observe in depressed patients" (Price, 1967, p. 244). Price proposed that "states of depression, anxiety, and irritability are the emotional concomitants of behavior patterns which are necessary for the maintenance of dominance hierarchies in social groups" (Price, 1967, p. 244) and that depression and feelings of inferiority evolved as a "yielding component of ritual agonistic behavior" (Price, 1969, p. 1107) allowing subordinates to accommodate their loss of a rank contest.

Ritualized yielding discourages the losing competitor from ongoing competition, thus limiting the possibility of serious injury or death. Price and colleagues have since reconceptualized the yielding component or subroutine of ritual agonistic behavior as the *involuntary subordinate strategy* (Price, Sloman, Gardner, Gilbert, & Rohde, 1994), and more recently as the *involuntary defeat strategy* (Gilbert, 2000; Price, 2000; Sloman, 2000), in their social competition hypothesis of depression. They define the involuntary defeat strategy as an evolved behavioral strategy, triggered by the recognition of inevitable defeat in a competitive encounter, that: (1) inhibits aggression or escalating competitive tactics; (2) executes escape or de-escalating submissive tactics; and (3) signals 'no threat' to the adversary, thus disarming the competitive encounter.

In Chapter 3, I suggest that the involuntary defeat strategy can be conceptualized within a larger theoretical framework—the *social rank system*—comprising strategies, tactics, and everyday acts relevant to successful hierarchical competition (see Figure 1.2). *Strategies* constitute *if... then ...* algorithms or decision rules regarding what tactics to utilize in a particular

situation. The social rank system depicts two defensive strategies: (1) an escalation strategy (i.e., if threatened by a subordinate, then quarrel); and (2) a de-escalation strategy (i.e., if threatened by a superior, then submit). Quarreling and submitting represent *tactics* or procedures for either deterring or disarming subsequent competition. Tactics are deployed through the execution of *acts*, or discrete behavioral displays. Quarreling and submitting comprise a range of acts in the repertoire of human social behavior: quarreling is displayed through acts such as confronting the competitor; submitting is displayed through acts such as complying with the competitor. In Chapter 3, social rank strategies are examined among records of behavior sampled ecologically from the workplace, where individuals are often hierarchically organized into supervisory and subordinate positions.

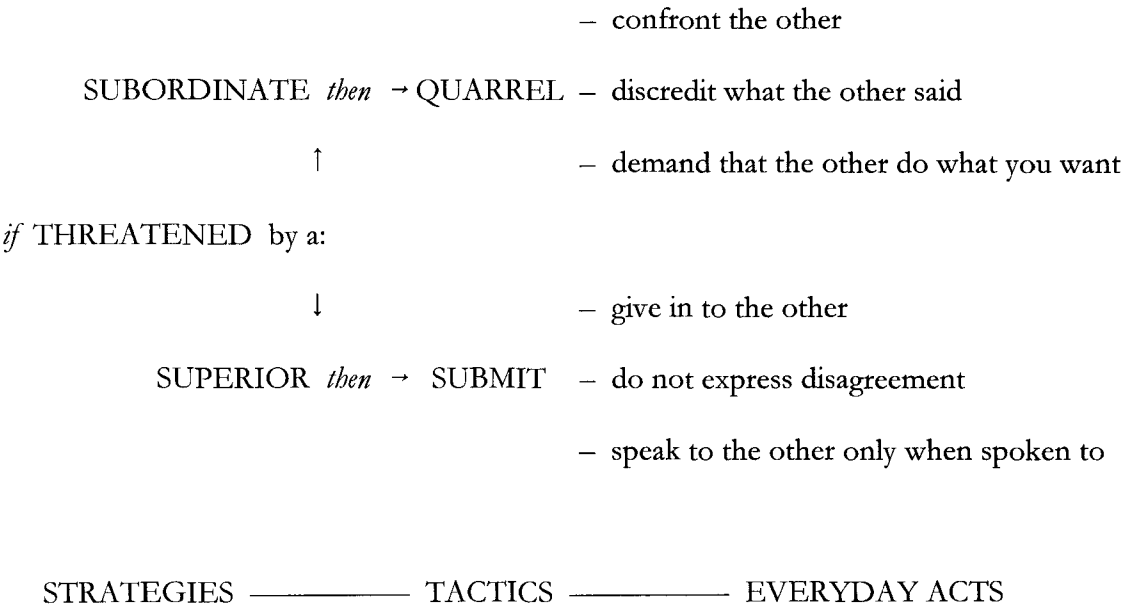

Figure 1.2. Strategies, tactics, and everyday acts.

In sum, I intend to demonstrate that agency and communion represent fundamental dimensions underlying social adaptation and emotional adjustment. In Chapter 2, I propose that emotional adjustment is optimized through *mitigation processes* that balance the expression of agency and communion in everyday behavior, and articulate two contrasting models of mitigation processes—interdimensional and intradimensional mitigation processes—to address discrepancies in the empirical literature. In Chapter 3, I suggest that the undesirable aspects of agency and communion—the human propensities to quarrel and submit—are equally relevant to social adaptation, and argue that these propensities represent *social rank strategies* through which humans grapple with and defend themselves against feelings of threat and inferiority. In Chapter 4, I provide an empirical bridge between mitigation processes and social rank strategies, and propose directions for future research.

CHAPTER 2

MITIGATION PROCESSES

SUMMARY

Theorists since Bakan (1966) have advocated the importance of mitigation for successful adaptation within the interpersonal domain. Although mitigation has previously been conceptualized as a balance between agency and communion (interdimensional mitigation), the circumplex framework suggests that mitigation may also be conceptualized as a balance within agency and a balance within communion (intradimensional mitigation). In the two present studies, participants collected records of their interpersonal behavior and affect subsequent to their social interactions for a period of 20 days. Random coefficient procedures were then used to examine these two contrasting models of mitigation in the prediction of affect. No empirical evidence of interdimensional mitigation was found. The findings suggested that agency and communion were each mitigated intradimensionally through moderate levels of behavioral expression.

INTRODUCTION

Since the early studies of interpersonal behavior at the Permanente Psychiatric Clinic of the Kaiser Foundation Hospital (Leary, 1957), considerable consensus has been achieved on the utility of circumplex models for organizing the interpersonal domain (Carson, 1969; Foa, 1961; Kiesler, 1983; LaForge, Freedman, & Wiggins, 1985; Wiggins, 1979, 1980, 1982). In the pursuit and surrender of status and love (Foa & Foa, 1974), interpersonal behavior appears organized in a circular arrangement around two principal axes. Following Bakan (1966), these axes have become commonly known as *agency* and *communion.* Agency reflects the individual impetus to differentiate from the collective, whereas communion reflects the participation of the individual in the collective (Wiggins, 1991).

A separate line of research has converged on overlapping constructs for quantifying the interpersonal domain. This research tradition emerged from the study of gender attributes, in which dissatisfaction with the assumption that masculinity and femininity represent the opposing ends of a singular dimension (Block, 1973; Carlson, 1971; Constantinople, 1973) led to the development of scales that separated the measurement of instrumental (masculine) and expressive (feminine) traits as two independent dimensions of interpersonal orientation (Bem, 1974; Spence, Helmreich, & Stapp, 1975). Masculine and feminine characteristics have since been recognized as psychometrically and substantively equivalent to agency and communion, respectively (Wiggins & Holzmuller, 1978, 1981).

Researchers subscribing to the two-dimensional model of gender attributes have

devoted considerable attention to whether agency and communion predict adjustment outcomes. This research has emphasized the concept of mitigation as a balance between agency and communion. However, the circumplex framework suggests an alternative conceptualization of mitigation as a balance within agency and a balance within communion. The present studies examined these two contrasting models of mitigation in reference to affect, one facet of adjustment.

Conceptualizing Mitigation as an Interdimensional Process

The mitigation hypothesis, originally put forward by Bakan (1966), proposed that a balance of agency and communion is required for optimal well-being. This proposition was later reiterated independently by Bem (1974) as the androgyny hypothesis of mental health, for which it was suggested that adjustment would be optimized by the integration of both masculine and feminine characteristics. This line of theorizing suggests that the adaptive components to agency and communion should combine synergistically and that the unrelenting expression of either agency or communion should have adaptive costs for the individual. Lubinsky, Tellegen, and Butcher (1981, 1983) observed that synergistic mitigation could be conceptualized as an interaction between separate measures of agency and communion, in which the combination of agency and communion should demonstrate adjustment benefits above and beyond those accrued from its separate components. This interpretation suggests that mitigation should manifest *interdimensionally* and that optimal adjustment should be achieved through a balance *between* agency and communion. Evidence of interdimensional mitigation would be found in the underestimation of mental health indices from the simple

summary of agentic and communal main effects and in the significant contribution of their interaction term to the prediction of adjustment outcomes.

Following this recommendation, several studies have since examined the hypothesis of mitigation as an interaction between separate measures of agency and communion. Taken together, these investigations have addressed the contribution of this interaction term to the prediction of a broad range of outcome criteria, including anxiety and depressive symptomatology (Helgeson & Fritz, 1999), positive and negative affectivity (Lubinsky et al., 1981, 1983; Saragovi, Koestner, Di Dio, & Aubé, 1997), as well as self-esteem (Orlofsky & O'Heron, 1987). These studies have typically not found significant interaction effects (Helgeson & Fritz, 1999; Lubinsky et al., 1981; Orlofsky & O'Heron, 1987) or instead have found interaction effects in the unanticipated direction (Lubinsky et al., 1983; Saragovi et al., 1997). Thus, although both agency and communion have been found to contribute significantly and independently to the prediction of a broad range of adjustment indices (Saragovi et al., 1997), there has been less empirical support for the representation of mitigation as a statistical interaction between separate measures of agency and communion.

Conceptualizing Mitigation as an Intradimensional Process

The development of circumplex models for representing the domain of normal and abnormal behavior may provide an alternative conceptualization of mitigation processes. Within the circumplex framework, the radius or *vector length* for a given measure of behavior from the circumplex origin is presumed to represent the extent to which that behavior falls into the extreme and potentially problematic range (Carson, 1991; Kiesler, 1983; Pincus, 1994). The

upper range of agency thus spans from normative levels of dominance to more extreme dictatorial efforts, whereas the lower range of agency spans from normative levels of submissiveness to extreme subservience; the upper range of communion spans from friendliness to extreme devotion, whereas the lower range of communion spans from hostility to extreme antagonism. As maladaptive behaviors are represented around the circumplex, the agentic and communal dimensions are thus anchored at their extremes by characteristics that may present hazards to interpersonal adjustment. Consequently, adjustment indices may evidence decline as levels of agentic and communal behavior escalate toward the more extreme and potentially problematic range of expression. This interpretation suggests that mitigation should manifest *intradimensionally* and that optimal adjustment should be achieved through moderate levels *within* agency and moderate levels *within* communion.

The implications of this line of theorizing for the domain of everyday interpersonal behavior have not yet been examined. It would seem that agency and communion may not always improve interpersonal adjustment; rather, adjustment indices may decline as agency and communion escalate to more extreme levels of expression. Consequently, the association of agentic and communal behavior to interpersonal adjustment may not be most comprehensively represented by a straight line, but rather by a curve. Adjustment indices may improve most dramatically as agentic or communal characteristics rise from extremely low levels to low levels falling in the normal range; those indices may continue to rise steadily across levels of interpersonal expression within the normative range, and then evidence decline as those agentic or communal characteristics move into the extremely high and potentially problematic range. Evidence that interpersonal behavior predicts compromised adjustment at the most extreme

levels (unmitigated agency and unmitigated communion) would lend support to the hypothesis predicted from circumplex structure that extreme behavior presents hazards to adjustment. This in turn would suggest the alternative conceptualization of mitigation as a curvilinear function rather than or as well as an interaction term. In the present studies, the possibility of curvilinear associations with the adjustment outcome was indexed by including the squared score for agency and the squared score for communion in the prediction equation. The quadratic term represents intradimensional mitigation in the same statistical sense that the interaction term represents interdimensional mitigation, as the quadratic term is equivalent to an interaction effect between a given parameter and itself rather than between two distinct parameters.

The Hedonic Dimension of Affect as a Relevant Facet of Adjustment

Adjustment is a complex and multi-faceted construct that refers in part to subjective well-being. Indicators of subjective well-being typically comprise global appraisals of life satisfaction, satisfaction appraisals specific to central life domains, as well as affective experiences (Diener, 1984; Diener, Suh, Lucas, & Smith, 1999). Well-adjusted individuals typically report higher levels of pleasant affect than unpleasant affect, and typically report higher levels of satisfaction across a multitude of life domains. The present investigation addressed the mitigation of interpersonal behavior in reference to the affective component of subjective well-being.

Although the debate continues as to which factor rotation provides the most convenient description of the affect domain (c.f., Russell & Feldman Barrett, 1999; Watson,

Wiese, Vaidya, & Tellegen, 1999), there is now considerable agreement upon a two-dimensional structure for self-reports of current affect (Larsen & Diener, 1992; Russell, 1980; Watson & Tellegen, 1985; Yik, Russell, & Feldman Barrett, 1999). One dimension refers to a sense of mobilization or energy and pertains to levels of *activation*; commonly reported levels of activation span from sleepy and sluggish to awake and alert. The adjacent dimension pertains to the hedonic tone of the subjective experience and refers to the *valence* ascribed to the level of activation reported; valence spans along a continuum between pleasure and displeasure. The hedonic dimension of affect emerges prominently in English and other languages (Russell, 1991). It has been argued that the hedonic dimension represents a fundamental capacity allowing individuals to appraise ongoing events as either good (i.e., promising) or bad (i.e., threatening) in reference to successful adaptation (Lazarus, 1991). The present investigation was primarily interested in the hedonic tone of self-reported affect. Affect was measured along a single continuum, ranging from pleasant to unpleasant affect.

Agency and Communion: Coordinates for the Event-Sampling of Interpersonal Behavior

Bakan's (1966) original thesis presented agency and communion as superordinate concepts with presumable relevance to many facets of the human predicament. Agency and communion have thus guided theoretical efforts at multiple levels of personality expression, including narrative life history (McAdams, 1993), implicit motivation (McAdams, 1985), stable dispositions (Wiggins, 1979, 1982), transient behavior (Moskowitz, 1994), and recurrent interpersonal situations (Moskowitz, Suh, & Côté, 1996; Moskowitz, Suh, & Desaulniers, 1994). The present set of studies considered agency and communion at the level of interpersonal

behavior as recorded over time in a series of discrete events, because individuals have been found to demonstrate sizable fluctuations in their interpersonal behavior (Brown & Moskowitz, 1998) around stable and enduring central tendencies (Moskowitz, 1994). An event-contingent recording procedure was therefore employed to assess interpersonal behavior and affect. The flow of naturally occurring interpersonal behavior provided an ecologically appropriate context for the parallel examination of the mitigation principle both as an interaction term and as a curvilinear index. Moreover, the concurrent assessment of affect within those discrete events provided a precise measurement of the proximal mutual influence of agentic and communal behavior upon affective experience.

Statistical Analyses

The study of interpersonal behavior as it unfolds in real time presents several challenges. As participants differ in their frequency of social interaction, the method selected for statistical analysis must be able to handle the data in its unbalanced hierarchical structure. As the intercept and slopes for predictor terms may vary significantly across participants, the procedure must also be able to provide estimates not only for their *fixed effects* but also of the extent to which intercepts and slopes range across participants when estimated as *random effects.* To meet these challenges, random coefficient procedures, a set of techniques consistent with multilevel modeling, were used in the present analyses. Random coefficient models take into account that repeated measures are nested within participants and that the data are unbalanced across participants. Furthermore, random coefficient models test significance with the use of the maximum likelihood criterion, a statistic which acknowledges that parameter estimates will

be more precise for some individuals than for others due to the differences between individuals in the amount of data that they provide. Consequently, a model of best fit is estimated by iteratively adjusting the weights assigned to individuals as a function of the standard error and variance of their parameter estimates (Kenny, Bolger, & Kashy, 2002; Kreft & De Leeuw, 1998). Random coefficient models thus make full use of the information available when multiple observations are collected from each participant, providing estimates not only of the association of each predictor with the criterion but also of the extent to which those associations range across participants. In the present studies, the SAS MIXED procedure (version 6.12) was used (SAS Institute, 1992, 1997; Singer, 1998).

Overview

In the two present studies, participants collected records of their interpersonal behavior and affect subsequent to their social interactions for a period of 20 days. Random coefficient modeling procedures were then employed to examine whether agentic and communal behavior predicted participants' concurrent reports of affect valence. Preliminary analyses examined whether agency, communion, and their interaction term predict affect during specific events; subsequent analyses then considered whether curvilinear components contribute significantly to the prediction of affect. Findings from two separate event-sampling studies are presented to determine the replicability of the results obtained.

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. For Study 1, the first 50 male callers and the first 50 female callers who fit the selection criteria were invited to participate. Of these 100 individuals, 89 (41 men and 48 women) ranging in age from 19 to 61 years completed the study. Two years subsequent to Study 1, a second sample was recruited. The first 50 male callers and the first 50 female callers were again invited to participate. To increase the number of participants with stable romantic relationships, an additional 24 romantically committed individuals were then recruited through the same selection procedure. Of these 124 individuals, 119 (57 men and 62 women) ranging in age from 20 to 69 years completed Study 2. Although the requirement of full-time employment and the supplementary recruitment of romantically committed individuals were originally necessary for other investigative purposes, these selection criteria ensured a representative sampling of events that were likely to elicit a range of levels along the agentic and communal dimensions.

Event-Contingent Recording Procedure

The general procedure was essentially the same for both studies. Participants first attended a meeting during which the procedures for the study were explained and their consent to participate was obtained (see Appendix A). Participants then completed a detailed, 1-page

record form as soon as possible subsequent to each social interaction of at least a 5-min duration, every day for 20 days. Forms requested information pertaining to the interpersonal behavior the individual had performed, the intensity of several affects the individual may have experienced, and the individual's role relationship to the interaction partner (see Appendix B).

Participants were given 10 forms to use per day, as previous research (Moskowitz, 1994) had indicated that most individuals recorded an average of six social interactions per day. Although an additional 10 forms per day were distributed by request at the first meeting to those who indicated that they would likely use more than the standard daily number, all participants were told to use as many or as few as their natural day-to-day social activity dictated. Consistent with previous use of event-contingent recording procedures, participants in both samples completed an average of six to seven forms per day. Forms were returned by mail to the researchers on the first weekday following each day of record-keeping.

The event-contingent recording forms requested information pertaining to the social interaction, and also included measures of affect and interpersonal behavior. Diener and Emmons (1984) provided support for the reliability and validity of the pleasant and unpleasant affect measures. Moskowitz (1994; Brown & Moskowitz, 1998) provided evidence for the internal consistency and test-retest reliability of the behavioral scales. The behavioral scales demonstrate convergent and discriminant validity, yielding a pattern of correlations that generally correspond to predictions based on the interpersonal circumplex (Moskowitz, 1994). The behavioral scales correlate with self-reports on more traditional questionnaire measures (Moskowitz, 1994), while remaining sensitive to situational variations in social status and acquaintanceship (Moskowitz et al., 1996; Moskowitz et al., 1994).

Behavior. In adherence to the circumplex model advocated by Wiggins (1979, 1980, 1982), 46 behavioral statements obtained previously in a study by Moskowitz (1994) were used to sample four characteristics of similar conceptual breadth from the interpersonal domain. Two characteristics pertained to the dimension of agency (dominance and submissiveness), whereas two characteristics pertained to the dimension of communion (agreeableness and quarrelsomeness). The four behavioral scales each consisted of 12 items. Dominance was sampled through such items as "I expressed an opinion" and "I made a suggestion." Submissiveness was sampled through such items as "I did not state my own views" and "I gave in." Agreeableness was sampled through such items as "I expressed affection with words or gestures" and "I expressed reassurance." Quarrelsomeness was sampled through such items as "I confronted the other about something I did not like" and "I made a sarcastic comment." One item was used for both the dominance and quarrelsomeness scales (i.e., "I criticized the other"), and another item was used for both the submissiveness and agreeableness scales (i.e., "I went along with the other"). For a complete presentation of this item inventory, see Moskowitz (1994).

On each form, participants were asked to endorse the items they had performed during the social interaction being recorded. As participants quickly adopt response sets when the same items are repeatedly presented, four versions with different items were employed. 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 this rotation was then repeated across the 20-day period under study. Items from each of the four behavior scales were distributed about equally across the four forms. Approximately three items for each behavior scale were thus

presented on each form, with each of the forms presenting a different three items out of the sample of 12 items for each behavior scale.

Event-specific scores for each of the four behavioral scales were constructed for each interaction episode by calculating the mean number of items checked corresponding to each scale of interpersonal behavior. Scale scores could range from 0 (i.e., 0 out of 3 items) to 1 (i.e., 3 out of 3 items). Then, scores for agency and communion were constructed. Event-level agency was indexed from the difference between dominant and submissive behavior. Event-level communion was indexed from the difference between agreeable and quarrelsome behavior. Scores for agency and communion could range from -1 to 1. So that each scale integer would correspond to the rate of act endorsement, scores were rescaled by a constant. Scores for agency and communion could range from -3 to 3.

Affect. Nine affect items, corresponding to those used by Diener and Emmons (1984) to assess affect valence, were presented on all forms. Participants were asked to rate the extent to which they had experienced each affect on a scale ranging from 0 (*not at all*) to 6 (*extremely much*). Pleasant affect items included happy, pleased, enjoyment-fun, and joyful. Unpleasant affect items included worried-anxious, frustrated, angry-hostile, unhappy, and depressed-blue. Event-specific scores for pleasant and unpleasant affect were constructed for each interaction episode by averaging their respective intensity ratings. As pleasant and unpleasant affect tend to be negatively correlated in brief time intervals (Diener & Emmons, 1984; Green, Salovey, & Truax, 1999; Moskowitz & Côté, 1995), scores for affect valence were calculated by subtracting mean unpleasant affect from mean pleasant affect.

RESULTS

All analyses were conducted through the use of a random coefficient procedure consistent with multilevel modeling. The random coefficient procedure is suited for instances in which (1) participants provide differing amounts of data and (2) intercepts and slopes are expected to demonstrate significant variability across participants. The SAS MIXED procedure (version 6.12) was used (SAS Institute, 1992, 1997; Singer, 1998).

Scores for agency and communion were centered within individuals. A score along either dimension of behavior thus represents the extent to which that individual deviated from his or her mean level along that dimension of behavior. As scores for agency and communion were scaled so that each score integer would correspond to the rate of act endorsement, parameter estimates thus index the extent of change in event-level affect expected as a function of endorsing one additional act of behavior.

The first set of analyses examined the interaction of agency and communion in the prediction of affect reported at the level of the event; subsequent analyses then examined quadratic effects to determine whether affect is more comprehensively predicted by agency and communion with the inclusion of squared scores. As effects were tested with a large number of degrees of freedom corresponding to the sum of all events reported by all participants (11,015 in Study 1 and 14,908 in Study 2), a more stringent criterion than is conventionally used was adopted for significance testing; effects were considered significant at $p < .001$.

Effects were tested sequentially; main effects were tested first, and then quadratic and interaction effects were tested. Parameter estimates for the fixed-effects part of the model were evaluated assuming a simple structure for the random-effects part (random intercept only); estimates of the amount of intraindividual variation explained by the fixed-effects part of the model were then indexed from the extent to which the residual variance component σ^2 diminished in comparison to an unconditional means model in which only a random intercept was estimated (Singer, 1998).

After the fixed effects were tested, random effects were estimated for all predictor terms. Random effects estimate the variance in the distribution of an effect within the population. Random effects can also covary; covariance estimates represent the extent of correlation between two random effects. Variance estimates are presented in all instances. Covariance estimates are not reported unless statistically significant in both samples of participants. These effects were estimated across individuals and thus were tested for significance with degrees of freedom corresponding to the number of participants in each sample (Study 1, $N = 89$; Study 2, $N = 119$). Given these sample sizes, conventional levels were adopted for testing the significance of these effects; estimates of effect variances and covariances were thus considered significant at $p < .05$. Z statistics, also known as Wald tests, are reported to indicate whether variance and covariance estimates differed significantly from zero. The Z statistic is always positive in regard to variance estimates. The Z statistic may be positive or negative in regard to covariance estimates, depending upon the direction of the correlation between parameters.

Preliminary Analyses: Gender Differences

Although interpersonal theory suggests that gender differences occur in the base rates of behavior and not in the association of behavior to adjustment indices (Helgeson, 1994), one might hypothesize that agentic behavior would be more predictive of affect among men and that communal behavior would be more predictive of affect among women. Preliminary models thus considered whether the effects for agentic and communal behavior (main effects, interaction effects, quadratic effects) varied significantly as a function of gender. None of these gender effects achieved statistical significance in either sample of participants. Consequently, gender was dropped from all models subsequently reported to simplify the presentation of the results.

Table 2.1
Prediction of Event-Level Affect from Agency and Communion: Models of Interdimensional and Intradimensional Mitigation Processes

Predictor	Study 1			Study 2		
	b	*F*	*df*	*b*	*F*	*df*
			Interdimensional Mitigation			
Step 1. Agency	.12	82.27*	1, 10,924	.17	187.99*	1, 14,787
Step 1. Communion	.51	1073.10*	1, 10,924	.64	2146.69*	1, 14,787
Step 2. Agency X Communion	.04	9.14	1, 10,923	.02	3.10	1, 14,786
			The Intradimensional Mitigation of Agency			
Step 1. Agency	.11	60.61*	1, 10,925	.09	47.88*	1, 14,788
Step 2. Agency X Agency	-.08	103.52*	1, 10,924	-.14	268.84*	1, 14,787
			The Intradimensional Mitigation of Communion			
Step 1. Communion	.50	1049.59*	1, 10,925	.61	1988.39*	1, 14,788
Step 2. Communion X Communion	-.12	148.05*	1, 10,924	-.12	204.26*	1, 14,787

Note. Study 1: *N* (participants) = 89; *N* (observations) = 11,015. Study 2: *N* (participants) = 119; *N* (observations) = 14,908.
* $p < .001$.

The Interdimensional Mitigation of Agency and Communion

Models first tested the fixed effects of event-level agentic behavior, event-level communal behavior, and their interaction term on concurrent affect (see Table 2.1). Both agentic and communal behavior predicted higher levels of event-contingent affect in both samples, accounting for 10% of the explainable variance within individuals in affect scores in Study 1 and 13% of this same variance in Study 2. However, their interaction term did not contribute significantly to prediction in either Study 1 or Study 2. These findings suggest that there was no additional benefit to affect when agentic and communal behavior were presented in combination, nor any additional cost to affect when agentic or communal behavior were presented alone. Consequently, empirical support for the conceptualization of mitigation as an interdimensional process was not found in the prediction of affect valence.

Random effects were then estimated for both main effects and for the interaction term. Inspection of the variance and covariance estimates indicated significant variation across individuals from both Studies 1 and 2 in the intercepts (Study 1, $Z = 6.48, p < .001$; Study 2, $Z = 7.53, p < .001$) as well as in the slopes for agency (Study 1, $Z = 3.29, p < .001$; Study 2, $Z = 4.65, p < .001$) and for communion (Study 1, $Z = 4.97, p < .001$; Study 2, $Z = 5.66, p < .001$). These findings suggest significant range across participants in mean levels of affect, as well as significant range across participants in the association of affect to agentic and communal behavior. The interaction term demonstrated significant variation in Study 2 ($Z = 3.78, p < .001$) but not in Study 1 ($Z = 0.69, p > .05$).

The Intradimensional Mitigation of Agency

Models then tested whether a quadratic term would contribute to the prediction of affect from agentic behavior reported at the level of the event (see Table 2.1). Agentic behavior demonstrated a significant linear influence upon levels of affect in both samples. Significant curvilinear effects were also demonstrated in the association of agentic behavior to affect. These effects are plotted in Figure 2.1. Levels of agency predicted improvements in affect only to a certain extent, passed which levels of agentic expression predicted affect decline. Intradimensional mitigation was therefore evident well within the normal range of everyday agentic behavior. The full model accounted for 2% of the intraindividual variance in affect scores in Study 1 and 2% of this same variance in Study 2.

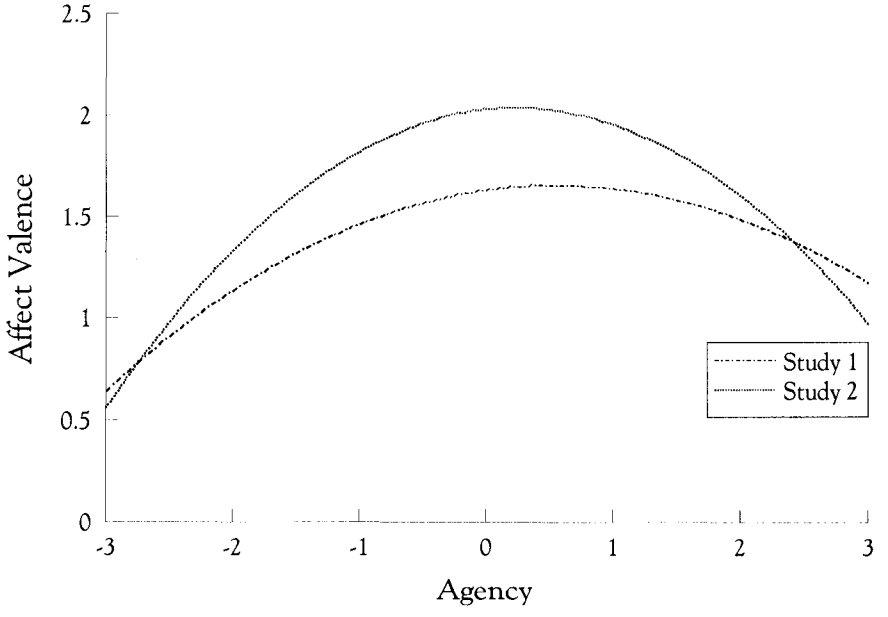

Figure 2.1. Plot representing the prediction of affect valence from the linear and curvilinear parameter estimates for agency.

Random effects were then estimated for the linear and curvilinear predictor terms. Inspection of the variance and covariance estimates indicated significant variation across individuals from both Studies 1 and 2 in the intercepts (Study 1, $Z = 6.38, p < .001$; Study 2, $Z = 7.43, p < .001$), in the slopes for agency (Study 1, $Z = 3.31, p < .001$; Study 2, $Z = 4.18$, $p < .001$), and in the quadratic term (Study 1, $Z = 2.42, p < .05$; Study 2, $Z = 3.68, p < .001$).

The Intradimensional Mitigation of Communion

Models then tested whether a quadratic term would contribute to the prediction of affect from communal behavior reported at the level of the event (see Table 2.1). Communal behavior demonstrated a significant linear influence upon levels of affect in both samples. Significant curvilinear effects were also demonstrated in the association of communal behavior to affect. These effects are plotted in Figure 2.2. Levels of communal expression predicted elevations in affect only to a certain extent, passed which levels of affect no longer evidenced improvement with increasing levels of communion. Intradimensional mitigation was therefore evident within the normal range of everyday communal behavior, although the diminishing returns toward affect emerged at higher levels of communion relative to agency. The full model accounted for 10% of the intraindividual variance in affect scores in Study 1 and 13% of this same variance in Study 2.

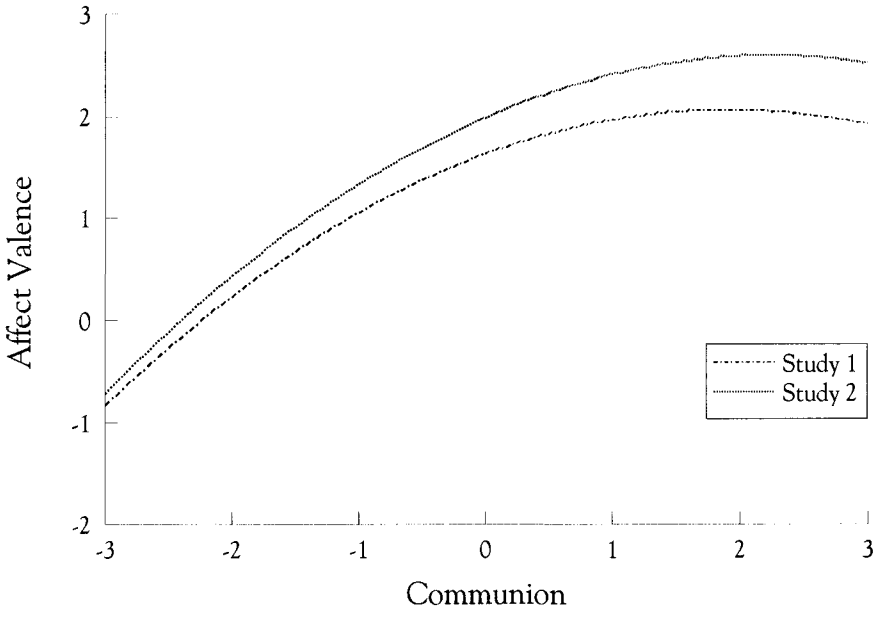

Figure 2.2. Plot representing the prediction of affect valence from the linear and curvilinear parameter estimates for communion.

Random effects were then estimated for the linear and curvilinear predictor terms. Inspection of the variance and covariance estimates indicated significant variation across individuals from both Studies 1 and 2 in the intercepts (Study 1, $Z = 6.43, p < .001$; Study 2, $Z = 7.47, p < .001$) and in the slopes for communion (Study 1, $Z = 4.62, p < .001$; Study 2, $Z = 4.93, p < .001$). The quadratic term demonstrated significant variation in Study 2 ($Z = 3.20$, $p < .01$) but not in Study 1 ($Z = 0.93, p > .05$).

The Intradimensional Mitigation of Agency and Communion

In the models previously estimated, the linear and curvilinear parameters for agency and communion were modeled separately due to the computational difficulty in estimating the random components to these parameters. Nevertheless, we would prefer a model in which the curvilinear parameters for both agency and communion are estimated simultaneously, which would allow us to determine what levels of interpersonal behavior along both the agentic and communal dimensions provide optimal benefits to concurrent affect. Furthermore, a combined model including both curvilinear parameters would provide the opportunity to examine the covariation between their random components as well as their correlations with other random parameters. To obtain a sample size sufficient for estimating all of the random effects for such a model, participants from both Studies 1 and 2 were pooled into a combined sample.

Table 2.2
Prediction of Event-Level Affect from Agency and Communion: A Combined Model of Interdimensional and Intradimensional Mitigation Processes

Predictor	*b*	*F*	*df*
Step 1. Agency	.14	250.80*	1, 25,713
Step 1. Communion	.58	3161.41*	1, 25,713
Step 2. Agency X Agency	-.08	209.82*	1, 25,710
Step 2. Communion X Communion	-.12	356.73*	1, 25,710
Step 2. Agency X Communion	.00	0.01	1, 25,710

Note. N (participants) = 208. N (observations) = 25,923.
* $p < .001$.

Significant linear and curvilinear effects were again found for agency and communion, whereas their interaction did not contribute significantly to model estimation (see Table 2.2). The full model accounted for 13% of the intraindividual variance in affect. Figure 2.3 presents a surface plot of affect across the interpersonal space defined by agency and communion. Across all levels of communion, moderate levels of agency can be seen to improve levels of affect; however, levels of agentic expression outside of this range predict declines in affect. Across all levels of agency, levels of communal expression can be seen to improve levels of affect; however, the improvements to affect decline toward the upper range of communion. The topography of this surface plot suggests that optimal levels of affect are achieved through moderate levels of agency concurrent with relatively high levels of communion.

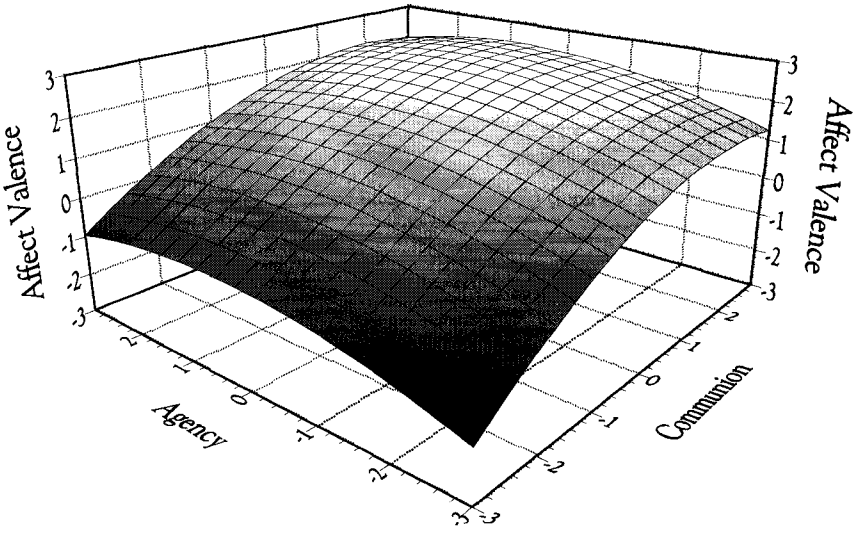

Figure 2.3. Plot representing the prediction of affect valence from the linear and curvilinear parameter estimates for agency and communion.

Random effects were then estimated for all predictor terms. Given the combined sample size ($N = 208$), variance and covariance estimates were considered significant at $p < .01$. Inspection of the variance estimates for the combined sample indicated significant variation across individuals in the intercepts ($Z = 9.80, p < .001$) as well as in the slopes for agency (Study 1, $Z = 5.24, p < .001$) and for communion ($Z = 6.89, p < .001$). These findings reiterate significant range across participants in mean levels of affect, as well as significant range in the association of affect to agentic and communal behavior. The covariance estimates indicated that the slopes for agency and communion were themselves significantly and positively correlated ($Z = 3.03, p < .01$), suggesting that those participants who experienced more pleasantly valenced affect when acting agentically also reported more pleasantly valenced affect when acting in a communal manner. Significant variation in the quadratic term for agency was observed ($Z = 3.83, p < .001$), and variation in this term was significantly correlated with variation in the linear estimates for agentic behavior ($Z = -2.76, p < .01$). These findings suggest that individuals whose agentic behavior evidenced more influence on affect also demonstrated a stronger curvilinear component to this association. Significant variation in the quadratic term for communion was observed ($Z = 3.32, p < .001$), and variation in this term was significantly correlated with variation in the linear estimates for communal behavior ($Z = -2.95, p < .01$). These findings suggest that individuals whose communal behavior evidenced more influence on affect also demonstrated a stronger curvilinear component to this association. Significant variation in the interaction term was observed ($Z = 2.90, p < .01$), but variation in this term was not significantly correlated with any of the other random parameters.

DISCUSSION

Theorists since Bakan (1966) have advocated the importance of mitigation for successful adaptation within the interpersonal domain. Although mitigation has previously been conceptualized interdimensionally as a balance between agency and communion, the circumplex framework suggests conceptualizing mitigation intradimensionally as a balance within agency and a balance within communion. These two contrasting models of mitigation were examined in two samples of participants, who collected records of their agentic and communal behavior as well as their affective experiences over a period of 20 days. No empirical evidence of interdimensional mitigation was found. Evidence of intradimensional mitigation was obtained from both samples of participants.

Substantial curvilinear effects were observed for agentic behavior in the prediction of affect valence. Levels of agency predicted improvements in affect only to a certain extent, beyond which levels of everyday agentic expression predicted affect decline. The dimension of agency thus demonstrates a relatively low boundary beyond which levels of agentic expression predict affect decrements. Comparably significant but less pronounced curvilinear effects were also found for communal behavior. Although declines in affect were not observed within the range of everyday communal expression, elevations in affect diminished asymptotically across levels of communion. Evidence of smaller curvilinear effects for communion than for agency suggests that the dimension of communion may potentially exhibit a relatively higher boundary below which levels of communal expression predict improved

affect. Nevertheless, these findings present replicable support for the hypothesis predicted from circumplex structure that high levels of behavior may present hazards to affect. This evidence is particularly impressive given that the behavioral items had been selected to sample the pool of behavior common to everyday interpersonal interaction (Moskowitz, 1994) and not behavior known *a priori* to be maladaptive.

Given the absence of significant interaction effects between agency and communion, the present findings endorse the conceptualization of mitigation as an intradimensional process. Within this theoretical formulation of the mitigation principle, the balanced expressions of agency and communion are still postulated to predict indices of interpersonal adjustment. However, agency and communion are not regarded as each being *interdimensionally mitigated* by corresponding levels of interpersonal behavior along the orthogonal dimension, but rather as being *intradimensionally mitigated* by moderate levels of agentic and communal expression that fall between excess and deficiency. In contrast to the traditional interpretation of Bakan's (1966) thesis in which a balance *between* agency and communion has been advocated, optimal adjustment may instead be achieved through a balance *within* agency and *within* communion.

This suggestion finds empirical corroboration in the investigation of trait measures of *unmitigated agency* and *unmitigated communion*, even though these characteristics have not typically been conceptualized within a circumplex framework (for a discussion, see Helgeson & Fritz, 1999). Unmitigated agency represents a focus on the self to the exclusion of concern for others (Bakan, 1966; Helgeson, 1994), whereas unmitigated communion reflects a focus on others at the expense of care for the self (Helgeson, 1994; Helgeson & Fritz, 1998). Although unmitigated agency and unmitigated communion theoretically represent nonoverlapping

constellations of maladaptive interpersonal characteristics, measures of both unmitigated agency and unmitigated communion have been found to predict emotional distress, relationship difficulties, and poor health behavior (Helgeson & Fritz, 1999). Both unmitigated agency and unmitigated communion are presumed to fall outside the normative or desirable range of characteristics in the interpersonal domain (Helgeson & Fritz, 1999), suggesting that measures of unmitigated agency and unmitigated communion reference behavior in the abnormal range. The potential hazards of such behavior are intimated in part by the findings of the present investigation.

The Idiographic Study of Mitigation Processes

The question of whether to study human behavior at the nomothetic or idiographic level represents one of several tensions that have historically plagued the investigation of personality processes (e.g., Allport, 1937; Holt, 1962). The nomothetic level of analysis concerns the general principles or laws of behavior pertaining to all individuals, and it is at this level of analysis that research questions are most often posed. However, when the solitary individual is studied idiographically at length, such as with case studies or single case designs, those characteristics often demonstrate an organization unique to that individual to whom the general laws do not often perfectly, or even adequately, generalize.

It has been suggested (Kenny, Bolger, & Kashy, 2002) that the application of multilevel modeling procedures (such as the random coefficient procedures utilized here) to event-contingent records of behavioral data represents one strategy through which the nomothetic and idiographic levels of analysis may be reconciled. In this present instance, mitigation

processes were modeled both as an interaction term between agency and communion and as quadratic terms from the squared scores for agency and communion; the parameter estimates of these effects addressed the nomothetic question of their general contribution to the prediction of episodic affect. However, the estimation of random effects for each of these predictor terms allows for further inspection of their variability. This in turn permits idiographic inferences to be made regarding the extent to which these estimates adequately represent the data of a given individual.

Significant variability was observed across participants from both samples in the extent to which linear parameters for both agentic and communal behavior predicted affective experiences. These findings reiterate substantive and meaningful individual differences in the covariation between interpersonal behavior and affect previously reported (Côté & Moskowitz, 1998; Moskowitz & Côté, 1995). Variability was also observed across participants in the extent to which the squared scores for agency and communion predicted levels of affect. Interindividual variability in these quadratic terms suggests that idiographic analyses would reveal more substantial depictions of mitigation processes in the lives of some individuals and less evidence of mitigation in the lives of others. The search for predictors of the strength of mitigation processes remains a topic for future research.

It is interesting to note that significant covariation was found between the linear and quadratic effects in the combined sample of participants. In other words, those individuals who demonstrated a stronger linear association between affect and levels of interpersonal behavior also evidenced a more substantial curvilinear component to that association. Although some individuals thus experienced greater elevations in affect across moderate levels of agentic and

communal expression, these same individuals also experienced more severe declines in affect at higher levels of behavioral expression. Intradimensional mitigation effects thus appear to be most prominent among those individuals who demonstrate a tight, cohesive association between their interpersonal behavior and affective experiences.

Limitations and Directions for Future Research

Adjustment is a complex and multi-faceted construct, of which self-reported affect is only one constituent (Diener, 1984; Diener et al., 1999). Cognitive evaluations of life satisfaction emerge as a separate well-being component distinct from the dimensions of affect (Andrews & Withey, 1976), and life satisfaction measures demonstrate discriminant validity surpassing their convergent validity with other well-being components (Lucas, Diener, & Suh, 1996). As the exclusive use of self-reported affect naturally limits our capacity to speak to the entire spectrum of adjustment indices, subsequent research in this area should include a broader sampling of outcome criteria such as situation-specific measures of relational satisfaction and self-esteem in addition to affective experience.

Previous research has also found that the use of self-reported adjustment indices inflates their association to trait measures of agency and communion (Saragovi et al., 1997). Although event-sampled affect requires less retrospection than traditional one-occasion self-report, the event-sampling procedure nevertheless provides measures of behavior and affect that potentially share method variance. This shared variance may have overstated the main effects for the agentic and communal dimensions of behavior. Subsequent research including supplementary observer ratings of behavior and outcomes is therefore recommended.

It should be borne in mind that the present findings were obtained with measures of the behavior common to everyday interpersonal life and not with measures specifically developed to capture levels of maladaptive behavior. Subsequent research should endeavor to sample those less frequent and more problematic behaviors that anchor the agentic and communal extremes, in order to provide a more comprehensive portrayal of the entire domain of interpersonal behavior.

Conclusion

The present studies brought predictions extrapolated from the circumplex model to bear upon the study of everyday interpersonal behavior, for which interpersonal theorists have historically advocated a mitigated balance of agency and communion. Although mitigation has traditionally been conceptualized as a statistical interaction between separate measures of agency and communion, consistent evidence of significant interaction effects has not been empirically demonstrated. The circumplex framework presents an alternative conceptualization of mitigation processes, whereby agency and communion are presumed to predict adjustment indices in a curvilinear manner. The present findings suggest that agency and communion are not each interdimensionally mitigated by levels of interpersonal behavior upon the orthogonal dimension, but rather are intradimensionally mitigated by moderate levels of agentic and communal expression that fall between excess and deficiency. For the domain of behavior common to everyday interpersonal life, intradimensional mitigation appears more consequential for the dimension of agency than for the dimension of communion.

CHAPTER 3

SOCIAL RANK STRATEGIES

SUMMARY

Social rank theorists propose that threat appraisals evoke escalation behavior toward subordinates and de-escalation behavior toward superiors. These hypotheses were examined among records of behavior sampled ecologically from the work environments of 90 individuals. At the level of the event, situated threat appraisals (feeling criticized) predicted different kinds of behavior across status situations. Individuals tended to quarrel when criticized by subordinates and to submit when criticized by superiors. At the level of the person, aggregated rank appraisals (feeling inferior) predicted different kinds of behavior across status situations. Individuals who typically felt more inferior tended to quarrel more frequently with subordinates and to submit more frequently with superiors. Findings implicated inferiority and threat as fundamental dimensions underlying the behavior of the social rank system.

INTRODUCTION

In the preceding chapter, levels of agency and communion in everyday experience were found to contribute to concurrent self-reports of emotional adjustment. These findings are in keeping with the following postulates: that (1) the agentic pursuit of social dominance and the communal preservation of social bonds represent fundamental human strivings (Bakan, 1966), such that moderate levels of agentic and communal expression are typically advantageous for emotional adjustment; but that (2) tensions exist between the agentic and communal dimensions of human existence (Bakan, 1966; Bem, 1974; Hogan, 1983), such that extreme levels of agentic and communal expression are potentially hazardous for emotional adjustment. In addition, the undesirable aspects of agency and communion—the human propensities to quarrel and submit—were found to compromise concurrent self-reports of emotional adjustment. These findings raise questions as to whether quarreling and submitting also represent evolutionary adaptations. If evolutionary selection pressures have equipped humans with the capacities to pursue social dominance and preserve social bonds, then why are humans equally equipped with the self-defeating propensities to quarrel and submit?

The Social Rank System

Social rank theory (Gilbert, 1992; Price, Sloman, Gardner, Gilbert, & Rohde, 1994) provides a framework within which to entertain this question. Social rank theorists postulate that humans and other species have acquired, through evolutionary selection pressures, innate

behavioral strategies for contesting and safeguarding reproductively relevant resources. As these resources are frequently in limited supply, individuals are often required to compete over them. Consequently, the social organization of humans and other species is often hierarchical, such that the rank-ordering of individuals within the hierarchy parallels their priority of resource access. Theorists expect that the social rank system then guides the behavioral strategies that competitors utilize for contesting and safeguarding resource access.

The social rank system (depicted in Figure 3.1) may be conceptualized as comprising three distinct components: (1) a *threat appraisal* component, which determines whether competition is imminent; (2) a *rank appraisal* component, which determines the relative rank standing of the prospective adversary; and (3) a *strategy selection* component, which executes a behavioral response contingent upon that rank standing. Determinations of threat may reflect objective aspects of the environment as well as the subjective insecurities of the person. Determinations of rank may be guided by external cues in relatively structured situations (dominant–subordinate social roles) or by internal cues in relatively unstructured situations (dominant–subordinate personality traits). Two implications thus follow from the model. First, both traits (personality) and situations (environment) have an impact upon appraisal processes. Second, objective rank aspects of the environment (social status roles) are logically separable from the subjective rank experiences of the person (feelings of inferiority).

Threats serve to elicit internal states of inferiority that deter their targets from escalated competition. However, targets desist to a greater or lesser extent depending upon their relative rank standing. Threats from a subordinate elicit retaliatory efforts to restrict resource access through the display of down-hierarchy aggression. This strategy signals a readiness to *escalate*

in rank contests, through which high-ranking contestants intimidate low-ranking adversaries and thereby deter resource competition. Threats from a superior elicit reconciliatory efforts to repair cooperative alliances through the display of up-hierarchy subordination. This strategy signals a readiness to *de-escalate* in rank contests, through which low-ranking contestants appease high-ranking adversaries and thereby disarm resource competition. Social rank theorists refer to the strategy of de-escalation by up-hierarchy subordination as the *involuntary defeat strategy*, the activation of which triggers in humans the experience of feeling powerless, inferior, and afraid (Gilbert, 2000; Price, 2000; Sloman, 2000).

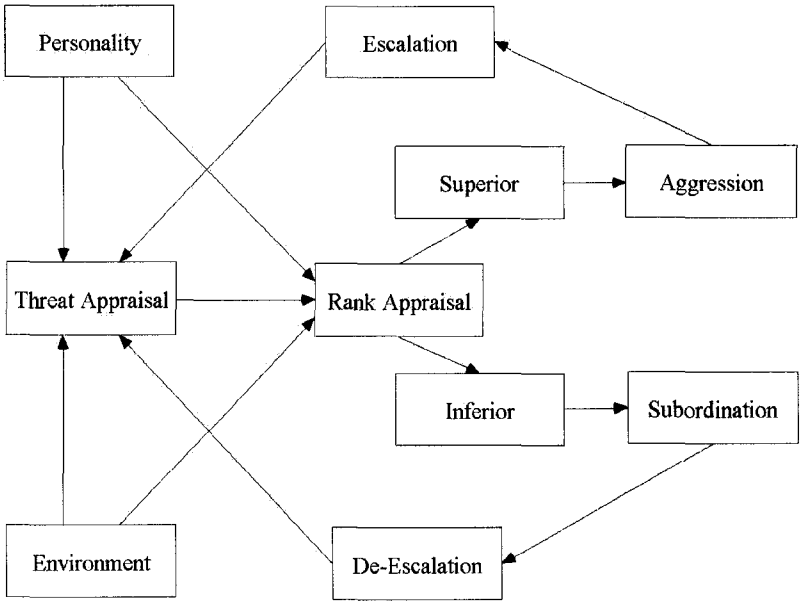

Figure 3.1. The social rank system.

Extending Social Rank Hypotheses to the Human Domain

Social rank theorists propose that appraisals of threat evoke escalation behavior toward subordinates and de-escalation behavior toward superiors. As these hypotheses have received empirical support from the nonhuman primate literature (de Waal, 1989), the purpose of the present research was to extend social rank theory to the domain of human transaction.

Circumplex models of interpersonal behavior (Wiggins, 1979, 1980, 1982) provide a framework within which to conceptualize the postulates of social rank theory. One circumplex axis is anchored by dominance and submissiveness, which together define the dimension of *agency.* The orthogonal axis is anchored by agreeableness and quarrelsomeness, which together define the dimension of *communion.* As the behavioral strategies discussed in the evolutionary literature (down-hierarchy aggression and up-hierarchy subordination) parallel the quarrelsome and submissive poles of the circumplex, I hypothesized that appraisals of threat would elicit quarrelsomeness in upper-status situations and elicit submissiveness in lower-status situations. However, the circular structure of behavior allows for the extrapolation of predictions to the remaining poles of the circumplex. Events that elevate quarrelsomeness tend also to inhibit agreeableness; events that elevate submissiveness tend also to inhibit dominance. Consequently, I hypothesized that appraisals of threat would inhibit agreeableness in upper-status situations and inhibit dominance in lower-status situations.

Physical struggles for social rank are relatively rare in humans. Instead, humans tend to contest social rank through put-down signals (e.g., criticism or condescension) that threaten social or emotional injury (Gilbert, 2000). In circumplex terms, threat signals such as criticism and condescension represent forms of hostile-dominance (Moskowitz, 1994). In the present

research, appraisals of threat were indexed by asking participants to rate the extent to which they felt *criticized* by the other.

A range of situations in everyday human life display hierarchical features (Buss, 1991). In the present research, social rank strategies were examined in the workplace, where individuals are often hierarchically organized into supervisory and subordinate positions. Previous research has found that social status at work predicts behavior along the dimension of agency, such that individuals report higher levels of dominance in upper-status situations and higher levels of submissiveness in lower-status situations (Moskowitz, Suh, & Desaulniers, 1994).

To illustrate the previous propositions, consider a normal working adult whose everyday work life involves social encounters with coworkers as well as with individuals in supervisory and subordinate positions. In the presence of cues signaling a safe and secure environment, the individual may attempt to attain social rank through praising the opinions contributed by others (agreeableness) as well as through firmly contributing his or her own opinions (dominance). However, social or emotional injuries sustained by criticism or condescension will trigger a behavioral response contingent upon his or her rank relationship to the potential adversary. Appraisals of threat from a subordinate will predispose the individual toward retaliating with sarcasm and discrediting the expressed opinions of the subordinate (quarrelsomeness). Appraisals of threat from a supervisor will predispose the individual toward refraining from expressing his or her own opinions and complying with the supervisor (submissiveness).

The Present Study

Participants completed records subsequent to their social interactions over a 20-day period. Analyses were restricted to events obtained from social interactions at work, where participants provided objective indications of their external rank standing (status) relative to their interaction partner; participants could thus endorse having interacted with an individual of higher status (i.e., a supervisor), equal status (i.e., a coworker), or lower status (i.e., a supervisee). Each form requested information pertaining to their situational appraisals of threat (criticism) and internal rank standing (inferiority). Each form also requested information pertaining to the behavior they had performed for each of the four poles of the interpersonal circumplex (submissiveness, quarrelsomeness, dominance, agreeableness).

Statistical Analyses

The data were analyzed with mixed linear modeling procedures. Mixed linear models take into account that events are nested within participants and that the data are unbalanced across participants. Variance in the dependent variable is partitioned into within-person and between-person components, allowing predictor terms to be represented both at the level of the event (Level 1) and at the level of the person (Level 2). Regression coefficients for the predictor terms are then estimated through an iterative procedure until a model of best fit is achieved (Kenny, Bolger, & Kashy, 2002; Wallace & Green, 2002).

Each dependent variable is thus expected to demonstrate two kinds of variation. First, scores fluctuate across events around the mean level or central tendency for each participant; *event-level slopes* estimate these fluctuations in scores as linear functions of Level-1 predictors.

Second, participants differ in terms of their mean levels or central tendencies across scores; *person-level slopes* estimate these differences in central tendencies as linear functions of Level-2 predictors. Hypotheses for the present investigation essentially concerned event-level interaction effects between threat and either external rank cues (status) or internal rank states (inferiority).

Hypotheses

Cues signaling the threat of social or emotional injury serve to elicit internal states of inferiority that deter targets from escalated competition. However, threats are more likely to succeed against targets that hold less rank relative to their adversaries. My first set of hypotheses thus concerned the prediction of inferiority appraisals. I hypothesized that individuals would feel more inferior in lower-status situations and feel less inferior in upper-status situations (i.e., main effect for status, a categorical event-level predictor). I hypothesized that threat would elicit feelings of inferiority (i.e., main effect for threat, a continuous event-level predictor), but that threat would be more predictive of inferiority in lower-status situations than in upper-status situations (i.e., Status X Threat effect, an event-level interaction term).

A subsequent set of hypotheses concerned the prediction of the four scales of behavior (quarrelsomeness, submissiveness, agreeableness, dominance). I hypothesized that individuals would display higher levels of dominance in upper-status situations and display higher levels of submissiveness in lower-status situations (i.e., main effects for status, a categorical event-level predictor). Extrapolating from evolutionary theory, I hypothesized that threat would elicit quarrelsomeness in upper-status situations and elicit submissiveness in lower-status situations

(i.e., Status X Threat event-level interaction effects). Extrapolating from circumplex structure, I hypothesized that threat would inhibit agreeableness in upper-status situations and inhibit dominance in lower-status situations (i.e., Status X Threat event-level interaction effects).

A final set of hypotheses concerned the role of inferiority in accounting for the Status X Threat interaction effects. The model suggests that status situations influence the kind of behavior that individuals demonstrate when threatened through the levels of inferiority that individuals experience as a function of those status situations. Consequently, I expected that Inferiority X Threat effects would parallel the Status X Threat effects obtained, and that the Status X Threat term would drop out of significance with the inclusion of the Inferiority X Threat term in the model. These findings would suggest that Inferiority X Threat accounts for the variance explained by Status X Threat (Baron & Kenny, 1986).

METHOD

Participants

Participants were those described in Study 2 of Chapter 2. Newspaper advertisements 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. For the purposes of a separate line of research, an additional 24 romantically committed individuals were then recruited.

Event-Contingent Recording Procedure

Participants first attended a meeting during which the procedures for the study were explained and their consent to participate was obtained (see Appendix A). Participants then completed a one-page record form following each social interaction of at least a 5-min duration, every day for 20 days. Forms requested information pertaining to the behavior they had performed, the intensity of several situational appraisals, and their role relationship to their interaction partner (see Appendix B). Participants were told to use as many or as few forms as their natural day-to-day social activity dictated, and completed an average of six to seven forms per day. Participants returned the completed forms by mail to the researchers on the first weekday following each day of record-keeping.

Behavior. Forty-six behavioral statements were used to sample four characteristics of similar conceptual breadth from the interpersonal domain (dominance–submissiveness,

agreeableness–quarrelsomeness). Previous research on a separate sample of participants (Moskowitz, 1994) provided evidence for the reliability of the behavioral items. Moskowitz (1994) also presented considerable evidence for the convergent and discriminant validity of the event-contingent recording procedure for the measurement of interpersonal behavior. The pattern of correlations between behavioral scales generally corresponded to predictions based on the interpersonal circumplex.

The four behavioral scales each consisted of 12 items. Dominance was sampled through such items as "I expressed an opinion" and "I made a suggestion." Submissiveness was sampled through such items as "I did not state my own views" and "I gave in." Agreeableness was sampled through such items as "I expressed affection with words or gestures" and "I expressed reassurance." Quarrelsomeness was sampled through such items as "I confronted the other about something I did not like" and "I made a sarcastic comment." One item was used for both the dominance and quarrelsomeness scales (i.e., "I criticized the other"), and another item was used for both the submissiveness and agreeableness scales (i.e., "I went along with the other"). For a complete presentation of this item inventory, see Moskowitz (1994).

On each form, participants were asked to endorse the acts they had performed during the interaction episode. As participants quickly adopt response sets when the same items are repeatedly presented, four versions with different items were employed. 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 this rotation was then repeated across the 20-day period under study. Items from each of the four behavioral scales were distributed equally across the four

forms. Three items for each behavioral scale were thus presented on each form, with each form presenting a different three items out of the sample of 12 items for each behavioral scale.

Event-specific scores for the behavioral scales were subsequently constructed for each interaction episode. First, event-specific raw scores were constructed by calculating the mean number of items endorsed for each behavioral scale; raw scores could range from 0 to 1. Then, event-specific ipsatized scores were constructed by subtracting the mean score for all scales within an event from each raw score for that event; ipsatized scores could range from -.75 to .75. Finally, event-specific corrected scores were constructed by rescaling the ipsatized scores so that each scale integer would correspond to the rate of act endorsement; corrected scores could range from -3 to 3 on each behavioral scale.

Appraisals. On a scale ranging from 0 (*not at all*) to 6 (*extremely much*), participants were asked to rate two situational appraisals. The extent to which participants felt *criticized* by the other during the interaction episode was conceptualized as an index of threat. The extent to which participants felt *inferior* to the other during the interaction episode was conceptualized as an index of rank. As neither index was normally distributed, both scales underwent a square-root transformation prior to analysis.

Status. For each interaction episode reported at work, participants were asked to indicate their status relationship to the interaction partner. Participants could indicate that their interaction partner was either a supervisor, coworker, or supervisee. Status was then coded for each event as having been lower than, equal to, or higher than that of the interaction partner. As hierarchical situations were not expected to have a linear association with the behavioral scales, status was treated as a class variable with three levels.

Data Requirements

Participants were required to meet two criteria for inclusion. First, participants were required to provide data in at least two out of three status situations to ensure that their work environments displayed some hierarchical features. Of the 124 individuals who participated in the study, 110 satisfied this criterion. Second, participants were required to report some level of criticism (threat) over the 20-day period under investigation. Of the 110 remaining individuals, 90 participants (45 men and 45 women) ranging in age from 20 to 69 years satisfied this criterion. Sixty-one participants supplied data in only lower-status and equal-status situations, providing a mean number of events equal to 38.26 per participant with a *SD* of 18.66 across participants. Twenty-eight participants supplied data in all three status situations, providing a mean number of events equal to 45.93 per participant with a *SD* of 20.65 across participants. One participant supplied data in only equal-status and upper-status situations, providing a total of 60 events. In all, 681 events were obtained from lower-status situations, 2700 events were obtained from equal-status situations, and 299 events were obtained from upper-status situations, summing to a grand total of 3680 events.

RESULTS

Mixed linear models were estimated utilizing the SAS MIXED procedure (version 6.12; SAS Institute, 1992, 1997; Singer, 1998). Dependent variables were centered around the grand mean prior to model estimation. Effects were tested sequentially; main effects were tested first, and then interaction effects were tested. The fundamental hypotheses of the present investigation concerned the estimation of inferiority appraisals and the four scales of behavior as a function of status, threat, and the Status X Threat interaction term. Random components were estimated for the intercepts and for the slopes for threat. Status was treated as a class variable with three levels (lower-status, equal-status, upper-status). Threat was centered within individuals; each score thus indicated the extent of deviation from the level of threat typically reported by that participant. For all instances in which significant Status X Threat interaction effects were found, two orthogonal contrasts were performed; one contrast compared slopes in lower-status situations with those in equal-status and upper-status situations (2 -1 -1), whereas the other contrast compared slopes in upper-status situations with those in equal-status situations (0 -1 1). For each instance in which a comparison of means (*M*) or slopes (*b*) across situations was not significant, the combined estimate obtained from pooling their respective effects together was reported.

Preliminary Analyses: Gender and the Functioning of the Social Rank System

Preliminary analyses examined the influence of both gender of participant and gender of partner on status, threat, and the Status X Threat interaction term. Effects for participant gender and partner gender were estimated simultaneously to control for the gender segregation common in organizational settings (Maccoby, 1990). Significant main effects for partner gender were found for dominance, $F(1, 3439) = 18.32, p < .001$, and agreeableness, $F(1, 3439) = 4.89$, $p < .05$. Participants reported higher levels of dominance with men ($M = .24$) than with women ($M = .09$) and higher levels of agreeableness with women ($M = -.05$) than with men ($M = -.13$). Both a significant Participant Gender X Status interaction effect, $F(2, 3431) = 3.97, p < .05$, and a significant Partner Gender X Status interaction effect, $F(2, 3431) = 3.13, p < .05$, were found for inferiority. Subsequent investigation of the Participant Gender X Status interaction effect revealed that both women and men reported higher levels of inferiority in lower-status situations than in equal-status and upper-status situations; however, the contrast of lower-status situations to equal-status and upper-status situations was significantly larger for men than for women, $t(3431) = 5.60, p < .001$. Subsequent investigation of the Partner Gender X Status interaction effect revealed that participants reported higher levels of inferiority in lower-status situations than in equal-status and upper-status situations, whether their partners were women or men; however, the contrast of lower-status situations to equal-status and upper-status situations was significantly larger across situations in which participants interacted with men than across situations in which participants interacted with women, $t(3431) = 11.22, p < .001$. Given the few effects found for gender, the gender terms were dropped from all models subsequently reported to simplify the presentation of the results.

Status and Threat in the Prediction of Inferiority

I hypothesized that individuals would feel more inferior in lower-status situations and feel less inferior in upper-status situations (i.e., main effect for status). As predicted, a significant main effect for status was found, $F(2, 3587) = 84.20, p < .001$. Individuals reported significantly higher levels of inferiority in lower-status situations ($M = .17$) than in equal-status and upper-status situations, $t(3587) = 12.43, p < .001$. Individuals also reported significantly lower levels of inferiority in upper-status situations ($M = -.15$) than in equal-status situations ($M = -.03$), $t(3587) = -4.17, p < .001$. I hypothesized that threat would elicit feelings of inferiority (i.e., main effect for threat). As predicted, the main effect for threat was significant, $F(1, 3587) = 63.11, p < .001$. Individuals reported higher levels of inferiority with elevations in threat ($b = .22$). I hypothesized that threat would predict higher levels of inferiority in lower-status situations than in upper-status situations (i.e., Status X Threat interaction effect). As predicted, a significant Status X Threat interaction effect was found, $F(2, 3585) = 20.71, p < .001$. As can be seen in Figure 3.2, threat was significantly more predictive of inferiority in lower-status situations ($b = .32, p < .001$) than in equal-status and upper-status situations, $t(3585) = 6.41, p < .001$. Threat was also significantly less predictive of inferiority in upper-status situations ($b = -.04, p > .05$) than in equal-status situations ($b = .19, p < .001$), $t(3585) = -4.00, p < .001$.

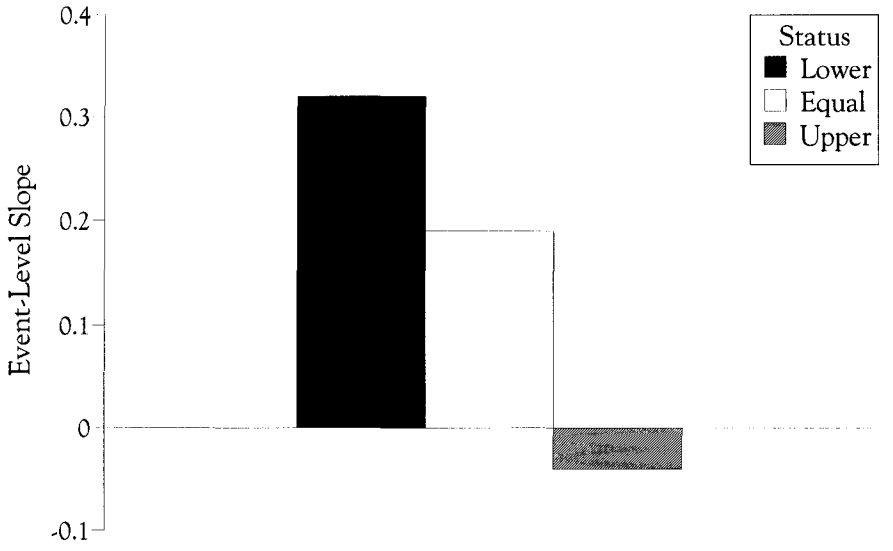

Figure 3.2. Event-level slopes for inferiority across status situations. Columns represent unstandardized within-person regression coefficients indexing the extent of change in event-level inferiority expected as a function of a one-unit increase along the threat dimension.

Status and Threat in the Prediction of Social Rank Strategies

F-tests for status, threat, and the Status X Threat interaction term are presented in Table 3.1. All planned comparisons and post-hoc tests are discussed in the text below.

Submissiveness. I hypothesized that individuals would display higher levels of submissiveness in lower-status situations than in equal-status and upper-status situations (i.e., main effect for status). As predicted, a significant main effect for status was found. Individuals reported significantly higher levels of submissiveness in lower-status situations ($M = .34$) than in equal-status and upper-status situations, $t(3587) = 12.56, p < .001$. Individuals also reported

significantly lower levels of submissiveness in upper-status situations (M = -.45) than in equal-status situations (M = -.05), $t(3587)$ = -6.48, $p < .001$. The main effect for threat was not significant. I hypothesized that threat would elicit higher levels of submissiveness in lower-status situations than in upper-status situations (i.e., Status X Threat interaction effect). As predicted, a significant Status X Threat interaction effect was found. As can be seen in Figure 3.3, threat predicted significantly higher levels of submissiveness in lower-status situations (b = .26, $p < .001$) than in equal-status and upper-status situations (b = -.06, $p > .05$), $t(3585)$ = 3.91, $p < .001$. Slopes in equal-status and upper-status situations were not significantly different, $t(3585)$ = -1.12, $p > .05$.

Quarrelsomeness. A significant main effect for status was found. Individuals reported significantly lower levels of quarrelsomeness in lower-status situations (M = -.19) than in equal-status and upper-status situations (M = .08), $t(3587)$ = -6.56, $p < .001$. Levels of quarrelsomeness in equal-status and upper-status situations were not significantly different, $t(3587)$ = 1.19, $p > .05$. The main effect for threat was also significant. Individuals reported higher levels of quarrelsomeness with elevations in threat (b = .21). I hypothesized that threat would elicit higher levels of quarrelsomeness in upper-status situations than in lower-status situations (i.e., Status X Threat interaction effect). As predicted, a significant Status X Threat interaction effect was found. As can be seen in Figure 3.3, threat was significantly less predictive of quarrelsomeness in lower-status situations (b = .10, $p < .05$) than in equal-status and upper-status situations (b = .27, $p < .001$), $t(3585)$ = -2.59, $p < .01$. Slopes in equal-status and upper-status situations were not significantly different, $t(3585)$ = 0.31, $p > .05$.

Table 3.1
Status and Threat in the Prediction of Event-Level Behavior

Predictor	*df*	*F*-Tests for Event-Level Behavior			
		SUB	QUR	DOM	AGR
Step 1. Status	2, 3587	79.14***	26.38***	50.95***	17.40***
Step 1. Threat	1, 3587	3.51	55.11***	4.38*	48.38***
Step 2. Status X Threat	2, 3585	9.40***	4.82**	4.66**	1.79

Note. N (participants) = 90. N (observations) = 3,680.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Dominance. I hypothesized that individuals would display higher levels of dominance in upper-status situations than in equal-status and lower-status situations (i.e., main effect for status). As predicted, a significant main effect for status was found. Individuals reported significantly higher levels of dominance in upper-status situations ($M = .60$) than in equal-status and lower-status situations ($M = -.04$), $t(3587) = 9.88, p < .001$. Levels of dominance in equal-status and lower-status situations were not significantly different, $t(3587) = 0.09, p > .05$. The main effect for threat was also significant. Individuals reported lower levels of dominance with elevations in threat ($b = -.07$). I hypothesized that threat would inhibit levels of dominance to a relatively greater extent in lower-status situations than in upper-status situations (i.e., Status X Threat interaction effect). As predicted, a significant Status X Threat interaction effect was found. As can be seen in Figure 3.3, threat predicted significantly more inhibited levels of dominance in lower-status situations ($b = -.20, p < .001$) than in equal-status and upper-status situations ($b = .01, p > .05$), $t(3585) = -2.68, p < .01$. Slopes in equal-status and upper-status situations were not significantly different, $t(3585) = 0.48, p > .05$.

Agreeableness. A significant main effect for status was found. Individuals reported significantly higher levels of agreeableness in equal-status situations (M = .05) than in upper-status and lower-status situations (M = -.17), $t(3587) = 5.77, p < .001$. Levels of agreeableness in upper-status and lower-status situations were not significantly different, $t(3587) = 1.34, p > .05$. The main effect for threat was also significant. Individuals reported lower levels of agreeableness with elevations in threat (b = -.22). I hypothesized that threat would inhibit levels of agreeableness to a relatively greater extent in upper-status situations than in lower-status situations (i.e., Status X Threat interaction effect). The Status X Threat interaction effect was not significant, suggesting that slopes did not differ significantly across status situations.

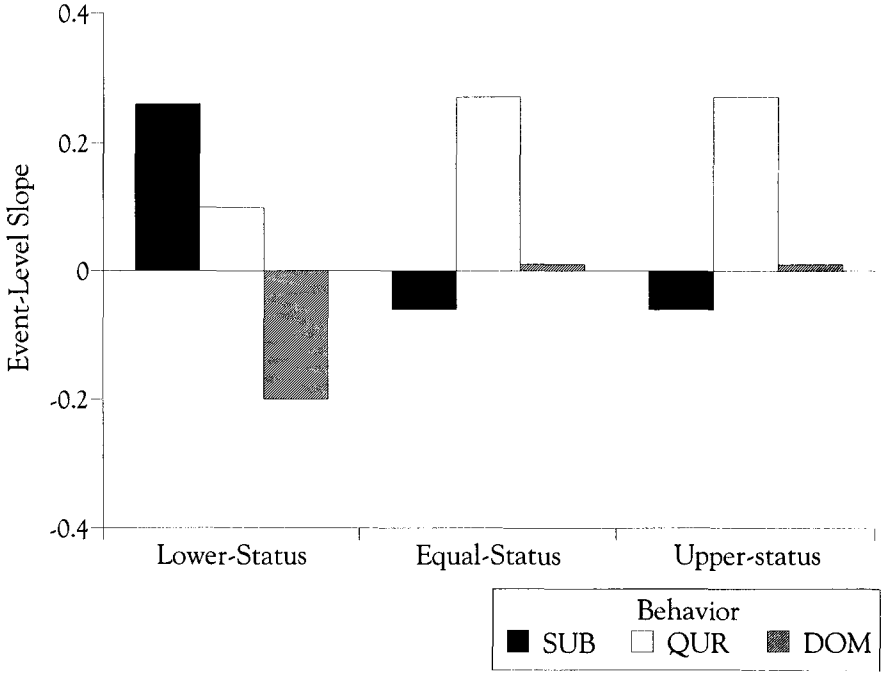

Figure 3.3. Event-level slopes for behavior across status situations. Columns represent unstandardized within-person regression coefficients indexing the extent of change in event-level behavior expected as a function of a one-unit increase along the threat dimension. SUB = submissiveness; QUR = quarrelsomeness; DOM = dominance.

Inferiority and Threat in the Prediction of Social Rank Strategies

The Status X Threat interaction effects found for three of the four behavioral scales (submissiveness, quarrelsomeness, dominance) raise the question of whether these findings are mediated by inferiority appraisals at the level of the event. Following Baron and Kenny (1986), variable Z functions as a mediator between predictor X and criterion Y if: (1) X predicts Y; (2) Z predicts Y; and (3) controlling for Z, X no longer predicts Y. If Inferiority X Threat (Z) serves as a mediator between Status X Threat (X) and behavior (Y), then it follows that Inferiority X Threat effects should parallel the Status X Threat effects obtained (Condition 2) and that the Status X Threat term should drop out of significance with the inclusion of the Inferiority X Threat term in the model (Condition 3).

To satisfy Condition 2, the following three predictors were tested for each scale of behavior: (1) inferiority, a continuous event-level predictor; (2) threat, a continuous event-level predictor; and (3) Inferiority X Threat, an event-level interaction term. Inferiority and threat were centered within individuals; random components were estimated for both main effects as well as for the intercepts. As can be seen in Table 3.2, significant Inferiority X Threat interaction effects were found for submissiveness (b = .18), $F(1, 3587) = 15.36$, $p < .001$, quarrelsomeness (b = -.07), $F(1, 3587) = 3.94$, $p < .05$, and dominance (b = -.12), $F(1, 3587) = 7.70$, $p < .01$. A comparable pattern of findings thus appeared to emerge when internal rank states (feelings of inferiority) were substituted for external rank cues (social status roles).

Table 3.2
Inferiority and Threat in the Prediction of Event-Level Behavior

		Event-Level Behavior							
		SUB		QUR		DOM		AGR	
Predictor	*df*	*b*	*F*	*b*	*F*	*b*	*F*	*b*	*F*
Step 1. Inferiority	1, 3588	.37	41.68***	-.15	16.49***	-.14	7.56**	-.07	2.71
Step 1. Threat	1, 3588	.03	0.69	.22	52.65***	-.05	1.86	-.22	39.88***
Step 2. Inferiority X Threat	1, 3587	.18	15.36***	-.07	3.94*	-.12	7.70**	.02	0.17

Note. *N* (participants) = 90. *N* (observations) = 3,680.
* $p < .05$. ** $p < .01$. *** $p < .001$.

To satisfy Condition 3, the following five predictors were tested for each scale of behavior: (1) status, a categorical event-level predictor; (2) threat, a continuous event-level predictor; (3) inferiority, a continuous event-level predictor; (4) Inferiority X Threat, an event-level interaction term; and (5) Status X Threat, an event-level interaction term. With the inclusion of the Inferiority X Threat interaction term, the Status X Threat interaction effect dropped out of significance for submissiveness, $F(2, 3583) = 2.52, p > .05$, quarrelsomeness, $F(2, 3583) = 2.90, p > .05$, and dominance, $F(2, 3583) = 1.53, p > .05$. These findings suggest that external rank cues elicit internal rank states, which then regulate the behavior that individuals demonstrate when they report feeling threatened.

Subsequent Analyses: Inferiority and the Functioning of the Social Rank System

Rank system functioning most likely varies across individuals. Some individuals likely quarrel more frequently with their subordinates (preemptive escalation) and submit more frequently with their superiors (precautionary de-escalation). As inferiority appeared fundamental to explaining the event-level functioning of the social rank system, I speculated

that individual differences in person-level inferiority might elevate the frequency with which individuals quarrel and submit across status situations. Subsequent analyses explored this possibility. Inferiority appraisals were aggregated to produce person-level mean scores indexing chronic rank insecurity. High scores on the chronic inferiority dimension thus characterized individuals who frequently reported intense feelings of event-level inferiority across the 20-day period under study. The following three predictors were then tested for each scale of behavior: (1) chronic inferiority, a person-level predictor; (2) status, an event-level predictor; and (3) Chronic Inferiority X Status, a cross-level interaction term. Estimates of the Chronic Inferiority X Status term were obtained for each of the behavioral scales to determine whether chronic inferiority would differentially predict person-level rates of behavior across status situations.

Significant Chronic Inferiority X Status effects were found for submissiveness, $F(2, 3586) = 6.04, p < .01$, and quarrelsomeness, $F(2, 3586) = 8.07, p < .001$. These effects are plotted in Figure 3.4. Individuals reporting higher levels of chronic inferiority demonstrated higher rates of submissiveness in lower-status and equal-status situations ($b = .31, p < .001$) than in upper-status situations ($b = -.17, p > .05$), $t(3586) = 3.43, p < .001$; slopes for chronic inferiority in equal-status and lower-status situations were not significantly different, $t(3586) = 1.39, p > .05$. Individuals reporting higher levels of chronic inferiority also demonstrated higher rates of quarrelsomeness in upper-status situations ($b = .55, p < .001$) than in equal-status and lower-status situations ($b = .05, p > .05$), $t(3586) = 3.91, p < .001$; slopes for chronic inferiority in equal-status and lower-status situations were again not significantly different, $t(3586) = -0.05, p > .05$. In sum, individuals who typically felt more inferior tended to quarrel more frequently with subordinates and to submit more frequently with superiors.

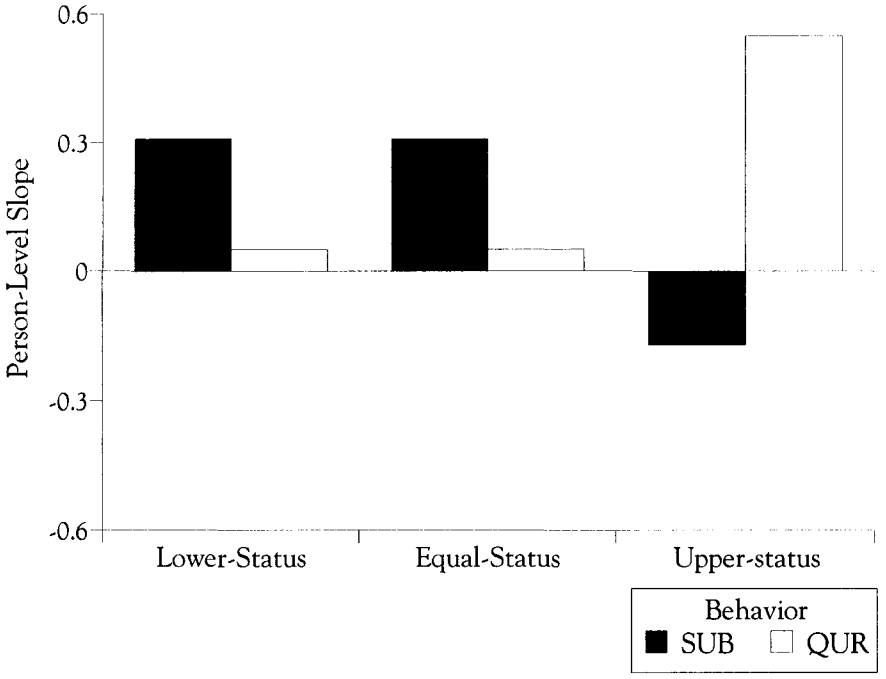

Figure 3.4. Person-level slopes for behavior across status situations. Columns represent unstandardized between-person regression coefficients indexing the extent of change in person-level behavior expected as a function of a one-unit increase along the inferiority dimension. SUB = submissiveness; QUR = quarrelsomeness.

The potential confound between overall levels of inferiority and the overall standing of individuals in their respective organizational hierarchies could raise interpretive difficulties. As subordinate situations elicited feelings of inferiority, those individuals who most frequently reported feelings of inferiority were perhaps also those individuals who most frequently reported events in subordinate situations. Two supplementary analyses suggest that this was not the case. First, I scored social status as -1 (lower-status), 0 (equal-status), or 1 (upper-status) and then aggregated these scores to produce a person-level index of overall hierarchical

standing; an individual who only provided events in subordinate situations would thus have a score equal to -1, whereas an individual who only provided events in supervisory situations would thus have a score equal to 1. A correlation of $r(88) = -.01$ was obtained between aggregated status and aggregated inferiority. Second, I examined whether those individuals who provided events in supervisory situations ($n = 29$) differed from those individuals who did not ($n = 61$) in terms of their aggregated levels of inferiority. The difference was not significant, $F(1, 88) = 0.13, p > .05$. Together, these findings indicate that overall levels of inferiority were not in fact confounded with the overall standing of individuals in their respective organizational hierarchies.

DISCUSSION

Social rank theorists propose that appraisals of threat evoke escalation behavior toward subordinates and de-escalation behavior toward superiors. The present investigation provided a translation of these hypotheses into circumplex terms, such that individuals were expected to quarrel when threatened by subordinates and to submit when threatened by superiors. These hypotheses were examined among records of behavior sampled ecologically from the workplace, where individuals are often hierarchically organized into supervisory and subordinate positions.

The Social Rank System

Consistent with findings from previous investigations utilizing the same event-contingent recording procedures (Moskowitz, Pinard, Zuroff, Annable, & Young, 2001; Moskowitz et al., 1994), individuals displayed higher levels of dominance in upper-status situations. Consistent with Moskowitz et al. (2001), but in contrast to Moskowitz et al. (1994), levels of agreeableness and quarrelsomeness also varied significantly (albeit less dramatically) across status situations. Individuals displayed higher levels of agreeableness in equal-status situations and lower levels of quarrelsomeness in lower-status situations. It is of interest that only levels of submissiveness differentiated the behavior of individuals across all three status situations. Individuals displayed higher levels of submissiveness in lower-status situations and lower levels of submissiveness in upper-status situations. These findings are in keeping with

Gilbert's (2000) remarks that a hierarchy can only be said to exist if subordinates yield more readily than superiors, and hence that it may be more apt to speak of *subordinate hierarchies* than *dominance hierarchies* in reference to the social rank system.

Extrapolating from evolutionary theory, I hypothesized that appraisals of threat would elevate quarrelsomeness in upper-status situations and elevate submissiveness in lower-status situations. Extrapolating from circumplex structure, I hypothesized that appraisals of threat would inhibit agreeableness in upper-status situations and inhibit dominance in lower-status situations. Findings from the present investigation were generally consistent with the postulates of social rank theory. Individuals thus appear ready when threatened to escalate rank contests so as to restrict the resource access of their subordinates through the display of down-hierarchy aggression, and to de-escalate rank contests so as to repair cooperative alliances with their superiors through the display of up-hierarchy subordination.

These findings stand out against interpersonal models of human transaction, which hold that a given kind of behavior will tend to evoke a complementary class of behavior in return (Kiesler, 1983; Orford, 1986). Complementarity is defined by *reciprocity* along the dimension of agency (dominance begets submission) and by *correspondence* along the dimension of communion (hostility begets hostility). In circumplex terms, threats such as criticism and condescension reflect forms of hostile-dominance that should predict hostile-submission. In the present investigation, appraisals of threat were found to predict hostility or submission, depending upon the rank relationship.

Why might this be? One promising explanation arises from game theory, a branch of mathematics devoted to the study of strategic decision-making (Maynard Smith, 1982). Social

rank situations might be conceptualized in terms of the interplay between two games: a zero-sum (competitive) game of *rank*, where one player is dominant only if the other player is subordinate; and a non-zero-sum (cooperative) game of *alliances*, where players are either allied or not. The facets of human behavior (dominance–submissiveness, agreeableness–quarrelsomeness) may serve as tactics in these two games: agreeableness and quarrelsomeness respectively serve to strengthen and harm alliances; dominance and submissiveness respectively serve to signal rank victory and defeat.

Players perhaps assign differential payoffs (benefits vs. costs) to varying game outcomes (gain vs. lose rank, gain vs. lose alliance) as a function of their social status. For instance, high-status individuals may prefer to sustain rank at the expense of an alliance, rather than sustain alliances at the expense of their rank. Such individuals quarrel when threatened as if to say, "I will spoil our alliance unless you concede the rank game." In contrast, low-status individuals may prefer to preserve alliances at the expense of their rank, rather than pursue rank at the expense of an alliance. Such individuals submit when threatened as if to say, "I will concede the rank game if you will not spoil our alliance." Subsequent research could examine the signaling functions of social rank strategies.

Inferiority and the Functioning of the Social Rank System

Consistent with prediction, status emerged as a significant predictor of inferiority appraisals. Levels of inferiority were typically higher in lower-status situations and typically lower in upper-status situations. External rank cues in the social environment appear to regulate internal rank states pertaining to subordination. Also consistent with prediction,

appraisals of threat typically elicited feelings of inferiority. However, these feelings were elicited more readily in lower-status situations than in upper-status situations. Appraisals of threat precipitated those internal states of inferiority serving to deter low-ranking contestants from escalated competition through the triggering of the involuntary defeat strategy.

In turn, inferiority appraisals explained the differences obtained across status situations in the kind of behavior that individuals displayed when threatened. Significant Inferiority X Threat effects were found for submissiveness, quarrelsomeness, and dominance. A comparable pattern of findings emerged when internal rank states were substituted for external rank cues. Controlling for the Inferiority X Threat term, the Status X Threat effects dropped out of significance. External rank cues elicit internal rank states, which then regulate the behavior that individuals demonstrate when they report feeling threatened. In essence, individuals submit when threatened by their superiors *because* they feel inferior, and not because of role attributes apart from social rank. Consequently, subordinates who are resilient against feelings of inferiority may quarrel rather than submit. Such individuals could make life difficult for their superiors and lead revolutions. Or, their superiors—foreseeing rebellion—may stonewall, sandbag, or simply fire them in a preemptive escalatory strike.

The present findings further implicated inferiority in accounting for differences across individuals in rank system functioning. Individuals reporting higher overall levels of inferiority accommodated their rank insecurities by demonstrating: (1) higher levels of escalation behavior (quarrelsomeness) in upper-status situations, where their internal appraisals of inferior rank standing were perhaps temporarily disconfirmed; and (2) higher levels of de-escalation behavior (submissiveness) in equal-status and lower-status situations, where their internal appraisals of

inferior rank standing were perhaps chronically confirmed.

These findings encourage us to speculate upon evolutionary hypotheses regarding rank system functioning and depression (Price et al., 1994). Social rank theorists expect that execution of the involuntary defeat strategy is typically short-lived, terminating with an acknowledgment of defeat and a reconciliation between the contestants. Clinical depression has been postulated to result from the prolonged execution of an involuntary defeat strategy that has failed to terminate either because of external circumstances which hinder reconciliation (e.g., ongoing criticism or condescension) or because of personality characteristics which deter the individual from acknowledging defeat. Those individuals reporting chronic feelings of inferiority may in fact suffer from a prolonged execution of the involuntary defeat strategy, which may in turn render them vulnerable to clinical depression.

These findings further encourage us to speculate upon evolutionary hypotheses regarding rank system functioning and aggression (Price et al., 1994). Individuals suffering from chronic feelings of inferiority are typically, and perhaps resentfully, obedient in fear of reprisal from their superiors. In positions of power, however, they potentially become tyrannical, escalating without provocation in the effort to preserve their social rank. Spousal abusers and schoolyard bullies may suffer from such rank insecurities (for a review of the literature relevant to this hypothesis, see Baumeister, Smart, & Boden, 1996). These insecurities may prompt such individuals to utilize preemptive escalation strategies to the point of physical aggression, which may in turn prolong involuntary subordination to the point of clinical depression among those around them.

Limitations and Directions for Future Research

In the present investigation, social rank hypotheses were extrapolated from the evolutionary literature and translated into circumplex terms. The circumplex model allows distinct behavioral constructs to be sampled with comparable breadth (Moskowitz, 1994), enabling us to extend social rank theory to the domain of human transaction. Nevertheless, evolutionary theorists in the areas of cognitive science and psychiatry have suggested a more refined examination of facets within each defensive behavioral construct (quarrelsomeness, submissiveness) from which subsequent research may profit.

Cummins (1999) has proposed that low-ranking individuals attempt to improve their limited resource access through acts of cheating and deception; in contrast, high-ranking individuals attempt to maintain their priority of resource access by detecting and thwarting acts of cheating and deception. In regard to the circumplex, both strategies would appear to represent aspects of quarrelsome behavior. Consequently, the quarrelsome behavior that individuals demonstrate may differ considerably in its content across status situations. For instance, lower-status situations may elicit higher levels of *covert* quarrelsome behavior (e.g., withholding information), through which individuals attempt to improve their limited resource access. In contrast, upper-status situations may elicit higher levels of *overt* quarrelsome behavior (e.g., voicing criticism), through which individuals attempt to maintain their priority of resource access. Subsequent research should discriminate between these aspects of quarrelsome behavior.

Gilbert (2000) has proposed differentiating between *voluntary* and *involuntary* subordinate strategies. Although submissive strategies are executed involuntarily when subordinates have

lost a rank contest, submissive strategies may also be employed voluntarily by subordinates to sustain cooperative alliances with superiors. These constructs may help to differentiate the kinds of submissive behavior that individuals demonstrate in lower-status situations. In the present investigation, individuals were found to submit as a function of both stable (i.e., status) and unstable (i.e., threat) situational forces. Status differences may elicit voluntary submissive displays that serve to draw positive social attention to subordinates as ready and capable allies. Appraisals of threat may elicit involuntary submissive displays that serve to divert negative social attention from subordinates as potentially formidable rivals. Subsequent research should discriminate between these aspects of submissive behavior.

The present investigation profited from an event-contingent recording procedure in which naturalistic, nonretrospective data were collected. Its advantages aside, such a procedure still has its limitations. Appraisals of threat confound objective aspects of the situation with the subjective insecurities of the person. Procedures allowing for the partitioning of these variance components would considerably improve our understanding of rank system input. Subsequent research in which both observer ratings and self-reports are obtained under laboratory conditions is therefore recommended.

Finally, dominance and subordination define but one dimension of personal relationships. Social rank is not the only dimension relevant to personal relationships, nor is this dimension equally relevant across all relationships. As the present data were obtained from organizational relationships in which hierarchical differences are often salient, the extent to which the present findings extend to relationships in which determinations of social rank are less pronounced, less stable, or under review remains an open empirical question.

Conclusion

Humans typically strive to feel agentic and communal (Bakan, 1966; Wiggins, 1991). If evolutionary pressures have equipped humans to pursue social dominance (agentic striving) and to preserve social bonds (communal striving), then perhaps the human propensities to quarrel and submit also represent evolutionary adaptations. Social rank theory proposes that quarrelsome and submissive behavior serve as tactics through which humans grapple with and defend themselves against feelings of threat and inferiority. In the present investigation, social rank hypotheses were extrapolated from the evolutionary literature and then demonstrated in everyday behavior. At the level of the event, participants tended to quarrel when threatened by subordinates and to submit when threatened by superiors. At the level of the person, participants who typically felt more inferior tended to quarrel more frequently with subordinates and to submit more frequently with superiors. In closing, these findings implicate inferiority and threat—the dark aspects of *agency* and *communion*—as fundamental dimensions underlying the behavior of the social rank system.

CHAPTER 4

DISCUSSION

The purpose of the present research was to explore the agentic and communal dimensions underlying social adaptation and emotional adjustment. I first proposed that emotional adjustment is optimized through *mitigation processes* that balance the expression of agency and communion in everyday behavior. In this regard, I articulated two contrasting models of mitigation processes to address discrepancies in the empirical literature. I then suggested that the undesirable aspects of agency and communion—the human propensities to quarrel and submit—are equally relevant to social adaptation. In this regard, I argued that these propensities represent *social rank strategies* through which humans grapple with and defend themselves against feelings of threat and inferiority. In preceding chapters, these hypotheses were substantiated empirically with records of behavior sampled ecologically from the everyday lives of individuals through the use of event-contingent recording procedures. In this chapter, I elaborate upon preceding discussions of the results obtained.

Mitigation Processes and Emotional Adjustment

In Chapter 2, mitigation processes were conceptualized both as a balance between agency and communion and as a balance within agency and a balance within communion. These two contrasting models of mitigation processes were estimated in the prediction of concurrent affect, one facet of adjustment. Findings from the present investigation suggest that agency and communion are not mitigated interdimensionally through a balance between these dimensions of interpersonal behavior, but rather are mitigated intradimensionally through moderate levels of agentic and communal expression that fall between excess and deficiency.

These findings are in keeping with the Foas' (Foa & Foa, 1974) claim that the resources of status and love each have an *optimal range*; a lower limit below which the individual is starved, and an upper limit beyond which the individual is satiated. In the present investigation, extreme levels of behavior that starve or satiate the individual were expected to elicit unpleasant affect. Findings from the present investigation suggest that the lower and upper limits defining the optimal range for status resources are evident well within the range of everyday behavior along the dimension of agency, but that the upper limit of the optimal range for love resources falls outside the range of everyday behavior along the dimension of communion.

Why might there be an upper limit or satiating point in the pursuit of status resources? If granting status to the self entails denying status to others, then perhaps unmitigated strivings for status are typically seen by others as attempts to hoard these limited resources. Extreme levels of agentic behavior may then prompt others to retaliate with put-down signals (i.e., criticism) through which to contest ownership of status resources. To test this hypothesis, event-level agency scores were constructed through the procedures outlined in Chapter 2 for

the data set described in Chapter 3. A mixed linear model then tested the effects of agentic behavior upon threat appraisals. Both a significant linear effect (b = -.03), $F(1, 3589) = 13.91$, $p < .001$, and a significant curvilinear effect (b = .03), $F(1, 3588) = 46.30$, $p < .001$, were found for agency. These effects are plotted in Figure 4.1. Although moderate levels of agentic behavior evidenced little impact upon appraisals of threat, extreme levels of agentic behavior predicted sharp elevations in the extent to which threats were appraised. Such appraisals in turn prompt the individual to either escalate or de-escalate resource competition, depending upon his or her rank relationship to the competitor.

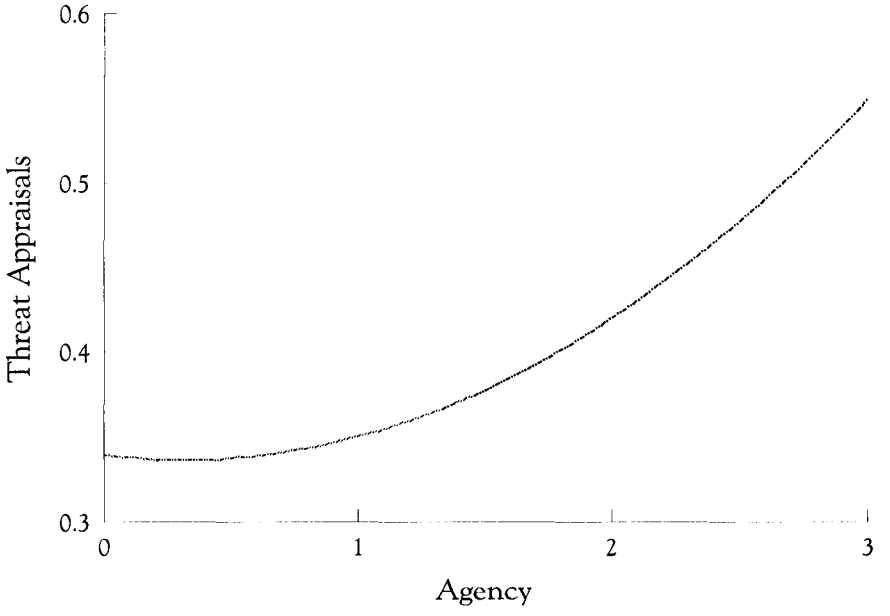

Figure 4.1. Plot representing the prediction of threat appraisals from the linear and curvilinear parameter estimates for agency.

Social Rank Strategies and Social Adaptation

In Chapter 3, social rank hypotheses were extrapolated from the evolutionary literature and then demonstrated in everyday behavior. Consistent with rank-theoretical perspectives upon social competition, individuals tended to quarrel when threatened by subordinates and to submit when threatened by superiors. Consistent with rank-theoretical perspectives upon defeat and depression, individuals who typically felt more inferior tended to quarrel more frequently with subordinates and to submit more frequently with superiors.

These findings are in keeping with the cognitive-affective system theory of personality put forward by Mischel and Shoda (e.g., 1995, 1998, 1999). They propose that intraindividual variability in personality expression across situations can be understood as a kind of *behavioral signature*, or stable *if ... then ...* situation-behavior profile. According to Mischel and Shoda, personality constitutes a complex configuration of conscious and unconscious mediating units —competencies, goals, expectancies—unique to each individual. Individuals encode the psychological features of situations, which then activate a characteristic subset of cognitions and affects; in turn, these cognitive-affective mediating processes activate plans and strategies, which then manifest as surface behavior. Across situations, individuals thus demonstrate a stable and unique profile of behavior of characteristic elevation and shape.

The stable situation-behavior profiles generated by the cognitive-affective personality system lend themselves not only to the idiographic analysis of *each* individual, but also to the nomothetic analysis of *all* individuals. The social rank strategies that individuals demonstrated in the present investigation constitute, in evolutionary terms, *if ... then ...* algorithms or decision rules regarding what tactic to utilize in a particular situation. Consequently, the escalation (i.e.,

if threatened by a subordinate, then quarrel) and de-escalation (i.e., if threatened by a superior, then submit) strategies comprising the social rank system may reflect species-typical mediating units (i.e., encoding processes) that give rise to profiles of behavior across situations that are to some extent common to all individuals. If so, then perhaps the propensities to encode the psychological features of situations in terms of social rank (dominant–subordinate) and threat (defense–safety) constitute evolved psychological adaptations characteristic of all individuals.

Directions for Future Research

As the rank system represents an evolutionary adaptation to the agentic dimension of human existence, the attachment system represents an evolutionary adaptation to the communal dimension of human existence. Researchers to date have paid considerable attention to the relational schematics of attachment (for historical reviews of the attachment literature, see Ainsworth, 1982; Ainsworth & Bowlby, 1991; Bowlby, 1982) from which subsequent rank theorizing could profit.

Bowlby's (1969, 1973, 1980) three-volume exploration of attachment, separation, and loss was intended to both describe and explain the processes through which infants become emotionally attached to their caregivers and emotionally distressed when separated from them. His theory encompasses both evolutionary and developmental perspectives upon attachment behavior.

From an evolutionary perspective, Bowlby speculated that an attachment system evolved to equip human infants with the capacity to seek the protection of their caregivers under conditions of threat and the capacity to explore the environment under conditions of

security. Infants undergo a predictable sequence of responses (protest, despair, detachment) when separated from their caregivers. When accompanied, infants utilize the caregiver as a secure base from which to explore the physical and social environment.

From a developmental perspective, Bowlby speculated that infants internalize experiences of parental support or neglect, so that early attachment histories shape later relationship expectancies. Bowlby postulated two fundamental dimensions underlying internal representations or working models of attachment: "(a) whether or not the attachment figure is judged to be the sort of person who in general responds to calls for support and protection; [and] (b) whether or not the self is judged to be the sort of person towards whom anyone, and the attachment figure in particular, is likely to respond in a helpful way" (Bowlby, 1973, p. 204). Working models are presumed to be stable across development and to constitute a central component of personality.

Infants' working models of attachment relationships are shaped in part by the accessibility and responsiveness of their caregivers. The infants of caregivers who inconsistently respond to the infant's calls often display anxiety and inhibited exploratory behavior. The infants of caregivers who consistently reject the infant's approach often display avoidance and inhibited proximity-seeking behavior. Ainsworth (Ainsworth, Blehar, Waters, & Wall, 1978) identified three distinct attachment styles through her studies of infants' responses to separation from and reunion with their caregivers in a structured laboratory procedure called the *strange situation*: (1) *securely attached* infants, who readily accept and receive the caregiver upon reunion; (2) *anxious-ambivalent* infants, who fail to find comfort in the caregiver upon reunion; and (3) *avoidant* infants, who fail to take interest in the caregiver upon reunion.

Early attachment histories are expected to have implications lasting across the life span. Hazen and Shaver (1987) were the first to conceptualize adult romantic love as an attachment process that is experienced differently by individuals as a function of their attachment histories. Through self-report survey procedures, Hazen and Shaver classified adult respondents into categories corresponding to Ainsworth's threefold taxonomy of attachment styles in infancy (secure, anxious-ambivalent, avoidant). They found that the securely attached individuals reported more positive retrospective accounts of their child-parent relationships, and more positive experiences in their adult romantic relationships.

Bartholomew and Horowitz (1991) then proposed a fourfold taxonomy of adult attachment styles. If models of the self are dichotomized as positive or negative (lovable or not) and if models of the other are dichotomized as positive or negative (trustworthy/accepting or untrustworthy/rejecting), then four prototypes of adult attachment can be conceptualized. *Secure* individuals see themselves as lovable and see others as trustworthy and accepting. *Preoccupied* individuals see others as trustworthy and accepting, but see themselves as unlovable. *Fearful* individuals see themselves as unlovable and see others as untrustworthy and rejecting. *Dismissing* individuals see others as untrustworthy and rejecting, but see themselves as lovable.

The fourfold taxonomy of attachment styles proposed by Bartholomew and Horowitz (1991) could potentially serve as a template for conceptualizing rank relationships. A tentative taxonomy of rank relationships is depicted in Figure 4.2. If models of the self and other are once more dichotomized as positive (worthy of esteem) or negative (unworthy of esteem), then four prototypes can be conceptualized for individuals in rank relationships. *Allying* individuals see themselves and others as equally worthy of esteem; in attachment terms, they feel secure.

Subordinating individuals see others as worthy of esteem, but see themselves as unworthy; in attachment terms, they are preoccupied with the other. *Rivalrous* individuals see themselves and others as equally unworthy of esteem; in attachment terms, they are fearful of the other. *Dominating* individuals see themselves as worthy of esteem, but see others as unworthy; in attachment terms, they dismiss the other.

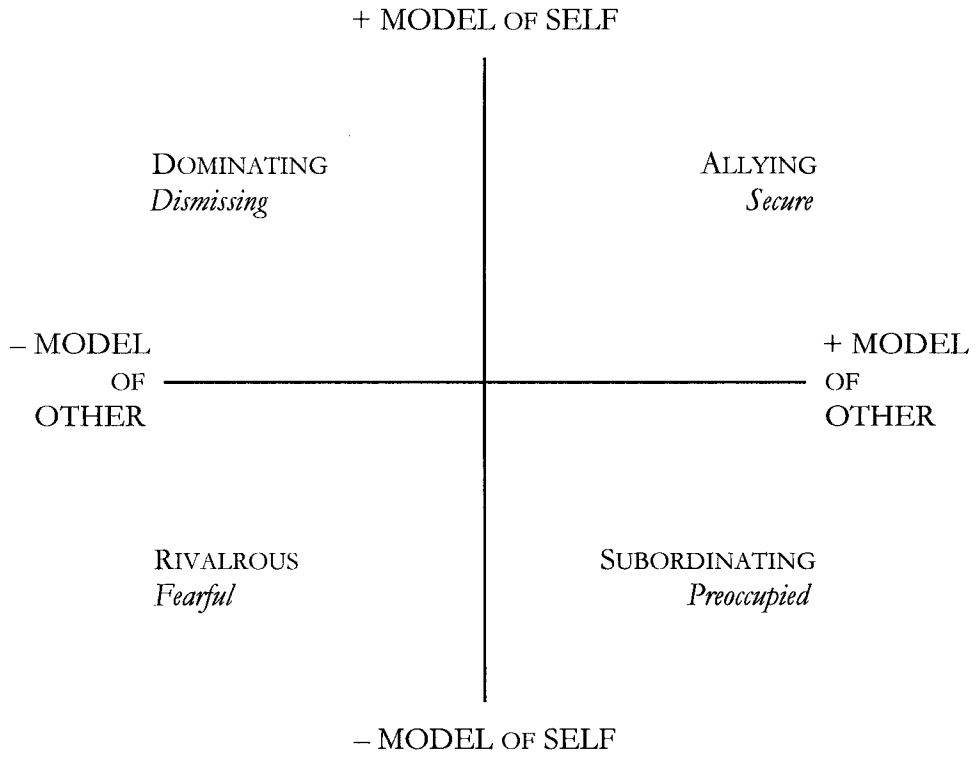

Figure 4.2. Parallel taxonomies of rank and attachment relationships.

As internal representations of attachment regulate the responses of individuals to threats of separation, internal representations of rank regulate the responses of individuals to threats of competition. As discussed previously, these response styles are expressed in the form of *if... then ...* algorithms or decision rules. The following hypotheses are tentatively suggested: if threatened, (1) *dominating* personalities will attack; (2) *subordinating* personalities will retreat; (3) *rivalrous* personalities will react with ambivalent defensive strategies, alternating between attack and retreat; and (4) *allying* personalities will react non-defensively, directing their efforts instead toward reconciliation and peace.

Threats thus constitute a central form of input into the rank and attachment systems; a threat represents an appraisal of the potential for loss, either through separation from attachment figures (i.e., abandonment) or through competition for rank standing (i.e., defeat). Subsequent research could endeavor to determine the range of situations in everyday life that constitute a threat to the social (rank) or emotional (attachment) security of the individual, and the underlying dimensions of personality that regulate the individual's appraisal of situations as potentially threatening.

Such research could profit from considering the domain of threat as a cognitive category of social situations. Historically, cognitive categories were conceptualized as well-defined entities with distinct boundaries. Category membership was defined by possession of a simple set of criterial features, such that all cases possessing the criterial attributes were considered functionally equivalent; i.e., as having a full and equal degree of category membership. However, cognitive categories have been reconceptualized over the past several decades as ill-defined entities lacking distinct boundaries (Rosch, 1975; Rosch & Mervis, 1975;

Rosch, Mervis, Gray, Johnson, & Boyes-Braem, 1976). These ill-defined entities, or *fuzzy sets*, are considered to have an internal structure organized around prototypes (exemplary cases) at the core of the category and surrounded by cases of decreasing similarity to the prototype toward the periphery of the category. Prototypes thus serve as reference points for all members of the category, such that category membership is probabilistic rather than deterministic and established on the basis of each case's family resemblance to (or proportion of overlapping features with) the prototype of the category.

The procedures outlined by Rosch and Mervis (1975) and adapted by Buss and Craik (1980) for their act frequency analyses of interpersonal behavior could then be utilized to map the topography of threatening situations. Panels of nominators could be asked to generate a range of situations that intuitively constitute a threat to the social or emotional security of the individual; for instance, situations in which the individual would feel attacked or criticized (threats to social rank) or situations in which the individual would feel abandoned or rejected (threats to attachment). Panels of judges could then be asked to rate the extent to which each situation is prototypical of the cognitive category of threat, allowing the situations to be sorted in terms of their prototypicality from core (i.e., situations that unequivocally exemplify the cognitive category of threat) to peripheral (i.e., situations that ambiguously allude to the cognitive category of threat).

Individuals could be asked to rate the extent to which they would feel threatened in each situation. Such procedures would enable researchers to explore the construct of *threat sensitivity* as the propensity to interpret social-evaluative contexts in threat-relevant terms. Two sources of evidence for threat sensitivity could be found. First, threat-sensitive individuals

could demonstrate *threshold effects* by feeling significantly more threatened by situations that are ambiguously threatening (i.e., peripheral to the cognitive category of threat); given a subset of situations that are potentially threatening, threat-sensitive individuals may react by feeling significantly more insecure than threat-resilient individuals. Second, threat-sensitive individuals could demonstrate *reactivity effects* by feeling significantly more threatened by situations that are unequivocally threatening (i.e., prototypical of the cognitive category of threat); given a subset of situations that are clearly threatening, threat-sensitive individuals may more readily interpret these situations in terms relevant to security than threat-resilient individuals. This propensity to interpret social-evaluative contexts in threat-relevant terms could constitute a common personality process underlying attachment *and* rank system functioning.

A final topic for discussion concerns the developmental sequencing of the attachment and rank systems. Attachment security in infancy predicts later indices of social competence (Waters, Wippman, & Sroufe, 1979), including observational ratings of the extent to which other children devote their attention (eye contact) to the securely attached child. Chance (1967; Chance & Larsen, 1976) has argued that the social organization of dominance among primates can be characterized in terms of its *attention structure*; i.e., the extent to each primate has the attention of other primates in the social group. Consequently, the attachment and rank systems could display the following developmental sequence: (1) attachment security enables children to explore the environment and to develop their social competencies; (2) social competence attracts attention, enabling children to attain popularity later in adolescence; (3) popularity enables adolescents to form alliances and build coalitions, through which they can further advance their standing in the social hierarchy. Future research could explore these possibilities.

Conclusion

It has been argued that agency and communion define the fundamental dimensions of human existence. From an evolutionary perspective (Buss, 1991, 1995, 1996, 1997), agency and communion define the problems to which our ancestors were historically required to adapt. From a dyadic-interactional perspective (Wiggins, 1979, 1980, 1982, 1991), agency and communion organize the domain of behavior that we, as "the end-products ... of a long and unbroken chain of ancestors" (Buss, 1996, p. 7), are presently able to demonstrate. The purpose of this research was to explore the agentic and communal dimensions underlying social adaptation and emotional adjustment. From this research, we can conclude the following: first, that the balanced expressions of agency and communion—the human propensities to pursue social dominance and preserve social bonds—contribute to the emotional adjustment of the individual; and second, that the dark aspects of agency and communion—the human propensities to quarrel and submit—are equally relevant to social adaptation, enabling the individual to resolve the inevitable and inescapable tensions between the agentic and communal dimensions of everyday life.

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Consent Form

During this study, you will be asked to do two different kinds of tasks. At the beginning and the end of the study, you will be asked to respond to some general questionnaires. You will also be given forms to complete to monitor your feelings and social interactions every day for the next 20 days. When you complete these tasks, you will be paid $100.

You will be identified only by a code number, and any information we receive from you will be kept strictly confidential. No one except the director of the project, Dr. D. S. Moskowitz, and the staff of the research project will view any of the material. Your name will not appear on any of the forms or questionnaires nor will it appear in any publication. Signing this form indicates that you have agreed to complete the questionnaires as well as the forms and that you are adequately informed about the study to do so. You will be given a copy of this form if you desire.

I have read this consent form and agree to participate with the understanding that all information I provide will remain anonymous and completely confidential. I am under no obligation to participate in any further studies, and I have the right to withdraw from this study at any time.

I, _____, have read and understood this consent form.
PRINT YOUR NAME

DATE: _____

SIGNATURE: _____

WITNESS: _____

MORNING | | AFTERNOON | | EVENING | | FORM [1] [2] [3] [4]

ID 0 1 2 3 4 5 6 7 8 9 | | | | | | | | | | DAY 0 1 2 3 4 5 6 7 8 9 | | | | | | | | | | PARTNER ID 0 1 2 3 4 5 6 7 8 9 | | | | | | | | | | DAY OF WEEK S M T W T F S | | | | | | | |

COMPLETE THIS FORM AS SOON AS POSSIBLE FOLLOWING A SOCIAL INTERACTION

Time of interaction_____a.m./p.m. Length of interaction_____ Date_____

Briefly describe the social interaction:_____

Where did the interaction occur? Fill in one of the locations below.

HOME | | WORK | | RECREATION | | OTHER | |

Who was present?

Fill in all categories that apply to the person:

M	F	INITIALS	SUPER-VISOR	CO-WORKER	SUPPORT STAFF	SUPER-VISEE	CASUAL ACQUAINT	FRIEND	ROMANTIC PARTNER	OTHER
		_____								

If more than one person was present, fill in this bracket | |

Did you do any of the following acts? Fill in the brackets beside each act you did.

1. I listened attentively to the other(s)..... | |
2. I tried to agree with the other(s)..... | |
3. I tried to get the other(s) to do something else..... | |
4. I let other(s) make plans or decisions..... | |
5. I was in charge of things..... | |
6. I confronted the other(s) about something I did not like..... | |
7. I expressed affection with words or gestures..... | |
8. I avoided conflict and disagreement with the other(s)..... | |
9. I spoke in a clear firm voice..... | |
10. I withheld useful information..... | |
11. I did not say how I felt..... | |
12. I compromised about a decision..... | |
13. I tried to be well-liked..... | |
14. I took the lead in planning/organizing a project or activity..... | |
15. I avoided taking the lead or being responsible..... | |
16. I ignored the other(s)' comments..... | |
17. I was sincere with the other(s)..... | |
18. I talked a lot..... | |

How did you feel?

	not at all 0	1	2	3	4	5	extremely much 6
1. criticized by others.....							
2. worried/anxious.....							
3. happy.....							
4. frustrated.....							
5. pleased.....							
6. angry/hostile.....							
7. emotionally close to other(s).....							
8. enjoyment/fun.....							
9. unhappy.....							
10. joyful.....							
11. depressed/blue.....							
12. inferior to other(s).....							

MORNING | | AFTERNOON | | EVENING | | FORM | 1 2 3 4 |

ID 0 1 2 3 4 5 6 7 8 9 | | | | | | | | | | DAY 0 1 2 3 4 5 6 7 8 9 | | | | | | | | | | PARTNER ID 0 1 2 3 4 5 6 7 8 9 | | | | | | | | | | DAY OF WEEK S M T W T F S | | | | | | | |

COMPLETE THIS FORM AS SOON AS POSSIBLE FOLLOWING A SOCIAL INTERACTION

Time of interaction_____a.m./p.m. Length of interaction_____ Date_____

Briefly describe the social interaction:_____

Where did the interaction occur? Fill in one of the locations below.

HOME | | WORK | | RECREATION | | OTHER | |

Who was present?

Fill in all categories that apply to the person:

M	F	INITIALS	SUPER-VISOR	CO-WORKER	SUPPORT STAFF	SUPER-VISEE	CASUAL ACQUAINT	FRIEND	ROMANTIC PARTNER	OTHER
		_____								

If more than one person was present, fill in this bracket | |

Did you do any of the following acts? Fill in the brackets beside each act you did.

1. I criticized the other(s)..... | |
2. I avoided hurting the other(s)..... | |
3. I smiled and laughed with the other(s)..... | |
4. I tried to strengthen the bond between the other and myself..... | |
5. I spoke softly..... | |
6. I gave the other(s) advice..... | |
7. I made a sarcastic comment..... | |
8. I attempted to be accepted..... | |
9. I expressed an opinion..... | |
10. I listened closely to the other(s) disclosing..... | |
11. I complimented or praised the other person..... | |
12. I did not express disagreement when I thought it..... | |
13. I gave incorrect information..... | |
14. I gave the other more than I expected to receive..... | |
15. I got immediately to the point..... | |
16. I made a concession to avoid unpleasantness..... | |
17. I was assertive and persistent about something I held important to me..... | |
18. I did not state my views..... | |

How did you feel?

	not at all 0	1	2	3	4	5	extremely much 6
1. criticized by others.....							
2. worried/anxious.....							
3. happy.....							
4. frustrated.....							
5. pleased.....							
6. angry/hostile.....							
7. emotionally close to other(s).....							
8. enjoyment/fun.....							
9. unhappy.....							
10. joyful.....							
11. depressed/blue.....							
12. inferior to other(s).....							

MORNING AFTERNOON EVENING FORM 1 2 3 4

ID 0 1 2 3 4 5 6 7 8 9 DAY 0 1 2 3 4 5 6 7 8 9 PARTNER ID 0 1 2 3 4 5 6 7 8 9 DAY OF WEEK S M T W T F S

COMPLETE THIS FORM AS SOON AS POSSIBLE FOLLOWING A SOCIAL INTERACTION

Time of interaction__________a.m./p.m. Length of interaction__________________ Date_______________

Briefly describe the social interaction:____

Where did the interaction occur? Fill in one of the locations below.

HOME | | WORK | | RECREATION | | OTHER | |

Who was present?

Fill in all categories that apply to the person:

M	F	INITIALS	SUPER-VISOR	CO-WORKER	SUPPORT STAFF	SUPER-VISEE	CASUAL ACQUAINT	FRIEND	ROMANTIC PARTNER	OTHER
| |	| |	______	| |	| |	| |	| |	| |	| |	| |	| |

If more than one person was present, fill in this bracket | |

Did you do any of the following acts? Fill in the brackets beside each act you did.

1. I waited for the other person to act or talk first.......... | |
2. I was friendly towards the other(s).......... | |
3. I stated strongly that I did not like or that I would not do something.......... | |
4. I took the other's needs into consideration.......... | |
5. I assigned someone to a task.......... | |
6. I got the other(s) to do the things that I wanted wanted them to do.......... | |
7. I exchanged pleasantries.......... | |
8. I tried to get along with the other(s).......... | |
9. I did not say what was on my mind.......... | |
10. I did not respond to the other(s)' questions or comments.......... | |
11. I helped the other(s) enjoy being in my company.......... | |
12. I made a suggestion.......... | |
13. I got the other(s) interested in my work.......... | |
14. I showed sympathy.......... | |
15. I did not say what I wanted directly.......... | |
16. I discredited what someone said.......... | |
17. I let the other know that I care.......... | |
18. I asked the other(s) to do something.......... | |
19. I spoke favorably of someone who was not present.......... | |

How did you feel?

	0 not at all	1	2	3	4	5	6 extremely much
1. criticized by others	| |	| |	| |	| |	| |	| |	| |
2. worried/anxious	| |	| |	| |	| |	| |	| |	| |
3. happy	| |	| |	| |	| |	| |	| |	| |
4. frustrated	| |	| |	| |	| |	| |	| |	| |
5. pleased	| |	| |	| |	| |	| |	| |	| |
6. angry/hostile	| |	| |	| |	| |	| |	| |	| |
7. emotionally close to other(s)	| |	| |	| |	| |	| |	| |	| |
8. enjoyment/fun	| |	| |	| |	| |	| |	| |	| |
9. unhappy	| |	| |	| |	| |	| |	| |	| |
10. joyful	| |	| |	| |	| |	| |	| |	| |
11. depressed/blue	| |	| |	| |	| |	| |	| |	| |
12. inferior to other(s)	| |	| |	| |	| |	| |	| |	| |

MORNING | | AFTERNOON | | EVENING | | FORM 1 2 3 4

ID 0 1 2 3 4 5 6 7 8 9 | | | | | | | | | | DAY 0 1 2 3 | | | | 4 5 6 7 8 9 PARTNER ID 0 1 2 3 4 5 6 7 8 9 | | | | | | | | | | DAY OF WEEK S M T W T F S | | | | | | |

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M	F	INITIALS	SUPER-VISOR	CO-WORKER	SUPPORT STAFF	SUPER-VISEE	CASUAL ACQUAINT	FRIEND	ROMANTIC PARTNER	OTHER
		_____								

If more than one person was present, fill in this bracket | |

Did you do any of the following acts? Fill in the brackets beside each act you did.

1. I showed impatience..... | |
2. I empathized with the other(s)..... | |
3. I asked for a volunteer..... | |
4. I was manipulative in negotiations..... | |
5. I went along with the other(s)..... | |
6. I raised my voice..... | |
7. I gave information..... | |
8. I tried to get along with the other(s)..... | |
9. I expressed reassurance..... | |
10. I had control over the other(s)..... | |
11. I gave in..... | |
12. I demanded that the other(s) do what I wanted..... | |
13. I behaved so that I was accepted by the other(s)..... | |
14. I set goals for the other(s) or for us..... | |
15. I pointed out where there was agreement..... | |
16. I helped the other(s)..... | |
17. I spoke only when I was spoken to..... | |

How did you feel?

	not at all 0	1	2	3	4	5	extremely much 6
1. criticized by others.....							
2. worried/anxious.....							
3. happy.....							
4. frustrated.....							
5. pleased.....							
6. angry/hostile.....							
7. emotionally close to other(s).....							
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