

THE UNIVERSITY OF CALGARY

Possible Selves, Sociotropic/Autonomous Personality and Self-Complexity: Cognitive  
Variables Influencing Illusion of Control, Depressive Realism, and Cognitive  
Distortions.

by

David J. A. Dozois

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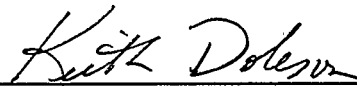
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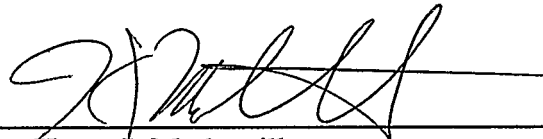
**THE UNIVERSITY OF CALGARY**  
**FACULTY OF GRADUATE STUDIES**

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled "Possible Selves, Sociotropic/Autonomous Personality and Self-Complexity: Cognitive Variables Influencing Illusion of Control, Depressive Realism, and Cognitive Distortions" submitted by David J. A. Dozois in partial fulfilment of the requirements for the degree of Master of Science.



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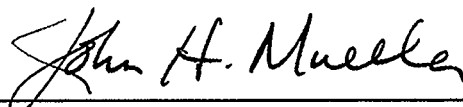
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## ABSTRACT

Self-complexity was investigated with respect to possible selves, sociotropic and autonomous personality modes, social and achievement domains, valence of content, and depression in non-, mildly- and moderately to severely-depressed university students. From 160 positive/negative and social/achievement stimuli, 15 adjectives were chosen to equally represent each domain. The resultant adjective lists demonstrated high internal consistency coefficients (range = .89 - .97) and adequate structural validity. The adjective sets were subsequently utilized in 4 card-sorting tasks. Subjects ( $n = 120$ ) completed the BDI, the SAS, and 4 card-sorting tasks pertaining to possible selves. The dependent variable was the H-statistic (a measure of cognitive complexity). No significant cognitive organizational differences were found among groups. However, significant differences were obtained across groups for both positive/negative expected self-aspects. Results obtained from this study illustrate that cognitive organizational patterns do not vary across the nondepressed to severely depressed continuum. Implications for future research are discussed.

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## **DEDICATION**

The black dogs of depression always return on silent paws. There is no way of knowing when they will come back, at what season of the year or hour of the day, or why...Nor is it possible to say how long they will prowl in those ever-tightening circles, or what the finale will be (Mays, 1993, p. 47).

This thesis is dedicated to those individuals who succumb to the black dogs of depression. May empirical pursuit in the area of unipolar depression continue to aid in our understanding of the etiology, pathogenesis, and treatment of this debilitating syndrome.

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## Introduction

Major Depressive Disorder is a multifaceted clinical syndrome characterized by myriad symptoms which include emotional, cognitive, behavioral, and somatic manifestations (Bech, 1992; Freeman, Pretzer, Fleming & Simon, 1990; Maxmen & Ward, 1995; Paykel, 1992). Emotional components of depression consist of feelings of sadness and despair, the inability to experience joy or pleasure, and tearfulness. Cognitively, depressed individuals report feelings of helplessness, hopelessness, and worthlessness. Behavioral symptoms of depression entail psychomotor retardation or agitation, passivity, weight loss or gain, and decreased sexual drive. The physical manifestations involved in depression include insomnia or hypersomnia, and decreased energy (APA, 1994; Bech, 1992; Maxmen & Ward, 1995). The heterogeneous nature of depression is clearly emphasized in the fourth edition of the Diagnostic and Statistical Manual for Mental Disorders (DSM-IV) (American Psychiatric Association [APA], 1994).

As depression is one of the most common presenting problems encountered by the mental health regime, it has frequently been referred to as the common cold of mental illness (Burns, 1980; Segal & Muran, 1993; Young, Beck, & Weinberger, 1993). The DSM-III-R stated that studies in the United States and Europe estimate the prevalence rate to be between 9% and 26% for females and between 5% and 12% for males (APA, 1987; see Gotlib, 1993; Horwath, Johnson, Klerman, & Weissman, 1992; and Kendler, Neale, Kessler, Heath, & Eaves, 1992 for roughly similar estimates).

The ratio of females to males who suffer from unipolar depression is approximately 2:1 (APA, 1994; Maxmen & Ward, 1995; Smith & Weissman, 1992).

Given the heterogeneous nature of depression, even the most cursory review of the research literature demonstrates that no one factor may be attributed to its cause (Ackermann & DeRubeis, 1993; Craig & Dobson, 1995; Kendall & Dobson, 1993; Maxmen & Ward, 1995). This present thesis, however, selects cognitive processing and organization as the main topic under investigation. After briefly reviewing Beck's cognitive model of depression, and highlighting the research literature and surrounding issues concerning the empirical status of its causal hypotheses, this introduction will detail two specific diathesis-stress factors (schema revision and personality factors) that have been purported to contribute to the onset of maladaptive information-processing. Following this exegesis, two social-cognition literatures (possible selves and self-complexity), which construe self-schemata as multifaceted and dynamic representational systems, will be emphasized. It will become evident that both theoretical models of possible selves and self-complexity may contribute importantly to our understanding of the pathogenesis and maintenance of unipolar depression.

### The Cognitive Model of Depression

Beck's cognitive theory of depression (Beck, 1963, 1964, 1983; Beck, Rush, Shaw, & Emery, 1979; Freeman et al., 1990; Young et al., 1993) is a dominant cognitive paradigm which asserts that maladaptive cognition predisposes an individual to become depressed and that it is these cognitive distortions which maintain the depressive process. Beck and his colleagues (1979) postulated the existence of two

levels of thinking in depressives: deeper structures (depressive schemata) and the ensuing cognitive products (automatic thoughts). According to this model, depressive schemata develop in early childhood and remain dormant until some untoward event triggers the latent schemata and the individual begins to encode, process, and interpret information in a negatively biased manner (Beck et al., 1979; Burns, 1980; Dykman & Abramson, 1990; Freeman et al., 1990; Kovacs & Beck, 1978).

Three principal constructs - the cognitive triad (a negative view of one's self, the future, and the world), cognitive distortions (by-products of the misperception of objective reality), and schemata (relatively enduring cognitive organizational characteristics) serve as foundations of cognitive theory and are believed to account for the development and maintenance of symptomatology in unipolar depression, (Beck, 1983; Beck et al., 1979; Kovacs & Beck, 1978; Segal, 1988; Segal & Muran, 1993).

#### The Empirical Status of the Cognitive Theory of Depression

Empirical support for Beck's cognitive model is, at present, mixed. Although research generally favours the assertion that depression is associated with an increase in negative thinking, these effects appear to last only during the depressive episode itself (Dobson & Shaw, 1987; Dohr, Rush, & Bernstein, 1989; Greenberg & Alloy, 1989; Lewinsohn, Steinmetz, Larson, & Franklin, 1981; Peselow, Robins, Block, Barouche, & Fieve, 1990; Silverman, Silverman, & Eardley, 1984; Sutton, Teasdale, & Broadbent, 1988; see Eaves & Rush, 1984 for an exception). That is, they appear to

be concomitants, rather than causes of depression (Ackermann & DeRubeis, 1993; Barnett & Gotlib, 1988; Haaga, Dyck, & Earnest, 1991).

Lewinsohn et al. (1981), for example, conducted a longitudinal study with a community sample of 998 adults. Using measures of locus and perception of control, outcome expectancies, irrational beliefs and self-esteem, these investigators found depression-related cognition to arise with the depressive episode. Those individuals who became depressed at Time 2, however, did not differ from controls on the cognitive measures at Time 1, contradicting Beck's causal claim. Moreover, depressive cognitions did not appear to last after the depressive episode. In another study, Silverman et al. (1984) used the Dysfunctional Attitude Scale to test 35 patients when they were depressed and later when they remitted. Consistent with the above study, a greater magnitude of dysfunctional thoughts were found when the patients were symptomatic, but this effect dissipated once patients improved.

In support of the cognitive model, Eaves and Rush (1984) found depressed individuals to have more dysfunctional attitudes and negative attributions than controls both when they were symptomatic and when they remitted. That this study did not measure cognitive processes prior to the time subjects became depressed, however, establishes support for maladaptive cognitions merely as sequelae of depression, and not as precursors. Similarly, Robins and Block (1988) found that dysfunctional attitudes were related to depression when there was a specific match between the idiosyncratic dysfunctional attitude and the type of stressful event experienced. Given the space limitations of this introduction, a thorough review of this intriguing literature

is not possible. Suffice it to say that the literature has generally not supported the contentions made by Beck and others, that dysfunctional attitudes predispose an individual to depression (for more complete reviews, see Barnett & Gotlib, 1988; Haaga et al., 1991; and Segal, 1988).

Despite the fact that self-report measures have been criticized as promoting tautological reasoning (e.g., there is circularity regarding whether it is mood which produces negative thinking, or maladaptive cognition which creates dysphoric mood; see Segal, 1988), studies which have measured the information processing efficiency of the schema have yielded results similar to those which have employed self-report methodology. Gotlib and Cane (1987), for instance, used a modified Stroop Task to examine the temporal relationship of depressive cognitions. Briefly, the Stroop task used in this study involved naming the colours of depressed-, neutral-, and manic-content words. The underlying assumption regarding the use of this instrument is that response latency is indicative of the amount of cognitive dissonance a word produces (see Segal & Muran, 1993 and MacLeod, 1991 for extensive reviews of this methodology). As expected, depressed individuals took longer to name the colours of the depressed-content words than those of nondepressed-content. Segal and his colleagues (Segal, 1988; Segal, Hood, Shaw, & Higgins, 1988; Segal & Muran, 1993), have criticized the Gotlib and Cane study for not first utilizing a priming methodology which leaves unanswered the possibility that their results were influenced by mood as opposed to the interconnectedness of the schema. A series of studies conducted by Segal and others (e.g., Segal et al., 1988; Segal & Vella, 1990) have incorporated

priming in their studies. The basic procedure entails a task in which subjects read the prime word (which varies in terms of its relatedness to the target), name the colour of the target and recall the prime word. The premise underlying this methodology is that, for individuals who are schematic for a particular domain, relatedness of prime and target words should interfere with information processing and result in increased latencies for colour naming because of a cognitive interference effect. Consistent with this notion, depressed individuals have been found to display longer reaction times when the prime was self-descriptive than when it was not (Segal et al., 1988).

Interestingly, Segal and his colleagues also found that the self-concepts of depressed, anxious, and nondepressed-nonanxious controls contained both positive and negative trait information. In fact, the only distinguishing feature in the depressed individuals was that they were inclined to endorse a greater number of negative adjectives as self-descriptive than other groups.

#### Depressive Realism and Nondepressed Positively-Biased Illusions

Apart from the inconsistent empirical support for depressive schemata, another issue that emerges from this literature is whether it is appropriate to label the cognitive processes and content of depressed individuals "distortions" or "biases". Indeed, some theoretical and empirical research suggests that depressives exhibit realism and that it is non-depressed persons who distort information in a self-serving fashion (Alloy & Abramson, 1979, 1988; Alloy & Ahrens, 1987; Crocker, Alloy, & Kayne, 1988; Dobson & Franche, 1989; Dykman, Horowitz, Abramson, & Usher, 1991; Lewinsohn, Mischel, Chaplin & Barton, 1980; Miller & Moretti, 1988; Taylor & Brown, 1988).

This research is also not entirely consistent, however. Whether depressive realism or cognitive distortions obtain seems to depend, in part, on the types of tasks utilized (Ackermann & DeRubeis, 1991) and the kind of predictions subjects are asked to make (Ackermann & DeRubeis, 1993). Close examination of the depressive realism literature reveals that the studies which support depressive realism have been conducted primarily with analogue samples who fall in the mildly depressed range. Conversely, studies which lend credence in the cognitive distortion hypothesis, tend to be those which have employed clinically depressed samples (Dobson & Franche, 1989; Dobson & Pusch, 1995).

#### The Self as a Dynamic Construct

The above findings afford evidence consistent with the view that schematic processing is dynamic and fluctuates as available stimuli (and one's perception of stimuli) from the environment is processed and incorporated. Congruent with this prospect, Markus and Nurius (1986) contend that the "self" is both a stable set of core representations and a set of unstable or malleable self-aspects (the working self-concept; also see Hooker, 1992; Markus, 1983; Markus & Kunda, 1986; Markus & Wurf, 1987; Nurius, 1986; Oyserman & Markus, 1990a). The methodological differences in studies investigating the depressive realism versus cognitive distortion debate also support the possibility that all three constructs of non-depressed illusions, depressive realism, and cognitive distortions may be accurately employed depending on what stage of the continuum from non-depressed to severely depressed one chooses to focus his or her empirical attention.

Research assessing the consolidation of the schema (e.g., efficiency of information processing), for instance, has quite consistently found that the schema of non-depressed individuals is positive in content and well consolidated (Dance & Kuiper, 1987; Kuiper, MacDonald, & Derry, 1983; Kuiper, Olinger, & MacDonald, 1988; Kuiper, Olinger & Swallow, 1987). The schematic processing of mildly depressed persons, on the other hand, reflects instability of the self-concept (Ross, 1989; Ross & Mueller, 1989), a tendency to endorse both positive and negative adjectives as self-referent, and poorly consolidated schemata (Dance & Kuiper, 1987; Derry & Kuiper, 1981; Kuiper et al., 1983; Kuiper et al., 1988; MacDonald, Kuiper, & Olinger, 1985; Ruehlman, West, & Pasahow, 1985; but see Pietromonaco & Markus, 1985 for an exception). In contrast to these two groups, clinically depressed individuals demonstrate strong consolidation but exhibit predominantly negative content (Dance & Kuiper, 1987; Derry & Kuiper, 1981). Aside from the fact that the Self-Referent Encoding methodology may not be the most appropriate index of efficiency of schematic processing (Ackermann & DeRubeis, 1993; Segal, 1988; Segal & Muran, 1993), the work of Kuiper and his colleagues supports the idea of alterable schematic processing.

### Potential Origins of Maladaptive Information-Processing

#### Schema Revision

If one entertains the possibility that maladaptive information processing is merely a concomitant of depression, to what causal factor(s) may researchers attribute the commencement of such processing? It is possible that one's latent schemata

influences the tolerance threshold for internal and external stimuli such that nondepressed persons who experience an untoward event which surpasses threshold begin to question the validity of their consolidated positive view of self thus leading to a state of mild depression. Consistent with this notion, Ruehlman and her colleagues (1985) document that mildly depressed individuals may be experiencing a period of *schema revision* whereby the individual is uncertain about the validity of their previous self representations (cf. Andersen, Spielman, & Bargh, 1992). Ruehlman et al. (1985) contend that rather than processing information in a manner consistent with an elaborated schema, such persons may be more active information processors and may be hypervigilant to input from the environment that validates or cultivates a new sense of self.

Several studies concur with the possibility of schema revision among the mildly depressed. Ross (1989) and Ross and Mueller (1989), for example, found that representation of self in mild depression is characterized by instability and inconsistency. In these two studies, mildly- to moderately-depressed subjects rated positive and negative trait adjectives across three occasions. Mildly depressed individuals displayed slower decision speed, lower recall, and more unstable ratings for self-descriptors relative to nondepressed persons. Using a different methodology Strohmer, Moilanen, and Barry (1988) found that mildly depressed subjects attempted to confirm either a "depression hypothesis" or an "elation hypothesis". Specifically, mildly depressed subjects exhibited a confirmatory bias (as rated by two raters) in their written feelings, thoughts, and behaviors following a hypothetical scenario which

described either a depression-related or elation-related event. In contrast, the highly depressed group demonstrated a confirmatory bias for the depressed hypothesis only. Although the finding obtained from the mildly depressed group was contrary to these researchers' expectations, it concurs with Ruehlman's notion of schema revision. That is, mildly depressed subjects may have been attempting to confirm a stable sense of self even if that meant adopting a negative self view. Indeed, several investigations have also confirmed a greater focus of attention to one's self in mild depression (Conway, Csank, & Mendelson, 1993; Dalgleish & Watts, 1990; Pyszczynski, Holt, & Greenberg, 1987; Wood, Saltzberg, & Goldsamt, 1990; see Carr, Teasdale, & Broadbent, 1991 for similar results using mood induction procedures). Such findings further support the schema revision hypothesis and highlight the dynamic nature of the self-concept.

#### Sociotropy and Autonomy as Personal Vulnerability Factors

The meaning attached to a particular event or set of events appears to be an important contributor to the commencement of the maladaptive information-processing in depression (Ackermann & DeRubeis, 1993; Dyck & Stewart, 1991; Robins & Block, 1989). As previously discussed, Beck's cognitive theory (Beck, 1963, 1983; Beck et al., 1979; Kovacs & Beck, 1978) is essentially a diathesis-stress model. Although depression "is the final common pathway of many converging variables" (Beck, 1983, p. 268), Beck has recently strengthened his diathesis-stress model by suggesting that the investigation of specific personality factors may enhance our understanding of the etiology and maintenance of depression.

Beck (1983) has argued that the two personality dimensions of sociotropy and autonomy may mediate depression. Sociotropy, or social dependence, refers to a set of invested beliefs, attitudes, and goals that emphasize positive interchange with others. An individual who is sociotropic yearns to secure and maintain interpersonal attachments and interactions. Sociotropic persons believe that social goals, such as attaining acceptance, understanding, support, guidance, and intimacy, are critical for their self-worth (Beck, 1983; Beck, Epstein, Harrison, & Emery, 1983; Clark, Beck, & Brown, 1992; Peselow, Robins, Sanfilipo, Block, & Fieve, 1992). Sociotropics also tend to fear rejection, disapproval, neglect, and other adverse interpersonal situations because of the perceived threat to their self-construal. Autonomy, or individuality, on the other hand, refers to a person's investment in increasing and maintaining a sense of independence, individuality, mobility, and achievement. Autonomous persons believe that independence and goal-attainment are important for their self-worth, and fear such threatening situations as failure, constriction of goals, and immobility.

Beck's model does not exclude the possibility that the sociotropic individual may have a need to achieve, but implies that such an individual defines achievement in terms of its social meaning (Dyck & Stewart, 1991). A sociotropic person may, for example, strive to perform well in school but does so to obtain the ultimate reward of parental approval or peer acceptance. Similarly, the autonomous person may, at times, desire social approval but usually defines it in achievement terminology. Thus, instead of representing stable and fixed personality characteristics, sociotropy and autonomy

connote dimensions or modes of interrelated self-defining goal clusters (Baron & Piexoto, 1991; Dyck & Stewart, 1991; Robins & Block, 1988).

Rather than a main effect model, in which a stressful event causes depression, Beck's interactional model contends that depressive symptoms are more likely to follow stressful life events when negative events match an individual's personal motivational vulnerability. This congruency hypothesis does not assert that the mere occurrence of a negative life stressor will invariably lead to depression; rather, that one's perceptions or appraisals of circumstances with respect to the self are critical determinants. By extrapolation, as long as an individual is meeting his or her contractual contingencies of self-worth (e.g., If I am not accepted, then I am worthless; If I do not succeed, then I am nothing; Dance & Kuiper, 1987; Derry & Kuiper, 1981) he or she will not succumb to depression.

According to the congruency hypothesis, sociotropic individuals are predicted to exhibit more depression in relation to negative interpersonal events (e.g., rejection); autonomous individuals, on the other hand, are purported to be more vulnerable to achievement related events (e.g., failure).

#### Empirical Status of the Congruency Hypothesis

The constructs of sociotropy and autonomy are not unique additions to the psychological theories of depression. Researchers from both psychodynamic and cognitive orientations have for years cited the importance of affiliative and achievement goals. Freud (1930, as cited in Warr, 1983), for example, maintained that work and love are the two most important life goals. Similarly, Arieti (1977) asserted

that the psychotically depressed individual restricts his or her ability to envision alternate approaches to living because of "a preexisting life ideology that may include living for a dominant other or a dominant goal" (p. 864). Theoretically strong parallels between sociotropy/autonomy and dependency/self-criticism also exist in research conducted with the Dysfunctional Attitude Scale (DAS; Segal, Shaw, & Vella, 1989; Segal, Shaw, Vella, & Katz, 1992; Zuroff, Igreja, & Mongrain, 1990) and the Depressive Experiences Questionnaire (DEQ; Blaney & Kutcher, 1991; Blatt, D'Afflitti, & Quinlan, 1976; Blatt, Quinlan, Chevron, McDonald, & Zuroff, 1982; Zuroff & Mongrain, 1987).

Unfortunately, accurate comparisons of findings across studies are precluded somewhat because of a plethora of conceptual and methodological differences which include different personality constructs (i.e., dependency/self-criticism vs. sociotropy/autonomy), measurement instruments (i.e., the DAS, the DEQ, and the Sociotropy-Autonomy Scale [SAS]), sample selections (e.g., analogue vs. clinical) and research methodologies (e.g., sample sizes, cross-sectional vs. longitudinal designs, classification criteria for the respective personality domains, inclusion and exclusion criteria, and outcome criteria [e.g., depression level, relapse]). Notwithstanding these difficulties, the research has generally supported the "congruency hypothesis" for sociotropic individuals but inconsistent findings emerge with the autonomy construct (Clark et al., 1992; Hammen, Ellicott, & Gitlin, 1989; Hammen, Ellicott, Gitlin, & Jamison, 1989; Mongrain & Zuroff, 1989; Robins & Block, 1988; Robins, Block, & Peselow, 1989).

Some evidence exists in support of the contention that sociotropy and autonomy are salient factors associated with the onset and maintenance of depression. Robins (1990), for example, demonstrated that depressed patients who were classified as highly sociotropic reported a greater number of negative social events while highly autonomous depressed patients reported more negative achievement-autonomy related events. In a nonclinical sample of 136 adolescents, Baron and Piexoto (1991) divided subjects into high and low groups on the basis of median splits on the subscales of the Sociotropy-Autonomy Scale and found that individuals who scored high on sociotropy displayed more depressive symptomatology (Beck Depression Inventory) than individuals low on sociotropy. A significant gender by high-low autonomy interaction also emerged, which indicated that highly autonomous female subjects scored higher on the BDI than similar autonomy-scoring male subjects. Baron and Piexoto (1991), however, suggest that the latter finding may be due to a sex-role incongruity effect rather than the role of autonomy per se. Although supporting the idea that sociotropy and autonomy may both be related to depression, albeit in different ways, this study provides no evidence to support or refute the congruency hypothesis because the authors did not attempt to examine life events or stressors in relation to gender and the SAS.

Robins and Block (1988) examined the hypothesized interactions between negative events that specifically matched one's personal motivational vulnerability. Using the Life Events Inventory with a sample of 98 undergraduates, Robins and Block classified life events into 4 a priori categories (i.e., positive/negative social,

positive/negative achievement). Consistent with Beck's theory, a significant main effect was found for the relation between sociotropy and depression which was qualified by a significant interaction between sociotropy and negative social events. An unexpected interaction also existed between sociotropy and autonomy-related events. Contrary to the congruency hypothesis, the autonomy construct was unrelated to depression.

Clark and his colleagues (1992) also used a retrospective self-report methodology to test the diathesis-stress model in a sample of dysphoric ( $n = 64$ ) and nondysphoric ( $n = 64$ ) undergraduate subjects. These researchers assessed subjects' perceptions of sociotropic and autonomous life events over the past 6 months. Hierarchical regression analyses indicated that the sociotropy by negative social events interaction accounted for 19% of the variance in the dependent variable of depression even after statistically controlling for main effects. No significant main effects or interactions were obtained with the autonomy construct in the prediction of dysphoria. Despite the methodological limitations of this study (e.g., the cross-sectional nature of the design, reliance on a student sample, and retrospective assessment which is subject to recall biases) these results support the congruency hypothesis for the sociotropy, but not autonomy personality mode.

Another cross-sectional study was undertaken by Reynolds and Gilbert (1989) to test the predicted mediational role of personality factors between negative life events and depression. In contrast to the above studies which measured life events via self-report, the adverse ramifications of unemployment were used in this study because

loss of work potentially triggers different sources of stress for both sociotropic and autonomous individuals (e.g., loss of a social support network and the disruption in achievement goals, respectively). Fifty unemployed men completed the BDI, the SAS, and 2 measures which assessed social support and activity level. Results indicated that, for individuals high in autonomy, low activity level was related to higher BDI scores. Low social support, on the other hand, was associated with higher BDI scores regardless of whether subjects were high or low for sociotropy. Interestingly, depression level was also related to "nonmatching" interactions. That is, autonomous persons who experienced high social support also reported more depressive symptoms relative to those who received low social support. Likewise, sociotropics who were highly active reported higher depression severity compared to the low-activity group. The Reynolds and Gilbert (1989) study indicates that social support may be a general protective factor mediating depression.

Consistent with the notion regarding the importance of social factors in depression is empirical data demonstrating that the highest risks for relapse for both goal-oriented and socially-oriented individuals, involved interpersonal experiences (Zuroff et al., 1990). However, the benefit of support seems to be restricted to certain types of individuals. People who were "counter-schematic" for social goals in this study (i.e., highly autonomous individuals) actually found support from others to produce austere effects. Given that the sample consisted entirely of males, however, limits the generalizability of these findings.

In addition to the equivocal findings from studies which have employed the SAS, other cross-sectional research has tested the congruency hypothesis utilizing alternate measures of social and achievement orientation (Blatt et al., 1982; Hewitt & Flett, 1993; Zuroff & Mongrain, 1987). Although the degree of convergent validity among the constructs assessed is dubious (especially with regard to autonomy and self-criticism; see Blaney & Kutcher, 1991 and Rude & Burnham, 1993) such studies have yielded a similarly complex picture of results. To illustrate, Zuroff and Mongrain (1987) found evidence for a congruency effect in an experiment in which dependent and self-critical subjects were exposed to an imagery task prompted by a script of a rejection or failure episode. Dependent subjects became dysphoric more frequently after imagining a social rejection scene than after a failure episode, but self-critical subjects reported more dysphoria following both stimuli. However, this investigation used the episode of a boyfriend breaking off a relationship for the rejection condition and a father imparting news of a failure experience in the failure condition. The use of socially relevant cues in both conditions confounds the results in this study.

To summarize, the cross-sectional research currently provides few clear answers pertaining to the role of personality in depression. It appears that sociotropy plays a significant role in depression both as a main effect and in conjunction with negative social events. The autonomy construct, however, materializes as a more elusive construct appearing to be important in some studies (Reynolds & Gilbert, 1989; Robins, 1990) but not in others (Clark et al., 1992; Robins & Block, 1988). Several methodological limitations are apparent in these studies (e.g., small sample

sizes, self-report methodology, cross-sectional designs). Perhaps the most notable limitation is the cross-sectional nature of the extant empirical research. Employing a cohort at only one point in time restricts a particular design to correlational research thus providing little in the way of causal information.

Fortuitously, several longitudinal studies have also examined the clinical and conceptual validity of the congruency hypothesis (Hammen, Ellicott, & Gitlin, 1989; Hammen, Ellicott, Gitlin, & Jamison, 1989; Segal et al., 1989; Segal et al., 1992; Zuroff et al., 1990). Hammen, Ellicott, Gitlin and Jamison (1989) classified 22 unipolar and 25 bipolar patients as sociotropic or autonomous and determined the frequency of negative interpersonal and achievement events using narrative reports. Results favoured the congruency hypothesis for both sociotropy and autonomy for unipolar but not bipolar patients. Six out of 20 unipolar patients experienced an onset or exacerbation of symptoms and, of these, 5 had experienced more events that matched their personality vulnerability. Moreover, exploratory analysis indicated that autonomous patients displayed this effect most strongly. The small number of subjects tested, however, presents a strong caveat to the reliability of these findings. Further, the authors concluded that the 6 month follow-up may not have been sufficient length of time to find positive results for the bipolar group.

In a subsequent study, Hammen and her colleagues (1992) used 18 months as the time-frame for investigation with bipolar patients and found that onset of symptomatology was not related to a larger proportion of congruent stressors. On the other hand, when symptom severity was examined, the interaction between sociotropy

and interpersonal events revealed a strong association with severity. No support was found with autonomy and autonomous/achievement related events. Bipolar patients obviously represent a population distinct from unipolar patients with respect to etiology and symptom presentation (APA, 1994) and, although firm conclusions may not be drawn from this study, its results add to the list of studies that demonstrate scant support for the predictive utility of the autonomy construct.

In contrast to the previously cited longitudinal data, a 2-year follow-up study found the opposite. In a clinical sample of unipolar patients, worst symptom periods were related to a preponderance of schema congruent life stress; but for individuals who experienced an onset following remission, symptom severity was predicted by an interaction between autonomy and achievement events but not for sociotropy and its theorized congruent events (Hammen, Ellicott, and Gitlin, 1989).

It is possible that Beck's conceptual framework, which postulates that sociotropy is related to a theme of deprivation while autonomy is related to a theme of defeat is relevant in this case. The longer follow-up period may be more important when assessing subjects who are highly autonomous because it may take longer for events to accumulate that lead to a sense of defeat than events which induce a sense of deprivation. Congruent with this possibility are several studies which suggest that symptom presentation may differ between individuals who exhibit predominantly sociotropic or autonomous traits (Peselow et al., 1992; Robins, Block, & Peselow, 1989; Robins, Hayes, Block, Kramer, & Villena, 1995; Robins & Luten, 1991; Zettle, Haflich, & Reynolds, 1992). For the purpose of this thesis, these studies have greater

pertinence to the literature on self-complexity and will, therefore, be discussed in that later section.

Before concluding this review of the literature concerning interpersonal and autonomy/achievement values, as well as their relation to the depressive process, it is important to critically examine the prospective work that has investigated these concepts using the DAS and the DEQ. Segal and his colleagues (1989) followed 10 dependent and 16 self-critical subjects for a period of 6 months. The primary goal of this study was to test the congruency hypothesis as it related to level of depression and relapse. Consistent with many of the cross-sectional and longitudinal studies reviewed, a congruency effect was obtained for dependent subjects only on self-reported levels of depression (BDI) and relapse. Subjects in the self-critical group displayed a nonspecific risk by relapsing regardless of the type (interpersonal or achievement) of event.

Inconsistent findings also emerged in a subsequent study carried out by Segal and his associates (1992). In this study, 59 remitted depressed subjects were assessed at 6 intervals (each 2 months apart) to determine whether personality vulnerability (i.e., dependency or self-criticism) contributed to relapse when coupled with matching life events. The results supported the congruency hypothesis primarily for self-critical subjects. Self-critical individuals relapsed more frequently after they were confronted with achievement related events than after interpersonal events. When Segal et al. (1992) restricted their data analysis to 2 months prior to relapse, some evidence of a congruency effect was obtained for sociotropic individuals. The authors suggested that

there is considerable variability in the validation of the congruency hypothesis not merely across studies but within their study itself. Segal et al. (1992) concluded that the psychometric properties of the DAS may not be adequate enough to deal with the complexity in this area.

As might be surmised from this review of both the cross-sectional and longitudinal research on sociotropy (or dependency) and autonomy (or self-criticism), few consistencies emerge. While the sociotropy construct generally predicts depression in the event of interpersonal stress, the predictive validity of autonomy is not as robust and appears to depend on the nature of the sample (e.g., clinical or analogue) and the operational definition of the dependent variable (e.g., relapse, severity, or onset). Given the results which have procured to date, there is mixed support for Beck's formulation of the congruency hypothesis. It remains to be determined whether the supportive results for the autonomy/achievement orientation stem from the use of self-criticism or perfectionism (Persons, Burns, Perloff, & Miranda, 1993) instead of autonomy or are due to the prediction of relapse instead of initial onset. Several researchers suggest that the autonomy construct may need to be revised to incorporate more of the pathogenic features (e.g., themes of failure, perfectionism, and self-criticism) of depression (Blaney & Kutcher, 1991; Cappeliez, 1993; Clark et al., 1992; Peselow et al., 1992; Robins et al., 1989).

Blaney and Kutcher (1991), for instance, found that while the dependency measures are congruent across instruments (i.e., with the DAS, DEQ, and SAS), the SAS-autonomy scale stands in contrast to the theoretically parallel constructs as

assessed via the DAS and the DEQ (exhibiting correlations of  $-.29$  and  $.21$ , respectively). Moreover, the research on sociotropy and autonomy suggests that autonomy may in fact serve as a buffer of depression rather than a vulnerability factor (Robins et al., 1989; Segal et al., 1992; Zuroff et al., 1990; Zuroff & Mongrain, 1987). Although this point will be elaborated upon in subsequent sections, the contentious issue of whether or not autonomy operates as a resilience factor is important to address. If autonomy is a protective factor, then closely examining how autonomous individuals organize information with respect to the self may assist researchers and clinicians by helping to determine how to prevent and/or ameliorate depression.

#### Limitations of the Cognitive Model

There are generally two broad approaches to research in the area of self-conceptualization. One approach views self-representation in a unitary manner and highlights the specific self-relevant aspects of self that become more accessible or available at different times; another epistemological stance perceives self-conceptualization as a dynamic and multifaceted system. The underlying philosophy of this present study adopts the latter approach.

The primary foci of the contemporary cognitive models of depression has been on the self as a singular entity which contains depressive schemata (Markus, 1990; Markus & Kunda, 1986; Markus & Wurf, 1987; Nurius, 1986). The cognitive model also asserts that depressives are characteristically negative in their information-processing about self despite evidence which suggests that schematic processing varies both situationally and temporally (Dykman & Abramson, 1990; Dykman, Abramson,

Alloy, & Hartlage, 1989; Markus, 1990).<sup>1</sup> Theoretical and empirical emphasis has also been placed upon past and current schemata despite evidence which suggests that individuals think about their future selves a large proportion of the time (Markus & Nurius, 1986). Rather than viewing the self as a monolithic concept in which depressives' cognition is relatively stable and characteristically negative (see Cantor, Markus, Niedenthal, & Nurius, 1986; Dykman & Abramson, 1990; Dykman, Abramson, Alloy, & Hartlage, 1989; Halberstadt, Niedenthal, & Setterlund, in press; Markus, 1990 and Safran, Segal, Hill, & Whiffen, 1990 for discussions surrounding the limitations of this conceptualization), greater understanding of depression may obtain if one views and tests the self-system as composed of several different aspects. Although Beck's (1983) concepts of sociotropy and autonomy were important attempts to demonstrate that vulnerability to depression may be better accounted for by a match between an event and the importance of that event to an individual's needs and goals, his theory does not explicitly state that the self has several components. Moreover, few attempts have been made to examine the schematic structure within these domains.

The social-cognition literatures related to possible selves and self-complexity perceive the self as multifaceted (Cantor et al., 1986; Halberstadt et al., in press; Harter, 1990; Hooker, 1992; Linville, 1982a, 1985, 1987; Markus, 1983; Markus & Kunda, 1986; Markus & Nurius, 1986; Markus & Ruvalo, 1989; Markus & Wurf, 1987; Nurius, 1986, 1989; Oyserman & Markus, 1990a, 1990b; Ryff, 1991; Schouten,

1991). In the next section each of the literatures will be briefly reviewed, and its implications for the study of depression will be elaborated.

### Possible Selves

Possible selves refer to an individual's hopes, dreams, and fantasies as well as his/her feared possibilities that he/she wishes to avoid. Much like the schema construct (Markus, 1977), possible selves consist of nodes that code information about the self and lend structure and coherence to one's experiences. Possible selves are represented in what Markus and Nurius (1986) coin "the working self-concept" (also see Markus & Wurf, 1987). Each individual has both positive and negative possible selves (future schemata) that become accessible when a stimulus from the environment is relevant to the individual.

Although possible selves are both created and constricted by what is possible in the environment, they are neither immediately confirmed nor disconfirmed by reality. In this sense, the construct of possible selves potentially lends insight to the findings that non-depressed individuals tend to bias information in a self-serving manner. Possible selves also help to account for the "cognitive distortions" in depression. According to the model, negative possible selves may dominate the working self-concept and become what Higgins, King, and Mavin (1982) term "chronically accessible". Comparable to Beck's model, the extent to which people create and maintain possible selves is dependent upon the degree to which possible selves are important and elaborated upon.

Research on possible selves has largely been conducted in the domains of social cognition and motivation. For instance, studies have either focused on the changes of possible selves across the life span (Hooker, 1992; Ryff, 1991), assessing the balance between hoped-for and feared possible selves in delinquency (Oyserman & Markus, 1990a, 1990b), or evaluating the motivational utility of this construct (Cantor et al., 1986; Delmore & Bloom, 1994; Schouten, 1991).

### Self-Complexity

One factor that may influence which possible selves are self-defining is Linville's (1982a, 1982b, 1985, 1987) notion of self-complexity (see Ashworth, Blackburn, & McPherson, 1985; Emmons & King, 1989 and Showers, 1992 for similar conceptualizations). Congruent with the theoretical assumptions of Markus and Nurius (1986), Linville's model also assumes that the self has multiple aspects. Linville (1987) proposed that people's self-aspects vary according to their cognitive complexity. Complexity is a concept that carries connotations similar to schematic organization or structure (see Segal, 1988 for an excellent review of structural organization). In particular, complexity may be defined as knowledge structures which guide information-processing about the self (Linville 1982a).

Linville (1982a) argued that complexity may be conceptualized in a number of comparable ways (e.g., multidimensional spatial representations, hierarchical structures, semantic networks, etc.). Consistent with Linville's (1982a, 1985; Linville & Jones, 1980) assumptions, the present model treats complexity as a domain specific variable. That is, the complexity pertaining to a certain domain (e.g., interpersonal or

achievement orientations) influences the evaluation of stimuli (e.g., positive/negative social/achievement stimuli) most powerfully from that domain.

Individuals who are high in self-complexity have several independent (i.e., nonredundant) self-aspects, while those low in complexity are characterized by a set of highly integrated (i.e., consolidated) self-aspects. Due to the relational properties of the self-aspects of those low in complexity, these individuals are prone to react to evaluative feedback or stress with greater intensity of affect.

Linville (1982a, 1985, 1987) introduced the concept of "spill over" to account for the process by which positive or negative affect propagates throughout the self-system of individuals who are low in complexity. The spill-over conceptualization is analogous to Bower's (1981) spread of affectivity model (also see Segal, 1988 and Segal et al., 1988), and relates to the findings from consolidation research (Dance & Kuiper, 1987; Kuiper & Derry, 1981; Kuiper, Olinger & Swallow, 1987; MacDonald, Kuiper, & Olinger, 1985; Rogers, 1981; Ruehlman et al., 1985). The assumption is that individuals who have many independent self-aspects are less likely to experience adverse reactions to stress because spill-over is constricted to only a limited number of nodes and, therefore, does not colour the individual's entire self-representation.

Linville (1985) conducted two experiments to test the self-complexity affective extremity hypothesis. This hypothesis basically states that individuals lower in complexity will encounter greater swings in affect and self-appraisal relative to those higher in complexity. In the first experiment, 59 undergraduates completed measures of mood (14 affect items from the Nowlis Mood Adjective Checklist), a card-sorting

task (to assess complexity), and an analytic task ostensibly related to intelligence. Subjects subsequently received a bogus debriefing sheet with normative information which placed them either in the top 10% or the bottom 10% for their performance. Following the bogus debriefing, an artificial error message appeared on the computer screen and the experimenter told subjects that she had lost the initial mood data which would regrettably have to be completed again. Subjects lower in self-complexity experienced significantly greater mood oscillation following feedback in either the success or failure condition. This finding lends support to Linville's (1982a) complexity-extremity hypothesis which specifically states that the "less complex a person's representation of a given domain, the more extreme [in either direction - either more positive or more negative - depending on the favorability of the stimulus] will be the person's affect regarding stimuli in that domain" (p. 83).

Thirty-one subjects were recruited in the second experiment (Linville, 1985, Experiment 2) to test the influence of self-complexity on mood variability over a 14-day period. Subjects performed the self-complexity measure and mailed their completed Nowlis Mood Adjective Checklist ratings to the experimenter each day. Although there was no significant relationship between complexity and overall affect, subjects with lower complexity demonstrated more variability of affect. Linville (1985) concluded that the affective extremity hypothesis was supported, but noted that her model makes no prediction of whether complexity of self representation is generally associated with high or low affect.

Consistent with her 1985 conclusions, Linville (1987) stated that self-complexity may not be directly related to depression (see Miller, Omens, & Delvadia, 1991 for congruent findings); instead, complexity may serve as a buffer of stress and thereby operate as a mediator in depression. To examine this assumption, Linville (1987) had 106 subjects complete measures of stressful life events (the College Life Events Scale), an activities list, the Center for Epidemiological Studies Depression Scale (CES-D), a list of physical illnesses, and a measure of perceived stress (the Perceived Stress Scale) in two sessions (2 weeks apart). Multiple regression analyses supported the hypotheses. Compared to subjects low in complexity, subjects high in complexity were less prone to depression, stress, physical symptomatology, and illness following high levels of stressful events.

An intriguing study that converged the possible selves literature (Hooker, 1992; Markus & Kunda, 1986; Markus & Nurius, 1986; Markus & Wurf, 1987; Oyserman & Markus, 1990b) with the findings from the self-complexity model (Campbell, Chew, & Scratchley, 1991; Dixon & Baumeister, 1991; Hershberger, 1990; Kreitler & Singer, 1991; Linville, 1982a, 1985, 1987; MacDonald & Williams, 1991), was conducted by Niedenthal, Setterlund, and Wherry (1992). These researchers examined possible self-complexity to ascertain whether the organization of individuals' possible self-complexity differentially mediated between their response to feedback regarding their future goals (relative to current goals) and whether actual self-complexity influenced one's reactions to input pertaining to one's current goals (relative to his/her future goal orientation). Three studies were conducted. The first study replicated Linville's

(1987) findings using 101 undergraduates; the remaining studies extended Linville's work to include possible self-complexity. The latter investigations demonstrated a significant complexity by tense of self interaction. While subjects high in self-complexity were less influenced by success or failure related to current goals, complexity of possible selves did not serve as a mediator of feedback in the regression analyses. When subjects received evaluative feedback about their future goals (Experiments 2 & 3), however, a buffering effect was found for possible self-complexity but not for complexity of current selves.

Although research generally supports the contention that self-complexity serves as a buffer of stress but that it is not directly related to depression (Linville, 1987; Macleod & Williams, 1991; Miller et al., 1991; Niedenthal et al., 1992), the complexity measures that have been utilized have collapsed complexity across both positive and negative valence. Given that the research has generally concentrated on overall self-representational complexity, it is not surprising to find that the interaction of self-complexity by stress would produce a mediating effect but not directly influence depression. If high overall self-complexity buffers the impact of stress, this organization would limit the spill-over of both positive and negative content. However, a well consolidated positive view of the self (low positive complexity) would also not be apparent. The possibility that depressed individuals may display high complexity for positive self-aspects, coupled with the consolidation research, indicating that nondepressed and depressed persons exhibit high consolidation but for oppositely valenced content while mildly depressed persons display poor consolidation

for both positive and negative content, suggests that both positive and negative schematic organization are important to assess within the same research design.<sup>2</sup>

It is possible that resilience to stress and depression is a function of both highly integrated (low complexity) positive self-aspects and independently organized (high complexity) negative self-aspects. Having a positive and well-consolidated view of self in areas of deemed importance may be influential in maintaining high self-esteem by affording greater opportunity for the recruitment of positive aspects into the working self-concept. Also salient may be the operation of independent self-aspects such that one's failure or rejection experiences do not "spill over" into the entire self-representation but remain, instead, as "pockets of incompetence" (Taylor & Brown, 1988, p. 203; also see Roth, Snyder, & Paccè, 1986; Taylor, 1983).<sup>3</sup>

In sum, the literature reviewed suggests that vulnerability to depression may be a function of what an individual perceives as within the realm of possibility (possible selves), the importance or self-relevance of external stimuli, and the complexity with which these positive and negative self-aspects are organized and integrated in self-representation. Thus, assessing possible selves and self-complexity, in positive and negative content domains separately, may enhance our understanding of the vulnerability factors in depression. Before discussing the main hypotheses of this present study, it is critical to present some evidence which alludes to the possibility that the personality factors of sociotropy and autonomy may be inextricably related to self-complexity.

### Self-Complexity and Sociotropy/Autonomy

The research on sociotropy and autonomy, which suggests that autonomy may be a buffer of depression rather than a vulnerability factor (Segal et al., 1992; Zuroff et al., 1990; Zuroff & Mongrain, 1987), and that sociotropy is related to non-endogenous (reactive) depression while autonomy relates more to endogenous depression (Robins et al., 1989; Robins et al., 1995; Robins & Luten, 1991) implies that these personality dimensions may be organized quite differently, which may account for the differential reactions to stress.

As previously noted, several studies have attempted to evaluate the utility of the schema construct by assessing efficiency of information processing and accessibility of schema-relevant content (Dance & Kuiper, 1987; Dykman et al., 1989; Eaves & Rush, 1984; Gotlib & Cane, 1987; Kuiper et al., 1987; MacDonald et al., 1985; Ross & Mueller, 1989; Segal, 1988; Segal et al., 1988; Segal & Vella, 1990). Inferences are then made, on the basis of empirical data (e.g., response latency, recall, recognition), that the schema is a well-organized structure which influences cognitive activity such as encoding, retrieval, and interpretation (see Segal, 1988 for an elaborate review).

Numerous authors have recently discussed the necessity for research endeavors to move beyond the examination of the information-processing capabilities of self-schematic structure, toward understanding its organizational properties (Ackermann & DeRubeis, 1993; Barnett & Gotlib, 1988; Dobson & Kendall, 1993; Dyck & Stewart, 1991; Segal, 1988; Segal & Muran, 1993; Zuroff, 1992). In a contemporary

deliberation of the future of theory and research in the area of cognition and psychopathology, for example, Dobson and Kendall (1993) reviewed the inherent limitations of self-report methodologies for measuring cognitive schemata and its operations and products. These authors asserted that "there appears to be emerging the recognition of the importance of examining the structural principles around which other cognitive processes and products may be organized" (Dobson & Kendall, 1993, p. 477).

The theoretical and empirical evidence, which points to the likelihood that cognitive schemata (e.g., self-aspects) may be organized differently across the continuum from a nondepressed to a more severely-depressed state, was already highlighted and will, therefore, not be reiterated. In addition to variant cognitive organizational differences across the continuum of symptom severity, however, it is also probable that the clustering or interconnectedness among cognitive operations differs by content domain. That is, the organization of social and achievement self-aspects may be distinctive. Thus, the associated emotional processes may also differ contingent upon whether or not an individual is schematic for that particular domain.

Data indicate that schema-consistent information is processed more rapidly and efficiently, and is more hierarchically organized, than schema-irrelevant stimuli (Clifford & Hemsley, 1987; Haaga et al., 1991; Kuiper & Derry, 1981; Kuiper & Rogers, 1979; Linville, 1982a; Markus, 1977, 1983; Markus, Hamill, & Sentis, 1987; Markus & Smith, 1981; Markus & Wurf, 1987; Rogers, 1981; Rogers, Kuiper, & Rogers, 1979; Rogers, Rogers, & Kuiper, 1979; Ruehlman et al., 1985; Strauman &

Higgins, 1993). For example, persons who are schematic for particular domains, respond more consistently, make decisions more easily, demonstrate facilitated recall and recognition for schema-consistent stimuli, tend to resist schema-inconsistent information, and process novel stimuli according to its relevance to the existing self-schema(s) (Linville, 1982a; Markus & Wurf, 1987; Strauman & Higgins, 1993). By extrapolation, sociotropic individuals would be expected to attend to and process social adjectives more quickly than autonomous words. In contrast, autonomous persons would be expected to exhibit more efficient information-processing for achievement/independence words than social adjectives. Thus, within a cognitive-organizational framework (e.g., self-complexity), one would anticipate schema-relevant material to be well-organized or demonstrate low complexity.<sup>4</sup>

The empirical research which suggests that autonomy may serve as a protective factor in depression (Segal et al., 1992; Zuroff et al., 1990; Zuroff & Mongrain, 1987), and that sociotropy and autonomy relate to distinct symptom patterns (Robins et al., 1989; Robins et al., 1995; Robins & Luten, 1991), implies that individuals with these personality dimensions may organize their self-aspects quite differently. A brief review of the theoretical and empirical data which lends support to this idea is considered next.

One line of research suggests that rather than operating as a vulnerability factor for depression, the autonomous personality mode may serve as a buffer of depression (Cappeliez, 1993; Gilbert & Reynolds, 1990; Segal et al., 1992; Zuroff & Mongrain, 1987). Segal and his associates (1992), for instance, prospectively examined 59

remitted depressed individuals at two month intervals over a period of one year.

These researchers found that for the entire 1-year period, the interaction between self-criticism (e.g., autonomy) and achievement-related adversity accounted for a significantly greater proportion of variance in the prediction of relapse than each variable entered singly. However, congruency effects for dependency were obtained only for the data analyzed from the time period of 2 months prior to relapse. Segal et al. (1992) concluded that:

Achievement and interpersonal events, although treated in a monolithic fashion in this study, may in fact vary along a number of dimensions in their impact on the patient. One of these dimensions may be temporal (for others see Elliot & Eisdorfer, 1982) in the sense that interpersonal events are experienced as having more immediate impact whereas achievement events are experienced as more insidious and cumulative in their effects (Segal et al., 1992, p. 33; Emphasis added).

These authors go on to suggest that "interpersonal events may be more capable of precipitating a relapse in the time closest to their occurrence, whereas achievement events may have some power to do so but their effects are primarily additive" (p. 33).

Another 1-year longitudinal study found that the majority of both dependent and self-critical individuals' most debilitating periods involved interpersonal events (Zuroff et al., 1990). No evidence, however, verified the notion that self-criticism yields a greater number of stressors than dependency. Zuroff and his associates (1990) mentioned that it "is possible that potentially depressing failure experiences occur

relatively infrequently, and that self-critics' characteristic vulnerabilities would emerge over a longer period of study" (p. 323). In an earlier study, Zuroff and Mongrain (1987) found that a high level of introjective state depression (which is thought to be associated with self-criticism or autonomy) was reported by dependent subjects. One explanation these authors provided was that it may be easier to consider an event introjectively than anacritically (anacritic depression is "characterized by feelings of helplessness, and weakness, fears of being abandoned, and by wishes to be cared for, loved, and protected"; Blatt et al., 1976, p. 383). For example, it may be possible to interpret a larger number of separate events as indicative of one's inadequacies but only a smaller set as loss or rejection.

Finally, two psychometric evaluations of the SAS are also congruent with the idea that autonomy may operate, at least initially, as a buffer of depression. Cappeliez (1993) reported that while sociotropy was positively related to neuroticism and negatively associated with openness to experience (as assessed by the NEO-Personality Inventory), autonomy was positively related to conscientiousness (a tendency toward placing high value on achievement and toward being determined and strong-willed). Utilizing a different instrument for comparison, Gilbert and Reynolds (1990) also found that sociotropy was significantly associated with neuroticism on the Eysenck Personality Scale. Factors 1 (individualistic/autonomous action) and 2 (mobility/freedom from control) of the autonomy scale were marginally but significantly related to extraversion although the total autonomy scale was not. As might be hypothesized from this indirect evidence, it is possible that sociotropics exhibit a high integration of

self-aspects while autonomous individuals organize self in more independently clustered nodes.

One caveat must be noted: namely that the mixed results for the autonomy construct have lead some researchers to recommend that the SAS be revised to improve the contribution of the autonomy scale to the prediction of depression (Clark & Beck, 1991; Persons, Burns, Perloff, & Miranda, 1993; Peselow et al., 1992; Robins & Block, 1988; Robins et al., 1989; Robins & Luten, 1991). Psychometric evaluations have, for example, indicated that while the concurrent validity of the SAS-Sociotropy scale is high (e.g., sociotropy has correlated significantly with other measures of interpersonal dependency; see Blaney & Kutcher, 1991 and Clark & Beck, 1991), support for the concurrent validity of the Autonomy scale is equivocal. Although Autonomy on the SAS correlates significantly with the autonomy constructs of the Personality Research Form (PRF) and the Interpersonal Depression Inventory (IDI), as well as the Self-Criticism scale of the Depressive Experiences Questionnaire (DEQ) (Clark & Beck, 1991), some investigators (e.g., Blaney & Kutcher, 1991) have argued that Autonomy on the SAS appears to assess the absence of dependency rather than the intended measurement of independence and achievement values. A revised version of the SAS has recently been devised by Clark and Beck (1991). Robins and Luten (1991), who noted that the SAS may not yield the most reliable and valid assessment of sociotropy and autonomy, have also recently developed an alternate measure of these constructs (the Personal Style Inventory; Robins, Ladd, & Luten, 1990; cited in Robins & Luten, 1991).

Apart from the data which implies that autonomy may serve as a buffer in the prediction of depression, another line of empirical research, which indicates that distinct symptom patterns are associated with sociotropic and autonomous depression, may shed some light on potential cognitive-organizational differences.<sup>5</sup>

Beck (1983) cited clinical evidence that, when depressed, autonomous individuals tend to experience more endogenous depression. Sociotropic persons with depressive features seem to develop more reactive depression. Specifically, the patterning of symptoms associated with the autonomous type of personality includes symptomatology such as refractory anhedonia, self-criticism, loss of interpersonal interest, social withdraw, and depressed mood which is unremitting and not affected by positive or negative events. Sociotropic individuals, on the other hand, demonstrate symptoms and behaviours such as optimism regarding the benefits of help, focus on loss of gratification, requests or demands for assistance, labile mood, and reactivity to positive and negative events. Moreover, while autonomous depression is more strongly associated with a theme of defeat or failure, sociotropic depression is more consistent with a theme of deprivation.

Empirical evidence is generally compatible with the idea of distinct symptom clusters between sociotropic and autonomous subjects (Peselow et al., 1992; Robins & Luten, 1991; but see Robins et al., 1989 for an exception). Peselow and his collaborators (1992), for instance, assessed 217 depressed outpatients and found that sociotropy was related to nonendogenous (i.e., reactive) depression and autonomy was associated with endogenous depression. Furthermore, these investigators found that

the sociotropy-autonomy distinction was a more powerful predictor of response to psychopharmacological agents than the endogenous-nonendogenous classification. Employing a conceptually similar measure (the Personal Style Inventory), Robins and Luten (1991) found comparable results.

These findings, coupled with Linville's (1985, 1987) work on self-complexity, which indicated that lower self-complexity is related to greater variability of affect than high complexity, suggests that sociotropic self-organization may be more interconnected (low complexity) than organization of self in primarily achievement/autonomous terms (high complexity).

Only one published study has directly examined the relations between sociotropy/autonomy and self-complexity. Solomon and Haaga (1993) predicted that individuals who were sociotropic and autonomous would exhibit high self-complexity relative to other persons. In a sample of 124 undergraduate students, these investigators administered the SAS and Linville's (1987) self-complexity measure. Although no significant correlations were found between sociotropy or autonomy and self-complexity, subjects who scored high on both scales were significantly more complex than individuals who were either high on only one subscale, or low on both. The authors concluded that being sociotropic and autonomous may be advantageous in that it may serve as a buffer of depression. That they did not assess depressive severity, however, restricts the confidence that one may place in this conclusion.

### Present Study

The purpose of this research was to examine self-complexity for social and achievement domains with respect to possible selves, sociotropic and autonomous personality modes, valence of content, and depression, in non-depressed, mildly depressed, and moderately to severely depressed university students. This research represents a significant contribution to the depression literature because it aims to 1) illustrate how cognitive organizational patterns vary across the non-depressed to severely depressed continuum; 2) support the proposal that positive and negative content should be analyzed separately and that each adds incrementally to our knowledge of depression and; 3) establish a theoretical and empirical link between possible selves, self-complexity and depression.

### Hypotheses

On the basis of the literature reviewed, the following hypotheses were tested:

1. Non-depressed subjects will exhibit low complexity (high integration) for positive and high complexity (more independent aspects) for negative self-attributes. Moderately to severely depressed individuals will demonstrate similar patterns of complexity but for oppositely valenced content. Mildly depressed persons, on the other hand, will organize both positive and negative adjectives with high complexity. That is, mildly depressed subjects are expected to display a similar level of complexity to non-depressed subjects for negative attributes and to depressed individuals for positive self-aspects.

2. Similar overall patterns of complexity (as Hypothesis 1) will obtain for sociotropic and autonomous persons within each of their respective congruent domains (social or achievement adjectives) but complexity will vary as a function of whether subjects are high or low for that particular personality mode. For instance, individuals high in sociotropy will demonstrate significantly lower self-representational complexity, regardless of the valence of the attributes, than those low in sociotropy. Conversely, individuals high in autonomy will exhibit less complexity than individuals low in autonomy but the magnitude of the difference (between high and low personality styles) will be smaller for autonomous than for sociotropic subjects.

3. Total self-complexity (an average of the positive and negative self-relevant complexity measures) will be lower in sociotropic than autonomous individuals.

4. Subjects who exhibit high complexity for positive self-aspects are expected to perceive a greater psychological distance between their hoped-for selves and their expected positive selves than individuals lower in positive self-complexity. Conversely, individuals who demonstrate low complexity for negative self-attributes will experience a smaller psychological distance between their feared selves and their expected negative selves than individuals with high self-complexity for negative self-representation.

## **Pilot Studies**

### Construction of the Social and Achievement Self-Complexity Measure

The development of the Social and Achievement Self-Complexity Measure involved three pilot studies. In the first pilot study, a large initial pool of positively- and negatively-valenced sociotropic and autonomous items were generated. Empirical justification for the number of adjectives chosen was the primary purpose of Pilot study 2. After the decision was made to employ 15 adjectives for each card-sorting task in the main design of this thesis, item lists were paired down in Pilot study 3 by using Thurstonian scaling techniques. The structural composition of the 4 resultant scales (sociotropy-positive, sociotropy-negative, autonomy-positive, and autonomy-negative) were then evaluated via multidimensional scaling.

A rational approach (i.e., sequential system approach; see Golden, Sawicki, & Frazen, 1984 and Jackson, 1970), combining both analytic and empirical strategies in a logical series of stages, was employed for adjective generation and evaluation. Items were initially generated from a coherent theoretical framework of personality (Beck's diathesis-stress model of personal motivational vulnerability) and retained "on the basis of their psychometric properties and empirical relations" (Golden et al., 1984, p. 234). There were four main stages to the development and validation of the Social and Achievement Self-Complexity Measure:

- 1) the generation of a large pool of positively and negatively valenced sociotropic- and autonomous-relevant items;

- 2) the determination of the number of items needed for each self-complexity card-sorting task;
- 3) item deletion/retention (via Thurstonian scaling techniques) according to psychometric properties and empirical relations (cf. Ghiselli, Campbell, & Zedeck, 1981; Torgerson, 1958), and;
- 4) multidimensional scaling to ensure that four strong factors (sociotropic-positive, sociotropic-negative, autonomous-positive, and autonomous-negative) emerged with the resultant items.

Consistent with Jackson's (1970) sequential system methodology, the development of the social and achievement self-complexity measure adhered to the following guiding principles: 1) the importance of theory; 2) the desire to suppress unwanted variance due to response style (e.g., extreme responses); 3) the importance of scale homogeneity and empirical demonstration of internal consistency, and; 4) the demonstration of the validity of the structural composition of scales (Dobson, 1980; Jackson, 1970; for a detailed discussion of test construction, see Golden et al., 1984). Thus, while the initial stage of scale construction was primarily analytic (i.e., theoretically based), concomitant emphasis was placed on the empirical demonstration of internal consistency and structural composition. In order to develop a measure that would provide salient stimuli for sociotropic and autonomous individuals, three pilot studies were conducted.

## Pilot Study 1

### The Generation of Positively and Negatively Valenced

#### Sociotropic and Autonomous Items.

The principle purpose of Pilot study 1 was to generate an initial item pool of adjectives derived from Beck's (1983) theory regarding sociotropic and autonomous personality dimensions as well as from "expert" nomination.

#### Subjects

Thirty-seven senior undergraduate students at the University of Calgary participated in the initial generation of sociotropic- and autonomous-salient items ( $n = 30$  fourth-year students; 6 third-year students and 1 unclassified student). The sample consisted of 33 females and 4 males.

#### Procedure

After obtaining informed consent (see Appendix A), a senior level psychology class was briefly instructed as to the nature of sociotropic and autonomous personality dimensions and participants were asked to list as many positive and negative possible-self adjectives as achievable in each of the achievement and social domains. The following instructions were provided to this group:

There are two types of personality styles called sociotropy and autonomy. People who are sociotropic are socially dependent and are primarily interested in interpersonal relationships. They desire to secure and maintain interpersonal attachments and interactions. Sociotropic persons believe that such things as acceptance, understanding, support,

guidance, and intimacy, are important for their self-esteem. They also tend to fear such things as rejection, disapproval, and neglect. Please list as many positive and negative adjectives as you can that you believe best describe such a person.

Once subjects completed this assignment, they were instructed about the autonomous personality dimension:

Autonomy refers to a person's need to achieve and to maintain and increase his/her independence. These individuals desire freedom and achievement. Autonomous individuals believe that such things as achieving goals and obtaining privacy, freedom of choice, individuality and independence are important for their self-esteem. They also tend to fear failure, constriction of goals, and inaction. Please list as many positive and negative adjectives as you can that you believe best describe such a person (descriptions were obtained from Baron & Piexoto, 1991; Clark et al, 1992; Gilbert & Reynolds, 1990; and Peselow et al., 1992).

A sample of the response form is presented in Appendix B. The total time required of subjects was one-half hour.

### Results and Discussion

After removing redundant items and discarding the small proportion of construct irrelevant responses, a total of 127 independent words were created to represent the sociotropic personality dimension (60 positive, 67 negative). One hundred and forty-six adjectives (79 positive, 67 negative) were generated for the

autonomous personality mode. Several of these items were then discarded on theoretical and rational grounds, and additional words were accrued by the investigator on the basis of theory (e.g., words applicable to dependent and achievement/autonomously oriented individuals) and from the pertinent research literature (e.g., descriptions of sociotropic/autonomous personality dimensions; see Baron & Piexoto, 1991; Beck, 1983; Beck et al., 1983; Clark et al, 1992; Gilbert & Reynolds, 1990; Hammen, Ellicott, & Gitlin, 1989; and Peselow et al., 1992).

Congruent with the recommendations of Golden and his colleagues (1984), the decision was made to be overinclusive in the selection of items at this early stage of scale construction. Thus, a large number of potential items (67 sociotropic-positive, 59 sociotropic-negative, 88 autonomous-positive, and 83 autonomous-negative) were retained for more detailed theoretical and empirical scrutiny in subsequent steps.

The compiled lists of adjectives were then carefully paired down to 40 in each category on the basis of theoretical (e.g., relevance to the constructs of interest) and practical (e.g., understandability, uniqueness of content) rationale. Golden et al. (1984) recommend that, because many items are dropped subsequent to the validation of a test, the original item pool should include approximately 2 to 4 times the number desired for inclusion in the final version of a test. Given the need for a total of 60 items (see Pilot study 2 for justification of this decision) retaining 160 items at this stage (or 2.66 times the number to be included in the final set of stimuli) was deemed appropriate at this step. The remaining 160 adjectives (40 positive and 40 negative for

each category) were then subjected to Thurstonian and multidimensional scaling techniques (see Pilot study 3).

In summary, Pilot study 1 of this thesis consisted of the generation of a large initial pool of adjectives for use in scale construction. The total number of items was then curtailed to provide a more manageable set for ensuing scaling procedures and to maintain a large subject number to item number ratio. Toward this end, items were abandoned on both theoretical and practical grounds to yield a total of 160 items (80 for the construct of sociotropy and 80 for the construct of autonomy). Both positive and negative adjectives (40 per category) were written for each construct.

## Pilot Study 2

### Empirical Justification for the Number of Adjectives Chosen

Linville's (1982b, 1987) self-complexity tasks consisted of 33 adjectives and took subjects approximately 30 minutes to complete. Self-complexity was assessed (in the main study of this thesis) using 4 distinct card-sorting tasks. The time required for the card-sorting tasks, coupled with the need for subjects to complete 3 additional inventories, necessitated establishing a way to minimize the allotment of time devoted solely to these sorting tasks. One alternative was to restrict the time required for each task. Niedenthal and her colleagues (1992), for instance, set the upper limit for their card-sorting tasks to 15 minutes (see Experiments 1 to 3). Setting such restrictions was not, however, viewed as the optimal way of decreasing volunteer time because doing so may have elevated the possibility of stifling a full range of subject responses.

A more suitable alternative appeared to be the utilization of the least number of items possible, contingent upon the empirical demonstration that this would not bias the estimation of self-complexity (H). Unfortunately, no theoretical or empirical rationale was provided in previous studies for their choice of the number card-sorting items employed (Dixon & Baumeister, 1991, Hershberger, 1990 and Linville, 1982b, 1987 chose to use 33 items; Niedenthal et al., 1992 used 39 items while Campbell and her colleagues employed 27 adjectives).

Given that self-complexity (i.e., the H-statistic) increases with the number of words utilized in a given card-sort (Scott, 1962; see Main study for a description of the H-statistic), a set of adjectives must be large enough to allow group differences to be detected. Coupled with this concern was the concomitant awareness of the total volunteer time that would be required from subjects. Because subjects who participated in the main study on which this thesis is based were asked to complete a mood inventory (the Beck Depression Inventory), a personality inventory (the Sociotropy-Autonomy Scale), and a rating task in addition to 4 separate card-sorts, it was desirable to minimize the number of words required for each card-sorting task. The purpose of this pilot study was therefore to determine the minimum number of adjectives needed for the card-sorts in the main study.

Given the myriad of gender differences that have been demonstrated not only with depressive samples (APA, 1987, 1994; Gotlib, 1993; Horwath, Johnson, Klerman, & Weissman, 1992) but also in the domains of interpersonal and achievement orientation (Blatt et al., 1982; Gilligan, 1982; Robins et al., 1989; Robins & Luten,

1991; Segal et al., 1989), the decision was made to test the hypotheses of this thesis using data from female subjects only. Although such inclusion criteria limit the generalizability of findings to the male population, experimental control was deemed more powerful than controlling for gender differences via analysis of covariance (ANCOVA). All remaining pilot studies and the main design of this study were conducted with female subjects only.

### Subjects

A total of 30 female undergraduates were recruited from the Psychology Department subject pool at the University of Calgary. The average age of subjects was 20.20 (SD = 3.57; range = 17 - 35) years, and the mean year of university education was 1.77 (SD = 1.10; range = 1 - 4). Scores on the Beck Depression Inventory ranged from 1 to 27 ( $M = 8.53$ ,  $SD = 6.71$ ).

### Measures

#### Beck Depression Inventory (BDI).

The Beck Depression Inventory (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) is a 21-item questionnaire designed to assess the presence and severity of depression. Each item is presented in a multiple choice format (0 - 3) which yields total scores (obtained by summing responses) ranging from 0 - 63. The BDI has excellent psychometric properties (a more elaborate discussion of the BDI is provided in the Method section of the main study).

### Card-Sorting Tasks.

Five card-sorting tasks (each consisting of either 10, 15, 20, 25, or 30 words) adopted from Linville (1982b, 1985, 1987) were used to ascertain the relative self-complexity scores across tasks. For each task, adjectives were randomly chosen from the 40 autonomy-positive words developed in Pilot study 1. Specifically, 10 words were randomly selected from the extant word list. Following this, an additional set of 5 words were chosen randomly to provide the 15-adjective card-sorting task.

Additional increments of 5 words were chosen until the final 30-adjective sorting stimulus set was established. The trait sorting methodology was designed to measure the number of, and redundancy across, an individual's organization of self-aspects. The self-complexity measure is described in more detail elsewhere and the interested reader may refer to this subsequent section (see Method section for the main analysis, p. 72). Briefly, in each of the 5 card-sorting tasks, subjects were instructed to sort the group of traits into piles that they believed clustered together in describing their possible-self aspects. The H-statistic was then computed for each card sort.

### Procedure

Subjects were contacted by telephone, provided with information about the purpose of this present investigation (and the overarching goal of this thesis), and asked for their participation. Subjects were tested either individually or in pairs for a period of approximately 1 hour.

When participants entered the experimental room, they were informed about the nature of their involvement. After obtaining informed consent (see Appendix C),

subjects completed the BDI and were provided with verbal instructions for the card-sorting tasks (instructions for these tasks are provided in Appendix D). Each individual received a different order of task presentation. When subjects completed all 5 card-sorting tasks, they were fully debriefed and thanked for their participation. Subjects who scored greater than 9 on the BDI or who endorsed statements 2 or 3 on the suicidality item (item 9) were supplied with information about the University of Calgary Counselling Services.

The methodological design consisted of a one-factor repeated measures design with the number of stimulus words in each card-sorting task as the within-subjects variable. The H-statistic (self-complexity) and the number of groups (i.e., self-aspects) were analyzed as the two dependent variables in this design.

### Results and Discussion

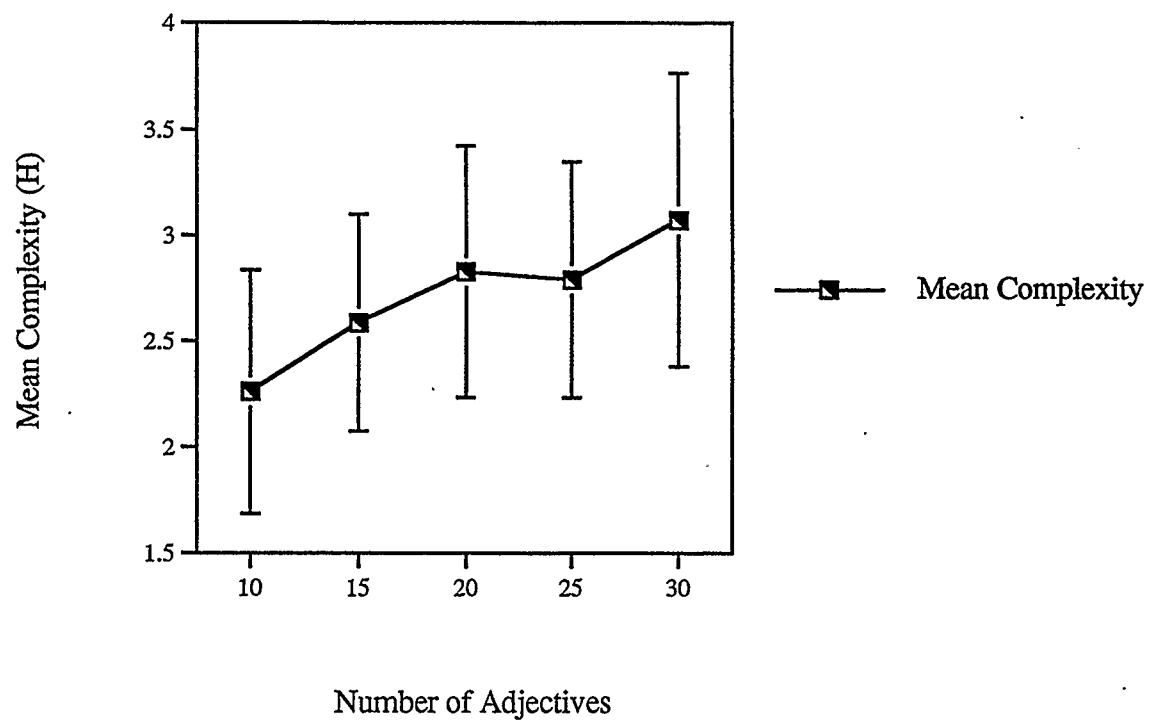
As the primary purpose of Pilot study 2 was to determine the number of adjectives that would be needed for subsequent card sorts in the main study, a decision was made to test trends across card sorts in order to ascertain at which sorting number self-complexity would reach its saturation point. That is, when does self-complexity level off such that increasing the number of adjective stimuli makes little difference to the H-statistic? If the overall trend was linear, then empirical support would be given to the employment of virtually any number of adjectives (i.e., that the number of items may be chosen arbitrarily). If, on the other hand, H increases to a given point and then tapers off, the evidence would intimate that the number of words at which the saturation point was reached would suggest the optimal number of adjectives. For

example, given a nonlinear trend, the expectation was that a significant difference would yield between the number of adjectives chosen and the H-statistic for the previous card sort. Conversely, it was anticipated that the mean difference between the number of items chosen and successive card sorts (with increased number of items) would not differ significantly. A similar justification was used for the number of self-aspects (i.e., groups) formed.

Beginning with the 10-adjective sort, the mean (standard deviation in parentheses) complexity scores across the 5 card-sorting tasks were 2.26 (.58), 2.59 (.51), 2.83 (.60), 2.79 (.55) and 3.07 (.69) respectively. These results are presented graphically in Figure 1.

As illustrated in Figure 1, the general trend appeared to be linear and positive which is consistent with the notion that H increases as a function of the number of stimuli presented (see Figure 1). With 25 adjectives, however, a slight reduction in H was also noted which implied the possibility of a cubic function.

Trend analysis was employed in order to determine whether a linear or a cubic trend most adequately described the data. The omnibus analysis of variance (ANOVA) was significant,  $F(1, 29) = 871.02$ ,  $p < .001$ , which indicated that there were significant mean differences somewhere within the data. Subsequent analyses revealed both significant linear,  $F(4, 26) = 58.78$ ,  $p < .001$ , and cubic,  $F(4, 26) = 6.41$ ,  $p < .02$ , trends. When family-wise error rate was controlled for via the Bonferroni adjustment (critical  $p = .05/4 = .0125$ ), however, only the linear trend remained significant.



**Figure 1.** Mean Complexity Across Card-Sorts as a Function of the Number of Adjectives Sorted

Post hoc comparisons also indicated significant differences between the 10-adjective and 15-adjective card sorts,  $F(1, 29) = 10.46, p = .003$ . Significant differences were also obtained in the comparison between the combined mean of the 10- and 15-adjective sorts and the combined average of the 20- and 25-adjective sorts,  $F(1, 29) = 43.56, p < .001$ . The average of the 10-, 15-, 20-, and 25-adjective card sorts also differed significantly from the mean H-statistic on the 30-adjective card sort,  $F(1, 29) = 34.43, p < .001$ . These differences remained statistically significant after applying the Bonferroni correction ( $.0125/4 = .003$ ). No significant differences emerged, however, in the comparison between the 20-adjective and 25-adjective card sorts,  $F(1, 29) = .28, p = .602$ .

The results of the trend analysis using self-complexity as the dependent variable suggested that the overall trend was linear and that the apparent cubic function was likely due to chance fluctuations in variance. Post hoc comparisons, which indicated no significant differences between the card sorts employing 20 adjectives and card sorts utilizing 25 adjectives lends further support to this hypothesis.

Congruent results were obtained when the number of groups formed by subjects (self-aspects) was used as the dependent measure. Although the mean increase on the dependent variable across groups was less predominant than when H was used as the dependent variable, a steady increase was noted from the 10-adjective sort ( $M = 4.07, SD = 1.60$ ) to the 30-adjective sort ( $M = 5.20, SD = 1.56$ ; for the 15-20- and 25-adjective sorts, the means (SD) were 4.57 (1.46), 4.80 (1.38), and 5.03

(1.47) respectively). The within-subject results using mean number of groups as the dependent variable are presented in Figure 2.

Visual inspection of Figure 2 indicated that the general trend was linear. Trend analysis revealed a significant linear trend,  $F(1, 29) = 18.06$ ,  $p < .001$ . Neither the quadratic,  $F(1, 29) = 1.47$ ,  $p = .235$ , the cubic,  $F(1, 29) = .30$ ,  $p = .586$ , nor the quartic,  $F(1, 29) = .21$ ,  $p = .652$ , trends were statistically significant.

Both analyses implied that the overall trends across card sorts were linear. These results suggest that the use of any number of adjectives could be justified for the main study. Considering the desire for a balance between the lowest possible number of adjectives and the ability to discriminate between groups, the most appropriate choice appeared to be to use either 10 or 15 adjectives for each card sort in the main investigation. Given that the correlations between the 15-adjective card sort and the remainder of the sorts (15 adjectives & 10 adjectives,  $r = .49$ ; 15 adjectives & 20 adjectives,  $r = .81$ ; 15 adjectives & 25 adjectives,  $r = .79$ ; 15 adjectives & 30 adjectives,  $r = .70$ ) were greater than the correlations between the 10-adjective sorts and the rest of the sorts (10 adjectives & 20 adjectives,  $r = .53$ ; 10 adjectives & 25 adjectives,  $r = .54$ ; 10 adjectives & 30 adjectives,  $r = .55$ ; all correlations heretofore were significant at the  $p < .01$  level), the decision was made to utilize 15 adjectives for each card-sorting task in the main design.

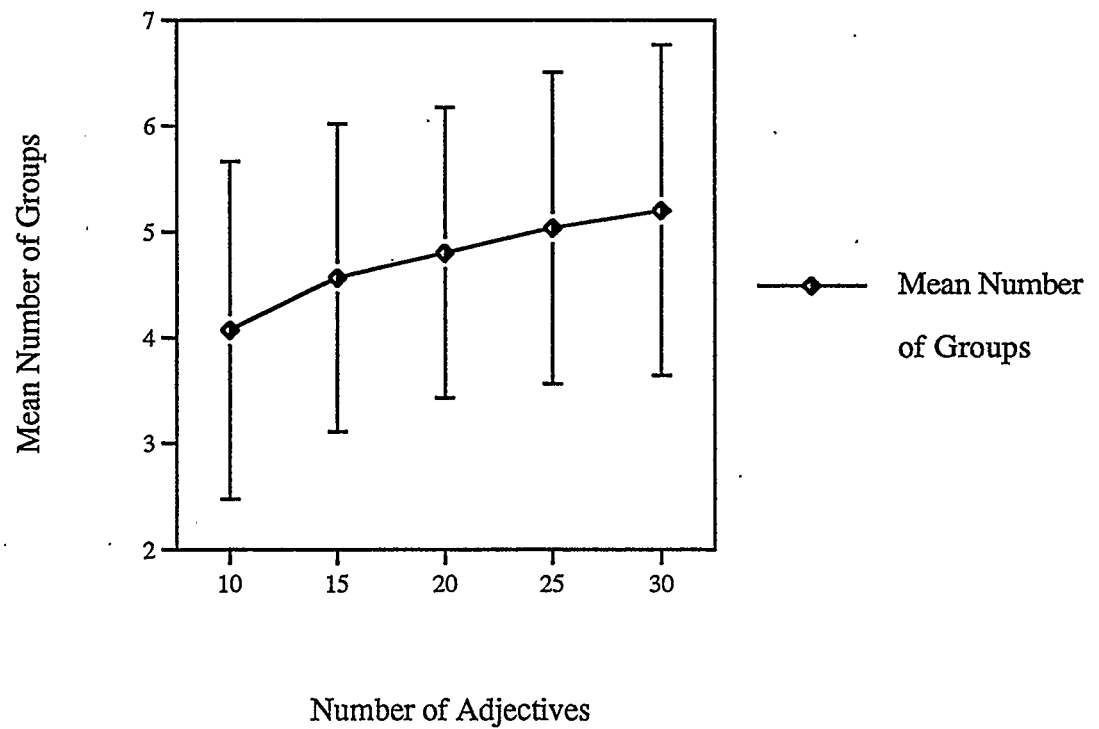


Figure 2. Mean Number of Groups Formed Across Card-Sorting Tasks, as a Function of the Number of Adjectives Sorted.

### Pilot Study 3

#### Item Deletion/Retention (via Thurstonian Scaling) and Scale Validation (via Multidimensional Scaling).

Given the results of Pilot study 2, the 15-adjective card sort was deemed most appropriate for the four card-sorting tasks of the main study. The purpose of this pilot investigation was, therefore, to reduce the number of scale items for each of the positive and negative social and achievement domains from 40 to 15. A concurrent goal was to maintain high internal consistency of items (i.e., coefficient alpha), minimize the correlations between the words allocated to represent the construct of interest and the opposite construct (i.e., item-other correlations), and retain items that maximally distinguished constructs (via the Differential Reliability Index; see Jackson, 1970). The final purpose of this investigation was to subject the remaining items to multidimensional scaling in order to establish the validity of each scale's structural composition.

#### Subjects

A total of 102 female subjects were recruited for participation in this pilot investigation from the Psychology Department subject pool at the University of Calgary. Subjects were tested in groups which ranged in size from 10 to 15. The average age of subjects was 20.76 (SD = 4.47; range = 17 - 51) years. Average year in university was 1.99 (SD = 1.14; range = 1 - 5).

## Measures

### Sociotropy Rating.

The sociotropy rating task consisted of a brief description of the sociotropic personality dimension and instructions to rate each adjective on a scale from 0 - 6 as to the extent to which they described either positive or negative traits for such a person (0 = adjective does not describe either a positive or a negative trait for such an individual at all; 6 = the adjective very much describes a positive or negative trait for such an individual). A complete list of all 160 items (40 sociotropic-positive, 40 sociotropic-negative, 40 autonomous-positive, 40 autonomous-negative) were then presented to subjects (the order of items was randomly determined). Both the sociotropy and autonomy rating tasks are presented in Appendix E.

### Autonomy Rating.

The autonomy rating task consisted of a brief description of the autonomous personality dimensions (see Appendix E). Identical instructions as to the sociotropy rating task were used for rating the degree to which each adjective described an autonomous individual. The equivalent list of 160 items was then presented to the same subjects.

### Response Sheets

Two 10-point (0 - 9) IBM recording sheets (Form # A2801) were used to code subjects' responses. As a check for accuracy, subjects were asked to indicate on item 1 of the answer sheet whether they were working on the sociotropy rating or the

autonomy rating (1 = sociotropy rating; 2 = autonomy rating). Subjects were also asked to code their age and year of university on the answer forms.

### Procedure

Verbal instruction about the sociotropic and autonomous personality dimensions was given to subjects after obtaining informed consent (the consent form for Pilot study 3 is found in Appendix F). Subjects were then asked to read the instructions carefully and to rate each adjective on a scale which ranged from 0 - 6 on the degree to which each word represented an important trait/characteristic; first for the sociotropic personality dimension, and then for the autonomous personality dimension. Each rating task was conducted on a separate answer form. The entire task took subjects approximately 1 hour.

Data analysis included Thurstonian scaling techniques (SPSS Inc., 1988; Torgerson, 1958) and the Differential Reliability Index (Jackson, 1970; Neill & Jackson, 1970) with the goal of reducing the number of items for each construct from 40 to 15.

### Results and Discussion

Computation of item means, standard deviations, intercorrelations, item-other correlations (i.e., sociotropic words rated on the autonomy construct; autonomous adjectives rated on the sociotropy construct) and Differential Reliability Indexes (Jackson, 1970) were calculated separately for each set of 40 sociotropic-positive, sociotropic-negative, autonomous-positive, and autonomous-negative items. The results of the initial tables (Tables 12 to 15) are shown in Appendix G.

As aforementioned, the intent of Pilot study 3 was to reduce the number of adjectives from 40 to 15 for either valence of each construct. At the same time, an attempt was made to retain items that yielded a relatively homogeneous, internally consistent scale for each construct. Briefly, internal consistency concerns the degree to which the items composing a measure reflect a single latent variable (Ghiselli et al., 1981). To the extent that a measurement model (e.g., sociotropic words rated for sociotropy) accounts for the covariances among the variables (i.e., adjectives), the 40-item measure is internally consistent. As illustrated in Tables 12 to 15 of Appendix G, each set of 40 items yielded high internal consistency estimates. For the sociotropic-positive word list, coefficient alpha was .94. The sociotropic-negative items acquired a coefficient alpha of .93. High internal reliability was also obtained for the positive and negative stimuli of the autonomy dimension (coefficient alphas = .91 and .96 respectively).

Given that internal reliability generally decreases as the number of items in a scale are reduced (Ghiselli et al., 1981), an important objective for item deletion and retention was to maintain high item-total correlations while simultaneously enhancing their discriminatory power. As an initial scale refinement strategy, those few items with means greater than 5 and less than 1 were considered to be outliers and were excluded from further analyses. Scaling techniques were then implemented for each scale separately. Items with the highest internal consistencies (i.e., convergent validity) were retained (the lowest cutoff for item retention was  $r = .40$ ) and items with modest to high correlations with the opposite construct were dropped from

subsequent analyses. Removal of items was also facilitated through the calculation of the Differential Reliability Index (DRI) which was computed for each item (Jackson, 1970). The DRI is calculated by taking the square root of the item-same scale correlations (squared) minus the item-other scale (squared). Excluding items that exhibited low DRI scores provided a supplementary means of ensuring that the items to be retained displayed strong within-scale correlations and lower between-scale correlations. As Dobson (1980) acknowledged, however, "the absolute degree of within-scale correlation is not guaranteed to be high using the DRI, since items with relatively low same scale correlations may have high DRI scores if they correlated negligibly with the other scale examined" (p. 54). For this reason, item analysis involved inspection of several indices.

The process of scale refinement consisted of 5 sequential stages for each of the sociotropic-positive, sociotropic-negative, autonomous-positive, and autonomous-negative scales. More items were removed earlier in the analyses with more careful refinement conducted at later stages. In the first step, approximately 10 items which either met the outlier criteria described above, or which demonstrated the lowest Chronbach alphas, the lowest DRIs and/or the highest overall alpha if that item were to be deleted (see SPSS Inc., 1988), were eliminated.

The actual number of items removed varied slightly according to construct. In trial 1, for example, 7 items were removed from the sociotropy-positive scale; 9 items were deleted from the sociotropy-negative scale; 13 items were excluded from autonomy-positive and 8 items were eliminated from the autonomy-negative

dimension. The rationale for the differential elimination of items was that some scales (e.g., autonomy-positive) had a larger number of items whose means exceeded the a priori established criteria for identification as an outlier. Eliminating the same number of items from every scale, however, would have increased the probability of prematurely deleting useful items (i.e., those items which may have demonstrated higher internal consistencies and DRIs once the variance from other items were removed).

At each sequential stage, coefficient alphas and DRIs were recomputed to reevaluate the internal consistency and discriminant validity of the remaining items. This procedure was continued until the desired number of items ( $n = 15$ , see Pilot study 2) were obtained. Thus, in the second stage, additional items were omitted in accordance with the criteria established in trial 1 such that 20 items remained in each scale. Analysis at stages 3 and 4 was more stringent and entailed the elimination of 2 more items at each stage. The final step involved expunging the single item which exhibited the lowest item-total correlation and the lowest DRI.

Tables 1 through 4 display the psychometric properties of the items that were retained for each scale of the 4 constructs. Each of the resultant scales (sociotropic-positive, sociotropic-negative, autonomous-positive, and autonomous-negative) demonstrated high internal consistency (coefficient alphas = .93, .92, .89, & .97 respectively; see tables 12 through 15 in Appendix G for comparison).

Based upon the above data analyses, 4 sets of items had been derived that, although short in length, demonstrated excellent psychometric properties (see Tables

Table 1

Psychometric Properties of the Sociotropic-Positive Items

| Item              | <u>M</u> | SD   | Item-<br>total <u>r</u> | Item-<br>other <u>r</u> | DRI   |
|-------------------|----------|------|-------------------------|-------------------------|-------|
| 1. Understanding  | 4.51     | 1.59 | .6769**                 | -.0552                  | .6746 |
| 2. Loyal          | 4.78     | 1.44 | .6730**                 | -.0748                  | .6688 |
| 3. Forgiving      | 4.59     | 1.65 | .7153**                 | .1542                   | .6985 |
| 4. Listener       | 4.51     | 1.59 | .8537**                 | -.0151                  | .8536 |
| 5. Kind           | 4.09     | 1.69 | .6264**                 | .1955*                  | .5931 |
| 6. Helpful        | 4.13     | 1.65 | .6573**                 | .2160*                  | .6208 |
| 7. Loving         | 4.94     | 1.32 | .7494**                 | .0397                   | .7483 |
| 8. Encourager     | 3.71     | 1.83 | .6579**                 | .0616                   | .6550 |
| 9. Friendly       | 4.89     | 1.27 | .7959**                 | .0703                   | .7928 |
| 10. Generous      | 4.13     | 1.72 | .6868**                 | .2528*                  | .6386 |
| 11. Accepting     | 4.26     | 1.59 | .6653**                 | .0225                   | .6649 |
| 12. Considerate   | 4.22     | 1.53 | .7776**                 | .0368                   | .7767 |
| 13. Compassionate | 4.29     | 1.47 | .8126**                 | -.0055                  | .8126 |
| 14. Comforting    | 4.24     | 1.46 | .7027**                 | -.0160                  | .7025 |
| 15. Caring        | 4.46     | 1.48 | .7424**                 | -.1425                  | .7286 |

Note. DRI = Differential Reliability Index; Total alpha = .9322.

\*\* $p < .01$ , two-tailed.

Table 2

Psychometric Properties of the Sociotropic-Negative Items

| Item              | <u>M</u> | SD   | Item-<br>total <u>r</u> | Item-<br>other <u>r</u> | DRI   |
|-------------------|----------|------|-------------------------|-------------------------|-------|
| 1. Undesirable    | 3.73     | 2.33 | .6840**                 | .1257                   | .6724 |
| 2. Unpopular      | 4.09     | 2.31 | .6459**                 | .1006                   | .6380 |
| 3. Unapproachable | 3.10     | 2.22 | .7152**                 | .1935                   | .6885 |
| 4. Ungrateful     | 2.11     | 2.08 | .7463**                 | .0594                   | .7439 |
| 5. Hot-tempered   | 1.92     | 1.83 | .6257**                 | .1677                   | .6028 |
| 6. Shallow        | 2.94     | 2.25 | .6041**                 | .1158                   | .5929 |
| 7. Unfaithful     | 2.77     | 2.23 | .7219**                 | .1479                   | .7066 |
| 8. Selfish        | 3.01     | 2.15 | .6102**                 | .1646                   | .5876 |
| 9. Rude           | 1.92     | 1.97 | .7708**                 | .3224**                 | .7001 |
| 10. Rejected      | 4.30     | 2.03 | .5863**                 | -.0411                  | .5849 |
| 11. Uncooperative | 2.11     | 2.07 | .7050**                 | .2313*                  | .6660 |
| 12. Callous       | 1.70     | 1.86 | .6989**                 | .2151*                  | .6650 |
| 13. Hostile       | 1.94     | 2.08 | .6712**                 | .2294*                  | .6308 |
| 14. Dishonest     | 2.39     | 2.14 | .7373**                 | .2217*                  | .7032 |
| 15. Deceitful     | 2.18     | 2.05 | .6478**                 | .2885**                 | .5800 |

Note. DRI = Differential Reliability Index; Total alpha = .9165.

\* $p < .05$ ; \*\* $p < .01$ , two-tailed.

Table 3

Psychometric Properties of the Autonomy-Positive Items

| Item              | <u>M</u> | SD   | Item-<br>total <u>r</u> | Item-<br>other <u>r</u> | DRI   |
|-------------------|----------|------|-------------------------|-------------------------|-------|
| 1. Proud          | 4.40     | 1.75 | .6151**                 | .1176                   | .6038 |
| 2. Sophisticated  | 3.28     | 1.90 | .5270**                 | .1065                   | .5161 |
| 3. Authority      | 4.44     | 1.69 | .5286**                 | .1091                   | .5172 |
| 4. Optimistic     | 3.76     | 1.68 | .6283**                 | .3734*                  | .5053 |
| 5. Powerful       | 4.58     | 1.50 | .7314**                 | .0755                   | .7275 |
| 6. Leader         | 4.97     | 1.52 | .6962**                 | .0394                   | .6951 |
| 7. Superior       | 4.06     | 1.77 | .6997**                 | .1671                   | .6795 |
| 8. Initiator      | 4.86     | 1.25 | .6099**                 | -.0060                  | .6099 |
| 9. Dignified      | 3.76     | 1.89 | .7575**                 | .2252*                  | .7233 |
| 10. Courageous    | 3.96     | 1.64 | .5232**                 | -.0060                  | .5232 |
| 11. Respected     | 4.42     | 1.65 | .7416**                 | .2106*                  | .7111 |
| 12. Reputable     | 3.96     | 1.76 | .5811**                 | .1569                   | .5595 |
| 13. Energetic     | 4.13     | 1.69 | .5946**                 | .0934                   | .5872 |
| 14. Extraordinary | 3.71     | 1.90 | .5277**                 | .1513                   | .5055 |
| 15. Correct       | 3.89     | 1.88 | .6351**                 | .2974**                 | .5612 |

Note. DRI = Differential Reliability Index; Total alpha = .8867.

\* $p < .05$ ; \*\* $p < .01$ , two-tailed.

Table 4

Psychometric Properties of the Autonomy-Negative Items

| Item            | <u>M</u> | SD   | Item-<br>total <u>r</u> | Item-<br>other <u>r</u> | DRI   |
|-----------------|----------|------|-------------------------|-------------------------|-------|
| 1. Weak         | 2.96     | 2.56 | .8101**                 | .1858                   | .7885 |
| 2. Unsuccessful | 3.25     | 2.71 | .9209**                 | .2827**                 | .8764 |
| 3. Unprepared   | 2.52     | 2.30 | .7746**                 | .2793**                 | .7225 |
| 4. Uninspired   | 2.23     | 2.24 | .8541**                 | .3934**                 | .7581 |
| 5. Unable       | 2.95     | 2.51 | .9237**                 | .3323**                 | .8619 |
| 6. Inefficient  | 3.22     | 2.45 | .9254**                 | .3047**                 | .8738 |
| 7. Incompetent  | 3.12     | 2.63 | .8907**                 | .2298*                  | .8608 |
| 8. Disorganized | 2.60     | 2.28 | .7742**                 | .3486**                 | .6913 |
| 9. Inferior     | 2.74     | 2.26 | .7349**                 | .2035*                  | .7062 |
| 10. Inactive    | 2.70     | 2.33 | .7798**                 | .2314*                  | .7447 |
| 11. Purposeless | 2.76     | 2.52 | .8842**                 | .2624**                 | .8444 |
| 12. Lazy        | 2.42     | 2.42 | .8174**                 | .2494*                  | .7784 |
| 13. Failure     | 3.09     | 2.61 | .8563**                 | .2935**                 | .8044 |
| 14. Defeated    | 2.79     | 2.39 | .8873**                 | .2707**                 | .8450 |
| 15. Unimportant | 2.16     | 2.29 | .7661**                 | .3359**                 | .6885 |

Note. DRI = Differential Reliability Index; Total alpha = .9704.

\* $p < .05$ ; \*\* $p < .01$ , two-tailed.

1 - 4). The second major aspect of Pilot study 3 was devoted toward the assessment of the structural validity of the 4 refined scales. To accomplish this end, multidimensional scaling procedures were employed. The data are presented in two parts: 1) the multidimensional scaling using subjects' ratings for the sociotropy personality dimension, and; 2) scaling using subjects' ratings for the autonomy personality mode.

In order to determine the structural composition of the sociotropic adjectives, items from each scale were entered into a proximities matrix. The scaling procedure was conducted in 4 iterations and was completed when improvement (determined by Kruskal's stress formula) was less than .001. The data configuration derived 2 dimensions, the results of which are presented in Figure 3.

As depicted in Figure 3, the horizontal axis appears to represent the bipolar distinction between the personality modes (sociotropy and autonomy). The vertical axis, on the other hand, appears to exemplify the positive and negative valence dimensions. Visual examination of Figure 3 indicated that the sociotropic-positive dimension generally exhibited a separately organized cluster of items. Conversely, items for the sociotropic-negative personality mode were much more diversely scattered falling mainly within the quadrants of the sociotropic-negative and both positive and negative autonomy dimensions.

All 60 items were then entered into a second multidimensional scaling analysis to ascertain the validity of the items of purported relevance for the autonomy construct. Congruent with the previous scaling analysis, 4 iterations were used to derive 2 dimensions. Figure 4 demonstrates the findings from the configurations that

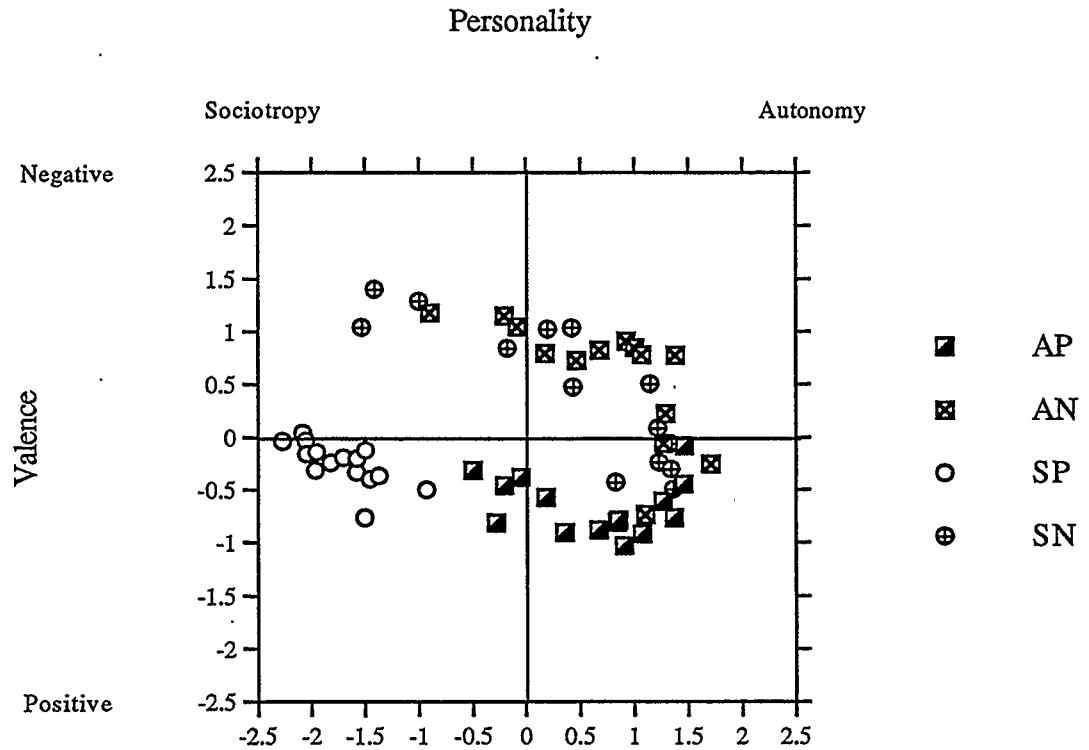
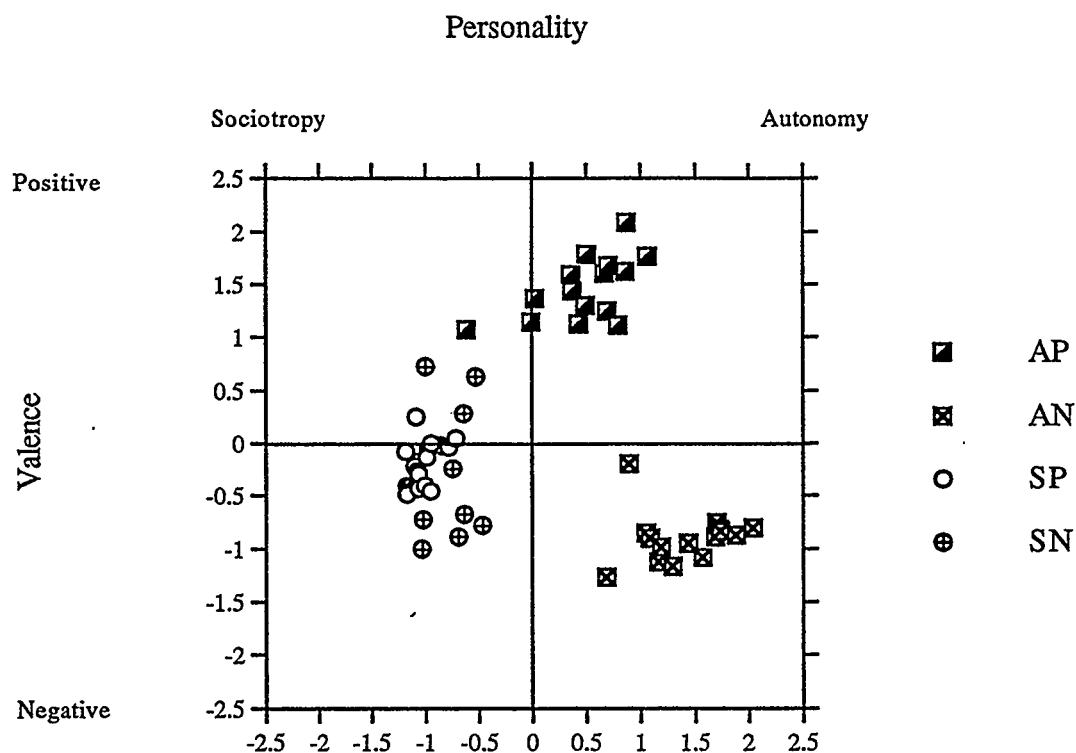


Figure 3. Results of the Multidimensional Scaling of  
Subjects' Ratings on the Sociotropy Construct.

Note. AP = Autonomy-Positive; AN = Autonomy-Negative;  
SP = Sociotropy-Positive; SN = Sociotropy-Negative.



**Figure 4.** Results of the Multidimensional Scaling of Subjects' Ratings on the Autonomy Construct.

**Note.** AP = Autonomy-Positive; AN = Autonomy-Negative; SP = Sociotropy-Positive; SN = Sociotropy-Negative.

emerged when items were rated for their relevance to autonomy. Again, the horizontal axis appeared to represent the personality dimensions while the vertical axis represented valence (the reader should also note that the valence dimensions are reversed in Figure 4). Items for both the autonomy-positive and autonomy-negative constructs clustered uniquely in their respective quadrants thus embodying distinct factors. In contrast, the sociotropic adjectives, which were rated for autonomy, clustered around the centre of the opposite half of the horizontal (personality) axis.

Although the sociotropic-negative items were generally less distinct, the clean factors that emerged from all autonomy items, coupled with the high internal consistencies and DRIs for all 4 scales, reinforced the decision to use the present items as stimuli for the card-sorting tasks in the main study (e.g., changing the items of the sociotropy-negative dimension would have impacted the structural composition of the remaining three scales).

To summarize, Pilot study 3 yielded 4 scales (each containing 15 items) to represent schema-congruent sociotropic-positive, sociotropic-negative, autonomous-positive, and autonomous-negative adjectives. Each developed scale procured excellent psychometric properties. When the utility of the structural framework was assessed via multidimensional scaling, the sociotropy construct exhibited a somewhat weaker composition (especially for negatively valenced items). The items for the autonomy construct, however, were strongly clustered in their appropriate quadrants.

## Main Study

### Subjects

Forty female subjects per group (non-depressed, mildly depressed, & moderately-severely depressed) were recruited from undergraduate psychology classes at the University of Calgary. Group status was determined on the basis of the Beck Depression Inventory (BDI) scores. The BDI classification criteria employed in this present study corresponded to the cutoffs established by the Center for Cognitive Therapy (Non-depressed BDI = 0-9; Mildly Depressed BDI = 10-16; Moderately to Severely Depressed = 17-39). Although this thesis utilized a more stringent classification scheme than that used in many previous studies, such criteria were considered necessary to adequately explore cognitive organizational differences among groups. Mean (standard deviation in parentheses) BDI scores for the nondepressed, mildly-depressed, and moderately- to severely-depressed groups were 4.70 (2.78), 12.58 (1.88), and 22.75 (4.42) respectively. Average age of subjects was 20.83 (2.97) years for the nondepressed group, 22.70 (5.64) for the mildly-depressed group, and 21.65 (5.37) for the moderately- to severely-depressed group. Subjects' average year in university was 2.05 (1.08), 2.80 (1.24), and 2.22 (1.23) for the three respective groups.

### Measures

#### 1) Beck Depression Inventory (BDI).

The Beck Depression Inventory (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) is a 21-item questionnaire that is presented in a multiple choice format (0 - 3). The BDI proposes to measure the presence and severity of depressive symptomatology in psychiatrically diagnosed patients and in normal populations of both adolescents,

and adults (Beck et al., 1988; Stehouwer, 1985). Total scores range from 0 - 63 (Beck et al., 1979).

The BDI has been accepted as one of the better self-report measures of depression and has been used extensively in both research and practice (Beck, 1992; Beck et al., 1979; Reynolds & Gould, 1981; Swallow & Segal, 1995). A variety of populations have been studied using the BDI, including psychiatric patients (Davies et al., 1975; Steer, Beck, Riskind, Brown, 1986; Reynolds & Gould, 1981) and university students (Lightfoot & Oliver, 1985; Dobson & Breiter, 1983). Internal consistency (coefficient alphas) range from .73 - .95. Test-retest reliability has been reported to be above .90 (Beck et al., 1988).

## 2) Sociotropy-Autonomy Scale (SAS).

The Sociotropy-Autonomy Scale (SAS) is a 60-item self-report scale developed by Beck, Epstein, Harrison, and Emery (1983) and designed to measure Beck's (1983) constructs of sociotropic (dependent; concerned with disapproval or rejection by others) and autonomous (independent, achievement oriented; concerned with failure) personality dimensions (see Appendix H). Thirty items comprise the Sociotropy scale and 30 items make up the Autonomy scale. Examples of items reflecting the sociotropic personality mode include "I am afraid of hurting other people's feelings" and "I get lonely when I am home by myself at night". Examples of items from the Autonomy scale are "It is important for me to be free and independent" and "It is more important to get a job done than to worry about other people's reactions". Respondents are asked to rate (on a 5-point scale) how much each statement applies to them. Robins, Block, and Peselow (1989) reported coefficient alphas of .94 for sociotropy and .95 for autonomy. Unpublished studies by Beck et al. (1983) and

Robins (1985, cited in Hammen, Ellicott, & Gitlin, 1989) suggest adequate test-retest reliability and high internal consistency.

### 3) The Social and Achievement Self-Complexity Measure

A card sorting task developed by Linville (1982b, 1985, 1987) and modeled after Scott (1969; Scott, Osgood, & Peterson, 1979) and Attneave (1959) was used to measure self-complexity. There were two differences between Linville's (1985) sorting task and the methodology used in this study. First, positive and negative complexity was analyzed separately. Second, subjects were asked to think about their future goals (possible selves) while conducting the card sorts.<sup>6</sup> The trait sorting method was designed to measure the number of independent attributes a person uses to think about him/herself. Subjects were given a deck of cards, each of which contained one adjective, and were instructed to sort the traits into piles that they believed clustered together in describing their possible self-aspects. There were 15 positive adjectives and 15 negative adjectives to sort for each of the social and achievement domains. Each card contained a number in the upper right corner from which subjects transcribed the numbers corresponding to each card onto the response sheets (letter size sheets with 14 columns; see Linville, 1987). Subjects were also told that they may provide a label for each grouping of adjectives but that this was not necessary:

Participants were instructed that a given trait may be designated to more than one grouping. Eighteen blank cards onto which adjectives may be copied were supplied for this reason. Subjects were also permitted to leave out some traits if they perceived them to be irrelevant to their self-aspects (Linville, 1985, 1987; Gara et al., 1993; Niedenthal et al., 1992). The instructions, which are presented in Appendix I,

were similar to those reported by Linville (1987), but included the aforementioned alterations. Self-complexity was calculated by means of the H-statistic.

The H-statistic pertains to the number of independent (i.e., nonredundant) attributes in an individual's card sort. It is a measure of redundancy among attributes and, therefore, provides more incremental validity than the sheer number of adjectives utilized. The formula for H is:  $\log_2 n - (\sum_i n_i \log_2 n_i) / n$  where  $n$  is the total number of trait adjectives and  $n_i$  is the number of features that make up a group combination (see Linville, 1985, 1987). The H-statistic is a measure adopted from information theory that "may be interpreted as the minimum number of independent binary attributes needed to reproduce [a given] trait sort" (Linville, 1982a). In all, there are  $2^n$  possible group combinations. Rather than assuming that individuals think of themselves in binary units, H represents a useful statistical tool indicating the richness and complexity of one's self-representational system. An illustration of the procedure for calculating H is found in Appendix J.

The Social and Achievement Self-Complexity Measure consisted of four sets of 15 adjectives derived through a sequential system approach (Golden et al., 1984) and retained and evaluated on empirical grounds (refer to Pilot studies 1 - 3 for details regarding the construction of this instrument). High internal consistency coefficients were obtained for each adjective set (range = .89 - .97). The correlation between the Sociotropy-Positive and the Autonomy-Positive scales was .45; the correlation between the Sociotropy-Negative and Autonomy-Negative scales was .64. These psychometric properties are consistent with the idea that sociotropy and autonomy should not be considered orthogonal constructs (Robins & Luten, 1991; Segal et al., 1992). Structural composition of the social and achievement adjectives (assessed via

multidimensional scaling) was adequate (although the sociotropy construct was somewhat weaker with respect to dimensional uniqueness). Overall, excellent psychometric properties were demonstrated for this newly derived measure.

#### 4) Possible Selves Measure.

The Possible Selves measure utilized the same adjectives that were used in the card-sorting tasks. Respondents were instructed to rate each of the social and achievement adjectives on a 7-point Likert scale (1 = not at all, 7 = very much) as to the extent to which they represent hoped-for, feared, and expected possible selves (cf., Hooker, 1992, Markus & Nurius, 1986, Oyserman & Markus, 1990b). The instructions, which were adapted from Hooker (1992) stated the following:

I would like to ask you to rate a list of adjectives according to how they might represent your future. Probably everyone thinks about their future to some extent. When doing so, we usually think about the kinds of experiences that are in store for us and the kinds of people we might possibly become. Sometimes we think about what we hope we will be like.

One way researchers have of talking about this is to talk about possible selves - selves we hope to become in the future. Some of these possible selves seem quite likely, others seem quite farfetched but are still possible.

I want you to take a few minutes to think about your hoped-for selves and rate each adjective according to how much they represent your hoped-for possible selves.

Beside each adjective, were numbers ranging from 1 - 7 with descriptive anchors above extreme responses at the top of each page. Similar instructions were presented to subjects for feared and expected possible-selves ratings. The instructions and stimulus material for the possible-selves ratings are presented in Appendix K.

### Procedure

Participants were initially recruited from the Psychology Department subject pool at the University of Calgary. When the nondepressed cell was completed (i.e., 40 participants were tested), mass screenings of undergraduate psychology classes were conducted for the purpose of recruiting individuals whose symptomatology placed them in either the mildly-depressed or the moderately- to severely-depressed range.<sup>7</sup> Potential candidates (i.e., individuals who met eligibility criteria; see Subjects section) were then contacted by telephone and asked for their participation in the study.

Subjects were tested in groups of 1 to 3 individuals. The experimenter greeted each participant and described the study as concerned with future goals and fears (possible selves), personality, and mood. After obtaining informed consent, subjects were first re-administered the BDI to ensure that group status had not change since screening (the consent forms for the screening procedure and the main study are found in Appendices L and M, respectively). Following the administration of the BDI, subjects were asked to complete the Sociotropy-Autonomy Scale. Subjects were then instructed to complete each of the four self-complexity tasks for positively- or negatively-valenced social or achievement adjectives. Each sort was presented in counterbalanced order. Upon completion of these tasks, the experimenter asked subjects to rate the extent to which each social and achievement adjective was a)

desired or hoped for in the future b) undesirable/feared in the future and c) likely to be self-descriptive in the future (expected possible selves).

Prior to participating, all subjects were informed about the nature of their involvement and the purpose of the research project (see Appendix M for consent form). In addition, subjects were ensured that the results of their involvement would be kept in strict confidence. Subjects were also informed that their involvement would neither directly benefit nor harm themselves. Following their participation in the study, subjects were fully debriefed. Those individuals who scored in the mildly- to severely- depressed range on the BDI (greater than 9) were offered a referral to the University of Calgary Counselling Services. Subjects who scored a 2 or 3 on item 9 of the BDI (suicide item) were also queried about this endorsement and offered a referral regardless of their total BDI score.

#### Statistical Analyses:

Preliminary analysis involved a descriptive analysis of the sample demographic characteristics. A Chi-square analysis (for the dichotomous variable) and one-way analyses of variance (for continuous variables) were also conducted to ensure that equal demographic representation was achieved across groups. For hypotheses 1 through 3, analyses of variance (ANOVAs) followed by pairwise comparisons (across groups) were used to examine the hypotheses. In order to ensure that self-complexity was not merely an individual difference variable, but rather varied as a function of stimuli presentation, the H statistic was also correlated across sorts. To examine hypothesis 3, subjects in each group were classified on the basis of median splits into high and low for sociotropy, and the organization of social adjectives (i.e., the H-statistic) was examined. Similarly, scores on the Autonomy scale (for each of the

nondepressed, mildly-depressed, and moderately- to severely-depressed groups) were divided via median splits and the cognitive organization of the schema-relevant (i.e., achievement) adjectives was evaluated. Evaluation of hypothesis 4 involved visual examination of group means to assess the hypothesized patterns. Subjects were then classified into high and low complexity (for positive and negative adjectives separately) via median splits, and mean difference scores (between hoped-for and positive expected, and between feared and expected negative selves) were calculated. Overall group differences were tested by means of t-tests.

## Results

### Preliminary Analyses

#### Sample Characteristics

As an initial step in data analysis, subject characteristics were assessed across the three groups of nondepressed, mildly depressed and moderately- to severely-depressed individuals. Table 5 presents the means and standard deviations for age, year of university, personality modes, and depressive severity (BDI). To rule out the possibility of disproportionate scores across the groups on variables other than the main independent variables, one-way analyses of variance (ANOVAs) and a Chi-squared analysis were employed.

A one-way ANOVA revealed no significant differences among groups in age,  $F(2, 117) = 1.53, p = .22$ . Age correlated significantly with only one variable, education ( $r = .42, p < .01$ ). With respect to education, the majority of participants were in their first year of university (34%). Twenty-one percent of the individuals were enrolled in their second year, 23% in their third year, 19% in their fourth year,

Table 5

Means (Standard Deviations) of the Sample Sociodemographic Characteristics and Variables Across Groups

| Variable   | Nondepressed  | Mildly<br>Depressed | Severely<br>Depressed |
|------------|---------------|---------------------|-----------------------|
|            | <u>M</u> (SD) | <u>M</u> (SD)       | <u>M</u> (SD)         |
| Age        | 20.83 (2.97)  | 22.70 (5.64)        | 21.65 (5.37)          |
| Education  | 2.05 (1.08)   | 2.80 (1.24)         | 2.22 (1.23)           |
| BDI        | 4.70 (2.78)   | 12.58 (1.88)        | 22.75 (4.42)          |
| Sociotropy | 63.85 (14.62) | 71.45 (20.72)       | 72.68 (23.31)         |
| Autonomy   | 70.30 (10.56) | 71.63 (11.22)       | 71.80 (12.86)         |

and 3% in their fifth year. Education level was significantly correlated with only two variables (total feared possible selves,  $r = .19$ ,  $p < .05$  and, a subset of this data, feared autonomous-negative possible selves,  $r = .20$ ,  $p < .05$ ). Chi-squared analysis, however, indicated that there were no significant differences in level of education among the three groups ( $\chi^2 = 13.94$ ,  $df = 3$ ,  $p = .083$ ).

As illustrated in Table 5, there was a slight tendency for both sociotropy and autonomy scores to increase with level of depression. One-way analyses of variance revealed no significant differences among groups on either of the sociotropic,  $F(2, 117) = 2.31$ ,  $p = .10$ , or autonomous,  $F(2, 117) = .20$ ,  $p = .82$ , personality dimensions.

As expected, differences on the BDI among the nondepressed, mildly depressed and moderately- to severely-depressed groups were significant,  $F(2, 117) = 318.40$ ,  $p < .0001$ . Follow-up tests indicated that significant differences were obtained between each experimental group (between nondepressed and moderately/severely depressed,  $t[78] = -21.84$ ,  $p < .001$ ; between nondepressed and mildly depressed,  $t[78] = -14.83$ ,  $p < .001$ ; and between mildly depressed and moderately/severely depressed,  $t[78] = -13.39$ ,  $p < .001$ ). Significant differences were maintained after controlling for Type I error using the Bonferroni procedure. Thus, it was safe to conclude that the main independent variable of interest (depressive severity) differed significantly across groups and that other sample characteristics did not confound with subsequent results (i.e., age, education, and personality dimensions were not needed as covariates to test the main hypotheses).

### Correlates of Self-Complexity (H)

Given that self-complexity (i.e., the H-statistic) increases linearly as a function of the number of adjectives utilized in a given card sort (cf. Pilot study 2; also see Scott, 1962), and that the number of self-aspects an individual uses to think about him/herself is also associated with cognitive complexity, both the number of adjectives used and the number self-groups generated were computed in order to determine whether or not they were required as covariates.

The means and standard deviations of the various self-complexity scores, the number of adjectives employed and the number of self-aspects formed are presented in Table 6. As anticipated, the numbers of adjectives used in the card sorts were significantly associated with total self-complexity ( $r = .31$ ,  $p < .01$  for positive adjectives and  $r = .28$ ,  $p < .01$  for negative adjectives). With respect to group differences, there was a negligible tendency for the nondepressed and the mildly depressed subjects to use more positive adjectives. There was also a slightly higher number of negative adjectives used by the moderately/severely depressed group followed closely by the nondepressed group and then the mildly depressed group (see Table 6). Differences among groups were not significant for the number of positive adjectives,  $F(2, 117) = .08$ ,  $p = .92$ , nor negative adjectives,  $F(2, 117) = .57$ ,  $p < .57$  utilized. No group differences were obtained for the number of sociotropic-positive,  $F(2, 117) = .10$ ,  $p = .90$ , sociotropic-negative,  $F(2, 117) = .72$ ,  $p = .49$ , autonomous-positive,  $F(2, 117) = .15$ ,  $p = .86$ , or autonomous-negative,  $F(2, 117) = 1.15$ ,  $p = .32$ , adjectives employed.

The number of self-aspects constructed for positive and negative adjectives was also significantly related to total self-complexity ( $r = .66$ ,  $p < .01$  and  $r = .68$ ,  $p < .01$ ,

Table 6

Means (Standard Deviations) of the Complexity Variables Across Groups

| Variable         | Nondepressed  |        | Mildly<br>Depressed |        | Severely<br>Depressed |        |
|------------------|---------------|--------|---------------------|--------|-----------------------|--------|
|                  | <u>M</u> (SD) |        | <u>M</u> (SD)       |        | <u>M</u> (SD)         |        |
|                  |               |        |                     |        |                       |        |
| H Total          | 2.50          | (0.53) | 2.29                | (0.56) | 2.49                  | (0.52) |
| H Positive       | 2.55          | (0.58) | 2.24                | (0.59) | 2.44                  | (0.60) |
| H Negative       | 2.45          | (0.67) | 2.33                | (0.61) | 2.54                  | (0.57) |
| Self-Aspects (+) | 4.85          | (1.83) | 4.09                | (1.38) | 4.63                  | (1.79) |
| Self-Aspects (-) | 4.43          | (1.64) | 4.08                | (1.44) | 4.58                  | (1.80) |
| Adjectives (+)   | 13.26         | (1.46) | 13.26               | (1.85) | 13.14                 | (1.45) |
| Adjectives (-)   | 12.35         | (2.64) | 12.13               | (2.72) | 12.73                 | (2.04) |
| H SP             | 2.41          | (0.86) | 2.01                | (0.74) | 2.16                  | (0.79) |
| H SN             | 2.51          | (0.71) | 2.13                | (0.69) | 2.35                  | (0.75) |
| H AP             | 2.69          | (0.61) | 2.22                | (0.72) | 2.55                  | (0.62) |
| H AN             | 2.39          | (0.72) | 2.22                | (0.77) | 2.51                  | (0.66) |

Note. H = cognitive complexity; Total H = the mean of the 4 card-sorts; H Positive = the mean of the 2 positive card-sorts; H Negative = the mean of the 2 negative card-

(table continues)

sorts; Self-Aspects (+ and -) = the number of groups formed using the positive and negative adjectives, respectively; Adjectives (+ and - ) = the mean number of words utilized in the card-sorts for positive and negative adjectives, respectively; HSP = complexity for sociotropy-positive; HSN = complexity for sociotropy-negative; HAP = complexity for autonomy-positive; HAN = complexity for autonomy-negative.

respectively). For both positively and negatively valenced adjectives, the nondepressed and moderately- to severely-depressed groups generated a somewhat higher number of groups relative to the mildly depressed group (see Table 6). The number of self-aspects formed did not, however, differ significantly across groups for either the positive,  $F(2, 117) = 2.18, p = .12$ , or the negative,  $F(2, 117) = .99, p = .37$ , adjectives. No significant differences were obtained across groups for the number of self-aspects formed using the sociotropic-positive,  $F(2, 117) = 1.84, p = .16$ , sociotropic-negative,  $F(2, 117) = 1.02, p = .36$ , autonomous-positive,  $F(2, 117) = 2.17, p = .12$ , or autonomous-negative,  $F(2, 117) = .93, p = .40$ , adjectives.

The above ANOVAs indicate there was no concern regarding potential confounds of the number of adjectives utilized or the number of self-groups formed. These variables were not, therefore, needed as covariates and were considered no further.

### Statistical Assumptions

Inspection of the descriptive statistics (e.g., kurtosis, skewness) revealed that the data approximated a normal distribution. Moreover, there were no missing cases for any of the statistical analyses (i.e., all subjects had complete data sets).

In order to ensure power against a false null hypothesis or, conversely, against an inflated Type I error rate, Bartlett's Box F was used to test heterogeneity of variance for all of the preliminary and main analyses. In general, the assumption of equivalent variance was satisfied. Bartlett's Box F was, however, significant in two of the preliminary analyses (i.e., the one-way ANOVA using sociotropy by group, Box F = 4.16,  $p = .016$ , and the one-way ANOVA using age by group, Box F = 8.25,  $p = .001$ ). For the main analyses, violations to the homogeneity of variance assumption

occurred on three different occasions. However, none of the results for these ANOVAs were significant. Given the lack of differences between groups on these analyses, coupled with the fact that ANOVA is robust to many of its assumptions with equal sample sizes (Myers & Wells, 1991; Tabachnik & Fidell, 1989), transformations of the data were not deemed necessary.

### Tests of the Main Experimental Hypotheses

For descriptive purposes, and for subsequent reference, the correlations among the BDI, the personality dimensions, the main complexity measures, and the possible selves ratings are presented in Table 7. Inspection of the zero-order correlations suggest that none of the self-complexity measures were significantly associated with depressive severity. In fact, the only two measures significantly related to depression were the ratings for one's expected positive selves ( $r = -.28, p < .01$ ) and for one's expected negative selves ( $r = .43, p < .01$ ). The personality dimensions of sociotropy and autonomy were not significantly associated with depression, although sociotropy was positively and significantly related to one's expectation of negative self-aspects ( $r = .33, p < .01$ ).

### Extension of Linville (1987)

The first experimental hypothesis predicted that nondepressed subjects would exhibit low complexity for positive self-attributes and high complexity for negative self-attributes. Moderately to severely depressed individuals, on the other hand, were expected to demonstrate low complexity for negative and high complexity for positive self-aspects, while mildly depressed persons were predicted to organize both positive and negative trait adjectives with high complexity.

Table 7

Intercorrelation Matrix for the Main Variables Under Investigation

|        | BDI    | Socio. | Auto. | H Tot. | H Pos. | H Neg. |
|--------|--------|--------|-------|--------|--------|--------|
| BDI    | —      |        |       |        |        |        |
| Socio. | .12    | —      |       |        |        |        |
| Auto.  | .01    | .06    | —     |        |        |        |
| H Tot. | .01    | .12    | .07   | —      |        |        |
| H Pos. | -.09   | .04    | .08   | .88**  | —      |        |
| H Neg. | .07    | .17    | .04   | .89**  | .58**  | —      |
| Hoped  | -.08   | -.06   | .02   | -.03   | .00    | -.06   |
| Feared | .12    | .08    | -.06  | -.02   | -.01   | -.02   |
| E Pos. | -.28** | -.17   | .02   | .09    | .11    | .04    |
| E Neg. | .43**  | .33**  | -.01  | .09    | .01    | .14    |

(table continues)



As a beginning step to data analysis, a modified version of Linville's (1987) finding of no direct relationship between self-complexity and depressive severity was tested. Specifically, a new variable was created by taking the mean H-statistic from the 4 self-complexity tasks to assess group differences collapsing across personality-relevant and differentially valenced adjectives. As expected, a one-way ANOVA yielded no significant differences between groups in total complexity,  $F(2, 117) = 2.06$ ,  $p = .132$  (see Table 6 for means and standard deviations).

Contrary to the hypothesis stated above, both the nondepressed and moderately/severely depressed subjects demonstrated higher self-complexity for positively valenced adjectives than the mildly depressed group (see Table 6). Although not meeting criteria, this result approached statistical significance,  $F(2, 117) = 2.76$ ,  $p = .07$ . Tests of the specific main effects were followed up because of the a priori hypothesis regarding group differences. Pairwise comparisons revealed that there was no significant difference between the nondepressed and the moderately/severely depressed groups,  $t(78) = .80$ ,  $p = .212$  (one-tailed). The nondepressed group, on the other hand, demonstrated significantly higher self-complexity than the mildly depressed group for positive adjectives,  $t(78) = 2.32$ ,  $p < .01$ . This finding remained significant after controlling for family-wise error rate via the Bonferroni adjustment ( $.05/3 = .017$ ). The mildly and moderately/severely depressed groups did not differ significantly on positive self-complexity,  $t(78) = -1.50$ ,  $p = .137$ .

The prediction of changes in negative self-complexity across the continuum from nondepressed to severely depressed was also not confirmed, as both the nondepressed and moderately/severely depressed groups showed higher self-complexity

for negative adjectives relative to the mildly depressed group. A one-way ANOVA revealed no significant group differences,  $F(2, 117) = 1.25, p = .29$ .

#### Patterns of Self-Representational Complexity and Personality Dimensions

The second main hypothesis stated that similar patterns of complexity would obtain across groups (see Hypothesis 1, p. 39), but that complexity would vary as a function of whether subjects are high or low for sociotropy and high or low for autonomy. In particular, it was expected that individuals who scored high on a particular personality mode would demonstrate significantly lower self-representational complexity relative to those who scored low. In order to evaluate this hypothesis, scores on the subscales of the Sociotropy/Autonomy Scale were analyzed separately. Subjects' scores were first classified into high and low for sociotropy on the basis of median splits (thus yielding 20 high scorers and 20 low scorers for each group). A 2 (Sociotropy High/Low) x 3 (Group) ANOVA was then conducted using the H-statistic for sociotropy-relevant stimuli (the mean of the positive and negative sociotropic adjectives) as the dependent variable. Neither the main effects of Group,  $F(2, 114) = 2.32, p = .103$ , nor Personality,  $F(1, 114) = 1.96, p = .164$ , were found. The interaction term was also not significant,  $F(2, 114) = 2.12, p = .125$ .<sup>8</sup>

In order to examine differences in complexity as a function of being schematic or aschematic for the sociotropic dimension, subjects' scores were also collapsed across group status to yield two groups of 60 high and 60 low scorers for sociotropy. The mean (standard deviation) complexity for the high and low scorers on the sociotropic dimension were 2.40 (.64) and 2.25 (.62) respectively. A one-way analysis of variance revealed no significant differences between groups,  $F(1, 118) = 1.89, p = .17$ .

In a fashion similar to the sociotropy analyses, median splits were also calculated for each group on the autonomy dimension of the SAS. A 2 (Autonomy High/Low) x 3 (Group) ANOVA demonstrated no significant Group,  $F(2, 114) = 1.69, p = .19$ , Autonomy,  $F(1, 114) = 1.76, p = .19$ , or Group x Autonomy,  $F(2, 114) = .07, p = .93$ , effects. When the data were collapsed across group status to examine cognitive organizational differences between high ( $n = 60$ ) and low ( $n = 60$ ) scorers on the autonomy construct, no significant group differences were obtained ( $M_{\text{high}} = 2.46, SD = .62; M_{\text{low}} = 2.60, SD = .62; F[1, 118] = 1.77, p = .19$ ).

It had also been predicted that the magnitude of the difference in self-representational complexity (between high and low personality modes) would be smaller for autonomous than for sociotropic individuals. To test this prediction, the mean H-statistic of the two sociotropic complexity tasks (i.e., H for sociotropic-positive and H for sociotropic-negative) was calculated for individuals who scored high and for individuals who scored low on the sociotropy subscale of the SAS. A difference score was then computed for the mean sociotropic complexity measure. The average autonomy H-statistic was then calculated separately for persons who scored high and low on the autonomy subscale of the SAS. A difference score was also calculated for the mean autonomy complexity measure. The mean difference score for sociotropic complexity was .16 ( $SD = .89$ ); the mean difference score for autonomous complexity was -.14 ( $SD = .70$ ). The difference between these two scores was significant,  $t(59) = 1.99, p < .03$  (one-tailed).

The third hypothesis, which contended that total self-complexity (the average of the two personality-relevant complexity scores) would be lower among sociotropics than autonomous individuals was examined by comparing the mean complexity scores

for individuals scoring high on sociotropy, and the mean complexity of individuals scoring high in autonomy (assessed via median splits). Although autonomous individuals exhibited higher self-complexity scores ( $M = 2.46$ ,  $SD = .637$ ) than sociotropic persons ( $M = 2.40$ ,  $SD = .615$ ), this difference was not significant,  $t(59) = -.48$ ,  $p = .32$  (one-tailed). When self-complexity was assessed for the opposite constructs (i.e., complexity for autonomous stimuli in individuals who scored high on sociotropy; complexity for sociotropic stimuli in individuals who scored high on autonomy) a significant difference was obtained,  $t(59) = 2.96$ ,  $p < .002$  (one-tailed). Thus, highly sociotropic individuals scored higher on self-complexity for autonomous stimuli ( $M = 2.61$ ,  $SD = .510$ ) than autonomous individuals did for sociotropic stimuli ( $M = 2.32$ ,  $SD = .621$ ).

#### Assessment of Self-Complexity as an Individual Difference Variable

In order to ensure that self-complexity was not merely an individual difference variable, zero-order correlations were computed for the complexity scores among the four card sorts (see Table 8). Although all complexity measures were significantly intercorrelated (all  $p < .01$ ), these high correlations appeared to represent method variance rather than the effect of complexity as an individual difference variable per se. Specifically, the lowest correlation was found between the sociotropic-positive and the autonomy-negative adjective stimuli (opposite construct, opposite valence). Moderate correlations were obtained for the same construct but oppositely valenced stimuli, or the opposite construct but similarly valenced adjectives (the exception here was the correlation between sociotropy-negative and autonomy-negative,  $r = .61$ ,  $p < .01$ , which exhibited the highest correlation among the card-sorts). Finally, the correlation between autonomy-positive and autonomy-negative was relatively high (see

Table 8

Intercorrelation Matrix of Complexity Scores for the Four Card-Sorting Tasks

|            | Socio-Pos. | Socio-Neg. | Auto-Pos. | Auto-Neg. |
|------------|------------|------------|-----------|-----------|
| Socio-Pos. | —          |            |           |           |
| Socio-Neg. | .45**      | —          |           |           |
| Auto-Pos.  | .44**      | .48**      | —         |           |
| Auto-Neg.  | .35**      | .61**      | .51**     | —         |

\*\*  $p < .01$ .

Table 8). The differential magnitudes of correlations across stimuli suggested that self-complexity, as assessed in this present study, was not simply a variable influenced by individual differences.

#### Possible Selves and Expected Selves

The last experimental hypothesis involved a prediction that participants who exhibited high complexity for positive self-aspects would perceive a greater psychological distance between their hoped-for and their expected selves than individuals lower in positive self-complexity. A smaller perceived psychological distance was expected for persons who scored low in negative self-complexity between their feared possible selves and their expected negative selves. To test the former prediction, subjects were divided into high and low for positive self-representational complexity by means of median splits. A difference score was then calculated between each individual's hoped-for possible selves and their expected positive selves. To assess the latter portion of this hypothesis, all subjects were classified into high and low for negative self-complexity and the differences between feared and expected negative selves were computed. One-way analyses of variance were used to determine the significance of group differences.

In contrast to the above hypothesis, individuals who were classified as high for positive complexity exhibited a smaller psychological distance between hoped-for and expected possible selves ( $M = 14.95$ ,  $SD = 25.52$ ) than individuals low in positive complexity ( $M = 17.75$ ,  $SD = 18.88$ ). Group differences were not significant,  $F(1, 118) = .47$ ,  $p = .50$ . Also inconsistent with predictions, individuals who scored low in negative complexity perceived a higher distance between their feared and expected selves ( $M = 68.70$ ,  $SD = 42.80$ ) relative to individuals who were high for negative

self-complexity ( $M = 63.37$ ,  $SD = 36.15$ ). Again, group differences were not significant,  $F(1, 118) = .54$ ,  $p = .46$ .

As an exploratory inquiry, group differences (i.e., between nondepressed, mildly depressed, and moderately/severely depressed) were assessed for each of the possible selves ratings. The means and standard deviations of the possible selves ratings across groups are presented in Table 9. No significant differences were found for either of the possible selves measures (hoped-for possible selves,  $F[2, 117] = .70$ ,  $p = .50$ ; feared possible selves,  $F[2, 117] = .67$ ,  $p = .51$ ). When the ratings for expected positive and expected negative selves were analyzed, however, significant group differences were obtained.

Expected positive selves were inversely and significantly correlated with BDI scores ( $r = -.28$ ,  $p < .01$ ). A one-way ANOVA using expected positive selves as the dependent variable and group status as the between-subjects variable was significant,  $F(2, 117) = 4.92$ ,  $p < .01$ . Independent t-tests were used to follow-up this finding. One-tailed pairwise comparisons revealed significant differences between the nondepressed and moderately/severely depressed,  $t(78) = 2.43$ ,  $p < .01$ , and between the mildly and moderately/severely depressed groups,  $t(78) = 2.90$ ,  $p < .01$ , but not between the nondepressed and mildly depressed groups,  $t(78) = -.58$ ,  $p = .28$ . Significant findings were maintained after employing the Bonferroni statistic ( $.05/3 = .017$ ).

With respect to negative expectations, the trend appeared to increase linearly with depressive severity ( $r = .43$ ,  $p < .01$ ; see Table 7). A one-way ANOVA demonstrated significant differences among groups,  $F(2, 117) = 13.61$ ,  $p < .0001$ . One-tailed pairwise contrasts revealed significant differences between each of the

Table 9

Means and Standard Deviations of Possible Selves Ratings for Nondepressed, Mildly Depressed and Moderately/Severely Depressed Subjects.

| Variable      | Nondepressed<br><u>M</u> (SD) | Mildly Depressed<br><u>M</u> (SD) | Severely Depressed<br><u>M</u> (SD) |
|---------------|-------------------------------|-----------------------------------|-------------------------------------|
| Hoped-for     | 173.50 (16.72)                | 173.43 (21.52)                    | 168.48 (26.18)                      |
| Feared        | 145.03 (39.81)                | 145.60 (36.40)                    | 153.00 (24.65)                      |
| Expected Pos. | 158.08 (18.88)                | 160.65 (20.55)                    | 147.63 (19.55)                      |
| Expected Neg. | 68.75 (19.67)                 | 79.13 (29.09)                     | 97.65 (25.63)                       |

groups (nondepressed and moderately/severely depressed,  $t [78] = -5.66, p < .001$ ; mildly depressed and moderately/severely depressed,  $t [78] = -3.02, p < .002$ ; nondepressed and mildly depressed,  $t [78] = -1.87, p < .03$ ). The latter finding did not, however, remain significant once Type I error was controlled for (Bonferroni adjustment =  $.05/3 = .017$ ).

Another set of exploratory analyses entailed examining hoped-for, feared, and expected possible selves for sociotropic and autonomous adjectives separately. The results of these analyses are presented in Table 10. No significant differences were found across groups for hoped-for possible selves with either the sociotropic,  $F (2, 117) = .82, p = .44$ , or autonomous,  $F (2, 117) = .42, p = .66$ , adjectives. Likewise, no significant differences were found across groups for feared possible selves with either the sociotropic,  $F (2, 117) = .12, p = .90$ , or autonomous stimuli,  $F (2, 117) = 1.97, p = .14$ .

Group differences were also not significant for expected sociotropic possible selves,  $F (2, 117) = 1.95, p = .15$ . For autonomous-positive expected selves, however, significant differences were obtained,  $F (2, 117) = 5.18, p < .007$ . As illustrated in Table 10, expected autonomous-positive selves were highest within the nondepressed group, and lowest in the moderately/severely depressed group. Statistically significant differences emerged between the nondepressed and moderately/severely depressed groups,  $t (78) = 2.71, p < .004$ , and between the mildly depressed and moderately/severely depressed groups,  $t (78) = 2.74, p < .004$ . These contrasts were significant after controlling for Type I error. The mean difference between the nondepressed and mildly depressed groups was not significant,  $t (78) = -.04, p = .97$ .

Table 10

Mean Differences Between Groups (Non-, Mildly-, and Moderately/Severely-Depressed) on Possible Selves Ratings for Sociotropic/Autonomous Stimuli.

| Rating    | Nondepressed  | Mildly<br>Depressed | Severely<br>Depressed |
|-----------|---------------|---------------------|-----------------------|
|           | <u>M</u> (SD) | <u>M</u> (SD)       | <u>M</u> (SD)         |
| Hoped-for |               |                     |                       |
| SP        | 95.35 (7.91)  | 94.63 (9.33)        | 92.25 (15.30)         |
| AP        | 78.15 (12.31) | 80.58 (12.47)       | 78.73 (12.42)         |
| Feared    |               |                     |                       |
| SN        | 70.60 (21.87) | 69.05 (19.97)       | 71.00 (17.77)         |
| AN        | 74.75 (20.09) | 76.55 (18.03)       | 82.00 (11.73)         |
| Expected  |               |                     |                       |
| SP        | 88.08 (9.09)  | 90.53 (10.26)       | 86.33 (9.27)          |
| AP        | 70.00 (13.60) | 70.13 (13.67)       | 61.15 (15.55)         |
| SN        | 34.75 (9.41)  | 39.60 (16.64)       | 43.33 (11.99)         |
| AN        | 34.00 (12.98) | 40.90 (16.26)       | 51.00 (15.83)         |

Note. SP = Sociotropic-Positive; SN = Sociotropic-Negative; AP = Autonomous-Positive; AN = Autonomous-Negative.

The ratings for both sociotropy-negative and autonomy-negative expected selves exhibited parallel patterns. Nondepressed subjects perceived a lower probability of negative self-descriptors occurring in the future. Mildly depressed subjects rated their expected negative selves higher, and the moderately/severely depressed group rated negative self-descriptors as most likely to occur. One-way ANOVAs revealed significant group differences for both of these measures (see Table 10),  $F(2, 117) = 4.39, p < .015$  for sociotropic-negative;  $F(2, 117) = 3.80, p < .0001$  for autonomy-negative. Pairwise comparisons indicated that the nondepressed group differed significantly from the moderately/severely depressed group with respect to perceived expectation of sociotropic negative self-aspects,  $t(78) = -3.56, p < .001$ . No significant differences were obtained between the nondepressed group and the mildly depressed group,  $t(78) = -1.61, p = .06$ , or between the mildly depressed group and the moderately/severely depressed group,  $t(78) = -1.15, p = .13$ .

Statistically significant differences were found between all groups on the autonomy-negative ratings. The nondepressed group exhibited significantly lower ratings than both the moderately/severely,  $t(78) = -5.44, p < .001$ , and the mildly,  $t(78) = -2.10, p < .02$ , depressed groups. The moderately/severely and the mildly depressed groups also differed in their ratings,  $t(78) = -2.98, p < .01$ . When family-wise error rate was controlled via the Bonferroni procedure, the difference between the nondepressed and mildly depressed groups no longer remained significant.

In order to explore the congruency effect for social and achievement stimuli, subjects were classified into high and low for sociotropy and later into high and low

for autonomy. Multivariate analysis of variance (MANOVA) was then conducted using the four expectation ratings as dependent variables and high/low as the between subjects variable. The omnibus MANOVA revealed significant group differences,  $F(4, 115) = 5.09, p < .001$ . Univariate F-tests were then used to determine where in the data significant differences emerged. No significant difference was found between high and low sociotropy for the sociotropy-positive construct,  $F(1, 118) = .06, p = .80$ . Significant differences materialized, however, for the remaining three analyses. Individuals who scored low on sociotropy had significantly higher scores on the expected autonomous-positive rating,  $F(1, 118) = 6.26, p < .01$ . Conversely, individuals who were schematic for sociotropy rated their expected sociotropic-negative,  $F(1, 118) = 6.52, p < .01$ , and the autonomous-negative,  $F(1, 118) = 17.69, p < .001$ , selves as more likely. The means and standard deviations for each of these ratings (for the high versus low sociotropy and high versus low autonomy) are displayed in Table 11.

High and low scores on the autonomy construct were also subjected to a MANOVA but no significant differences emerged in this analysis,  $F(4, 115) = .75, p = .56$ .

Table 11

Means and Standard Deviations for Expectancy Ratings of Individuals High or Low for Each Personality Mode.

| Variable   | Sociotropy    |               | Autonomy      |               |
|------------|---------------|---------------|---------------|---------------|
|            | High          | Low           | High          | Low           |
|            | <u>M</u> (SD) | <u>M</u> (SD) | <u>M</u> (SD) | <u>M</u> (SD) |
| Socio-Pos. | 88.53 (9.49)  | 88.08 (9.84)  | 87.78 (8.89)  | 88.83 (10.37) |
| Auto-Pos.  | 63.78 (13.88) | 70.40 (15.50) | 67.38 (15.46) | 66.82 (14.23) |
| Socio-Neg. | 42.27 (13.65) | 36.18 (12.43) | 38.30 (13.64) | 40.15 (13.12) |
| Auto-Neg.  | 48.15 (15.64) | 36.18 (15.53) | 42.27 (16.36) | 42.07 (17.06) |

Note. Subject data was analyzed separately for sociotropy and then for autonomy; consequently there are 60 individuals per cell.

## Discussion

The principle purpose of this thesis was to investigate cognitive organizational differences across the continuum of depressive severity in terms of valence of social- and achievement-oriented adjectives, dimensions of personality (sociotropy/autonomy), and future schemata (possible selves). Each hypothesis will be discussed in turn, and results will be related to the current literature, and to the initial conceptualization which directed the hypotheses. This section of the thesis will consider methodological and theoretical limitations to the results and literature, highlight the important implications of the results, and suggest directions for future research.

### Extension of Linville (1987)

Hypothesis 1 purported that positive and negative adjectives would be organized differentially across the groups of nondepressed, mildly depressed and moderately to severely depressed individuals. Visual inspection of Table 7, however, reveals that none of the self-complexity measures correlated significantly with depressive severity. Moreover, no significant group differences were found for either positive or negative self-complexity. Thus, Hypothesis 1 was not supported.

Follow-up tests, based on a priori considerations, indicated that nondepressed persons exhibited higher self-complexity for positive adjectives than mildly depressed individuals. No other significant group differences were obtained. The finding that nondepressed individuals had higher positive self-complexity runs counter to the stated hypothesis. Although it is not clear why such a result was found, one possibility is that nondepressed persons, who are more familiar with positive self-cognition (Dance

& Kuiper, 1987; Kuiper et al., 1983; Kuiper et al., 1988; Kuiper et al., 1987; Taylor & Brown, 1988), actually organize positive self-aspects independently. Linville (1982a, 1982b; Linville & Jones, 1980) provided evidence that increased familiarity with a given content domain was related to increased complexity within that domain (see Footnote #4). Specifically, Linville (1982b) found that individuals exhibited higher complexity for their own group members than of other group members.

Compatible with the notion that complexity increases with familiarity is the finding, within this study, that mildly depressed individuals exhibited consistently lower complexity than the nondepressed and moderately/severely depressed groups (see Table 6). While these results must be interpreted with caution, because no significant differences were obtained among these groups, they lend support to the idea that familiarity and complexity are positively related. The literature pertaining to the inconsistency of the schema (e.g., schema revision) in mild depression (e.g., Dance & Kuiper, 1987; Kuiper et al., 1983; Kuiper et al., 1988; Ruehlman et al., 1985; Ross, 1989; Ross & Mueller, 1989; Strohmer et al., 1988), for example, suggests that dysphoric persons do not have a well-consolidated schematic structure.

The fact that Linville's (1982b) research examined social perception rather than self perception, coupled with the bulk of empirical evidence which suggests that schema-consistent and self-relevant information is processed more rapidly than schema-irrelevant information (Haaga et al., 1991; Kuiper & Derry, 1981; Kuiper & Rogers, 1979; Markus, 1977; Rogers et al., 1979) represents a caveat to this prospect. The possibility that nondepressed individuals actually organize positive self-relevant

information independently is also refuted to some extent by the lack of significant differences between the nondepressed and moderately/severely depressed groups, whereby one would expect the moderately/severely depressed group to have demonstrated high complexity for negative adjectives if familiarity was positively associated with complexity.

Another aspect of Hypothesis 1 was to address the debate over depressive realism (Alloy & Abramson, 1979, 1988; Alloy & Ahrens, 1987; Crocker et al., 1988; Dobson & Franche, 1989; Dykman et al., 1991; Lewinsohn et al., 1980; Taylor & Brown, 1988) versus cognitive distortion (Beck, 1983; Beck et al., 1979; Kovacs & Beck, 1978; Eaves & Rush, 1984; Silverman et al., 1984) in depression, and illusion of control in nondepressives (Taylor & Brown, 1988) by examining cognitive organization for positive and negative adjectives. As there were no significant differences among groups, and because the pattern of scores was not in the predicted direction, however, it is not possible to comment on this issue. It is feasible that there are genuinely no cognitive organizational differences among these groups, and that the differences rest in the information-processing capabilities of self-schemata. Other instruments for assessing cognitive organizational properties are needed using a similar sample in order to lend credence to or to refute this hypothesis.

#### Self-Representational Complexity and Sociotropy/Autonomy

Hypothesis 2 predicted that similar group differences in self-complexity as in Hypothesis 1 would obtain, but that complexity would vary according to whether individuals were schematic (high scorers) or aschematic (low scorers) for a certain

personality mode. Specifically, schematic persons were expected to exhibit lower complexity for self-relevant stimuli than aschematic individuals. Consistent with the previously reported results for positive and negative complexity, but incongruent with predictions, no significant differences were found among the non, mildly, and moderately to severely depressed groups for either the social or achievement adjectives when high/low sociotropy and autonomy were examined, respectively. The magnitude of the difference in self-complexity between high and low sociotropy and autonomy, however, was significant.

As predicted, the difference between high and low personality was greater for sociotropy than for autonomy. This difference suggests that being schematic or aschematic makes more of a difference (in cognitive organization) for sociotropic adjectives than for adjectives allocated to the autonomy construct. Because autonomous adjectives resulted in higher complexity, regardless of congruence, partial support was obtained for the idea that achievement stimuli/events are organized more independently. Consistent with this notion are the results from Pilot study 3 which indicated that autonomous adjectives clustered uniquely in their expected positive and negative quadrants while sociotropic adjectives were more scattered across domains (see Figures 3 & 4).

In contrast to the prediction from Hypothesis 3, that total self-complexity would be lower in sociotropics than in autonomous individuals, no significant differences were found between sociotropic ( $M = 2.40$ ,  $SD = .615$ ) and autonomous ( $M = 2.46$ ,  $SD = .637$ ) individuals for schema-consistent items. In fact, when schema-

inconsistent complexity was assessed, individuals who were high on sociotropy exhibited higher self-complexity for autonomous stimuli than autonomous persons did for sociotropic stimuli. The lack of complexity differences for personality-relevant adjectives, between highly sociotropic and highly autonomous individuals, together with the significant differences between these groups for personality-inconsistent adjectives, suggest that, regardless of personality scores, autonomous stimuli are organized more independently than sociotropic stimuli (e.g., it may be easier to generate a number of different achievement-like goals/self-aspects than unique interpersonal goals/self-aspects).

As noted previously, the multidimensional scaling plots (of sociotropic and autonomous adjectives) also strengthen the notion that sociotropic stimuli cross more construct boundaries, and that autonomous stimuli form more independent constructs (see Figures 3 & 4). Thus, rather than a psychometric artifact, the overlap of sociotropic adjectives may actually be a valid indication of how individuals perceive social events or stimuli. If replicated, these findings may further our understanding of why sociotropy and interpersonal stress strongly predict depression, while the amalgamation of autonomy and autonomous/achievement stress is less consistent (Clark et al., 1992; Hammen, Ellicott, & Gitlin, 1989; Hammen, Ellicott, Gitlin, & Jamison, 1989; Mongrain & Zuroff, 1989; Robins & Block, 1988; Robins et al., 1989). These results may also help to account for the fairly consistent findings that interpersonal stress is an important precipitant of depression for both sociotropic and autonomous individuals (Reynolds & Gilbert, 1989; Segal et al., 1990; Zuroff et al.,

1990; Zuroff & Mongrain, 1987, but see Introduction for important methodological limitations in the latter study).

Similarly, the findings of higher complexity for autonomous stimuli are also consonant with the literature which demonstrates that autonomy may operate as a buffer in depression (Cappeliez, 1993; Gilbert & Reynolds, 1990; Segal et al., 1992; Zuroff et al., 1990; Zuroff & Mongrain, 1987). Positive or negative interpersonal events/stimuli may carry more affective weight, due to the interconnectedness of such events to many aspects regarding self-representation. As acknowledged in the Introduction, however, an alternative hypothesis is that the psychometric characteristics of the autonomy construct are poorer than for the sociotropy construct, and that the SAS may be in need of revision.

Although direct comparability with other studies is limited due to the fact that different authors have chosen to operationalize being sociotropic or autonomous in different ways (e.g., z-scores; top and bottom thirds of the sample, etc.), it appears that the means and standard deviations for sociotropy and autonomy in this present sample are similar to those reported in other studies (Baron & Piexoto, 1991; Clark et al., 1992; Hammen et al., 1989; Peselow et al., 1992; Robins & Block, 1988). In a sample of 98 undergraduates (age range = 17 - 29), for example, Robins and Block (1988) found a mean (SD) of 69.90 (15.80) for sociotropy and 68.90 (12.00) for autonomy (the correlation of sociotropic and autonomous personality with depressive severity [BDI] was  $r = .33$ ,  $p < .01$ , and  $r = .12$ ,  $p = ns$ , respectively). In contrast to Robins and Block (1988), neither sociotropy ( $r = .12$ ) nor autonomy ( $r = .01$ ) were

significantly related to BDI scores in this study. This is an anomalous finding, particularly for the sociotropy construct, and there is no apparent reason why sociotropy was uncorrelated with BDI scores in this study.

#### Possible Selves, Expected Selves and Depression

The last hypothesis of this thesis stated that individuals with high complexity for positive adjectives would have a greater hoped-for/expected discrepancy than individuals with low positive complexity, and that individuals with low negative complexity would perceive a smaller psychological distance between feared and expected-negative selves. This hypothesis was not substantiated. The lack of significant differences is not surprising in light of the fact that the correlations between positive and negative complexity, and hoped-for, feared, and expected positive/negative possible selves were all so low (see Table 7).

The lack of significant differences could be explained by the fact that the card-sorting adjectives themselves were not relevant to subjects' schemata. However, all hoped-for and feared possible selves were rated as highly important to individuals. Out of a possible high score of 210, subjects' average (standard deviation in parenthesis) ratings for hoped-for selves was 171.80 (21.47). Although somewhat lower, the feared possible selves were also rated as highly important ( $M = 147.88$ ,  $SD = 33.62$ ; these ratings were perceived to be approximately 82% and 70% salient, respectively).

For hoped-for selves, nondepressed individuals demonstrated scarcely higher average ratings than the mildly or moderately/severely depressed groups. For feared

selves, the moderately/severely depressed group exhibited minimally higher ratings than the remaining groups. As illustrated in Table 9 (also see Results section), differences among groups for both hoped-for and feared possible selves were highly similar and not statistically significant. These results suggest that the adjective lists were all rated as equally self-important across groups.

An ancillary and exploratory question was whether group differences would obtain for expected self-ratings. Significant differences were found among groups for both positive and negative self-expectations (using identical adjectives as in the card-sorting tasks). When the data for positive expectations were analyzed, both nondepressed and mildly depressed persons had significantly higher ratings than moderately/severely depressed individuals, but the difference between the two former groups was not significant. On the negative ratings, significant differences were found between each of the groups, with moderately/severely depressed individuals expecting the most negative self-descriptors, the nondepressed subjects expecting the least, and the mildly depressed group falling in between. The difference between the nondepressed and mildly depressed groups did not remain significant, however, once family-wise error rate was controlled for.

The reader will recall that the BDI was used as a continuous measure in the assessment of depressive severity (see Subjects section in the Main Study). Although yielding a more externally valid presentation of the distribution of depression in the general population, the lack of affective separation (i.e., ensuring completely distinct groups) may have influenced these findings. Overall, the results are in line with the

depression literature (Beck, 1963; 1964; Beck et al., 1979; Kovacs & Beck, 1978), and suggest that hopelessness is positively associated with depressive severity. As this is a correlational design, the issue of causality is clearly precluded in this case.

Possible selves ratings were also explored further by examining future schemata for sociotropic and autonomous adjectives. No significant differences were found across groups for sociotropic-positive expectancies. Significant group differences were achieved, however, for autonomous-positive, autonomous-negative, and sociotropic-negative self-aspects. The most likely explanation for the lack of group differences for sociotropic-positive stimuli is that positive sociotropic descriptors are easier to attain than autonomous descriptors (e.g., it is easier to think of oneself in the future as understanding, loyal or kind than as powerful, sophisticated, or reputable). Depressed subjects may have perceived more of a sense of control over their positive interpersonal qualities than for their qualities in any of the other domains. Supportive of this proposal, the means of sociotropy-positive expectations for the nondepressed, mildly depressed, and moderately to severely depressed groups were 88.08, 90.53, and 86.33, respectively (out of a possible score of 105). Thus, all groups considered positive social descriptors as quite likely to occur.

For the autonomous-positive expectancies, the nondepressed and mildly depressed groups did not differ significantly from each other, but both displayed significantly higher ratings than the moderately/severely depressed group. For the sociotropic- and autonomous-negative adjectives, nondepressed subjects had significantly lower ratings than moderately/severely depressed subjects, but did not

differ from the mildly depressed group. Again, it is possible that the choice of BDI cutoffs increased the error variance such that the between-subjects to within-subjects ratio (i.e., the F-ratio) was suppressed.

As a final exploratory analysis, expectation ratings were assessed for congruency (i.e., matching) effects first for sociotropy, and then for autonomy. Group differences between schematics (high scorers) and aschematics (low scorers) were found only for the sociotropic dimension on the SAS. In particular, no significant difference was found for the sociotropic-positive expectations, which concurs with earlier explanations regarding the likelihood that sociotropic-positive descriptors may be perceived as most easily attainable. The structural composition of the sociotropy construct (see Results section for a more elaborate discussion of the multidimensional scaling findings) may have also contributed to this finding although this appears to be unlikely given that a statistically significant effect was found for the sociotropy-negative adjective set (which demonstrated even poorer structural validity than the sociotropic-positive adjectives). An intuitively sensible finding was that aschematics for sociotropy perceived a higher probability of acquiring autonomous-positive self-descriptors. If interpersonal values are lower on one's priority list, it is conceivable that autonomous/achievement values would be more likely to be sought after and expected than interpersonal goals.

Individuals schematic for sociotropy perceived both sociotropic-negative and autonomous-negative descriptors as more likely than individuals who were aschematic for sociotropy. One explanation that may, at least in part, account for this finding is

that highly sociotropic persons may evaluate and emphasize achievement situations with respect to their interpersonal ramifications. While this tendency has been purported in the literature (Dyck & Stewart, 1991), it was not assessed in the current study and remains merely speculative.

### Theoretical and Methodological Arguments

#### Theoretical Counterarguments and Comment

Both theoretical and methodological arguments may be advanced to explain the lack of cognitive organizational differences found among the three groups employed in this research design. One major antithesis is that the initial conceptualization with which the four hypotheses were derived was, in some way, flawed. As Maxwell and DeLaney (1990) cogently argue, the data collection, analysis, and interpretation of scientific research is guided by the scientist's preconceived ideas regarding what is of interest and how relevant constructs are related. However, the underlying rationale of this study was grounded in both theoretical and empirical knowledge. Rather than recapitulating the theoretical framework of this study in its entirety, a brief overview of the process of its development will suffice.

A salient theoretical impetus of this research was the strong arguments by Segal (1988) and others (e.g., Ackermann & DeRubeis, 1993; Barnett & Gotlib, 1988; Dobson & Kendall, 1993; Dyck & Stewart, 1991; Segal & Muran, 1993; Zuroff, 1992) that research needs to investigate the "clustering or interconnectedness among mental operations" in depression (Segal, 1988, p. 157). Linville's (1982a, 1982b, 1985, 1987) concept of self-complexity appeared to denote a valuable measure of schematic

structure because of its ability to examine simultaneously the number and interconnectedness of self-aspects. Given the research on the *efficiency* of information-processing among non-, mildly-, and moderately/severely depressed individuals (Haaga et al., 1991; Kuiper et al., 1987; Kuiper & Derry, 1981; Kuiper & Rogers, 1979; Markus, 1977; Rogers et al., 1979), a decision was made to ascertain whether similar results would obtain in the evaluation of positive and negative schematic *organization*. As the meaning attributed to events/stimuli is an important variable mediating the impact of events/stimuli, Beck's (1983; Beck et al., 1983) constructs of sociotropy and autonomy were deemed to be salient to the issue of structural differences in depression. Moreover, the lack of research emphasis on future selves (e.g., Markus & Nurius, 1986) and empirical and theoretical evidence suggesting that orientation toward the future is important in depression (e.g., Beck et al., 1979; MacLeod & Cropley, 1995; also see Footnote #6), made possible selves an appealing construct to incorporate. Combining the social cognition literatures of self-complexity and possible selves (Cantor et al., 1986; Halberstadt et al., in press; Harter, 1990; Hooker, 1992; Linville, 1982a, 1985, 1987; Markus, 1983; Markus & Kunda, 1986; Markus & Nurius, 1986; Markus & Ruvolo, 1989; Markus & Wurf, 1987; Nurius, 1986, 1989; Oyserman & Markus, 1990a, 1990b; Ryff, 1991) with the clinical literature of depression was, therefore, a viable and theoretically important endeavour.

Another important theoretical question entails the validity of the H-statistic as a measure of cognitive organization. Miller and his colleagues (Miller et al., 1991) pointed out that the concept of complexity, or at least its operationalization (the trait-

sorting methodology), may lack validity. Although this may be a legitimate assertion, Linville (1985, 1987) did find the trait-sorting strategy to be theoretically useful. Not only is the card-sorting strategy derived from a solid framework in information-processing theory (see Attneave, 1959; Scott, 1969; Scott et al., 1979) it is also surrounded by historical relevance and use (e.g., Kelly's Role Construct Repertory Test, see Kalthoff & Neimeyer, 1993; Stein, 1994).

An intriguing issue that emerges, however, is whether individuals think about themselves in binary units (e.g., me/not me), which is an essential requirement of the card-sorting tasks (see Stein, 1994). Although it was not assumed that individuals think in binary terms, this task requirement evokes a question about the utility of the H-statistic. An advantage of the H-statistic, however, is that it assesses the redundancy among attributes, thus providing more incremental validity than a mere count of the number of adjectives employed.

Related to the above issue is whether H is powerful enough to provide information over and above individual differences, or is distinguishable from other related constructs (e.g., intelligence). The present model assumes that complexity is domain specific. The correlations depicted in Table 8 suggest that, while H may partially reflect an individual difference variable, it does not appear to be simply that. Likewise, Linville (1982a, 1982b) cited evidence which suggests that H is domain specific. Linville (1982b), for example, found that complexity about old males (other group members) was not related ( $r = .03$ ) to affective extremity regarding young males (own group members).

While it is possible that H accounts for no additional variance than level of education or measures of intelligence (e.g., no group differences were found in level of education which may account for the fact that H was not significantly different across groups), the correlation between total self-complexity and level of education was low ( $r = .13$ ) and not statistically significant. Kalthoff and Neimeyer (1993) recently found that the correlations between Linville's measure and two Shipley intelligence scores (verbal and abstract reasoning) were low ( $r_s = .18$  and  $.08$ , respectively) and not statistically significant.

An additional important theoretical question regarding the assessment of cognitive schemata concerns the distinction between declarative (available to conscious awareness) and procedural (automatic, not consciously registered) self-knowledge (Brewin, 1989; Segal, 1988). It may be that one's self-elements are actually organized procedurally and that self-report and card-sorting methodologies do not adequately tap into this structure. It is such potentialities that make the precise structure of self-representation elusive and in some ways unknowable.

#### Methodological Counterarguments and Comment

It was mentioned earlier that using more segregated BDI cutoffs may have yielded a different set of results. That low correlations were found between H and depressive severity (see Table 7) suggests that this is not a viable possibility. Further, each group differed significantly in depressive severity. The use of a more extreme BDI score for the moderately/severely depressed group was also an advantage in this

study and has been employed in only a handful of other studies using analogue samples.

The validity of the adjective sets utilized in this thesis also represents a methodological question. As this study provided items for subjects to sort rather than allowing subjects to respond open-endedly (although they did generate their own self-groupings), it may be argued that the adjective lists were not salient to subjects or to the constructs of sociotropy and autonomy. Another valid question is that the number of adjectives employed in the main analysis may have been too few to permit adequate variance to obtain group differences.

The implementation of the methodology in this thesis was, however, quite rigorous. First, the adjective lists were generated on the basis of theory (Beck, 1983) and expert nomination, to describe qualities that would be important for sociotropic and autonomous individuals. Second, the number of adjectives chosen for the main analysis was justified empirically (see Pilot Study 2). Third, each potential adjective was rated by 102 subjects for its importance to each personality dimension. The resultant four scales of 15 items each demonstrated excellent psychometric properties (coefficient alphas; range = .89 - .97) and good structural validity (see Pilot Study 3). The only caveat to this statement is the dispersion of many sociotropic-negative items which were found to be in the quadrants allocated to represent the other construct of interest. Even this finding, though, may be representative of individuals' perceptions of interpersonal stimuli rather than a measurement artifact. In addition to the methodological advantages just cited, a large enough sample size ( $n = 120$ ) was

employed in the main study with which to detect small group differences, had they existed.

Thus, notwithstanding counterarguments, the lack of significant differences between groups appears to be reliable and valid. With an appreciation for Popper's (1968, cited in Maxwell & DeLaney, 1990) theory of falsification, which states that one can never truly confirm a null hypothesis, the evidence seems to suggest that there are no cognitive organizational differences between nondepressed, mildly depressed and moderately/severely depressed groups, at least with respect to future schematic structure. Replication is needed to clarify this issue.

#### Implications of the Lack of Significant Findings

The general finding of no significant cognitive organizational differences across groups, chosen to represent varying levels of depressive severity, raises important theoretical and empirical issues. If the null hypothesis of no differences between groups is, in fact, true, then processes other than schematic structure must account for the concomitant rise in depression of negative cognitive products (e.g., automatic thoughts, dysfunctional attitudes) reported in previous studies (Ackermann & DeRubeis, 1993; Barnett & Gotlib, 1988; Beck et al., 1979; Burns, 1980; Dobson & Shaw, 1987; Eaves & Rush, 1984; Freeman et al., 1990; Haaga et al., 1991; Kovacs & Beck, 1978; Lewinsohn et al., 1981; Silverman et al., 1984). One likely candidate is the efficiency of information processing. Detailed in the Introduction, and only briefly reiterated here, is empirical research which supports the notion that nondepressed individuals process positive information more efficiently than negative information.

Mildly depressed persons, on the other hand, tend to display equally efficient processing for both positive and negative information, while severely depressed individuals efficiently process predominantly negative information.

The results of this study suggest that the structure or interconnectedness of self-elements within self-schemata remain unalterable throughout the onset, exacerbation, and maintenance of depressive symptomatology. What may differ, then, is the functional use of these schematic structures. That is, nondepressed, mildly depressed and severely depressed persons may have the same basic structure (or use the same organizational skills) for positive and negative information, but somehow (e.g., triggered by life events, biochemical fluctuations, and other reasons, the review of which extend beyond the scope of this thesis) shift their focus of attention to a different set of operations.

Segal (1988) cited three main theories regarding the differences between depressed and nondepressed persons: 1) that there are differences in the interconnectedness of self-elements, whereby individuals are vulnerable to depression because of the activation of a negative self-structure; 2) that there are differences in the accessibility of self-elements whereby dysphoria increases and maintains the accessibility of negative self-aspects, and; 3) there are differences in the availability of stored content, whereby depressives have more negative constructs available about the self. The results of this thesis indicate that the differences between depressed and nondepressed individuals may be functional (accessibility, availability) rather than structural (interconnectedness). If verified in subsequent research, such evidence

would suggest that individuals who succumb to depression have the organizational skills that are required for remission, and have merely shifted their processing of information toward the encoding and filtering of negative information.

The type of cognitive shift just suggested is akin to Markus and Nurius' (1986) idea of the working self-concept. Depressed and nondepressed individuals may have the same basic hierarchically organized set of both positive and negative self-representations; yet individuals in the former group, for whatever reason, may begin to focus their attention increasingly toward the negative. That is, these individuals may recruit into their working self-concept negative elements of self. This information, because of its immediacy and proximity to cognitive awareness, would be processed more efficiently than positive information which is organized in a similar manner, but is not emphasized within the working self-concept. With time, negative self-aspects within the working self-concept may become chronically accessible, and the depressive cycle continues. Although it captures well the differences between structural and functional characteristics of self-schemata that may transpire in depression, such a hypothesis is only conjecture and additional research is needed in this area.

#### Limitations to Generalizability

As Segal (1988) correctly asserts, the "demonstration of an internally valid paradigm does not guarantee that what is assessed in the lab corresponds to what is observed in the clinic" (p. 158). Internal and external validity are opposing processes; as one increases, the other necessarily decreases. Three important limitations to the generalizability of this study's results are delineated below.

## APPENDIX M: CONSENT FORM FOR THE MAIN STUDY

**Title:** Possible Selves (organization of future goals and fears), Personality, and Mood

**Investigators:** Dr. Keith S. Dobson and Mr. David J. A. Dozois

This is to certify that I hereby consent to participate in a study conducted by Dr. Keith Dobson and Mr. David Dozois of the Programme in Clinical Psychology at the University of Calgary. I understand that the purpose of the study is to investigate the relationships between future goals and fears, personality, and mood. I understand that my participation will involve the completion of a mood inventory, a personality inventory, and 6 tasks which will require me to sort a group of adjectives into piles that I believe cluster together in describing my possible self-aspects. My involvement will also entail rating each of the words as to the extent to which they represent different types of future goals and fears.

In addition, I understand that the results of my involvement will be kept in strict confidence. All documents will be locked in a filing cabinet and will contain no identifying information. A separate locked filing cabinet will contain a my name and identification number. Access to the list of names and/or data will only be given to David Dozois, Keith Dobson or a research assistant. I understand that any identifying information about me will never be released, and that research publications that may follow from this study will only present group results and never my personal test results. All information regarding myself will be destroyed five years after publication of the research.

The investigation and my part in the investigation has been explained to me by David Dozois, Dr. Dobson and/or a research assistant. I have been given the opportunity to ask whatever questions I may have had and all inquiries have been answered to my satisfaction. By signing this form, I am indicating that I am participating in this study of my own free will. I am free to withdraw my consent and terminate my participation without any negative consequences. I may request a summary of the results of this study. If I have any questions or concerns about this study, I may contact David Dozois (220-3697) or Dr. Keith Dobson (220-5096).

\_\_\_\_\_  
Date

\_\_\_\_\_  
Participant's Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Investigator's Signature

First, although a more stringent BDI cutoff was used for the moderately/severely depressed group ( $M = 22.75$ ,  $SD = 4.42$ ), than that used in many earlier studies, an analogue sample was used and subjects were not assessed for nosological depression. The results are not therefore generalizable to a clinically depressed population.

Since only females were included in this study, the results are also not generalizable to the male population. Woike (1994) recently found that women have more of a tendency than men toward cognitive integration (low complexity). The author attributed this finding to socialization in which women learn to desire close relationships, embedded social networks, and interpersonal connectedness. Research is needed to determine the extent to which gender differences exist in cognitive organization and how these relate to depressive severity.

A third issue regarding the external validity of this research pertains to the operationalization of cognitive organization. Self-complexity is only one of a plethora of potential means by which to assess the structural characteristics of the self-schema, and the findings are limited to organization for future self-aspects as measured via the Social and Achievement Self-Complexity Measure.

#### Directions for Future Research

Using different measures of organization (see Miller et al., 1991; Stein, 1994; and Woike, 1994 for alternative instruments) and efficiency (cf. Segal, 1988), future research is needed to ascertain whether maladaptive thinking in depression is due to the structural or information-processing properties of self-schemata. Future research

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### Footnotes

<sup>1</sup>To provide an academically balanced argument, it must be noted that Beck and his colleagues (1979) did acknowledge depressive realism to some extent: "In milder depressions the patient is generally able to view his negative thoughts with some objectivity. As depression worsens, his [sic] thinking becomes increasingly dominated by negative ideas, although there may be no logical connection between actual situations and his [sic] negative interpretations (p. 13).

<sup>2</sup>This idea is further supported by recent research conducted in the area of automatic thoughts (cognitive by-products of the schema) whereby the ratio of positive to negative automatic thoughts (ATQ-P and ATQ-N) shifts across the continuum from non-depressed to depressed (Ingram, Slater, Atkinson, & Scott, 1990; Ingram & Wisnicki, 1988; Kendall, Howard, & Hays, 1989).

<sup>3</sup>Markus and Wurf (1987) argue that self-representations may differ in their centrality, in whether or not they have been attained (e.g., some self-construals represent actual-selves while others represent hoped-for or feared-selves), in their tenses (or temporal dimension; i.e., past, present, and future), and in their valence (also see Cantor et al., 1986). These authors note that, with respect to valence, little empirical attention has been afforded to negative self-representation in nondepressed persons. Yet, the work of Wurf and Markus (1983; cited in Markus & Wurf, 1987) indicates that, even among individuals with high self-esteem, negative conceptions of self may be elaborated within the self-system. In fact, negative self-aspects may function to help an individual to cope with adversity in their lives (Markus, 1990;

Markus & Ruvolo, 1989) so long as negative experiences do not engulf the entire self-system.

<sup>4</sup>Although this assertion is consistent with many theoretical positions and empirical findings, Linville (1982a, 1982b) found evidence which suggested that increased familiarity with a given subject matter (e.g., understanding of another's race) was associated with increased complexity (i.e., more independently organized construals) for a particular construct.

<sup>5</sup>It should be recognized that the endogenous/reactive distinction is dated to the DSM-III (APA, 1987) and is no longer in the nomenclature of the DSM-IV (APA, 1994). The symptom patterns associated with this distinction are, nonetheless, apropos to this present thesis and the prediction of cognitive-organizational differences between sociotropic and autonomous personality dimensions.

<sup>6</sup>These changes were deemed important given the need (established in the Introduction) to assess both positive and negative self-representation. Another reason for these alterations was that the empirical literature on depression has demonstrated that hopelessness and the cognitive triad (Beck, 1963; Beck et al., 1979) are important concomitants of depression. Thus, an investigation of one's future self-representation is apropos to the understanding of depression. Furthermore, few studies have examined future aspects of the self in depression despite evidence which suggests that one's current self-view and one's possible selves are independent but overlapping constructs (cf. Halberstadt et al., in press; Neidenthal et al., 1992).

<sup>7</sup>A total of 10 undergraduate classes were screened ( $n = 767$  students; 514 females and 253 males). In addition to the participants who were included in the main study, 13 subjects who initially scored in the mildly depressed range at screening had scores which placed them in the nondepressed range during testing. Similarly, 7 subjects who initially scored in the severely depressed range at screening fell into the mildly depressed range at testing. None of these subjects were utilized in the study. Moreover, one severely depressed participant was excluded from the study because she was too confused about the instructions and because she displayed missing data on all measures.

<sup>8</sup>As median splits are not the most powerful strategy statistically, a decision was made to further explore these differences. Subjects in each group were arbitrarily divided into top ( $n = 12$ ) and bottom ( $n = 12$ ) scorers for sociotropy and then for autonomy. The highest/lowest scoring cases were then placed into high ( $n = 36$ ) and low ( $n = 36$ ) for each personality mode. Using this more powerful methodology, significant differences were still unattained.

**APPENDIX A: CONSENT FORM FOR PILOT STUDY 1**

**Title:** Possible Selves (future goals and fears), Personality, and Mood

**Investigators:** Dr. Keith S. Dobson and Mr. David J. A. Dozois

This is to certify that I hereby consent to participate in a study conducted by Dr. Keith Dobson and Mr. David Dozois of the Programme in Clinical Psychology at the University of Calgary. I understand that the purpose of the study is to investigate the relationships between future goals and fears, personality, and mood. I understand that my participation will involve generating a list of positive and negative adjectives that reflect the personality domains of sociotropic (socially dependent) and autonomous (independent/achievement oriented) individuals. My involvement will entail approximately 20 minutes of my time.

In addition, I understand that my responses will be kept anonymous and will contain no identifying information.

The investigation and my part in the investigation has been explained to me by David Dozois, Dr. Dobson and/or a research assistant. I have been given the opportunity to ask whatever questions I may have had and all inquiries have been answered to my satisfaction. By signing this form, I am indicating that I am participating in this study of my own free will. I am free to withdraw my consent and terminate my participation without any negative consequences. I may request a summary of the results of this study. If I have any questions or concerns about this study, I may contact David Dozois (220-3697) or Dr. Keith Dobson (220-5096).

\_\_\_\_\_  
Date

\_\_\_\_\_  
Participant's Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Investigator's Signature

Please list as many positive and negative adjectives as you can that you believe best describe such a person.

[illegible]

## APPENDIX B cont.

## AUTONOMY

Autonomy refers to a person's need to achieve and to maintain and increase his/her independence. These individuals desire freedom and achievement. Autonomous individuals believe that such things as achieving goals and obtaining privacy, freedom of choice, individuality and independence are important for their self-esteem. They also tend to fear failure, constriction of goals, and inaction.

Please list as many positive and negative adjectives as you can that you believe best describe such a person.

[illegible]

## APPENDIX C: CONSENT FORM FOR PILOT STUDY 2

**Title:** Possible Selves (organization of future goals and fears), Personality, and Mood

**Investigators:** Dr. Keith S. Dobson and Mr. David J. A. Dozois

This is to certify that I hereby consent to participate in a study conducted by Dr. Keith Dobson and Mr. David Dozois of the Programme in Clinical Psychology at the University of Calgary. I understand that the ultimate purpose of the study is to investigate the relationships between future goals and fears, personality, and mood; I have also been notified that this portion of the study entails a pilot project for the sole purpose of determining how many words are needed for the main study. I understand that my participation will involve completing 5 tasks which will require me to sort a group of adjectives into piles that I believe cluster together in describing my possible self-aspects. I understand that my involvement will entail approximately 1 hour.

In addition, I understand that the results of my involvement will be kept in strict confidence. All documents will be locked in a filing cabinet and will contain no identifying information. A separate locked filing cabinet will contain my name and identification number. Access to the list of names and/or data will only be given to David Dozois, Keith Dobson or a research assistant. I understand that any identifying information about me will never be released, and that research publications that may follow from this study will only present group results and never my personal test results. All information regarding myself will be destroyed five years after publication of the research.

The investigation and my part in the investigation has been explained to me by David Dozois, Dr. Dobson and/or a research assistant. I have been given the opportunity to ask whatever questions I may have had and all inquiries have been answered to my satisfaction. By signing this form, I am indicating that I am participating in this study of my own free will. I am free to withdraw my consent and terminate my participation without any negative consequences. I may request a summary of the results of this study. If I have any questions or concerns about this study, I may contact David Dozois (220-3697) or Dr. Keith Dobson (220-5096).

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Date

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Participant's Signature

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Date

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Investigator's Signature

## APPENDIX D: INSTRUCTIONS FOR CARD-SORTING TASKS

### (PILOT STUDY 2)

In this study, we are interested in how you describe yourself [with respect to your future goals and fears]. In front of you [will be either a pile of 10, 15, 20, 25 or 30] cards and [a number of] recording sheets. I'll let you look through the cards when I finish the instructions. Each card contains the name of a trait or characteristic. Your task is to form groups of traits that go together, where each group of traits describes [a future] aspect of you or your life. Form as many or as few groups as you desire. Continue forming groups until you feel that you have formed the important ones. I realize that this task could be endless, but we want only what you feel is meaningful to you. When you feel that you are straining to form more groups, it is probably a good time to stop.

Each group may contain as few or as many traits as you wish. You do *not* have to use every trait, only those that you feel are descriptive of you. Also, each trait may be used as many times as you like. For example, you may find that you use the trait *relaxed* in several groups. If you use a trait in more than one group, you may use one of these blank cards and then proceed to use it as you would the other cards.

The sheet with the columns is your recording sheet. Use the recording sheet to indicate which traits you have put together. Each column will correspond to one of your groups. Notice the number in the corner of each card. Write only the trait's number in the column, not the name of the trait. In each column, place the numbers of the traits that form a group. A natural way to perform this task is to form one or several groups and record them, then mix up the cards and see if there are other groups that you wish to form and then record them. Repeat the procedure until you feel that you have formed the groups that are important to you. Remember to use the blank cards if you wish to use the same trait in more than one group. You have extra recording sheets if you need them. The order in which you record the groups is not important, nor is the order of the traits within each group. We are only interested in which traits you put together. It is not necessary to label the groups unless you wish to. Do not put your name on the recording sheet. Your responses are strictly anonymous/confidential. So be as honest as you can.

As you are doing the task, I'd like you to keep a few things in mind. Remember that you are describing yourself in this task, not people in general. Also remember that you are to think of your future hoped for or feared selves while conducting this task. You do *not* have to use all of the traits, and you may *reuse* a trait in several groups. Take as much time as you like on the task. Different people will finish at different times so take as much time as you need even if others finish. Do you have any questions about the task? Now look at each of the traits and let me know if you need a clarification on the meaning of any trait. When you are finished, please turn over your recording sheet.

## APPENDIX E: SOCIOTROPY/AUTONOMY RATING TASKS (PILOT STUDY 3)

### SOCIOTROPY RATING

Please read the following description carefully before beginning this task.

There are two types of personality styles called sociotropy and autonomy. People who are sociotropic are socially dependent and are primarily interested in interpersonal relationships. They desire to secure and maintain interpersonal attachments and interactions. Sociotropic persons believe that such things as acceptance, understanding, support, guidance, and intimacy, are important for their self-esteem. They also tend to fear such things as rejection, disapproval, and neglect.

Please rate each of the following adjectives on a **scale from 0 - 6** as to the extent to which they describe either positive or negative traits for such a person (**0 = the adjective does not describe either a positive or a negative trait for such an individual at all; 6 = the adjective describes a positive or negative trait for such a person very much**). Remember, both positive and negative words may accurately describe an individual or construct. For instance, it is possible to describe the construct of intelligence with positive words (e.g., genius, smart) or negative words (e.g., imbecile, stupid). That is, for a person in whom intelligence is an important concept, genius and stupid would both be relevant but good-looking would not.

Before rating, please answer the following question:

1) Please mark 1 on the answer sheet if you are working on the sociotropy rating and mark 2 on the answer sheet if you are working on the autonomy rating.

Now you may proceed with the rating task.

**0 = does not describe the individual**

**6 = describes such a person very much**

|                   |                    |                   |                      |
|-------------------|--------------------|-------------------|----------------------|
| 2) competent      | 15) uninspired     | 28) successful    | 41) selfless         |
| 3) weak           | 16) proud          | 29) unimaginative | 42) attention seeker |
| 4) valuable       | 17) lonely         | 30) subordinate   | 43) disorganized     |
| 5) possessive     | 18) uninformed     | 31) ungrateful    | 44) unfaithful       |
| 6) adventurous    | 19) undesirable    | 32) submissive    | 45) gossip           |
| 7) sure           | 20) unpopular      | 33) hot-tempered  | 46) assertive        |
| 8) unyielding     | 21) unapproachable | 34) sophisticated | 47) argumentative    |
| 9) untrustworthy  | 22) unable         | 35) incompetent   | 48) approachable     |
| 10) unsuccessful  | 23) trustworthy    | 36) sociable      | 49) selfish          |
| 11) active        | 24) inefficient    | 37) shallow       | 50) limited          |
| 12) narrow-minded | 25) independent    | 38) uninhibited   | 51) self-reliant     |
| 13) unprepared    | 26) supportive     | 39) sensitive     | 52) scheming         |
| 14) worthless     | 27) understanding  | 40) productive    | 53) rude             |

|      |                |      |               |      |             |
|------|----------------|------|---------------|------|-------------|
| 54)  | rejected       | 105) | free          | 156) | correct     |
| 55)  | pushy          | 106) | determined    | 157) | bothersome  |
| 56)  | aspiring       | 107) | follower      | 158) | cooperative |
| 57)  | uncooperative  | 108) | focused       | 159) | controlling |
| 58)  | authority      | 109) | clingy        | 160) | constrained |
| 59)  | annoying       | 110) | fake          | 161) | achiever    |
| 60)  | popular        | 111) | extroverted   |      |             |
| 61)  | pleasurable    | 112) | erroneous     |      |             |
| 62)  | perfectionist  | 113) | hostile       |      |             |
| 63)  | inferior       | 114) | encourager    |      |             |
| 64)  | dedicated      | 115) | failure       |      |             |
| 65)  | optimistic     | 116) | empathic      |      |             |
| 66)  | nurturing      | 117) | dishonest     |      |             |
| 67)  | inactive       | 118) | eager         |      |             |
| 68)  | non-conformist | 119) | disciplined   |      |             |
| 69)  | private        | 120) | genuine       |      |             |
| 70)  | unassertive    | 121) | friendly      |      |             |
| 71)  | negligent      | 122) | generous      |      |             |
| 72)  | needy          | 123) | dignified     |      |             |
| 73)  | mediocre       | 124) | accepting     |      |             |
| 74)  | loyal          | 125) | desirable     |      |             |
| 75)  | forgiving      | 126) | self-centred  |      |             |
| 76)  | listener       | 127) | dependable    |      |             |
| 77)  | powerful       | 128) | demanding     |      |             |
| 78)  | likeable       | 129) | deceitful     |      |             |
| 79)  | purposeless    | 130) | courteous     |      |             |
| 80)  | dispensable    | 131) | courageous    |      |             |
| 81)  | leader         | 132) | rigid         |      |             |
| 82)  | lazy           | 133) | defeated      |      |             |
| 83)  | kind           | 134) | respected     |      |             |
| 84)  | judgmental     | 135) | considerate   |      |             |
| 85)  | isolated       | 136) | conservative  |      |             |
| 86)  | intimate       | 137) | unimportant   |      |             |
| 87)  | fraudulent     | 138) | nonjudgmental |      |             |
| 88)  | superior       | 139) | connected     |      |             |
| 89)  | interested     | 140) | conformist    |      |             |
| 90)  | expedient      | 141) | inexperienced |      |             |
| 91)  | initiator      | 142) | conceited     |      |             |
| 92)  | idealistic     | 143) | compassionate |      |             |
| 93)  | hypersensitive | 144) | rivalled      |      |             |
| 94)  | humiliated     | 145) | reputable     |      |             |
| 95)  | careless       | 146) | communicative |      |             |
| 96)  | inoperative    | 147) | energetic     |      |             |
| 97)  | callous        | 148) | comforting    |      |             |
| 98)  | humble         | 149) | accomplished  |      |             |
| 99)  | helpful        | 150) | caring        |      |             |
| 100) | gullible       | 151) | bossy         |      |             |
| 101) | futile         | 152) | extraordinary |      |             |
| 102) | loving         | 153) | boring        |      |             |
| 103) | fun            | 154) | ambitious     |      |             |
| 104) | crowded        | 155) | competitive   |      |             |

Now that you have finished the ratings, we need to obtain some brief information about yourself.

**PLEASE GO DOWN TO THE VERY BOTTOM SQUARE OF THE ANSWER SHEET (item number 191).**

191) Are you male or female?

Mark 1 for female

Mark 2 for male

192 & 193) How old are you?

Mark item 192 with the first digit of your age; Mark item 193 with the second digit of your age.

**Example:** If you are 19, place a 1 in item 192 and a 9 in item 193.

194) What year of university are you in ?

Mark the number that corresponds to your year. For example, if you are in your 2nd year mark 2.

Please go on to the next page.

## AUTONOMY RATING

Please read the following description carefully before beginning this task.

There are two types of personality styles called sociotropy and autonomy. Autonomy refers to a person's need to achieve and to maintain and increase his/her independence. These individuals desire freedom and achievement. Autonomous individuals believe that such things as achieving goals and obtaining privacy, freedom of choice, individuality and independence are important for their self-esteem. They also tend to fear failure, constriction of goals, and inaction.

Please rate each of the following adjectives on a **scale from 0 - 6** as to the extent to which they describe either positive or negative traits for such a person (**0 = the adjective does not describe either a positive or negative trait for such an individual at all; 6 = the adjective describes a positive or negative trait for such a person very much**). Remember, both positive and negative words may accurately describe an individual or construct. For instance, it is possible to describe the construct of intelligence with positive words (e.g., genius, smart) or negative words (e.g., imbecile, stupid). That is, for a person in whom intelligence is an important concept, genius and stupid would both be relevant but good-looking would not.

Before rating, please answer the following question:

1) Please mark 1 on the answer sheet if you are working on the sociotropy rating and mark 2 on the answer sheet if you are working on the autonomy rating.

Now you may proceed with the rating task.

**0 = does not describe the individual**  
**6 = describes such a person very much**

|                   |                    |                   |                      |
|-------------------|--------------------|-------------------|----------------------|
| 2) competent      | 14) worthless      | 26) supportive    | 38) uninhibited      |
| 3) weak           | 15) uninspired     | 27) understanding | 39) sensitive        |
| 4) valuable       | 16) proud          | 28) successful    | 40) productive       |
| 5) possessive     | 17) lonely         | 29) unimaginative | 41) selfless         |
| 6) adventurous    | 18) uninformed     | 30) subordinate   | 42) attention seeker |
| 7) sure           | 19) undesirable    | 31) ungrateful    | 43) disorganized     |
| 8) unyielding     | 20) unpopular      | 32) submissive    | 44) unfaithful       |
| 9) untrustworthy  | 21) unapproachable | 33) hot-tempered  | 45) gossip           |
| 10) unsuccessful  | 22) unable         | 34) sophisticated | 46) assertive        |
| 11) active        | 23) trustworthy    | 35) incompetent   | 47) argumentative    |
| 12) narrow-minded | 24) inefficient    | 36) sociable      | 48) approachable     |
| 13) unprepared    | 25) independent    | 37) shallow       | 49) selfish          |

|      |                |      |               |      |               |
|------|----------------|------|---------------|------|---------------|
| 50)  | limited        | 101) | futile        | 152) | extraordinary |
| 51)  | self-reliant   | 102) | loving        | 153) | boring        |
| 52)  | scheming       | 103) | fun           | 154) | ambitious     |
| 53)  | rude           | 104) | crowded       | 155) | competitive   |
| 54)  | rejected       | 105) | free          | 156) | correct       |
| 55)  | pushy          | 106) | determined    | 157) | bothersome    |
| 56)  | aspiring       | 107) | follower      | 158) | cooperative   |
| 57)  | uncooperative  | 108) | focused       | 159) | controlling   |
| 58)  | authority      | 109) | clingy        | 160) | constrained   |
| 59)  | annoying       | 110) | fake          | 161) | achiever      |
| 60)  | popular        | 111) | extroverted   |      |               |
| 61)  | pleasurable    | 112) | erroneous     |      |               |
| 62)  | perfectionist  | 113) | hostile       |      |               |
| 63)  | inferior       | 114) | encourager    |      |               |
| 64)  | dedicated      | 115) | failure       |      |               |
| 65)  | optimistic     | 116) | empathic      |      |               |
| 66)  | nurturing      | 117) | dishonest     |      |               |
| 67)  | inactive       | 118) | eager         |      |               |
| 68)  | non-conformist | 119) | disciplined   |      |               |
| 69)  | private        | 120) | genuine       |      |               |
| 70)  | unassertive    | 121) | friendly      |      |               |
| 71)  | negligent      | 122) | generous      |      |               |
| 72)  | needy          | 123) | dignified     |      |               |
| 73)  | mediocre       | 124) | accepting     |      |               |
| 74)  | loyal          | 125) | desirable     |      |               |
| 75)  | forgiving      | 126) | self-centred  |      |               |
| 76)  | listener       | 127) | dependable    |      |               |
| 77)  | powerful       | 128) | demanding     |      |               |
| 78)  | likeable       | 129) | deceitful     |      |               |
| 79)  | purposeless    | 130) | courteous     |      |               |
| 80)  | dispensable    | 131) | courageous    |      |               |
| 81)  | leader         | 132) | rigid         |      |               |
| 82)  | lazy           | 133) | defeated      |      |               |
| 83)  | kind           | 134) | respected     |      |               |
| 84)  | judgmental     | 135) | considerate   |      |               |
| 85)  | isolated       | 136) | conservative  |      |               |
| 86)  | intimate       | 137) | unimportant   |      |               |
| 87)  | fraudulent     | 138) | nonjudgmental |      |               |
| 88)  | superior       | 139) | connected     |      |               |
| 89)  | interested     | 140) | conformist    |      |               |
| 90)  | expedient      | 141) | inexperienced |      |               |
| 91)  | initiator      | 142) | conceited     |      |               |
| 92)  | idealistic     | 143) | compassionate |      |               |
| 93)  | hypersensitive | 144) | rivalled      |      |               |
| 94)  | humiliated     | 145) | reputable     |      |               |
| 95)  | careless       | 146) | communicative |      |               |
| 96)  | inoperative    | 147) | energetic     |      |               |
| 97)  | callous        | 148) | comforting    |      |               |
| 98)  | humble         | 149) | accomplished  |      |               |
| 99)  | helpful        | 150) | caring        |      |               |
| 100) | gullible       | 151) | bossy         |      |               |

Now that you have finished the ratings, we need to obtain some brief information about yourself.

**PLEASE GO DOWN TO THE VERY BOTTOM SQUARE OF THE ANSWER SHEET (item number 191).**

191) Are you male or female?

Mark 1 for female

Mark 2 for male

192 & 193) How old are you?

Mark item 192 with the first digit of your age; Mark item 193 with the second digit of your age.

**Example:** If you are 19, place a 1 in item 192 and a 9 in item 193.

194) What year of university are you in ?

Mark the number that corresponds to your year. For example, if you are in your 2nd year mark 2.

Thank you for your participation

**APPENDIX F : CONSENT FORM FOR PILOT STUDY 3**

**Title:** Possible Selves (future goals and fears), Personality, and Mood

**Investigators:** Dr. Keith S. Dobson and Mr. David J. A. Dozois

This is to certify that I hereby consent to participate in a study conducted by Dr. Keith Dobson and Mr. David Dozois of the Programme in Clinical Psychology at the University of Calgary. I understand that the purpose of the study is to investigate the relationships between future goals and fears, personality, and mood. I understand that my participation will involve rating a list of positive and negative adjectives (on a 7-point scale) as to the extent to which they reflect the personality domains of sociotropic (socially dependent) and autonomous (independent/achievement oriented) individuals. My involvement will entail approximately 20 minutes of my time.

In addition, I understand that my responses will be kept anonymous and will contain no identifying information.

The investigation and my part in the investigation has been explained to me by David Dozois, Dr. Dobson and/or a research assistant. I have been given the opportunity to ask whatever questions I may have had and all inquiries have been answered to my satisfaction. By signing this form, I am indicating that I am participating in this study of my own free will. I am free to withdraw my consent and terminate my participation without any negative consequences. I may request a summary of the results of this study. If I have any questions or concerns about this study, I may contact David Dozois (220-3697) or Dr. Keith Dobson (220-5096).

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Date

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Participant's Signature

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Date

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Investigator's Signature

**APPENDIX G: Tables 12 - 15**

Table 12

Psychometric Properties of the Initial Sociotropic-Positive Items

| Item             | <u>M</u> | SD   | Item-<br>total <u>r</u> | Item-<br>other <u>r</u> | DRI   |
|------------------|----------|------|-------------------------|-------------------------|-------|
| 1. Valuable      | 3.48     | 2.00 | .4166**                 | .0870                   | .4074 |
| 2. Trustworthy   | 4.24     | 1.88 | .5557**                 | -.0470                  | .5537 |
| 3. Supportive    | 4.60     | 1.63 | .5088**                 | -.1629                  | .5066 |
| 4. Understanding | 4.49     | 1.59 | .6419**                 | -.0624                  | .6389 |
| 5. Sociable      | 5.04     | 1.62 | .5091**                 | -.0326                  | .5081 |
| 6. Sensitive     | 4.90     | 1.39 | .3581**                 | .1321                   | .3328 |
| 7. Selfless      | 3.65     | 1.90 | .5691**                 | .1078                   | .5588 |
| 8. Approachable  | 4.38     | 1.64 | .5387**                 | -.0528                  | .5361 |
| 9. Popular       | 4.49     | 1.85 | .4176**                 | -.0542                  | .4121 |
| 10. Pleasurable  | 3.64     | 1.91 | .6421**                 | .2293*                  | .5998 |
| 11. Nurturing    | 4.09     | 1.78 | .5354**                 | .0673                   | .5312 |
| 12. Loyal        | 4.77     | 1.44 | .6140**                 | .0770                   | .6092 |
| 13. Forgiving    | 4.58     | 1.65 | .6316**                 | .1599                   | .6110 |
| 14. Listener     | 4.49     | 1.59 | .7335**                 | -.0170                  | .7333 |
| 15. Likeable     | 4.81     | 1.51 | .5448**                 | -.0511                  | .5424 |

(table continues)

| Item            | <u>M</u> | SD   | Item-<br>total <u>r</u> | Item-<br>other <u>r</u> | DRI   |
|-----------------|----------|------|-------------------------|-------------------------|-------|
| 16. Kind        | 4.07     | 1.70 | .6705**                 | .2052                   | .6383 |
| 17. Intimate    | 4.92     | 1.72 | .5112**                 | -.0175                  | .5109 |
| 18. Interested  | 3.31     | 1.74 | .5136**                 | .3012**                 | .4160 |
| 19. Humble      | 3.10     | 1.75 | .3688**                 | .2393*                  | .2806 |
| 20. Helpful     | 4.11     | 1.65 | .6004**                 | .2160*                  | .5602 |
| 21. Loving      | 4.93     | 1.32 | .6666**                 | .0439                   | .6652 |
| 22. Fun         | 3.96     | 1.86 | .6130**                 | .2315*                  | .5676 |
| 23. Extroverted | 3.51     | 2.20 | .4359**                 | -.0397                  | .4341 |
| 24. Encourager  | 3.70     | 1.83 | .6239**                 | .0652                   | .6205 |
| 25. Empathetic  | 4.20     | 1.69 | .5117**                 | -.0383                  | .5103 |
| 26. Genuine     | 3.70     | 1.93 | .6203**                 | .1510                   | .6016 |
| 27. Friendly    | 4.89     | 1.28 | .7989**                 | .0755                   | .7953 |
| 28. Generous    | 4.11     | 1.72 | .6501**                 | .2543**                 | .5983 |
| 29. Accepting   | 4.25     | 1.60 | .6655**                 | .0217                   | .6651 |
| 30. Desirable   | 4.00     | 1.86 | .4664**                 | -.0778                  | .4599 |

(table continues)

| Item               | <u>M</u> | SD   | Item-<br>total <u>r</u> | Item-<br>other <u>r</u> | DRI   |
|--------------------|----------|------|-------------------------|-------------------------|-------|
| 31. Dependable     | 3.79     | 1.77 | .5077**                 | -.0136                  | .5075 |
| 32. Courteous      | 3.67     | 1.49 | .6153**                 | .1817                   | .5879 |
| 33. Considerate    | 4.20     | 1.52 | .7165**                 | .0394                   | .7154 |
| 34. Nonjudgemental | 3.53     | 1.81 | .4329**                 | -.0774                  | .4259 |
| 35. Connected      | 3.46     | 1.99 | .3345**                 | -.0456                  | .3314 |
| 36. Compassionate  | 4.28     | 1.47 | .6950**                 | -.0097                  | .6949 |
| 37. Communicative  | 4.21     | 1.62 | .5753**                 | -.1034                  | .5659 |
| 38. Comforting     | 4.22     | 1.46 | .6279**                 | -.0111                  | .6278 |
| 39. Caring         | 4.44     | 1.48 | .6291**                 | -.1437                  | .6125 |
| 40. Cooperative    | 3.96     | 1.65 | .4878**                 | -.1354                  | .4686 |

Note. DRI = Differential Reliability Index; Coefficient alpha = .9427.

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

Table 13

Psychometric Properties of the Initial Sociotropic-Negative Items

| Item                 | <u>M</u> | SD   | Item-<br>total <u>r</u> | Item-<br>other <u>r</u> | DRI   |
|----------------------|----------|------|-------------------------|-------------------------|-------|
| 1. Possessive        | 4.37     | 1.81 | .1936                   | .0988                   | .1665 |
| 2. Worthless         | 3.65     | 2.50 | .5842**                 | .1954*                  | .5506 |
| 3. Lonely            | 4.46     | 1.97 | .4508**                 | -.0319                  | .4497 |
| 4. Undesirable       | 3.77     | 2.33 | .6460**                 | .1331                   | .6321 |
| 5. Unpopular         | 4.11     | 2.29 | .6002**                 | .1016                   | .5853 |
| 6. Unapproachable    | 3.10     | 2.20 | .6170**                 | .1910                   | .5867 |
| 7. Ungrateful        | 2.16     | 2.07 | .6152**                 | .0673                   | .6115 |
| 8. Hot-tempered      | 1.91     | 1.84 | .5997**                 | .1593                   | .5782 |
| 9. Shallow           | 2.94     | 2.28 | .6243**                 | .1226                   | .6121 |
| 10. Attention-seeker | 4.55     | 1.95 | .4262**                 | .2495*                  | .3455 |
| 11. Unfaithful       | 2.79     | 2.23 | .6381**                 | .1682                   | .6155 |
| 12. Gossiper         | 3.19     | 2.12 | .6465**                 | .3562**                 | .5395 |
| 13. Argumentative    | 2.12     | 1.84 | .5387**                 | .3419**                 | .4163 |
| 14. Selfish          | 3.00     | 2.14 | .6088**                 | .1729                   | .5837 |
| 15. Scheming         | 2.08     | 1.84 | .6213**                 | .3169**                 | .5344 |

(table continues)

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| Item               | <u>M</u> | SD   | Item-<br>total <u>r</u> | Item-<br>other <u>r</u> | DRI    |
|--------------------|----------|------|-------------------------|-------------------------|--------|
| <hr/>              |          |      |                         |                         |        |
| 16. Rude           | 1.93     | 1.98 | .7257**                 | .3107**                 | .6558  |
| 17. Rejected       | 4.36     | 2.00 | .5646**                 | -.0319                  | .5637  |
| 18. Uncooperative  | 2.06     | 2.05 | .6224**                 | .2349*                  | .5764  |
| 19. Annoying       | 3.07     | 1.93 | .5969**                 | .2888**                 | .5224  |
| 20. Unassertive    | 3.32     | 2.02 | .1250                   | .3067**                 | -.2801 |
| 21. Needy          | 4.59     | 1.84 | .3557**                 | .2105*                  | .2867  |
| 22. Judgmental     | 3.01     | 1.97 | .5275**                 | .1294                   | .5114  |
| 23. Isolated       | 3.17     | 2.26 | .4710**                 | -.0530                  | .4680  |
| 24. Idealistic     | 2.91     | 1.93 | -.0250                  | .2557**                 | -.2545 |
| 25. Hypersensitive | 4.75     | 1.56 | .3429**                 | .1356                   | .3149  |
| 26. Callous        | 1.67     | 1.82 | .6729**                 | .2052*                  | .6408  |
| 27. Gullible       | 3.68     | 2.04 | .4157**                 | .5124**                 | -.2996 |
| 28. Clingy         | 4.79     | 1.48 | .4529**                 | .2731**                 | .3613  |
| 29. Fake           | 3.18     | 2.19 | .5459**                 | .2128*                  | .5027  |
| 30. Hostile        | 1.97     | 2.09 | .5901**                 | .2283*                  | .5441  |

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(table continues)

| Item             | <u>M</u> | SD   | Item-<br>total <u>r</u> | Item-<br>other <u>r</u> | DRI    |
|------------------|----------|------|-------------------------|-------------------------|--------|
| 31. Dishonest    | 2.36     | 2.15 | .6549**                 | .2182*                  | .6175  |
| 32. Self-centred | 2.86     | 2.07 | .5468**                 | .1475                   | .5265  |
| 33. Demanding    | 2.96     | 2.01 | .3130**                 | .1267                   | .2862  |
| 34. Deceitful    | 2.13     | 2.03 | .6049**                 | .2851**                 | .5335  |
| 35. Conformist   | 3.93     | 2.01 | .2958**                 | .3324**                 | -.1516 |
| 36. Conceited    | 2.09     | 1.92 | .6053**                 | .2586**                 | .5473  |
| 37. Bossy        | 1.98     | 1.90 | .5445**                 | .2710**                 | .4723  |
| 38. Boring       | 2.67     | 2.10 | .6303**                 | .3933**                 | .4925  |
| 39. Bothersome   | 2.88     | 1.91 | .6819**                 | .4218**                 | .5358  |
| 40. Controlling  | 2.64     | 1.95 | .4554**                 | .0918                   | .4431  |

Note. DRI = Differential Reliability Index; Coefficient alpha = .9323

\* $p < .05$ , \*\* $p < .01$ .

Table 14

Psychometric Properties of the Initial Autonomy-Positive Items

| Item             | <u>M</u> | SD   | Item-<br>total <u>r</u> | Item-<br>other <u>r</u> | DRI   |
|------------------|----------|------|-------------------------|-------------------------|-------|
| 1. Competent     | 5.41     | 0.94 | .2749**                 | .2181*                  | .1673 |
| 2. Adventurous   | 4.31     | 1.76 | .3474**                 | -.0770                  | .3388 |
| 3. Sure          | 5.18     | 1.16 | .2860**                 | -.0742                  | .2772 |
| 4. Unyielding    | 4.19     | 1.70 | .3619**                 | -.0302                  | .3606 |
| 5. Active        | 4.63     | 1.54 | .4022**                 | -.0290                  | .4012 |
| 6. Proud         | 4.39     | 1.75 | .5799**                 | .0872                   | .5733 |
| 7. Independent   | 5.69     | 1.04 | .0758                   | -.0032                  | .0757 |
| 8. Successful    | 5.47     | 0.91 | .4454**                 | -.0106                  | .4453 |
| 9. Sophisticated | 3.25     | 1.89 | .4202**                 | .1033                   | .4073 |
| 10. Uninhibited  | 3.47     | 1.81 | .3298**                 | .0232                   | .3290 |
| 11. Productive   | 5.36     | 0.87 | .4575**                 | .0359                   | .4561 |
| 12. Assertive    | 4.98     | 1.20 | .4813**                 | -.0225                  | .4808 |
| 13. Self-reliant | 5.45     | 1.11 | .4187**                 | .1534                   | .3896 |
| 14. Aspiring     | 5.02     | 1.23 | .5702**                 | .1361                   | .5537 |
| 15. Authority    | 4.43     | 1.68 | .5183**                 | .0921                   | .5101 |

(table continues)

| Item               | <u>M</u> | SD   | Item-<br>total <u>r</u> | Item-<br>other <u>r</u> | DRI   |
|--------------------|----------|------|-------------------------|-------------------------|-------|
| 16. Perfectionist  | 5.07     | 1.41 | .5934**                 | .1891                   | .5625 |
| 17. Dedicated      | 5.02     | 1.10 | .4325**                 | .2052*                  | .3807 |
| 18. Optimistic     | 3.73     | 1.67 | .5472**                 | .3474**                 | .4228 |
| 19. Non-conformist | 4.28     | 1.92 | .4192**                 | .2284*                  | .3515 |
| 20. Private        | 5.04     | 1.49 | .1072                   | -.0260                  | .1040 |
| 21. Powerful       | 4.56     | 1.50 | .7107**                 | .0472                   | .7091 |
| 22. Leader         | 4.96     | 1.52 | .6622**                 | .0195                   | .6619 |
| 23. Superior       | 4.05     | 1.78 | .6956**                 | .1483                   | .6796 |
| 24. Expedient      | 3.40     | 1.90 | .4936**                 | .2377*                  | .4326 |
| 25. Initiator      | 4.85     | 1.25 | .6539**                 | -.0206                  | .6536 |
| 26. Free           | 4.59     | 2.04 | .3181**                 | .1182                   | .2953 |
| 27. Determined     | 5.55     | 1.01 | .3460**                 | .0880                   | .3346 |
| 28. Focused        | 5.17     | 1.15 | .4161**                 | .1587                   | .3846 |
| 29. Eager          | 4.32     | 1.70 | .4518**                 | .2274*                  | .3904 |
| 30. Disciplined    | 4.88     | 1.30 | .4406**                 | .2105*                  | .3871 |

(table continues)

| Item              | <u>M</u> | SD   | Item-<br>total <u>r</u> | Item-<br>other <u>r</u> | DRI   |
|-------------------|----------|------|-------------------------|-------------------------|-------|
| 31. Dignified     | 3.74     | 1.90 | .6725**                 | .2040*                  | .6408 |
| 32. Courageous    | 3.96     | 1.65 | .5396**                 | -.0233                  | .5000 |
| 33. Respected     | 4.42     | 1.66 | .6756**                 | .1919                   | .6478 |
| 34. Reputable     | 3.97     | 1.77 | .5625**                 | .1352                   | .5460 |
| 35. Energetic     | 4.12     | 1.70 | .5832**                 | .0548                   | .5806 |
| 36. Accomplished  | 5.15     | 1.20 | .5542**                 | .0420                   | .5526 |
| 37. Extraordinary | 3.70     | 1.91 | .4613**                 | .1443                   | .4381 |
| 38. Ambitious     | 5.53     | 1.10 | .3906**                 | -.1570                  | .3577 |
| 39. Competitive   | 5.15     | 1.41 | .4420**                 | -.1134                  | .4272 |
| 40. Correct       | 3.88     | 1.89 | .6460**                 | .2943**                 | .5751 |

Note. DRI = Differential Reliability Index; Coefficient alpha = .9085

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

Table 15

Psychometric Properties of the Initial Autonomy-Negative Items

| Item              | <u>M</u> | SD   | Item-<br>total <u>r</u> | Item-<br>other <u>r</u> | DRI    |
|-------------------|----------|------|-------------------------|-------------------------|--------|
| 1. Weak           | 2.96     | 2.56 | .7196**                 | .1744                   | .6981  |
| 2. Untrustworthy  | 1.80     | 1.74 | .3042**                 | .2000*                  | .2292  |
| 3. Unsuccessful   | 3.25     | 2.71 | .8348**                 | .2638**                 | .7920  |
| 4. Narrow-minded  | 2.59     | 1.94 | .1950*                  | .2714**                 | -.1888 |
| 5. Unprepared     | 2.52     | 2.30 | .7227**                 | .2638**                 | .6728  |
| 6. Uninspired     | 2.23     | 2.24 | .8460**                 | .3829**                 | .7544  |
| 7. Uninformed     | 2.30     | 2.09 | .7412**                 | .4294**                 | .6115  |
| 8. Unable         | 2.95     | 2.51 | .8431**                 | .3153**                 | .7819  |
| 9. Inefficient    | 3.22     | 2.45 | .8400**                 | .2857**                 | .7899  |
| 10. Unimaginative | 2.52     | 1.72 | .5716**                 | .3565**                 | .4468  |
| 11. Subordinate   | 2.36     | 1.86 | .6311**                 | .1542                   | .6120  |
| 12. Submissive    | 2.16     | 2.06 | .6493**                 | .2366*                  | .6047  |
| 13. Incompetent   | 3.12     | 2.63 | .7720**                 | .2180*                  | .7406  |
| 14. Disorganized  | 2.60     | 2.28 | .7319**                 | .3326**                 | .6520  |
| 15. Limited       | 3.05     | 2.06 | .8026**                 | .4246**                 | .6811  |

(table continues)

| Item            | <u>M</u> | SD   | Item-<br>total <u>r</u> | Item-<br>other <u>r</u> | DRI    |
|-----------------|----------|------|-------------------------|-------------------------|--------|
| 16. Pushy       | 2.99     | 1.73 | -.0801                  | .2548**                 | -.2419 |
| 17. Inferior    | 2.74     | 2.26 | .7366**                 | .1936                   | .7107  |
| 18. Inactive    | 2.70     | 2.33 | .7502**                 | .2266*                  | .7152  |
| 19. Negligent   | 2.15     | 1.96 | .5448**                 | .3406**                 | .4252  |
| 20. Mediocre    | 1.98     | 1.99 | .6370**                 | .2981**                 | .5629  |
| 21. Purposeless | 2.76     | 2.52 | .8188**                 | .2501*                  | .7797  |
| 22. Dispensable | 2.25     | 2.15 | .6588**                 | .2798**                 | .5964  |
| 23. Lazy        | 2.42     | 2.42 | .7890**                 | .2363*                  | .7528  |
| 24. Fraudulent  | 1.66     | 1.59 | .4269**                 | .3864**                 | .1815  |
| 25. Humiliated  | 1.48     | 1.63 | .4183**                 | .3640**                 | .2061  |
| 26. Careless    | 1.97     | 1.88 | .5299**                 | .3609**                 | .3880  |
| 27. Inoperative | 2.46     | 2.13 | .7312**                 | .2691**                 | .6799  |
| 28. Futile      | 2.20     | 2.00 | .6835**                 | .4001**                 | .5542  |
| 29. Crowded     | 2.22     | 2.13 | .3630**                 | .2904**                 | .2178  |
| 30. Follower    | 2.17     | 2.44 | .6552**                 | .1093                   | .6460  |

(table continues)

| Item              | <u>M</u> | SD   | Item-<br>total <u>r</u> | Item-<br>other <u>r</u> | DRI    |
|-------------------|----------|------|-------------------------|-------------------------|--------|
| 31. Erroneous     | 2.33     | 1.93 | .6478**                 | .5102**                 | .3992  |
| 32. Failure       | 3.09     | 2.61 | .7866**                 | .2851**                 | .7331  |
| 33. Rigid         | 3.32     | 1.93 | .2036*                  | .4570**                 | -.4091 |
| 34. Defeated      | 2.79     | 2.39 | .8517**                 | .2541**                 | .8129  |
| 35. Conservative  | 2.67     | 2.04 | .2259*                  | .1647                   | .1546  |
| 36. Unimportant   | 2.16     | 2.29 | .7817**                 | .3262**                 | .7104  |
| 37. Inexperienced | 2.13     | 1.88 | .6948**                 | .4293**                 | .5463  |
| 38. Rivalled      | 3.44     | 1.87 | .2806**                 | .2555*                  | .1160  |
| 39. Constrained   | 2.86     | 2.10 | .6051**                 | .4764**                 | .3731  |
| 40. Underachiever | 5.70     | 0.54 | .1651                   | .0939                   | .1358  |

Note. DRI = Differential Reliability Index; Coefficient alpha = .9592

\* $p > .05$ ; \*\* $p < .01$ .

## APPENDIX H: THE SOCIOTROPY/AUTONOMY SCALE

### INSTRUCTIONS

Please indicate what percentage of the time each of the statements applies to you, by using the scale to the left of the items. Choose the percentage that comes closest to how often the item describes you.

0      25      50      75      100

- |     |     |     |     |     |                                                                                             |
|-----|-----|-----|-----|-----|---------------------------------------------------------------------------------------------|
| ( ) | ( ) | ( ) | ( ) | ( ) | 1. I feel I have to be nice to other people.                                                |
| ( ) | ( ) | ( ) | ( ) | ( ) | 2. It is important to me to be free and independent.                                        |
| ( ) | ( ) | ( ) | ( ) | ( ) | 3. It is more important that I know I've done a good job than having others know it.        |
| ( ) | ( ) | ( ) | ( ) | ( ) | 4. Being able to share experiences with other people makes them much more enjoyable for me. |
| ( ) | ( ) | ( ) | ( ) | ( ) | 5. I am afraid of hurting other people's feelings.                                          |
| ( ) | ( ) | ( ) | ( ) | ( ) | 6. It bothers me when people try to direct my behavior or activities.                       |
| ( ) | ( ) | ( ) | ( ) | ( ) | 7. I find it difficult to say "no" to people.                                               |
| ( ) | ( ) | ( ) | ( ) | ( ) | 8. I feel bad if I do not have some social plans for the weekend.                           |
| ( ) | ( ) | ( ) | ( ) | ( ) | 9. I prize being a unique individual more than being a member of a group.                   |
| ( ) | ( ) | ( ) | ( ) | ( ) | 10. When I feel sick, I like to be left alone.                                              |

0      25      50      75      100

- |     |     |     |     |     |                                                                                                               |
|-----|-----|-----|-----|-----|---------------------------------------------------------------------------------------------------------------|
| ( ) | ( ) | ( ) | ( ) | ( ) | 11. I am concerned that if people knew my faults or weaknesses they would not like me.                        |
| ( ) | ( ) | ( ) | ( ) | ( ) | 12. If I think I am right about something, I feel comfortable expressing myself even if others don't like it. |
| ( ) | ( ) | ( ) | ( ) | ( ) | 13. When visiting people, I get fidgety when sitting around talking and would rather get up and do something. |
| ( ) | ( ) | ( ) | ( ) | ( ) | 14. It is more important to meet your own objectives on a task than to meet another person's objectives.      |

0      25      50      75      100

- ( )   ( )   ( )   ( )   ( )   15. I do things that are not in my best interest in order to please others.
- ( )   ( )   ( )   ( )   ( )   16. I like to take long walks by myself.
- ( )   ( )   ( )   ( )   ( )   17. I am more concerned that people like me than I am about making important achievements.
- ( )   ( )   ( )   ( )   ( )   18. I would be uncomfortable dining out in a restaurant by myself.
- ( )   ( )   ( )   ( )   ( )   19. I don't enjoy what I am doing when I don't feel that someone in my life really cares about me.
- ( )   ( )   ( )   ( )   ( )   20. I am not influenced by others in what I decide to do.
- ( )   ( )   ( )   ( )   ( )   21. It is very important that I feel free to get up and go wherever I want.
- ( )   ( )   ( )   ( )   ( )   22. I value work accomplishments more than I value making friends.
- ( )   ( )   ( )   ( )   ( )   23. I find it is of importance to be in control of my emotions.
- ( )   ( )   ( )   ( )   ( )   24. I get uncomfortable when I am not sure how I am expected to behave in the presence of other people.
- ( )   ( )   ( )   ( )   ( )   25. I feel more comfortable helping others than receiving help.

0      25      50      75      100

- ( )   ( )   ( )   ( )   ( )   26. It would not be much fun for me to travel to a new place all alone.
- ( )   ( )   ( )   ( )   ( )   27. If a friend has not called for a while, I get worried that he or she has forgotten me.
- ( )   ( )   ( )   ( )   ( )   28. It is more important to be active and doing things than having close relations with other people.
- ( )   ( )   ( )   ( )   ( )   29. I get uncomfortable around a person who does not clearly like me.
- ( )   ( )   ( )   ( )   ( )   30. If a goal is important to me, I will pursue it even if it may make other people uncomfortable.
- ( )   ( )   ( )   ( )   ( )   31. I find it difficult to be separated from people I love.

0      25      50      75      100

- ( )    ( )    ( )    ( )    ( )    32. When I achieve a goal I get more satisfaction from reaching the goal than from the praise I might get.
- ( )    ( )    ( )    ( )    ( )    33. I censor what I say because I am concerned that the other person may disapprove or disagree.
- ( )    ( )    ( )    ( )    ( )    34. I get lonely when I am home by myself at night.
- ( )    ( )    ( )    ( )    ( )    35. I often find myself thinking about friends or family.
- ( )    ( )    ( )    ( )    ( )    36. I prefer to make my own plans, so I am not controlled by others.
- ( )    ( )    ( )    ( )    ( )    37. I can comfortably be by myself all day without feeling a need to have someone around.
- ( )    ( )    ( )    ( )    ( )    38. If somebody criticizes my appearance, I feel I am not attractive to other people.
- ( )    ( )    ( )    ( )    ( )    39. It is more important to get a job done than to worry about people's reactions.
- ( )    ( )    ( )    ( )    ( )    40. I like to spend my free time with others.
- ( )    ( )    ( )    ( )    ( )    41. I don't like to answer personal questions because they feel like an invasion of privacy.
- ( )    ( )    ( )    ( )    ( )    42. When I have a problem, I like to go off on my own and think it through rather than being influenced by others.

0      25      50      75      100

- ( )    ( )    ( )    ( )    ( )    43. In relationships, people often are too demanding of each other.
- ( )    ( )    ( )    ( )    ( )    44. I am uneasy when I cannot tell whether or not someone I've met likes me.
- ( )    ( )    ( )    ( )    ( )    45. I set my own standards and goals for myself rather than accepting those of other people.
- ( )    ( )    ( )    ( )    ( )    46. I am more apologetic to others than I need to be.
- ( )    ( )    ( )    ( )    ( )    47. It is important to me to be liked and approved of by others.
- ( )    ( )    ( )    ( )    ( )    48. I enjoy accomplishing things more than being given credit for them.

| 0   | 25  | 50  | 75  | 100 |                                                                                                                 |
|-----|-----|-----|-----|-----|-----------------------------------------------------------------------------------------------------------------|
| ( ) | ( ) | ( ) | ( ) | ( ) | 49. Having close bonds with other people makes me feel secure.                                                  |
| ( ) | ( ) | ( ) | ( ) | ( ) | 50. When I am with other people, I look for signs whether or not they like being with me.                       |
| ( ) | ( ) | ( ) | ( ) | ( ) | 51. I like to go off on my own, exploring new places--without other people.                                     |
| ( ) | ( ) | ( ) | ( ) | ( ) | 52. If I think somebody may be upset with me, I want to apologize.                                              |
| ( ) | ( ) | ( ) | ( ) | ( ) | 53. I like to be certain that there is somebody close I can contact in case something unpleasant happens to me. |
| ( ) | ( ) | ( ) | ( ) | ( ) | 54. I feel confined when I have to sit through a long meeting.                                                  |
| ( ) | ( ) | ( ) | ( ) | ( ) | 55. I don't like people to invade my privacy.                                                                   |
| ( ) | ( ) | ( ) | ( ) | ( ) | 56. I feel uncomfortable being a nonconformist.                                                                 |
| ( ) | ( ) | ( ) | ( ) | ( ) | 57. The worst part about being in jail would be not being able to move around freely.                           |
| ( ) | ( ) | ( ) | ( ) | ( ) | 58. The worst part about growing old is being left alone.                                                       |
| ( ) | ( ) | ( ) | ( ) | ( ) | 59. I worry that somebody I love will die.                                                                      |
| ( ) | ( ) | ( ) | ( ) | ( ) | 60. The possibility of being rejected by others for standing up for my rights would not stop me.                |

## APPENDIX I: INSTRUCTIONS FOR THE CARD SORTING TASKS

In this study, we are interested in how you describe yourself with respect to your future goals and fears. In front of you will be a pile of 15 cards and a number of recording sheets. I'll let you look through the cards when I finish the instructions. Each card contains the name of a trait or characteristic. Your task is to form groups of traits that go together, where each group of traits describes a future aspect of you or your life. Form as many or as few groups as you desire. Continue forming groups until you feel that you have formed the important ones. I realize that this task could be endless, but we want only what you feel is meaningful to you. When you feel that you are straining to form more groups, it is probably a good time to stop.

Each group may contain as few or as many traits as you wish. You do *not* have to use every trait, only those that you feel are descriptive of you. Also, each trait may be used as many times as you like. For example, you may find that you use the trait *understanding* in several groups. If you use a trait in more than one group, you may use one of these blank cards and then proceed to use it as you would the other cards.

The sheet with the columns is your recording sheet. Use the recording sheet to indicate which traits you have put together. Each column will correspond to one of your groups. Notice the number in the corner of each card. Write only the trait's number in the column, not the name of the trait. In each column, place the numbers of the traits that form a group. A natural way to perform this task is to form one or several groups and record them, then mix up the cards and see if there are other groups that you wish to form and then record them. Repeat the procedure until you feel that you have formed the groups that are important to you. Remember to use the blank cards if you wish to use the same trait in more than one group. You have extra recording sheets if you need them. The order in which you record the groups is not important, nor is the order of the traits within each group. We are only interested in which traits you put together. It is not necessary to label the groups unless you wish to. Do not put your name on the recording sheet. Your responses are strictly anonymous and confidential so be as honest as you can.

As you are doing the task, I'd like you to keep a few things in mind. Remember that you are describing yourself in this task, not people in general. Also remember that you are to think of your future hoped for or feared selves while conducting this task. Probably everyone thinks about their future to some extent. When doing so, we usually think about the kinds of experiences that are in store for us and the kinds of people we might possibly become. Sometimes we think about what we hope we will be like and sometimes we think about what we fear we will be like.

One way researchers have of talking about this is to talk about possible selves - selves we hope to become or fear becoming in the future.

Remember, you do *not* have to use all of the traits, and you may *reuse* a trait in several groups. Take as much time as you like on the task. Different people will finish at different times so take as much time as you need even if others finish. Do you have any questions about the task? Now look at each of the traits and let me know if you need a clarification on the meaning of any trait. When you are finished, please turn over your recording sheet.

# APPENDIX J: EXAMPLE OF HOW TO CALCULATE SELF-COMPLEXITY

| Group 1                                                                                                            | Group 2                                            | Group 3                                            | Group 4                                                                                                            |
|--------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| correct<br>energetic<br>leader<br>initiator<br>optimistic<br>authority<br>respected<br>extraordinary<br>courageous | energetic<br>optimistic<br>respected<br>courageous | energetic<br>optimistic<br>respected<br>courageous | correct<br>energetic<br>leader<br>initiator<br>optimistic<br>authority<br>respected<br>extraordinary<br>courageous |
| <b>Total List:</b>                                                                                                 |                                                    |                                                    |                                                                                                                    |
| proud --                                                                                                           | sophisticated --                                   | authority 14                                       |                                                                                                                    |
| optimistic 1234                                                                                                    | powerful --                                        | leader 14                                          |                                                                                                                    |
| initiator 14                                                                                                       | dignified 4                                        | courageous 1234                                    |                                                                                                                    |
| respected 1234                                                                                                     | reputable --                                       | energetic 1234                                     |                                                                                                                    |
| extraordinary 14                                                                                                   | correct 14                                         |                                                    |                                                                                                                    |
| <b>Group Comb.</b>                                                                                                 | --                                                 | 14                                                 | 1234 4                                                                                                             |
| <b>Freq.</b>                                                                                                       | 5                                                  | 5                                                  | 4 1                                                                                                                |
| $n_i$                                                                                                              | $n_i \log_2 n_i$                                   |                                                    |                                                                                                                    |
| 5                                                                                                                  | 11.60964                                           |                                                    |                                                                                                                    |
| 5                                                                                                                  | 11.60964                                           |                                                    |                                                                                                                    |
| 4                                                                                                                  | 8.00000                                            |                                                    |                                                                                                                    |
| 1                                                                                                                  | 0.00000                                            |                                                    |                                                                                                                    |
| $\Sigma = 15$                                                                                                      | $\Sigma = 31.21928$                                |                                                    |                                                                                                                    |

$$H = \log_2 n - (\sum_i n_i \log_2 n_i) / n = 3.90689 - (31.21928) / 15 = 3.90689 - 2.08129 = 1.83$$

Note. An individual with the above trait sort would have demonstrated a moderate level of complexity given that the range is between 0 and  $\log_2 n$  (in this study  $15 = 0 - 3.91$ ).

If an individual's card sort was completely redundant (using the same number of traits), his/her complexity score would be as follows:

$$n_i \quad n_i \log_2 n_i$$

$$15 \quad 58.60336$$

$$H = \log_2 n - (\sum_i n_i \log_2 n_i) / 15 = \log_2(15) - (15 \log_2 15) / 15 = 3.90689 - (58.60336) / 15 \\ = 3.90689 - 3.90689 = 0.00$$

If, on the other hand, a subject demonstrated absolute independence, the following score would obtain:

$$n_i \quad n_i \log_2 n_i$$

$$1 \quad 0.00$$

$$1 \quad 0.00$$

$$1 \quad 0.00$$

$$\cdot$$

$$\cdot$$

$$\cdot$$

$$\Sigma = 15 \quad \Sigma = 0$$

$$H = \log_2 n - (\sum_i n_i \log_2 n_i) / n = \log_2(15) - (0 \log_2 0) / 15 = 3.90689 - (0.00) / 15 \\ = 3.90689 - 0.00 = 3.90689$$

Note. Recall that the hypothetical score may range between 0 (lowest complexity) and 3.91 (highest complexity in this present thesis).

## APPENDIX K: POSSIBLE SELVES RATINGS

I would like to ask you to rate the list of adjectives according to how they might represent your future. Probably everyone thinks about their future to some extent. When doing so, we usually think about the kinds of experiences that are in store for us and the kinds of people we might possibly become. Sometimes we think about what we hope we will be like.

One way researchers have of talking about this is to talk about possible selves - selves we hope to become in the future. Some of these possible selves seem quite likely, others seem farfetched but are still possible.

I want you to take a few minutes to think about your hoped-for selves and rate each of the following adjectives according to **how much they represent your hoped-for possible selves**.

|                   | Not at All |   |   |   |   | Very Much |   |
|-------------------|------------|---|---|---|---|-----------|---|
| 1. understanding  | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 2. loyal          | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 3. forgiving      | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 4. listener       | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 5. kind           | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 6. helpful        | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 7. loving         | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 8. encourager     | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 9. friendly       | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 10. generous      | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 11. accepting     | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 12. considerate   | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 13. compassionate | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 14. comforting    | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 15. caring        | 1          | 2 | 3 | 4 | 5 | 6         | 7 |

|                   | Not at All |   |   |   | Very Much |   |   |
|-------------------|------------|---|---|---|-----------|---|---|
| 16. proud         | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 17. sophisticated | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 18. authority     | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 19. optimistic    | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 20. powerful      | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 21. leader        | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 22. superior      | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 23. initiator     | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 24. dignified     | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 25. courageous    | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 26. respected     | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 27. reputable     | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 28. energetic     | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 29. extraordinary | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 30. correct       | 1          | 2 | 3 | 4 | 5         | 6 | 7 |

I would like to ask you to rate the list of adjectives according to how they might represent your future. Probably everyone thinks about their future to some extent. When doing so, we usually think about the kinds of experiences that are in store for us and the kinds of people we might possibly become. Sometimes we think about what we fear we will be like.

I want you to take a few minutes to think about your feared selves and rate each of the following adjectives according to **how much they represent your feared possible selves**.

|                   | Not at All |   |   |   |   | Very Much |   |
|-------------------|------------|---|---|---|---|-----------|---|
| 1. undesirable    | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 2. unpopular      | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 3. unapproachable | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 4. ungrateful     | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 5. hot-tempered   | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 6. shallow        | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 7. unfaithful     | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 8. selfish        | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 9. rude           | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 10. rejected      | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 11. uncooperative | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 12. callous       | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 13. hostile       | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 14. dishonest     | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 15. deceitful     | 1          | 2 | 3 | 4 | 5 | 6         | 7 |

|                  | Not at All |   |   |   | Very Much |   |   |
|------------------|------------|---|---|---|-----------|---|---|
| 16. weak         | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 17. unsuccessful | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 18. unprepared   | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 19. uninspired   | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 20. unable       | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 21. inefficient  | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 22. incompetent  | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 23. disorganized | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 24. inferior     | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 25. inactive     | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 26. purposeless  | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 27. lazy         | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 28. failure      | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 29. defeated     | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 30. unimportant  | 1          | 2 | 3 | 4 | 5         | 6 | 7 |

I would like to ask you to rate the list of adjectives according to how they might represent your future. Probably everyone thinks about their future to some extent. When doing so, we usually think about the kinds of experiences that are in store for us and the kinds of people we might possibly become. Sometimes we think about what we expect to be like.

I want you to take a few minutes to think about your expected selves and rate each of the following adjectives according to **how much they represent your expected possible selves**.

|                   | Not at All |   |   |   |   | Very Much |   |
|-------------------|------------|---|---|---|---|-----------|---|
|                   | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 1. understanding  | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 2. loyal          | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 3. forgiving      | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 4. listener       | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 5. kind           | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 6. helpful        | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 7. loving         | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 8. encourager     | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 9. friendly       | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 10. generous      | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 11. accepting     | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 12. considerate   | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 13. compassionate | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 14. comforting    | 1          | 2 | 3 | 4 | 5 | 6         | 7 |
| 15. caring        | 1          | 2 | 3 | 4 | 5 | 6         | 7 |

|                   | Not at All |   |   |   | Very Much |   |   |
|-------------------|------------|---|---|---|-----------|---|---|
| 16. proud         | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 17. sophisticated | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 18. authority     | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 19. optimistic    | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 20. powerful      | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 21. leader        | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 22. superior      | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 23. initiator     | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 24. dignified     | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 25. courageous    | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 26. respected     | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 27. reputable     | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 28. energetic     | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 29. extraordinary | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 30. correct       | 1          | 2 | 3 | 4 | 5         | 6 | 7 |

I would like to ask you to rate the list of adjectives according to how they might represent your future. Probably everyone thinks about their future to some extent. When doing so, we usually think about the kinds of experiences that are in store for us and the kinds of people we might possibly become. Sometimes we think about what we expect to be like.

I want you to take a few minutes to think about your expected selves and rate each of the following adjectives according to **how much they represent your expected possible selves**.

|                   | Not at All |   |   |   | Very Much |   |   |  |
|-------------------|------------|---|---|---|-----------|---|---|--|
| 1. undesirable    | 1          | 2 | 3 | 4 | 5         | 6 | 7 |  |
| 2. unpopular      | 1          | 2 | 3 | 4 | 5         | 6 | 7 |  |
| 3. unapproachable | 1          | 2 | 3 | 4 | 5         | 6 | 7 |  |
| 4. ungrateful     | 1          | 2 | 3 | 4 | 5         | 6 | 7 |  |
| 5. hot-tempered   | 1          | 2 | 3 | 4 | 5         | 6 | 7 |  |
| 6. shallow        | 1          | 2 | 3 | 4 | 5         | 6 | 7 |  |
| 7. unfaithful     | 1          | 2 | 3 | 4 | 5         | 6 | 7 |  |
| 8. selfish        | 1          | 2 | 3 | 4 | 5         | 6 | 7 |  |
| 9. rude           | 1          | 2 | 3 | 4 | 5         | 6 | 7 |  |
| 10. rejected      | 1          | 2 | 3 | 4 | 5         | 6 | 7 |  |
| 11. uncooperative | 1          | 2 | 3 | 4 | 5         | 6 | 7 |  |
| 12. callous       | 1          | 2 | 3 | 4 | 5         | 6 | 7 |  |
| 13. hostile       | 1          | 2 | 3 | 4 | 5         | 6 | 7 |  |
| 14. dishonest     | 1          | 2 | 3 | 4 | 5         | 6 | 7 |  |
| 15. deceitful     | 1          | 2 | 3 | 4 | 5         | 6 | 7 |  |

|                  | Not at All |   |   |   | Very Much |   |   |
|------------------|------------|---|---|---|-----------|---|---|
| 16. weak         | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 17. unsuccessful | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 18. unprepared   | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 19. uninspired   | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 20. unable       | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 21. inefficient  | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 22. incompetent  | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 23. disorganized | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 24. inferior     | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 25. inactive     | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 26. purposeless  | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 27. lazy         | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 28. failure      | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 29. defeated     | 1          | 2 | 3 | 4 | 5         | 6 | 7 |
| 30. unimportant  | 1          | 2 | 3 | 4 | 5         | 6 | 7 |

## APPENDIX L: CONSENT FORM FOR THE SCREENING PROCEDURE

**Title:** Possible Selves (organization of future goals and fears), Personality, and Mood

**Investigators:** Dr. Keith S. Dobson and Mr. David J. A. Dozois

This is to certify that I hereby consent to participate in a study conducted by Dr. Keith Dobson and Mr. David Dozois of the Programme in Clinical Psychology at the University of Calgary. I understand that the purpose of the study is to investigate the relationships between future goals, personality, and mood. I understand that my participation will involve a screening procedure in which I am asked to provide my name, telephone number, age and year at U of C. I am also requested to complete a 21-item inventory that asks questions pertaining to my mood. My involvement will entail approximately 15 minutes of my time.

In addition, I understand that by filling in my name and number, I am giving permission to be called at a later time and asked to participate in the main study. At that time I am free to decide whether or not I would like to become involved. I understand that the main study will involve completing a personality inventory and 6 tasks which will require me to sort a group of adjectives into piles that I believe cluster together in describing my possible self-aspects. My involvement will also entail rating each of the words as to the extent to which they represent different types of future goals and fears.

The investigation and my part in the investigation has been explained to me by David Dozois, Dr. Dobson and/or a research assistant. I have been given the opportunity to ask whatever questions I may have had and all inquiries have been answered to my satisfaction. By signing this form, I am indicating that I am participating in this study of my own free will. I am free to withdraw my consent and terminate my participation without any negative consequences. I may request a summary of the results of this study. If I have any questions or concerns about this study, I may contact David Dozois (220-3697) or Dr. Keith Dobson (220-5096).

\_\_\_\_\_  
Date

\_\_\_\_\_  
Participant's Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Investigator's Signature

## APPENDIX M: CONSENT FORM FOR THE MAIN STUDY

**Title:** Possible Selves (organization of future goals and fears), Personality, and Mood

**Investigators:** Dr. Keith S. Dobson and Mr. David J. A. Dozois

This is to certify that I hereby consent to participate in a study conducted by Dr. Keith Dobson and Mr. David Dozois of the Programme in Clinical Psychology at the University of Calgary. I understand that the purpose of the study is to investigate the relationships between future goals and fears, personality, and mood. I understand that my participation will involve the completion of a mood inventory, a personality inventory, and 6 tasks which will require me to sort a group of adjectives into piles that I believe cluster together in describing my possible self-aspects. My involvement will also entail rating each of the words as to the extent to which they represent different types of future goals and fears.

In addition, I understand that the results of my involvement will be kept in strict confidence. All documents will be locked in a filing cabinet and will contain no identifying information. A separate locked filing cabinet will contain a my name and identification number. Access to the list of names and/or data will only be given to David Dozois, Keith Dobson or a research assistant. I understand that any identifying information about me will never be released, and that research publications that may follow from this study will only present group results and never my personal test results. All information regarding myself will be destroyed five years after publication of the research.

The investigation and my part in the investigation has been explained to me by David Dozois, Dr. Dobson and/or a research assistant. I have been given the opportunity to ask whatever questions I may have had and all inquiries have been answered to my satisfaction. By signing this form, I am indicating that I am participating in this study of my own free will. I am free to withdraw my consent and terminate my participation without any negative consequences. I may request a summary of the results of this study. If I have any questions or concerns about this study, I may contact David Dozois (220-3697) or Dr. Keith Dobson (220-5096).

\_\_\_\_\_  
Date

\_\_\_\_\_  
Participant's Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Investigator's Signature