

UC Riverside

UC Riverside Electronic Theses and Dissertations

Title

A Revised Theory of Cognitive Consistency

Permalink

<https://escholarship.org/uc/item/9c75765m>

Author

Fletcher, Jesse Bradford

Publication Date

2010

Peer reviewed|Thesis/dissertation

UNIVERSITY OF CALIFORNIA
RIVERSIDE

A Revised Theory of Cognitive Consistency

A Dissertation submitted in partial satisfaction
of the requirements for the degree of

Doctor of Philosophy

in

Sociology

by

Jesse Bradford Fletcher

December 2010

Dissertation Committee:

Dr. Peter J. Burke, Chairperson

Dr. Robert A. Hanneman

Dr. Jonathan H. Turner

The Dissertation of Jesse Bradford Fletcher is approved:

Committee Chairperson

University of California, Riverside

Acknowledgements

I would like to acknowledge first and foremost my committee members, Dr. Peter Burke, Dr. Robert Hanneman, and Dr. Jon Turner. They were each instrumental in the choosing of my topic, as well as the writing and refining of my dissertation. I could not have completed this project, nor would I be the sociologist that I am today were it not for them. Beyond their professional help, I am also indebted to their kindness, patience, and sound advice over the last four years. I would also like to acknowledge and thank Dr. Jan Stets, who has done as much or more for my development as a working researcher and scientist as any other person during my time as a graduate student. I extend my deepest gratitude to you for all that you've done for me. Thank you. Last, I would like to acknowledge Dr. Vickie Jensen and Dr. David Boyns, who together sparked a passion for sociology in me that continues to this day. I am on this journey in part due to your guidance and support.

Dedications

This dissertation, as with everything I value in my life, is dedicated to my wife Preeta, my son Émile, and my father Brad. Without your love I would be lost.

ABSTRACT OF THE DISSERTATION

A Revised Theory of Cognitive Consistency

by

Jesse Bradford Fletcher

Doctor of Philosophy, Graduate Program in Sociology
University of California, Riverside, December 2010
Dr. Peter J. Burke, Chairperson

Decades of social psychological research have rested upon a simple assumption: people prefer incoming information to be consistent with their existing understandings of the social world. This simple premise, known as the cognitive consistency principle, is the foundation for many of the most prominent theories in sociological social psychology (e.g. affect control theory, justice theory, expectation states theory, identity theory, etc.). However, increasing evidence has accrued that suggests that this principle may be incorrect, or at least incomplete. This study reviews three well-established areas of research that challenge the cognitive consistency principle (over-reward/self-enhancement, amusement, varied experience theory), and reveals that all three areas point to an overarching truth: social actors often experience *positive emotion* or *pleasure* from small levels of cognitive inconsistency. In light of this, a modified cognitive consistency principle is formulated, and hypotheses are offered and tested using paired internet surveys and panel-clustered random-effects maximum-likelihood regression. Data supports a modified cognitive consistency principle which posits that actors can experience positive emotions and pleasure at low levels of cognitive inconsistency.

Table of Contents

Introduction	1
Chapter 1: The Principle of Cognitive Consistency	3
Cognitive Consistency in Contemporary Social Psychology	12
Chapter 2: Challenges and Unresolved Issues	29
Over-Reward and Self-Enhancement	31
Amusement	38
Varied Experience	43
Chapter 3: The Modified Cognitive Consistency Principle	50
Large vs. Small Inconsistencies	53
Evaluative Dimensions of Meaning	57
A Modified Cognitive Consistency Principle	59
Chapter 4: Variables Influencing Reactions to Cognitive Inconsistency ...	66
Salience of Meaning	67
Prominence of Meaning	69
Locus of Meaning	70
Source of Meaning	71
Emotional Neutrality	73
Hypotheses	74
Chapter 5: Methods	79
Sample	79

Survey Instruments	79
Survey #1	80
Survey #2	82
Measurement	84
Data Collection and Cleaning	87
Statistical Analysis	88
Chapter 6: Results	92
Version A Analyses	94
Version B Analyses	96
Chapter 7: Discussion	99
Chapter 8: Conclusions	111
Appendix A: Survey #1	116
Appendix B: Survey #2	132
References	153

List of Tables

Table 1.1: The Consistency Principle in Social Psychological Theories	18
Table 5.1: Measurement and Coding	87
Table 6.1: Means and Standard Deviations	92
Table 6.2: Bivariate Correlations	93
Table 6.3: Clustered Regressions Predicting Affective Responses to Incongruity	95
Table 6.4: Clustered Standardized Regressions Predicting Affective Response to Incongruity (w/Random Effect Constant).....	98

List of Figures

Figure 1.1: The Cognitive Consistency Principle	20
Figure 1.2: Cognitive Consistency Producing Positive Emotional Arousal	24
Figure 3.1: The Pure Cognitive Consistency Principle	60
Figure 3.2: The Modified Cognitive Consistency Principle	61
Figure 3.3: A Non-Symmetric Quartic Curve	64
Figure 5.1: Introverted/Extroverted Subject Self-Rating	81
Figure 5.2: Prominence Subject Self-Rating	81
Figure 5.3: Example of Vignette	83
Figure 5.4: Affective Response	84

Introduction

Much contemporary social psychology is implicitly premised upon a model of cognitive consistency. Few theories trace their roots back so far as to acknowledge these foundations, but the assumptions and predictions made by the theories are evidence enough of where the roots of contemporary social psychology lie. To the extent that the existing model of cognitive consistency is accurate, this common ancestry poses no problem, and is a stable foundation upon which to build a discipline. If, however, there are remaining shortcomings in the existing cognitive consistency model, then any social psychological theory which rests upon its assumptions will suffer the detriment.

The following dissertation will show that while the existing theory of cognitive consistency is a powerful and robust foundation upon which to build the social psychological endeavor, it is also imperfect. While its existing formulation has produced decades of corroborating evidence in its support, there remain some finer details of human emotionality and behavior which have eluded its grasp. These finer details have themselves amassed a growing number of experimental results and outcomes that seem to challenge the existing models of cognitive consistency. This dissertation looks to reconcile these unexplained results by offering a revised theory of cognitive consistency [hereafter the “modified cognitive consistency principle”]. The result will be a theory which maintains the explanatory power of the original formulation, but which can also account for the seemingly counterintuitive results occasionally achieved over the last six decades of research.

The structure of this dissertation will be as follows. In Chapter 1, what is here termed as the “pure” or “original” model of cognitive consistency will be presented in brief. This will lay the foundation for the discussion to follow. In Chapter 2, three existing and unresolved issues in the social psychological literature will be introduced. Seemingly very different on the surface, it will be shown how when viewed through the appropriate lens, these three issues actually stand as challenges to the pure model of cognitive consistency. In Chapter 3, a modified cognitive consistency principle will be presented. I hypothesize there is a small area of pleasurable inconsistency that surrounds a local minimum of exact expectational congruity. This small region allows for actors to feel positive emotions during periods of perceived cognitive inconsistency. In Chapter 4, four factors which influence the functional relationship between inconsistency and emotional reaction will be introduced. At times, the model presented here will offer similar predictions as the existing theory of cognitive consistency; not all inconsistencies produce positive affect, and the same inconsistencies will not produce positive affect in all contexts. However, there are times when predictions made by this modified cognitive consistency model will differ greatly from the existing theory. Hypotheses will be presented that dictate both the type of inconsistencies that are most likely to produce feelings of positive affect, as well as the conditions under which actors are more or less likely to feel positive emotions stemming from cognitive inconsistency. Chapters 5, 6, 7, and 8 will provide the methods, results, discussion, and concluding remarks of an empirical test of the area of pleasurable consistency and its corresponding hypotheses.

Chapter 1: The Principle of Cognitive Consistency

To understand what I am terming the pure model of cognitive consistency, we must first look back to the early days of psychology and a theoretical framework known as the gestalt tradition. Gestalt psychology arose from observational data concerning a number of simple visual and tactile experiments (Kohler 1967; Wertheimer 1912). It stood as a rejection to the atomistic view of perception which had dominated the psychology of the day. Its arguments were as follows.

The early behaviorist forms of psychology assumed that human behavior was the result of learned responses to incoming stimuli (Skinner 1974; Skinner 1953). Each stimulus from the actors' environment had the potential to elicit a response from the actor; the type of response would be predicated on the punishing or rewarding outcomes that had been associated with responses to that stimulus in the past (Herrnstein 1970). This view of human perception and behavior is inherently "atomistic" in that it assumed stimuli are perceived and responded to individually. Some "event" occurs, or some "object" is perceived, and depending on past experiences with that event or object the actor will respond in a certain way. Each stimulus has properties that allow it to be responded to in-and-of-itself; each stimulus is a sufficient condition for a response.

In contrast, the gestalt tradition in psychology rejected an atomistic view of human perception. Rather than dissecting an actor's environment into a number of individual stimuli, the gestalt¹ psychologists argued that the environment itself comprised

¹ *Gestalt* in its original German translates literally as "pattern" or "shape," although some have noted that "configuration" is closer to its intended meaning (Rock and Palmer 1990).

a “perceptual field” which the actor approached as a whole (Hartmann 1935; Henle 1961). Each element within the perceptual field could certainly be recognized as distinct from other elements within the field, but how that singular element would be *understood* (i.e. the meaning associated with it) was dependent upon its place within the perceptual field, and its relationship to the other elements within that field (Katz 1950; Koffka 1935). In this framework, sets of objects and events combine to form a gestalt, or understandable whole. The whole perceptual field is not “more than” the sum of its parts, *per se*, but it is something “other than” just the sum of its parts (Arnheim 1961) . It has, to the actor who perceives it, a nature *sui generis* that is not reducible to its constituent elements². Furthermore, meaning is applied to the whole perceptual field which then feeds back upon the individual elements within that field, ascribing meaning to them which they would not have individually, or in some disparate context.

Moreover, just as with electric fields and magnetic fields in physics, the perceptual field is imbued with forces and tensions that influence the behavior of the parts within the field (Koffka 1935). Thus, it is not enough to say that each element within the perceptual field is related; *how* they are related is important as well. Manifestations of this principle have been legion, with principles such as contrast, distance, and simplicity all coming to the fore (Kohler 1929). From these many considerations, however, an overarching theme achieved its own gestalt. Elements within an actor’s perceptual field can be more or less *congruent* or *consistent* with each other.

² It is perhaps this quality of gestalt psychology, its tendency to give unique importance and meaning to levels of analysis greater than the individual or atomistic, which has made its insights so invaluable to sociological social psychology.

In other words, they can conflict with one another, or they can gel. They can form a pleasing gestalt, or they can clash. To the extent that they are consistent with one another, the “forces of tension” within the field are reduced, and an actor feels at equilibrium with the perceptual field. If, however, the elements within the perceptual field are inconsistent or incongruent with one another, tension in the perceptual field will motivate an actor to overcome this tension by reducing or abolishing the incongruity. This “tension” has its equivalent in physical fields to the pull of gravity, or the repulsion of magnetism. In short, inconsistent or incongruent relations between the elements of the perceptual field motivate actors to reduce such tension by reestablishing consistency/congruity³.

From this theoretical backdrop arose a number of separate theories which, while not overtly recognized as such at first, all dealt with this common issue: cognitive consistency. These theories gave the phenomenon a number of different terms: balance, congruity, symmetry, consonance, etc., and yet all set forth the assumption that actors and groups will work to balance their behaviors, cognitions, and/or interpersonal relations to achieve maximum consistency between the system of parts (Brown 1965; Newcomb 1968).

The genesis of the cognitive consistency literature probably began with Heider’s work on what he termed “cognitive balance” (Heider 1944; Heider 1946; Heider 1958).

³ Most early empirical examinations of actors’ needs to overcome tension in their perceptual fields involved testing the tendency of actors to modify their attitudes when faced with clashing behavioral and/or perceptual outcomes in their perceptual field (Aronson and Mills 1959; Festinger and Carlsmith 1959; Festinger, Riecken Jr., and Schachter 1956).

In this theory, actors are motivated to retain consistent valences among the interpersonal relationships they possess. If three actors share interpersonal bonds, and all three have positive feelings towards one another, there is a “balance” among the friends. If, however, two of the actors feel positively towards each other, and the third actor feels positively towards one and negatively towards the other, an imbalance exists. Each actor notes an inconsistency among the interpersonal relationships they share. This inconsistency will create tension in the actors’ perceptual field, and will motivate one or more of the actors to modify their cognitions or behaviors to resolve the inconsistency and reduce the tension in the perceptual field. In other words, tensions in the field (i.e. “imbalanced” interpersonal relations) influence actors’ emotional and cognitive states. There is an assumption that perceived “imbalanced” relations between actors, in terms of their valenced appraisals of one another, is inherently uncomfortable for actors, and will motivate resolution. Heider’s theory suggests that balance always arises from a perception of consistent valences across actors, and that imbalance always arises from the perception of inconsistent valences.

The next progenitor of the loose grouping of theories which began the cognitive consistency paradigm was Leon Festinger (1957). Festinger’s theory of cognitive dissonance was founded on three simple but important premises relating to the relationship between cognitive elements. Cognitive elements can be opinions, perceptions, decisions, thoughts, etc., and Festinger states (p. 31):

1. There may exist dissonant or “nonfitting relations” among cognitive elements.
2. The existence of dissonance gives rise to pressures to reduce the dissonance and to avoid increases in dissonance.

3. Manifestations of the operation of these pressures include behavior changes, changes of cognition, and circumspect exposure to new information and new opinions.

Dissonant cognitions exist when an actor simultaneously possesses two cognitive elements that imply the logical opposite of one another (e.g. “A” and “Not A”). When two incompatible cognitive elements arise in the same actor, the actor is in a state of cognitive dissonance, and feels tension or pressure to reduce that dissonance. This motivation may prompt new behaviors, new cognitions, new attitudes, or new perceptions.

Festinger’s work, like Heider’s, focused on the interplay of existing cognitive elements (e.g. opinions, attitudes, beliefs) with new or incoming information arising from social interaction. In a brilliantly counter-intuitive finding, subjects asked to perform inane tasks for long periods of time were shown to hold higher opinions of such tasks when rewarded less for their efforts. In essence, the meager reward was insufficient to account for the subject’s willingness to participate, and so to reduce the dissonance arising from under-reward, subjects changed their opinions of the task to reflect a more favorable appraisal. Information from the perceptual field had presented an uncomfortable gestalt (i.e. there was tension between the perceived unpleasantness of the task and the meagerness of the reward), and so the evaluation of the task was modified to reduce the tension and reestablish a comfortable gestalt.

In short, both Festinger and Heider’s theories involved the comparison of coexisting cognitive elements (incoming information from the environment and preexisting cognitive schema), the potential discovery of either dissonance or imbalance

between these elements, and the strategies actors use to overcome such tensions in their perceptual field. Changes in behavior, attitude, cognition, or perception are some of the ways actors work to overcome these cognitive inconsistencies. This comparison of existing cognitive schemas with incoming information from the interactional environment characterized much early cognitive consistency work. Some of the more prominent theories from this time period that adopted this general orientation will now be reviewed.

A prominent consistency theory which arose from this time period was the congruity principle as introduced by Osgood and Tannenbaum (1955). In its original formulation, the congruity principle began with the assertion that people form evaluations of both actors and objects. Furthermore, the actors one has evaluated are themselves the source of evaluations about objects. The congruity principle suggests that people will want to maintain consistency between personal evaluations of actors, objects, and the external actors' own "third-person" evaluation of that object (Tannenbaum 1968). For example, if an actor one has positively evaluated makes a positive evaluation of an object one likes, congruity is in evidence and no tension exists.⁴ If, however, an actor one *dislikes* makes a positive evaluation about an object one likes, an incongruity exists, and one will be motivated to change one's attitude about either the source of the evaluation, or the object being evaluated.

Thus, according to Osgood and Tannenbaum's congruity principle, attitude change is a function of incongruity between a) evaluations made by other actors in the

⁴ Example: I like Sally, and I also like apples. Sally likes apples. This is a congruent situation.

perceptual field, and b) existing evaluations held by the self. When incongruities exist between these two elements, actors will be motivated to reestablish congruity by changing their attitudes about one or more of the elements in the field. This theory has clear connections with both Heider and Festinger's theories. However, an innovative aspect of Osgood and Tannenbaum's theory is the assertion that the self will not only monitor the thoughts and opinions of other actors during interaction, but in fact may modify its own thoughts and opinions based on what significant others think. While implicit in Heider's earlier formulation, this more explicit assertion that the cognitions of other actors are important and influential sources of information in the perceptual field became a central component to many contemporary social psychological theories, and is an important contribution of Osgood and Tannenbaum's work.

Rosenberg's (1968) affective-cognitive consistency approach is another prominent theory established during this period. It suggests that positive affect towards an object tends to be accompanied by a cognitive belief that the object will promote attainment of positive values and block negative values (and vice versa). Furthermore, to the extent that this consistency between affective and cognitive orientations towards objects is lost or cannot be maintained, actors will modify their feelings or attitudes to reestablish such consistency (Rosenberg 1960a).

Important and interesting in Rosenberg's research are the interstitial connections he establishes between cognition (belief) and affect (feeling). Rosenberg studied the interrelationship between these two elements from both relevant angles: how affective ties influence cognitions and beliefs, and how cognitions and beliefs influence affective

ties. In early studies, Rosenberg demonstrated that changes in beliefs about an object (i.e. that it would promote the attainment of positive/negative outcomes) would cause corresponding changes to the affective orientation towards that object (Rosenberg 1956). However, in later works, he was also able to demonstrate that changes in feelings towards an object would drive a person to modify their beliefs about that object (Rosenberg 1960b; Rosenberg 1960c). Thus, influence between cognition and affect can travel in both directions, implying that actors' cognitive and affective landscapes are correlated, and can influence one another in the ongoing search for consistency.

This connection between affect and cognition was crucial for later developments of the cognitive consistency principle in social psychology. Contemporary social psychological theories that rely upon assumptions of cognitive consistency have in most cases made this linkage not only explicit, but central to the operation of the theory in general (e.g. Burke and Stets 2009; Robinson and Smith-Lovin 2006). If one were to borrow heavily from Festinger's (1957) original formulation of cognitive dissonance, but include additional insights from the theories reviewed above, the cognitive consistency principle as presented in this dissertation can perhaps be stated as such:

1. Actors attach meaning to themselves, other actors, objects, and the situations they find themselves in. These meanings are relatively durable and persist over time.
2. Contextual meanings may arise during social interaction which are inconsistent with the actor's pre-existing meanings. The source of these contextual meanings may be the self, other actors, objects, the situational context, or the interplay between one or more of these elements. Additionally, these meanings may refer to the self, other actors, objects, the situational context, or some combination of these elements.

3. Inconsistency between pre-existing meanings and contextual meanings produces negative affect in actors, while consistency between meanings and events places the actors in a state of emotional equilibrium.
4. Actors who experience negative affect arising from cognitive inconsistency will be motivated to (a) reestablish and maintain consistency between meanings and events, and (b) avoid and abolish future inconsistencies between meanings and events.

In some form or another, these same assumptions appear in many contemporary social psychological theories. Few (if any) of these more recent theories consciously or explicitly trace their roots back to the gestalt or field traditions, but the basic thrust of the consistency argument is clearly present. Turner (2006) states it nicely: “[Many social psychological theories] posit a need for humans to experience consistency, congruity and balance among cognitions about self, others, situations, norms, and beliefs. When individuals feel that cognitions are out of balance, they experience negative emotional arousal and are motivated to restore a sense of consistency” (p. 368). Absent from this statement is explicit mention of the comparison of pre-existing cognitive schemata with incoming information from the interactional environment, but as a general statement of the cognitive consistency principle, the gist is accurate.

The consistency principle is a bridge uniting the conceptual frameworks of many social psychological theories, including those just discussed and more contemporary theories to be discussed presently. The cognitive consistency principle proposes that the emotional state of an actor is, at least in part, dependent upon the congruity between pre-existing and incoming information. Furthermore, it proposes that actors are motivated to maintain consistency between these stores of information, and may change behaviors, attitudes, cognitions, or modify their perceptions to meet this goal. However, this

principle is only implicit in most contemporary social psychological theories, and often needs to be highlighted for its influence to become clear. In pursuit of this, I shall now review how the consistency principle is manifested in the social psychology of today.

Cognitive Consistency in Contemporary Social Psychology

Contemporary social psychological theories vary greatly in how explicitly they adopt the consistency principle. The control system theories (e.g. Burke 1991; Heise 1985) consciously center their theories on conceptions of congruity and consistency, while theories like expectation states theory (Berger and Webster Jr. 2006) are far less open or explicit in their use of the consistency principle. Therefore, it is necessary to review some of the ways the consistency principle has manifested itself in contemporary social psychology so as to illustrate both its centrality and ubiquity in the prominent theories of the field. The discussions below are not intended to be detailed or comprehensive studies of any social psychological theory, but are rather intended to be brief examinations of how the consistency principle is applied in contemporary social psychology. There is depth and detail present in each of the following theories which are beyond the scope of this brief review, and so only the barest review of each theory will be presented.⁵

Symbolic interactionist theories, with their focus on meanings of self, others, and objects in the world, have always relied upon assumptions of a meaningful world populated by actors seeking to maintain those meanings through interactions and communications (Stryker 2003). Self-verification has been an especially prevalent topic

⁵ For a good review of each of these theories, see Burke (2006).

in symbolic interactionist theories (Burke and Stets 1999; Stets and Burke 2005; Stets and Harrod 2004), and this trend may have reached its purest form in identity theory (Burke 1991). In this theory, actors hold stable conceptions of self called identity standards which they seek to verify through interaction. To achieve this verification, actors send behaviors into their environment which they believe best represent the identity standard they are trying to express. For example, if an actor is enacting a “father” identity, the actor may send out behavior like playing with his children, cooking dinner, or helping his kids with their homework. These behaviors are all consistent with how the actor thinks a “father” should act.

While behaving according to his identity standard, the actor reviews how that behavior is received by the social environment, especially by the other actors in that environment. Do his children respond to his help as they should respond to a helpful father? Do others who witness his behavior respond to him in a fashion consistent with how they should respond to a good father? To the extent that other actors respond to the behavior in a way that is perceived to be congruent with the identity standard being expressed, identity verification is achieved, and the actor experiences positive emotions (Stets 2006). If, on the other hand, responses from other actors in the environment signal that meanings in the identity standard have not been sufficiently expressed, then the original actor goes unverified and experiences negative emotion(s) (Burke and Stets 2009). Moreover, the negative emotions and stress resulting from non-verification motivate the actor to modify the behavior being sent into the environment in such a way as to bring the responses from other actors in line with the identity standard being

expressed. Only when the actor's perceptions of how others see him/her become congruent with the identity standard in question does the actor experience positive emotions.

The consistency principle is clearly present in identity theory. The actor attaches meaning to the self (the identity standard), and there are times when contextual meanings from the environment (reflected appraisals) are inconsistent with this conception. This is what identity theory has termed "identity non-verification," and it is arouses negative emotions in actors. These negative emotions motivate actors to re-establish identity verification, which is a state of consistency between the identity standard and reflected appraisals from other actors in the environment. In truth, the consistency principle is the central mechanism driving identity theory, the element *sine qua non*.

Another research tradition in contemporary social psychology that relies upon the consistency principle is that set of theories which studies conceptions of justice and fairness. Justice theories propose that social actors compare rewards and outcomes from social interaction with various reference points or standards they hold. These may include ratios of personal costs and benefits with similar ratios for other actors (Jasso 1980), or cultural conceptions of what is considered "fair" or "just" (Blau 1964). Regardless of how the comparisons are made, consistency between what is considered fair or just and what is actually received will lead to happiness and positive sanctions (Homans 1961) and inconsistency will lead to discomfort, anger, and negative sanctions (Blau 1964; Jasso 1978). Actors who feel they are being treated unjustly will be motivated to resolve the injustice rather than let it remain. Standards of fairness and

justice are actors' pre-existing meanings, and the actual rewards they receive are the contextual meanings that may be inconsistent with these. Such inconsistency causes negative emotion in actors that motivates them to reestablish consistency between preexisting and contextual meanings. Again, the consistency principle is clearly present.

The third social psychological research tradition to be reviewed here that rests upon the consistency principle is expectation states theory. In this theory, social actors form expectations about how other actors should behave in interaction (Berger, Connor, and Fisek 1974). The very process of interaction causes individuals to form ideas of others' relative levels of status, power, and ability. These power and prestige rankings can be affected by actors' behavior as well as ascribed characteristics like race and gender (Ridgeway 1991; Ridgeway and Walker 2001). Each actor's perceived position in the power and prestige hierarchy then creates expectations of how that actor should behave during interaction.

For example, a "high status" actor in a task-oriented situation is expected to offer suggestions on how a group should accomplish its goals. "Lower status" actors, on the other hand, are expected defer to the higher status actor and only offer suggestions when asked. The process of forming behavioral expectations for one another is a primary means whereby actors establish and maintain the status order in a social group. Behavioral expectations derived from the established (or burgeoning) power and prestige order serve as standards against which actual, current behavior is assessed (Foschi 1989; Wagner and Berger 2002), and to the extent that behavior is congruent with expectations (and thus the status order), interaction progresses smoothly (Ridgeway and Johnson 1990;

Ridgeway 2006). If, on the other hand, behavior is expressed which is incongruent with expectations (and thus challenges the status order of the group), interactants feel and express negative emotions, and the offending actor(s) may be sanctioned until behavior falls in line with existing expectations (Lucas, Wynn, and Vogt 1995). Behavioral expectations are the preexisting meanings actors have attached to the actors and social situation, and actual ongoing behaviors are the contextual meanings that may be inconsistent with these preexisting meanings. When inconsistencies do arise, interactants experience negative emotions and are motivated to realign actual behavior with preexisting expectations. This is a clear expression of the consistency principle.

The final theory to be reviewed here in its connections with the consistency principle is affect control theory. This theory suggests that actors form meaningful understandings of the behaviors, objects, and settings they encounter in social interaction. Moreover, social actors become emotionally attached to these meanings, and work to maintain the meanings during social interaction (MacKinnon 1994). These stable, enduring understandings of the world are termed “sentiments.” Life, however, will not always unfold in a way that supports these sentiments. Oftentimes, events in the real world will be incongruous with how the actors have come to view their world, and will challenge the existing meaning structures which those actors hold. Such meanings which arise from current events are termed “transient impressions,” and are simply the contextual meanings which arise from social interaction. Inconsistencies between sentiments (i.e. preexisting meanings) and transient impressions (i.e. contextual meanings) are termed “deflections,” and affect control theory states that deflections

produce negative emotions in social actors, motivating the actor to resolve such deflections (Robinson and Smith-Lovin 2006). An illustration may be needed to clarify this point.

For example, a social actor may view “mothers” as good, passive, and quiet. These three traits are the actor’s sentiment towards mothers. While interacting in the real world, however, the actor may view a mother yelling at and smacking her child. The transient impression of this *particular* mother, then, may be that she is bad, active, and loud. This event in social interaction challenges the existing meaning the social actor holds for “mothers;” there is a deflection (incongruity) between the actor’s sentiments and transient impressions. This is uncomfortable for the actor, and stimulates feelings that he/she would rather not have (e.g. anger, sadness, disgust, etc.). Faced with this situation, the social actor witnessing the angry mother may attempt to make meaningful sense of the situation by ascribing a label to the woman, such as “bad mother,” or may attribute a mood to the woman, such as “angry” or “frustrated.” In this way, the inconsistency between the sentiment and transient impression is reduced, and the actor is able to shed the discomfort caused by the deflection.

It should be clear from the discussion above that the consistency principle is found throughout a number of the most prominent research traditions in contemporary social psychology⁶. Each theory may use different terminology to describe how actors

⁶ It should be noted that there are equally prominent theories in social psychology that utilize the consistency principle but have not been discussed here due to space limitations. These include social identity theory, exchange theory, legitimacy theory, and others. For a good review of the consistency principle as manifested in these theories, please refer to Turner (2006).

seek to pursue and maintain consistency, but the basic thrust of the consistency principle is found in each: Actors attach durable, trans-situational meaning to self, others, objects, and situations that may be challenged by contextual meanings derived from unfolding events. Inconsistencies between an actor's preexisting meanings and the incoming contextual meanings elicit negative emotions in the actor, and so he/she will be motivated to reestablish consistency between these meaning sets. Table 1.1 summarizes how the consistency principle is found in each of the theories discussed above.

Table 1.1: The Consistency Principle in Social Psychological Theories

Theory	Preexisting Meanings	Contextual Meanings	Inconsistencies
Identity Theory	Identity Standards	Reflected- and Self-Appraisals	Identity Non-Verification
Justice Theory	Standards of Fairness and Justice	Actual Distribution of Rewarding Outcomes	Injustice, Unfair Rewards
Expectation States Theory	Status Expectations	Status-Oriented Behavior	Challenges to Status Order
Affect Control Theory	Sentiments	Transient Impressions	Deflections

In each of these theories, actors who are faced with inconsistencies in their perceptual field are motivated to resolve these inconsistencies through either action, or through perceptual reorganization. This stems from the assumption that inconsistencies between an actor's meanings of self/situation and information from actual events produce negative emotions and are inherently uncomfortable for social actors.

The preceding discussion introduced the roots of the cognitive consistency principle, provided a definition of this principle, and outlined how assumptions of this principle underlie much contemporary social psychology. At this point, it is important to strip away the ambiguities that come with a narrative discussion of a theory and provide a

more concrete expression of the cognitive consistency principle through mathematical formalization. This move towards a mathematical formalization has benefits and detriments. While it may provide an easily testable expression of the theory, it also loses some of the qualitative richness of the discussion and definition above. Both forms of theory expression are valuable, and so both have been included.

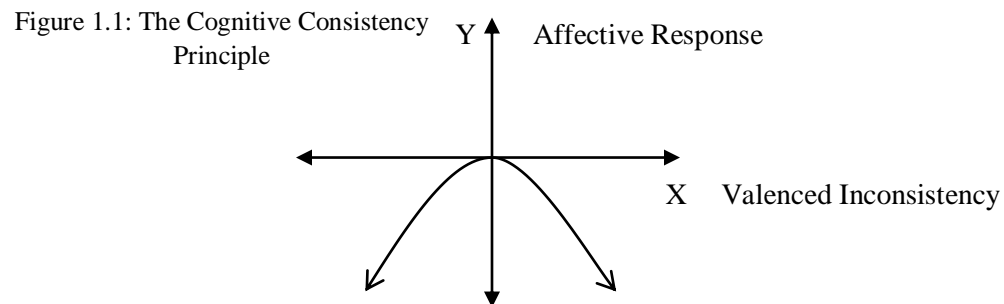
To translate the cognitive consistency principle into mathematics, it is often useful to rely upon the visual tool of mapping the relationship of one or more variables into Cartesian space. To accomplish this, one must begin by defining the axes. The X-axis will here be defined as “Valenced Inconsistency.” This axis measures inconsistency between preexisting meanings and contextual meanings. The actual content of these inconsistencies (i.e. the dimension of meaning being measured) is undefined and unimportant; the axis is merely meant to symbolize the level of inconsistency an actor perceives between her preexisting and contextual meanings. A value of zero implies perfect consistency, while any positive or negative integer implies some inconsistency⁷. Greater deviations from zero imply greater inconsistencies between the two forms of meaning.

The Y-axis is here defined as “Affective Response.” This axis measures the emotional state of the actor potentially perceiving an incongruity. A value of zero implies emotional equilibrium, or a state of emotional non-arousal. On this axis, the direction of the deviation from zero does matter. Positive values on this axis imply the

⁷ Again, whether it is a positive or negative inconsistency is unimportant at this juncture, as the cognitive consistency principle assumes that incongruities of any sort produce similar emotional and cognitive outcomes.

experience of positive emotions (e.g. happiness, joy, etc.), while negative values on this axis imply the experience of negative emotions (anger, fear, sadness, etc.). Greater deviations from zero imply stronger emotional arousal. The exact metrics of measurement for both axes are undefined and unimportant, they are meant to be relative expressions only.

Using these axes, one may graph the cognitive consistency principle (i.e. the functional form of the relationship between cognitive consistency and emotional response) in Cartesian space as such:



This negative parabolic curve is a graphical expression of the cognitive consistency principle as stated above. Its vertex is at the origin, which has been defined as both perfect cognitive consistency and emotional equilibrium. As one moves in either direction along the X-axis (i.e. as inconsistencies grow), values of Y decrease exponentially, implying quickly worsening negative emotional arousal⁸. It was noted above that such negative emotional arousal will motivate actors to reestablish cognitive consistency. As a result, if one were to imagine this graph as a dynamic system over

⁸ Please note that any asymmetry in the curve on either side of the Y-Axis is a function of my inability to master the graphical interface, and is not meant to imply any difference in the functional form for positive or negative values of X. The curve is intended to be symmetrical.

time, there would be a tendency for values to settle at the vertex (i.e. cognitive consistency/ emotional equilibrium). Another way to express this tendency is to imagine this graph as an expression of a control system. Actors seek the emotional equilibrium found at the vertex of the parabola. As changes occur along the X-axis (i.e. as inconsistencies arise between preexisting meanings and contextual meanings), the negative emotions that are aroused will motivate the actor to reorient their emotional state back to the origin. In short, the origin is a point attractor in a control system that, all else being equal, values will tend to move towards over time.

Expressed in equation form, the cognitive consistency principle expresses affective response as a function of valenced inconsistency, and is presented in Equation 1 below.

Equation 1.1:

$$Y = -X^2$$

Where:

- Y is Affective Response
- X is Valenced Inconsistency

You will note that Equation 1 is a simplified expression of a negative binomial curve. Two terms in the “full” equation (i.e. a polynomial equation of order 2), the y-intercept and the “X¹” term, are “absent.” These constraints were applied to match the theoretical assumptions of the cognitive consistency principle. If given values other than zero, the resulting function would violate one or more of the principles expressed in the pure cognitive consistency principle.

First, the “ X^1 ” term of a full negative binomial equation was removed (i.e. constrained to have a coefficient of zero) to place the vertex on the origin and provide symmetry around this vertex. Most importantly, this ensures that the maximum (i.e. the point of maximum positive emotional arousal, which is emotional neutrality) occurs when perfect cognitive consistency is reached. If any other point besides perfect cognitive consistency produced the most positive emotional state, the graph would not be representative of the cognitive consistency principle. That is the element *sine qua non*.

Second, the y-intercept term (i.e. the constant) must be constrained to zero in order to satisfy the assumption that (when combined with the prior constraint) perfect cognitive consistency places the actor in a state of emotional equilibrium (i.e. neither positive nor negative emotional arousal). This second constraint is potentially more controversial than the first, and may require some brief discussion.

If one did not constrain the y-intercept to zero, then consistency between preexisting and contextual meanings could produce three potential outcomes: 1) emotional equilibrium (y-intercept = 0), 2) positive emotional arousal (y-intercept > 0), and 3) negative emotional arousal (y-intercept < 0). The first of these outcomes matches the definitional form of the cognitive consistency principle as provided by this dissertation, as adopted by most prior theories of cognitive consistency, and as reflected in the equation graphed above. When actors perceive congruence between their preexisting meanings and incoming contextual meanings, there is no tension in their perceptual field and they are at a state of emotional equilibrium. This assumption that

perfect cognitive consistency places the actor in a state of emotional equilibrium has important implications for theories of cognitive consistency.

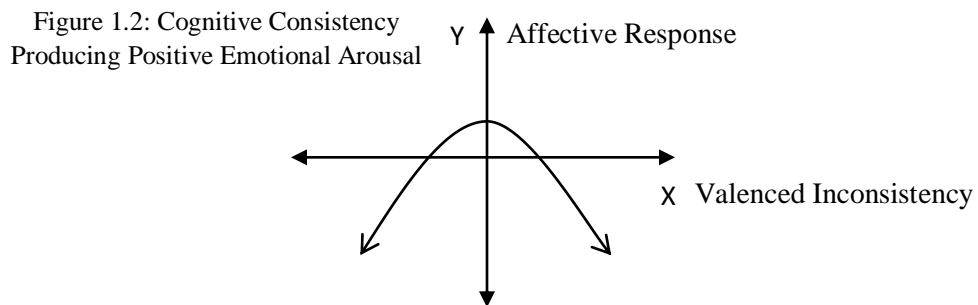
A defining characteristic of the cognitive consistency principle is its implied relationship between states of emotional arousal and motivation. As cognitive inconsistencies arise during interaction, actors experience negative emotions. These emotions motivate actors to reestablish cognitive consistency through action, cognition, selective perception, etc. However, when cognitive consistency is established, actors lose this motivation. In the cognitive consistency framework, emotions are conceptualized as forces designed to indicate to an actor when inconsistencies have arisen in their perceptual field, and to motivate the actor to abolish the source of these emotions.

As such, perfect cognitive consistency must correspond to emotional equilibrium and, by extension, a lack of motivation to enact changes to the meanings in the perceptual field.⁹ Anything besides perfect consistency should arouse negative emotions within an actor, motivating them to reestablish consistency/emotional equilibrium. Only by constraining the “ X^1 ” term and the y-intercept to zero in the mathematical form of the cognitive consistency principle can these assumptions be met. Let us turn now to the two other possible outcomes of an unconstrained y-intercept.

The second outcome of an unconstrained y-intercept term (y-intercept > 0) implies that actors may feel positive emotions when experiencing cognitive consistency. While this may hold apparent verisimilitude, and may appeal to one’s common sense, it is

⁹ This is not to imply that actors in a state of cognitive consistency are emotionless or without motivation to influence the meanings in their environment. This is simply to say that their emotional state and motivation to act are no longer a result of cognitive inconsistency.

an assumption that may not be tenable upon close examination. If actors feel positive emotion arising from perfect cognitive consistency, then they must also feel positive emotion from certain levels of cognitive *in*consistency. This may not be immediately apparent, but is demonstrated on the graph below, which provides an illustration of the graphed cognitive consistency principle in which the y-intercept has not been constrained to zero.



As can be seen in Figure 1.2, there are areas directly to the left and right of the y-axis in which cognitive inconsistency produce states of positive emotional arousal. Furthermore, the two points at which the parabola crosses the x-axis now imply that there are two points of cognitive inconsistency at which the actor experiences emotional equilibrium. Both of these outcomes run directly counter to the fundamental assumptions of the cognitive consistency principle, which state that a) inconsistencies produce negative emotions within actors, and b) only cognitive consistency (i.e. lack of tension in the perceptual field) should produce states of emotional equilibrium. If inconsistencies can be associated with both positive emotions and emotional equilibrium, then they should not be associated with motivation to reestablish cognitive consistency. As a

result, Figure 1.2, which provides an unconstrained y-intercept, seems an untenable representation of the cognitive consistency principle. Or does it?

Some may argue that emotional states are relative, rather than absolute. Figure 1.2 may still produce behavior in actors that corresponds with and confirms the predictions made by the cognitive consistency principles. Even though some inconsistencies implied by that graph produce positive emotions, and others produce emotional equilibrium, these emotional states are still suboptimal when compared to the emotions produced by the vertex at cognitive consistency. As a result, actors should still be motivated to seek consistency, so as to maximize their state of positive emotional arousal. When consistency is reached, actors are not simply at a state of emotional equilibrium, they are at a state of positive emotional arousal, a state which they may be motivated to maintain over time. Before discussing this further, let us turn to the third possibility of an unconstrained y-intercept.

The third possibility of an unconstrained y-intercept ($y\text{-intercept} < 0$) implies that an actor may feel negative emotions when experiencing cognitive consistency. In short, even when preexisting meanings are perfectly in line with contextual meanings, actors are still plagued by negative emotions. This seems to run counter to the fundamental premise of the cognitive consistency principle, and highlights the danger of allowing for an unconstrained y-intercept. However, some theories suggest that the verification of certain meaning sets during interaction will elicit negative emotions within actors, even though cognitive consistency is being achieved. A good example of this would be the verification of a “spoiled” or stigmatized identity (Goffman 1963). If an actor holds

preexisting meanings of self that are negative in content, and those meanings are confirmed during interaction, the actor may feel negative emotions resulting from this meaning confirmation. In other words, depending on the content of the meanings involved, there may be no opportunity for actors to reach emotional equilibrium during interaction. This interpretation of the cognitive consistency framework must again rest upon a view of emotions as relative, rather than absolute. The best an actor could hope for, so to speak, is “less” negative emotion.

While perhaps not directly supported by the original formulation of the cognitive consistency principle, there is some face validity to these other two outcomes arising from an unconstrained y-intercept. While a strict interpretation of the cognitive consistency principle would seem to imply that the y-intercept must be constrained to zero, thereby guaranteeing that actors cannot feel positive emotions or emotional equilibrium during states of cognitive inconsistency (or negative emotions during cognitive consistency), there are other perhaps equally valid interpretations that would allow the y-intercept to vary in both positive and negative directions dependent upon the specific meaning sets actually invoked during interaction. As such, two mathematical formalizations of the cognitive consistency principle will be presented. The first will be known as the strong version of the cognitive consistency principle, and will include a y-intercept that is constrained to zero. This implies that cognitive consistency elicits a state of emotional equilibrium, and matches the narrative definition given above.

The second version will here be known as the weak version of the cognitive consistency principle. This version will not constrain the y-intercept to zero, and will

thus allow actors to feel both positive and negative emotions as a result of cognitive consistency. However, these deviations away from zero are assumed to be unique characteristics of individual actors and/or the specific situation, and are not assumed to be fixed population effects. In other words, the weak version of the cognitive consistency principle does *not* assume that all people at all times experience either positive or negative emotion from perfect consistency. Rather, the positive or negative emotions experienced will be dependent upon characteristics of the individual, the meaning involved, or the situation. As such, the constant is not predicted to be a fixed effect, but rather a random effect unique to individual actors. The equational form of the weak version of the cognitive consistency principle is indicated below.

Equation 1.2:

$$Y = a_i - X^2$$

Where:

- Y is Affective Response
- X is Valenced Inconsistency
- a_i is the Unique Random Intercept for Actor i .

In Equation 2, the random effect y-intercept (a_i) can be any value, including zero. The value it takes can be the result of virtually anything, including the actors preexisting emotional state, the meanings present in the perceptual field, or characteristics of the perceptual field itself.¹⁰ Most of the discussion in this dissertation will be focused on the strong version of the cognitive consistency principle (Equation 1). Many of the

¹⁰ Its specific value is contextual and relatively unimportant. What is important is the assumption in this form of the equation that the y-intercept is unconstrained and can vary away from the origin.

implications of the weak version (Equation 2) will only be discussed during the testing of the modified cognitive consistency principle that is to be presented later in the dissertation.

Chapter 2: Challenges and Unresolved Issues

To be clear, the mathematized cognitive consistency principle as presented in the previous chapter isn't so much a theory of human behavior and cognition as it is an assumption about the relationship between cognitive consistency and an actor's predicted affective response¹¹. However, this assumption and its corollary claims about people's tendency to avoid inconsistency and pursue consistency have acted as a foundation upon which a number of theories have been built. Some theorists place an assumption that actors prefer cognitive consistency at the center of their theory, the element *sine qua non* (e.g. cognitive dissonance theory, identity theory, affect control theory), while others use it only tacitly, giving it tangential importance to the overall operation of the theory (e.g. exchange theory, expectation states theory). Regardless of its usage by any specific theory, what is important is that a large number of successful social psychological theories rest upon the basic assumptions of the cognitive consistency principle. Its prevalence across the discipline, and its corroboration across the decades, makes it one of the most established assumptions of the human mind in the behavioral sciences. While its simplicity, generality, and overall support in the discipline would imply that it holds the enviable position of being a general statement of human cognition and behavior, a careful examination of both anecdotal and scientific evidence reveals a number of persistent and troublesome challenges to the cognitive consistency principle.

¹¹ An analogy can be made with the law of gravity. Newton's law expresses gravitational attraction as a function of distance and mass, just as the cognitive consistency principle expresses emotional reaction as a function of consistency between contextual and pre-existing meanings. Although the law of gravity is still technically a theory, few physicists would term it as such, and social psychologists should avoid the applying the term to the cognitive consistency principle just as ardently.

This chapter will review a number of issues and empirical findings that offer direct challenges to the cognitive consistency principle. In each case, evidence will be reviewed that seems to challenge predictions made by the consistency principle, followed by a short discussion of how this evidence can potentially be reconciled with the overall principle.

Note that for each such potentially problematic piece of evidence, it may be possible to stretch and bend the cognitive consistency principle to account for the challenge being presented. In truth, no single set of findings to be presented stands as enough of a challenge to the cognitive consistency principle to be considered conclusively worthy of rejecting (or even modifying) the decades-old theory. However, when taken in conjunction, the sum total of evidence stands as a strong challenge to the basic assumptions placed forth by the consistency principle. While it may be malleable enough to deal with each challenge individually, the contortions necessary to overcome the challenge presented by all theories at once may itself stretch the limits of parsimony and disbelief close to breaking.

The theories to be presented in the following section are as diverse and varied as one would expect when in the process of challenging a consistency principle. First, evidence will be presented which shows that perceived inconsistencies that contain an evaluative dimension (e.g. over-reward, self-enhancement) often result in positive emotions. Second, a theory from the discipline of philosophy will be presented that discusses the impetus and root of amusement, a distinctly human phenomenon. The incongruity theory of humor suggests that amusing incidents not only actively break from

one's expectations and preexisting conceptions, but are pleasurable for the actors experiencing them. Third, evidence of the functions and importance of varied experience will be presented. Whereas the cognitive consistency principle frames all unexpected or incongruous experience as eliciting negative emotion, it will be shown how research on topics such as curiosity, exploration, thrill seeking, and simple variation in stimuli cast subtle but persistent doubt on such an assumption. Each of these strands of research and/or theorizing will now be reviewed in turn, with a special focus on how each relates to and challenges the assumptions of the cognitive consistency principle.

Over-Reward and Self-Enhancement

There is a persistent debate occurring in social psychology centered on the issue of self-enhancement. On one hand, we have theories that suggest social actors will pursue accurate appraisals of self during interaction. These are the self-verification theories (Burke and Stets 2009; Swann 1983); they assume that information about the self which is consistent with existing schemata is maximally preferable. The roots of many of these theories can be traced back to the work of Prescott Lecky (1945), whose self-consistency theory supposed that actors prefer consistent information due to their perception that such information is especially accurate, credible, and diagnostic (Crary 1966; Korman 1968; Markus 1977; Swann, Wenzlaff, Krull, and Pelham 1992). Accurate information, Lecky states, grants actors the best chance to form accurate predictions of what to expect from social situations. Such predictions should improve an actor's ability to calculate appropriate responses and control the flow and direction of the interaction. These themes of predictability, accuracy, and control are found in a number

of contemporary social psychological theories that assume actors will work to maintain meanings of self (Robinson and Smith-Lovin 2006; Swann Jr., Rentfrow, and Guinn 2003).

On the other hand, there are theories that suggest that actors will prefer positive evaluations of self. These are the self-enhancement theories (Sedikides, Gaertner, and Toguchi 2003); they assume that actors will attempt to buffer the self from negative appraisals. In other words, the self-enhancement perspective assumes that accurate information is less important than information that protects the self from negative appraisals (Sedikides 1999). Whereas self-verification theories suggest that accurate cognitive schemata provide the necessary benefit of improving the actor's ability to predict and control their environment, self-enhancement theories suggest that the maintenance of a positive self view is the top priority (Swann Jr., Griffin, Predmore, and Gaines 1999). As such, actors will eschew accurate information with a negative valence in favor of inaccurate, but positive, appraisals of self.

Empirical examinations of this phenomenon have produced mixed results. In support of self-verification theory, Wiest (1965) found that elementary school children significantly preferred play partners that viewed them as they viewed themselves. Similar interaction preference patterns were observed in college sororities (Backman and Secord 1962; Secord and Backman 1961) and dormitories (Newcomb 1956), as well. Evidence from the laboratory has shown that subjects prefer to interact with partners providing appraisals consistent with self-views, even when those appraisals are negative in valence (Swann, Pelham, and Krull 1989). Furthermore, individuals with tendencies

towards depression or dysphoria preferred interaction partners in the laboratory that supplied them with appraisals that upheld negative self-views (Giesler, Josephs, and Swann 1996; Swann, Wenzlaff, Krull, and Pelham 1992). Such evidence suggests that actors do prefer consistent feedback, rather than positive feedback.

On the other hand, there is equally compelling evidence in support of the self-enhancement hypothesis. In a seminal article, Rosenberg (1965) asked individuals arrayed across a wide range of his self-esteem scale how they felt when evaluated poorly by another. He discovered that individuals with poor self esteem experienced strong negative emotion when receiving feedback from others that confirmed that negative self image. Laboratory evidence has also shown that individuals with low self esteem prefer to interact with groups that provide positive evaluations of their selves, rather than with groups that confirm their negative self-appraisals (Dittes 1959). More recent laboratory evidence has shown the same, with low self-esteem individuals preferring interactional partners that provided enhancing feedback, rather than consistent feedback (Swann, Hixon, Stein-Seroussi, and Gilbert 1990).

Evidence of the allure of overly-positive contextual information extends beyond evaluations of self, as well. Parallels of this phenomenon can be drawn to the issue of over-reward during interaction. As was shown in Chapter 1, justice theories have suggested that actors form expectations of what resources or rewards will be gained during interaction. To the extent that actual rewards differ from existing expectations, actors may experience negative emotions (Younts and Mueller 2001). However, not all justice theorists have espoused this same view, nor has all evidence confirmed such a

prediction. Jasso (1980) has provided a mathematical formulation of justice theory which suggests that whereas under-rewards elicit strong negative affect in actors, over-rewards can produce only low-level negative affect. In other words, deviations from expected rewards in the negative direction (under-reward) will produce much stronger negative affect in social actors, but deviations in the positive direction (over-reward) will produce a much weaker effect¹². Homans (1974) went further, and stated that individuals would experience positive emotion not only from equitable outcomes, but from over-reward as well. However, Homans' also stated that extreme over-reward would elicit guilt in actors. Some empirical evidence (to be reviewed in the following paragraphs) has shown that over-rewards can produce positive affect in actors, and that strong over-reward can produce guilt. The parallels with the issue of self-enhancement are clear: overly positive appraisals of self may act as a form of over-reward during interaction. And, as with the issue of self-enhancement, empirical evidence is mixed regarding actors' responses to over-reward.

In one of the early articles to link perceived equity of rewards to emotional outcomes, Austin and Walster (1974) found that over-reward and under-reward did not have the same effect on subjects. Recall that the cognitive consistency principle as presented here makes no distinction between over- and under-evaluations; either should

¹² In Jasso's formulation, the relationship between incongruity and emotion is expressed as a logarithmic function, rather than a simple negative binomial curve. In later work, Jasso (2006) has also suggested that all cognitive comparison processes are founded on such a logarithmic curve. While the work presented here does not directly address her formulation of the cognitive comparison process, this author certainly believes the two formulations have much to say to one another, and hopes to make the connections between the two formulations more explicit in future formulations.

produce equal levels of negative affect. In contrast, Austin and Waller found that while equitably rewarded subjects were the most content, they found that over-rewarded subjects reported higher contentment than under-rewarded subjects. Thus, some evidence shows that while equity is still the preferable state, there may be a difference between actors' responses to over- vs. under-reward (Jasso 1980; Markovsky 1985).

In a study of cross-national worker satisfaction from a sample of 52 industrial production plants in five countries, Tannenbaum et al. (1978) found a relationship between worker satisfaction and equitable reward that matched in functional form almost exactly with the negative binomial curve presented in Chapter 1. The only difference between the pure cognitive consistency model as presented here and their empirical results was that the slope of the binomial function on the side of over-reward was far less steep than the slope of the curve on the under-reward side. This is congruent with the findings of Markovsky, Jasso, and Austin et al. that over-reward may not be as preferable as equity, but is far preferable to under-reward.

Other studies have found results that imply that over-reward can actually elicit positive emotions in actors. Gray-Little et al. (1978) found that children responded positively to over-reward, but negatively to under-reward. Davidson (1984) studied married couples and found that over-rewarded individuals expressed just as much positive affect and satisfaction as equitably rewarded individuals. On the other hand, Guerrero et al. (2008) studied the emotional responses of marital partners and found that both over-rewarded and under-rewarded individuals experienced more stress than equitably rewarded individuals. Furthermore, over-reward during interaction elicited

feelings of guilt in the subjects. This finding, in line with Homans' (1974) early assertion, also appeared in a study by Hedtvedt and Killian (1999). However, in their study, guilt from over-reward only occurred when the subject perceived that their overly positive outcome was detrimental to the outcomes of others, an issue unexamined by Guerrero et al.

Last, when over-rewarded subjects in the laboratory, Stets and Osborn (2008) found that actors experienced positive emotion from the over-rewards until those actors were given time to fully consider the over-rewards. In other words, while actors' initial reactions to over-reward were positive, when given time to think about the over-reward, actors' opinions changed, and they came to feel negatively about their outcomes. This implies that actors may intuitively respond with positive affect to over-reward, but may come to feel guilt or other negative emotions when given time to think about the outcome. Reactions to over-reward, then, may be a function of cognitive accessibility (Stets and Osborn 2008). This explanation is similar to that given by Swann et al. (1990) when discussing the issue of self-enhancement. As with over-reward, individuals deprived of the time or cognitive resources to consider the overly positive feedback regarding self responded positively to that feedback, while individuals who were given the time and resources to consider such feedback preferred verifying feedback to the overly positive.

Clearly, the issue of what emotional outcome should be experienced as a result of over-reward or self enhancing feedback is still very convoluted. What is clear, however, is that over- and under-reward/evaluations are not experienced in the same way by social

actors. Whether overly positive contextual information simply elicits less powerful negative emotion than overly negative contextual information, whether it elicits positive emotion, or whether it elicits positive emotion until some intensity or temporal cut-off point beyond which it will cause negative affect is still unclear from the available evidence.

It is also important to note that all of the inconsistencies just discussed involve not just discrepancies, but discrepancies occurring along an *evaluative dimension*. In other words, it is not just that contextual information clashed with preexisting cognitive schemata, it is that incoming information was perceived to be *better* than the preexisting standards or expectations held by the actor (this is the “over” in over-reward/evaluation). Some may argue that the addition of an evaluative dimension (i.e. discrepancies in a “positive direction”) may confound the issue of sheer discrepancy, and may account for the positive emotions experienced by actors. In other words, the positive emotions experienced during discrepancies of this sort may be the result of the “rewarding nature” of the perceived discrepancy, and may not be a direct result of discrepancy in-and-of itself.

In truth, it is not hard to imagine that the discrepancy in these situations may actually be causing low levels of negative emotion that is simply being overpowered or washed-out by the positive emotion stemming from the over-reward. This is an important and valid concern regarding the positive emotion arising from discrepancies occurring along an evaluative dimension, and is an issue that will be discussed in greater detail. However, there are other examples of discrepancy that do not occur along an

evaluative dimension, and this is not the only example of the cognitive consistency principle failing to predict emotional outcomes from discrepancy.

Amusement

When does someone find a joke amusing? Is it when they are expecting the punch line, or when they aren't? Is a joke just as funny for the same person the second time it is heard? All of us have experienced a child who tells a joke, gets a laugh, and then tries to tell it again right away. Their reasoning seems sound: if it was funny a second ago, why isn't it funny now? The incongruity theory of humor would answer it is because everyone is expecting the punch line the second time. The punch line was funny the first time because it was unexpected. In truth, amusement is premised upon the breakdown of existing expectations. Refer to the joke below:

“I walked into a bar the other day and ordered a double. The bartender brought a guy
who looked just like me.”

The first sentence of the joke creates the expectation of a “double” shot of alcohol. The second sentence breaks that expectation by changing the meaning of the word “double” in the first sentence. It is this incongruity that creates amusement in the audience.

Of course, jokes are not the only way in which people can be amused. Everyday events can inspire amusement as well. What types of occurrences inspire such spontaneous amusement? Are they mundane, everyday events that you are expecting to occur? Or, are they unusual, unexpected events? Is opening your front door and seeing your street amusing? No, because it is exactly what you expected to happen. Is seeing

someone suddenly slip and fall, or hearing your boss accidentally pass gas amusing? Maybe they shouldn't be, but they often are. Why? Because they are *not* expected, normal, or everyday. In short, amusement seems to be a pleasurable response people can have to breakdowns in expectations. This, as with over-reward, is a challenge to the cognitive consistency principle.

This assertion, that amusement is a pleasurable response to cognitive inconsistency, is not new to this dissertation. It is, however, relatively new to social psychology. Philosophy has been theorizing about the causes of amusement since its very inception, and was the first discipline to propose that amusement is often the result of a breakdown in expectations. Philosophers have termed this theory the incongruity theory of humor.

The incongruity theory of humor has been called the most widely accepted philosophical theory of humor (Morreall 1989), and it attempts to explain how and why humans feel amusement in their everyday lives. It originated in the writings of Aristotle, but was not made into a proper theory until the later works of Kant and Schopenhauer (Kant 1892; Schopenhauer 1883). Most recently, it has received further attention and formalization through the works of Michael Clark, Michael Martin, and John Morreall (Morreall 1987).

At the center of the incongruity theory of humor is the assumption that human beings form meaningful conceptions of the world, and these meaningful conceptions allow social actors to hold expectations of how events in the world will unfold (Morreall 1989). These expectations perform the necessary function of reducing the level of

uncertainty in people's everyday lives. Without even the simplest of expectations, life would be premised on constant discovery and surprise, and it would be far too difficult to navigate simple encounters, let alone the complexities of daily social interaction. In general, too much uncertainty is stressful, and the formation of stable sets of expectations allows for people to interact with the outside world without experiencing undue amounts of stress or undergoing constant reflection over the meaning of every little stimuli.

In the theory, incongruity is defined as the failure of expectations; it is the cognitive state that exists when existing expectations fail to be met. The social actor expected one thing to occur, and something else occurred instead. According to this theory, such breakdowns in expectation are often stressful, and may cause the actor to experience negative emotion. At the very least, the experience of incongruity should elicit attempts at understanding why the failure occurred, so as to form more successful expectations for the future. Actors should feel compelled to avoid, and perhaps resolve, incongruities that they experience in their environment.

Thus, for the incongruity theory of humor, incongruities arise during the course of daily life, and these incongruities are potentially stressful. However, this is not the full story. The incongruity theory of humor is, at its core, an attempt to show that humans have formed a mechanism whereby they can mitigate this stress by experiencing incongruity as enjoyable. The theory proposes that humans have developed a means to experience some incongruities as amusing and humorous, thereby reducing the stressful nature of violated expectations. This is not to say humans always respond to incongruity with amusement; such an outcome only occurs under certain conditions.

According to the incongruity theory of humor, there are three distinct ways in which people respond to incongruity, of which amusement is one. The other two are puzzlement, and negative affect. The theory proposes that (much like animals) humans have developed these latter two “uncomfortable” reactions to incongruity in order to push them to deal with the failure of their expectations. Violated expectations should not be systematically ignored or “glossed over.” The fact that they were violated indicates that they are inadequate in some way; they fail to prepare the social actor for some sorts of situations. To ignore incongruities in this way is to tempt walking into a situation with inadequate ideas of what to expect, which can be dangerous. By attending to breakdowns of one’s expectations, and perhaps modifying the expectations to avoid future violations, one’s cognitive schemata for the situation are actually improved and strengthened, allowing for more predictable interactions with one’s environment.

In this way, then, the incongruity of theory of humor proposes that puzzlement and negative affect are beneficial, and are in fact remnants of our pre-human stages of biological evolution (Morreall 1989). These two responses to incongruity drive biological organisms to understand and/or rectify violations of expectations, which help the organisms to maintain sets of expectations which are adequate for stimuli encountered in their daily environment. If, however, the incongruity that has arisen is relatively small, or does not signal a dangerous or harmful breakdown in expectations, it may not require the excitation of negative emotion, or even of puzzlement. Instead, small incongruities may elicit a third, distinctly human, response: amusement.

Humans can feel amusement towards incongruity, in which the sensations excited are not disagreeable. People are not compelled to change the situation, or even understand it better; instead, they are content to enjoy the incongruity they have encountered. The experience of amusement is pleasurable to an actor, and it allows people to do something which animals cannot: enjoy incongruity (Morreall 1989).

I began by asking the question: why do we find a person who slips and falls, or the flatulence of a superior, funny? The incongruity theory of humor would answer it's because these events are incongruous with your expectations. People walk successfully down the street far more often than they fall, and in the United States bosses rarely exhibit flatulence in front of subordinates. In each case, both the fall and the fart, the normal/usual/expected was violated by the abnormal/unusual/unexpected. Moreover, such events are not particularly puzzling (we are all aware of gravity and the outcome of indigestion), nor are they such serious breakdowns in expectation that they are likely to inspire negative affect. They are slight (and highly situational) violations or failures of expectations which do not require greater understanding or correction. How do you achieve greater understanding of a boss's flatulence? How do you correct it? The two unpleasant responses to incongruity (puzzlement and negative affect) seem inappropriate, leaving a potential third: amusement.

Unlike the previous two responses to incongruity, amusement is not unpleasant for the actor experiencing it. In truth, the opposite is true. Amusement is a highly pleasurable sensation that many not only seek to maintain, but will actively pursue. Television situation comedies, comedy clubs, and the funny pages in the Sunday paper

would not exist without this drive towards feeling amusement. Moreover, amusement does not inspire actors to change any aspect of the incongruity which aroused it. Whereas puzzlement drives actors to understand a situation better, and negative affect pushes actors to change some element of the situation, amusement does not compel actors to change any facet of the situation. The amusing incongruity is allowed to stand, and is in fact appreciated.

In short, the incongruity theory of humor proposes that amusement is a distinctly human response to incongruities between existing expectations and contextual information. The normal, the usual, the mundane, and the expected are not amusing. The abnormal, the unusual, the surprising, and the unexpected can be. Not everything unexpected is confusing; nor is it frightening, enraging, depressing, or stressful. Sometimes, it is funny. And, insofar as actors are experiencing pleasurable emotions like happiness or joy from these minor cognitive incongruities, it seems that the principle of cognitive consistency is ill-equipped to explain this distinctly human phenomenon.

Varied Experience

There has been, perhaps, only one serious attempt in social psychology to challenge the cognitive consistency principle. Termed by some the theory of “variety” or “varied experience” (Fiske and Maddi 1961), this was a loosely held-together research tradition premised upon the assertion that actors find unexpectedness, novelty, and change inherently satisfying. Thus, rather than assuming that cognitive consistency is the sought after state, many authors writing in this tradition assume that *inconsistency* is preferred (and even pursued).

In what is the only truly dissenting chapter in an edited volume entitled *Theories of Cognitive Consistency: A Sourcebook* (Abelson, Aronson, McGuire, Newcomb, Rosenberg, and Tannenbaum 1968), Salvatore Maddi (1968) defines the subject matter of variety theory and its relation to the subject of cognitive consistency as such:

“Novelty, unexpectedness, change, and complexity are pursued because they are inherently satisfying. The definition of novelty and unexpectedness must stress the difference between existing cognitive content and current or future perceptions, and hence, the experience of variety is very likely to also be the experience of inconsistency.”(p. 268)

As is clear from the definition, variety theorists were dealing with the precise phenomenon dealt with in this dissertation, i.e. the difference between existing cognitive schemata and incoming contextual information. But, whereas the cognitive consistency principle hypothesizes that actors find such inconsistencies inherently uncomfortable, the variety theorists suggest that actors pursue such states, and find them inherently satisfying. Clearly, and perhaps ironically, we have a very inconsistent set of hypotheses.

The consistency position seems unassailable on a number of levels. Ignoring the decades of empirical support for its propositions, and the successful research traditions built upon the foundation of its assertions, common sense provides much support for the consistency position. Social actors *should* want their preconceived notions confirmed, shouldn't they? As Maddi (1968) suggests, to want the opposite is to risk being wrong, being confused, or being unprepared. These are all relatively negative outcomes, and should thus be avoided.

And yet, what does one risk by seeking only consistency? Variety theorists point to the detrimental effects of boredom and under-stimulation. They claim that one trivializes and underestimates humankind by asserting that social actors are enamored

with simply confirming their expectations, by pursuing what is known and safe. What of curiosity? What of exploration? Can a theory that suggests actors avoid anything disconfirming or unexpected explain Marco Polo, Amelia Earhart, or Ferdinand Magellan? Can it explain Americans' fascination with Elvis in the fifties, or Emerson's oft-quoted assertion that "consistency is the hobgoblin of little minds" (2007 [1841])?

Furthermore, theories that deal with humankind's pursuit of variety also enjoy a strong history of empirical corroboration. Early hypotheses regarding expected responses to variety suggested that the presence of "novel stimuli" in an organism's environment will prompt exploratory behavior in that organism (e.g. Montgomery 1951), and early experiments corroborated these hypotheses (Montgomery 1952; Montgomery 1953a; Montgomery 1953b). Exploration, or the act of pursuing and investigating the unknown or unexpected, involves the *approach and acquisition* of the unexpected or unknown, a response at least somewhat at odds with the spirit of the cognitive consistency principle.

Unfortunately, the finding that organisms will pursue novel stimuli amounts to little more than a simple empirical generalization, and fails to provide any sort of systematic understanding as to *why* novel stimuli are sought out. As a result, perhaps an even more encouraging brand of theorizing uses the wakefulness/sleep cycle of the mind to suggest that small amounts of the fearful or unknown elicit a positive or approach drive state in the human animal (Berlyne 1950; Hebb 1955; Whiting and Mowrer 1943). In these formulations, the human mind is conceptualized as fluidly moving between different states or levels of awareness, with sleep or unconsciousness at one extreme and panic, anxiety, and emotional disturbance at the other extreme. The optimal level for an

alert and wakeful mind exists somewhere in the middle, and individuals in interaction are interested and invested in maintaining this optimal level of alertness. To do so, an interacting individual must avoid overexposure to the mundane, the ordinary, and the expected. To feast gluttonously on the expected or the consistent is to risk boredom, and the movement of the mind into a state of under-stimulation and sleep. On the other hand, too much novelty or unexpected stimuli can move the mind into a state of agitation and emotional disturbance, which is also an unwanted outcome. As a result, social actors pursue only small, manageable amounts of novelty during their wakeful hours: enough to keep their minds occupied, but not so much as to cause themselves agitation¹³. Once again, the framework of a control system fits best: the mind's position in the spectrum from wakefulness to sleep is controlled by the individual, and the primary means of control is through the conscious pursuit of either consistent or inconsistent perceptions. Consistency is not "always preferable" to inconsistency; rather, the preference is contextual.

Maddi and associates (Maddi 1965; Maddi and Andrews 1966; Maddi and Berne 1964; Maddi, Charlens, Maddi, and Smith 1962; Maddi, Propst, and Feldinger 1965) have shown empirical support for these claims in a number of studies. In most cases, individuals were exposed to boring or monotonous stimuli for a period of time and then

¹³ A similar argument has been made in regards to stress. Often called the "Inverted-U" hypothesis, some research has suggested that individuals' performance on a task reaches an optimal level when individuals experience small, manageable amounts of stress on the task (Anderson 1976; Martens and Landers 1970). This theory has recently fallen out of favor as more recent empirical examinations of this phenomenon have had mixed results, especially when conducted outside of the laboratory (e.g. Westman and Eden 1996). The issue remains unresolved, however, as some have questioned the validity of the recent failed tests of the theory (Muse, Harris, and Feild 2003).

asked to create some narrative, story, or other creative outlet. When compared to individuals not having been exposed to the monotonous stimuli, the bored subjects created much more novel and imaginative stories. Maddi and associates interpreted this outcome as the result of a need for novelty and variety after being exposed for too long to the expected, mundane, and boring. In short, individuals were trying to reestablish their optimal level of cognitive arousal by generating novel and varied experiences, to lift them up from the doldrums of the overly mundane (Maddi, Propst, and Feldinger 1965).

McClelland et al. (1953) took this basic premise and once again framed an actor's response to stimuli as a function of how greatly that function breaks from expectation. However, unlike the cognitive consistency principle (in which all inconsistencies are hypothesized to be unpleasant), McClelland et al. suggest that small discrepancies elicit positive affect and approach behaviors, while large discrepancies elicit negative affect and avoidance behaviors (Maddi 1961). Perfect confirmation is hypothesized to produce no response in actors whatsoever, unless such consistency persists, in which case boredom or anger may result.

In support of this formulation, Maddi (1961) was able to show that subjects in the laboratory experienced negative affect when faced with repetitions of completely predictable stimuli as well as with large breakdowns in their expectations for recurring stimuli. However, subjects faced with small breakdowns of expectations experienced positive affect. As such, both perfectly consistent and completely unexpected stimuli were unpleasant for subjects, while slightly inconsistent stimuli produced positive mood outcomes.

Unfortunately, there seems to be little other empirical work done in the pursuit of corroborating McClelland et al.'s theory. What is compelling and important about their formulation is the simple assertion that *small* inconsistencies are pleasurable, while *large* inconsistencies elicit negative emotion. If one looks back on the evidence reviewed above, this seems to be the most accurate statement regarding the relationship between inconsistency and emotional arousal. Small enhancements to self or over-rewards are appreciated by actors, while large deviations from self meanings or extreme over-rewards elicit anxiety and guilt. Small breakdowns in expectation can be amusing to actors, while large breakdowns are more likely to cause puzzlement or negative affect. Last, it appears that small novelties or appearances of the unknown may elicit curiosity, exploration, or may help to invigorate the mind of the actor, whereas large doses of the novel, unknown or unexpected are more likely to elicit negative emotion, confusion, or even paralysis in fear (Hebb 1955).

In short, each of the challenges to the cognitive consistency principle listed above share a common thread: it is only in the range of small inconsistencies that the breakdowns of the cognitive consistency principle seem to be present. It is this assertion that guides the remainder of this dissertation. I will now explore the possibility that the functional form of the cognitive consistency principle may benefit from a slight modification that better accounts for positive emotional reactions at low levels of inconsistency.

Chapter 3: The Modified Cognitive Consistency Principle

An interesting situation confronts us. On the one hand, we are faced with decades of evidence that corroborates the assumption that actors pursue cognitive consistency, and that cognitive inconsistency is uncomfortable and to be avoided. This corroboration is so strong and so pervasive that most contemporary social psychological theories are based on this very assumption. And yet, on the other hand, we have a number of small but persistent challenges to this assumption. What of over reward? What of self-enhancement? What of curiosity, exploration, amusement, and the avoidance of boredom? Each taken in isolation may seem a trivial matter when juxtaposed with the mountain of evidence supporting the cognitive consistency principle, and yet when taken together, one must take pause. In truth, all scientific revolutions begin with the accumulation of small matters such as these (Kuhn 1962). It is resolving them in such a way that also maintains the integrity and explanatory power of the existing theory that allows for the growth and accumulation of scientific theory and insight over time.

It is perhaps ironic that it is an inconsistent set of facts that challenges the consistency principle. Two seemingly accurate and yet mutually exclusive understandings of the world confront us. Do actors avoid inconsistency, or do they seek it out? The latter seems unlikely, and yet there is evidence to show that the former is inadequate as well. How should this problem be resolved?

I propose that both statements are accurate. Actors both seek out and avoid inconsistency. The key is to avoid the overly simplistic dichotomization of the meanings in the social world. Contextual meanings are not just “consistent” or “inconsistent” with

existing meanings, they are *more consistent* or *less consistent* with existing meanings. In other words, congruence between information from the environment and existing cognitive schema should not be viewed as a dichotomous phenomenon, but a continuous one. Reactions to inconsistency are a matter of *degree*, not of type. Perceptions of stimuli aren't just black-and-white congruent or incongruent, they are *more-or-less* congruent, and reactions to contextual stimuli vary in an understandable fashion along this spectrum of consistency.

I propose, in line with the early formulations by McClelland et al. (McClelland, Atkinson, Clark, and Lowell 1953), that social actors avoid large inconsistencies between contextual meanings and existing meanings, but they seek out small such inconsistencies. Large breakdowns in expectation are uncomfortable, and prompt actors to avoid or overcome them. Such significant breakdowns signal to an actor that their existing cognitive schemata are inferior, outdated, or insufficient. This state of affairs may leave an actor "in the lurch," so to speak, facing the social world with expectations and understandings that may not adequately prepare them for what they are about to face. This is a situation that must be remedied.

On the other hand, small inconsistencies between incoming information and existing meanings held by the actor can potentially arouse a number of different pleasurable responses in the social actor, including happiness and pride (self-enhancement), excitement and pleasure (over-reward), amusement, curiosity, etc. In psychological terms, large inconsistencies produce negative or avoidance drive states in

social actors, while small inconsistencies produce positive or approach drive states (Hebb 1955).

I suggest that the corroboration the cognitive consistency principle has enjoyed for the last fifty years has stemmed largely from the tendency of laboratory experiments to produce large inconsistencies in social actors and measure their emotional responses. Under these conditions (i.e. social actors experiencing large inconsistencies in the laboratory), the researchers would have nearly always found support for the claim that inconsistencies produce negative emotions in actors. What began as a methodological artifact (i.e. producing big inconsistencies to be sure both that social actors were aware of an inconsistency, and that the reactions to inconsistency could be adequately measured) worked its way into the cognitive consistency principle itself. Because inconsistencies in the laboratory seemed to always produce negative emotional arousal, social psychologists made the natural leap that cognitive inconsistency is always, and under all conditions, uncomfortable for social actors.

It is only everyday social life, or in the few instances where researchers carried out laboratory experiments relying on smaller inconsistencies, that we see some evidence for the claim that small inconsistencies can produce positive or pleasurable responses in social actors. And yet, by the time evidence had begun to accumulate that could challenge the cognitive consistency principle, the principle itself had become nearly unassailable. Insofar as contemporary social psychological theories had stopped recognizing or acknowledging their dependence upon, and usage of, the cognitive

consistency principle, the newly arising contrary evidence was never connected back to the original assumption.¹⁴

Theories surrounding the phenomenon of justice provide an excellent example of this phenomenon. Inherent to justice theories is the assumption that actors compare actual outcomes in a situation to expected rewards. To the extent that actors receive an outcome incongruent with their expectations, the actors will respond emotionally. This dissertation has already demonstrated how the basic premise of this theory relies on the cognitive consistency principle. And yet, most justice theorists do not explicitly trace the roots of their theory back to the cognitive consistency principle. As a result, when evidence began to arise which showed that small over-rewards produced positive emotions in actors, this evidence was not recognized as a challenge to the fundamental principle of cognitive consistency. The principle itself had been buried underneath new generations of theories and hypotheses. It had been “shuffled to the bottom” of the pile of current research questions. Most social psychologists had some concept of the cognitive consistency principle, could perhaps give a brief account of its basic premise, but at best treated it as a simple assumption of how the human mind operated, rather than as a testable scientific principle. As such, counter evidence (e.g. small over-rewards as pleasurable) piled quietly up, with few recognizing the fact.

¹⁴ Exceptions to this rule do exist. Stets and colleagues (Stets and Asencio 2008; Stets and Osborn 2008) have on more than one occasion explicitly discussed the implications of pleasurable inconsistency to the cognitive consistency principle.

Large vs. Small Consistencies

Small cognitive inconsistencies are not just miniature versions of their larger brethren. There is a qualitative difference between small and large cognitive inconsistencies. What constitutes a “small” versus a “large” inconsistency is relative, contextual, and based upon a number of factors that will be discussed shortly. What is important to understand, however, is that an actor’s response to inconsistency varies greatly depending on its perceived magnitude. We must examine this phenomenon in detail, beginning with why actors would seek to avoid large inconsistencies.

Large cognitive inconsistencies signal to an actor that there has been a significant breakdown in their expectations for, or understandings of, the current interactional field. Recall that the meanings held by an actor help guide that actor as they navigate their interactional field. They help an actor know what to expect from the elements in that field, potential and proper responses to those elements, and what resources can be gained or punishments avoided during interaction. If meanings from the environment clash dramatically with the preexisting meanings, the actor is suddenly aware that their preexisting meaning structure is flawed in some significant way. This can lead the actor to react poorly to stimuli in the interactional field, misrecognize elements in that field, miss potential rewarding resources, or stumble into unwanted punishments. In other words, large inconsistencies call into question the very cognitive schemata the actor has

of the world, may plague the actor with myriad ontological insecurities,¹⁵ and may even place the actor in danger. Clearly, large cognitive inconsistencies are not to be ignored.

It is no surprise, then, that decades of laboratory research have shown that actors become emotionally upset and stressed when faced with large cognitive inconsistencies, and will be motivated to overcome them. But, what of cognitive inconsistencies that are not so large? What of cognitive inconsistencies that are relatively minor in scope or scale? These inconsistencies may not threaten an actor's fundamental understanding of an interactional field or context, threaten an actor's ontological security, or place the actor in danger. Instead, as we have seen, they may inspire a number of pleasant emotions in actors, including curiosity, amusement, or self-worth. So, whereas large inconsistencies are avoided by social actors, small inconsistencies may actually be pursued and sought out. How might this be explained?

I have begun to adhere to the viewpoint that it is maximally beneficial for the survival of an organism to pursue small inconsistencies and avoid large inconsistencies. An organism faced with a large cognitive inconsistency finds itself in an interactional field in which its understanding of the elements in that field are inadequate, and may not have the tools to successfully navigate that situation. This could involve being stranded in a new environment where cues of danger or safety are not immediately apparent, stumbling across an unknown interactant, or misjudging a comment to a now furious other. Large inconsistencies between cognitive schemata and contextual meanings place

¹⁵ Giddens' (1986) theory of structuration is premised upon the idea that social structure exists to allow for more predictable patterns of interaction and thus the reduction of ontological insecurity. In this view, all of society's rules and regulations exist merely to reduce violations of expectation and uncertainty.

an organism at a survival disadvantage, and thus are avoided by humans and animals alike (Morreall 1989).

On the other hand, the pursuit of small inconsistencies favors the behavioral expressions of curiosity, exploration, amusement, and moderate self-enhancement. To a human or an animal in an somewhat unfamiliar situation, these behaviors may reveal new resources or resource niches, may prompt the discovery of new technologies or ways of accomplishing goals, may allow one to laugh off an unfortunate comment from an interactant, or to maintain healthy levels of self-esteem. Over time, these factors would have favored the survival and positive growth of individuals that conformed to this model and weeded out those that did not.

Furthermore, there is evidence to support the assertion that small levels of inconsistency help an organism navigate the exigencies of its interactional field. Others have noted (e.g. Burke 1991) that cognitive inconsistencies elicit stress in social actors. But, just as it has been shown that not all stress is “bad stress” (Carmichael 2009; Milsum 1996; Selye 1978), not all levels of stress are detrimental to an organism. Small to moderate levels of stress have been shown to help an actor deal with situations in the environment (Anderson 1976; Martens and Landers 1970; Muse, Harris, and Feild 2003). On the other hand, very large levels of stress are detrimental to the performance of an individual during a task or interaction (Hamilton 1975; Jex 1998; Sarason 1984). Under these conditions, the actor often becomes flustered, overwhelmed, emotional, and is unable to effectively deal with the situation at hand. If one simply views level of stress as at least partially a function of cognitive inconsistency (e.g. Burke 1991), then one can see

how low levels of cognitive inconsistency may provide the low levels of stress that help an actor deal with social situations in a maximally effective manner, while large inconsistencies may actually impede an actor's ability to cope. Again, organisms that pursue small inconsistencies and avoid large inconsistencies would be maximally able to deal with the exigencies of daily life.

So, while the avoidance response is maximally beneficial when considering large inconsistencies, an approach response benefits actors facing small inconsistencies. Again, what is considered a "large" or "small" inconsistency is relative and contextual, and is premised upon a number of factors to be discussed in the following chapter. First, let us examine what changes must be made to the pure cognitive consistency model to account for the claims introduced above.

Evaluative Dimensions of Meaning

Of the three growing bodies of findings that challenge the basis for the cognitive consistency principle (i.e. self-enhancement/over-reward, amusement, and varied experience theory), one of the three can potentially be explained away without any need to appeal to the fundamental principles of cognitive consistency. Self-enhancement and over-reward are both forms of cognitive inconsistency in which discrepancies are explicitly occurring along an evaluative dimension of meaning. Contextual meanings aren't just "different," they are evaluated by social actors as "better" or "worse." For example, when one is paid more than they expected for a job or task, it's not just that receiving more money is discrepant (although it plainly is), it is also that getting more money is *better* than receiving less money. The same is true for receiving overly positive

feedback about the self on some highly valued dimension like attractiveness or likeability.

While it is perfectly accurate to describe the phenomena of self-enhancement and over-reward as examples whereby people are experiencing positive emotions during periods of cognitive inconsistency, it is entirely possible that the positive emotion being experienced has nothing to do with the perceptual discrepancy. In truth, one could argue that the positive emotion being experienced is occurring *in spite of* cognitive inconsistency. The positive emotion that so frequently occurs after over-reward or self-enhancement could easily be resultant from the social actor's sudden receipt of an over-abundance of a valued resource like money or social esteem. The positive emotion associated with this moment of resource acquisition could simply over-power the slight negative emotion arising from a small cognitive discrepancy.

This reasoning could also explain the observation that very large over-rewards (a bank error of \$2 million dollars in your favor) or self-enhancement (having a coworker tell your office they believed you were the reincarnation of the Aztec deity Quetzalcoatl) is more likely to elicit feelings of stress and guilt than pleasure. At a certain tipping point, it is possible that the exponentially compounding negative emotions arising from cognitive inconsistency (see Chapter 1) could come to overpower the positive emotions experienced from the acquisition of the valued resource and negative emotion would come be the dominant affective response experienced by the actor. Some small part of the person may be flattered by the assumption that they could be the reincarnation of a

2500 year old god, but that would probably be over-powered by feelings of embarrassment, confusion, and guilt.

Thus, labeling the positive emotions that arise from self-enhancement and over-reward as challenges to the principle of cognitive consistency may or may not be accurate. At best, the issue is inconclusive. First, the issue of whether or not discrepancy can elicit positive emotion must be established, and this issue must not be confounded with other principles, such as the positive emotion resulting from over reward. Only when (or if) it can be shown that discrepancy can produce positive emotions in actors can further issues such as over-reward be studied.

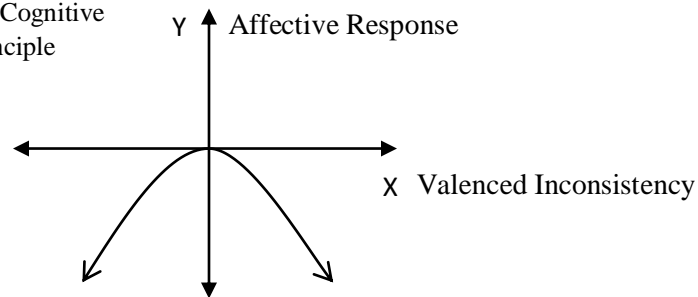
As such, this study avoids the use or further discussion of any dimension of meaning that is overtly evaluative in nature. In other words, if perceived movements away from perfect consistency are likely to be described as making the state of contextual meanings “better” or “worse” than what was expected in any other way aside from the purely emotional (e.g. more material, social, or symbolic resources), the meaning structure is considered to be evaluative in nature and is outside the purview of the following discussion. The hypotheses being put forth in this study involve the arousal of positive emotion states from cognitive inconsistency alone, and thus any other confounding issue must be avoided. The further implications of this avoidance of evaluative meaning structures will be broached once more in the section describing the study’s methodology, but one can assume that all following discussions of cognitive discrepancy are focused on inconsistencies occurring with explicitly non-evaluative

dimensions of meaning, so as to avoid the possible confounding of the positive reaction to over-reward with the positive reaction to perceptual discrepancy.

A Modified Cognitive Consistency Principle

The pure cognitive consistency principle assumes that all and any discrepancies between preexisting meanings and contextual meanings inspire negative emotions in actors. In Chapter 1, this model was put into mathematical form following the function $Y = -X^2$, producing this graph:

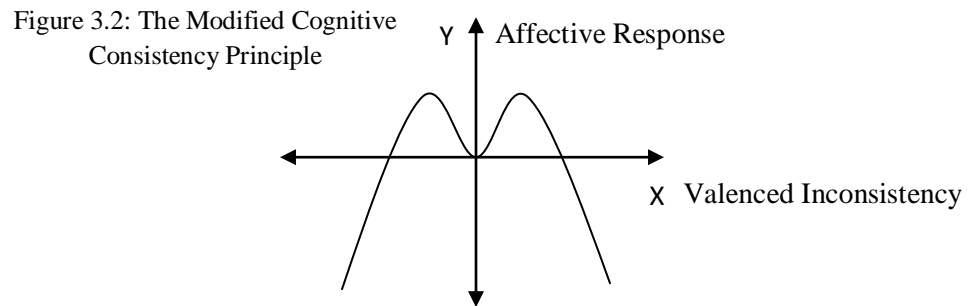
Figure 3.1: The Pure Cognitive Consistency Principle



When looking to the underlying principles that describe the fundamental thrust of the cognitive consistency principle, this simple negative binomial curve is its most parsimonious visual and mathematical expression. However, I suggest that this model should be revised.

Instead of assuming that all cognitive inconsistencies inspire negative affective responses, I contend that small cognitive inconsistencies actually inspire various positive affective responses. However, in proposing this change to the principle, I continue to retain the general principle that perfect cognitive consistency should be associated with affective neutrality, and that relatively large inconsistencies elicit negative affective

responses. In ideal typical form, these changes would produce a modified cognitive consistency model with the following archetypal functional form:



As can be seen, the relationship between valenced inconsistency (X) and affective response (Y) now takes the form of a symmetric quartic curve, with two local maximums directly adjacent to a local minimum at the origin. In other words, while perfect cognitive consistency continues to produce affective neutrality, and large inconsistencies continue to produce exponentially worsening negative affective responses, slight inconsistencies now produce low-level positive affective responses. Translated into a mathematical expression, this function form produces the following equation:

Equation 3.1:

$$Y = X^2 - X^4$$

Where:

- Y is Affective Response
- X is Valenced Inconsistency

This equation is an ideal typical form of the modified cognitive consistency principle, and may vary according to a number of factors to be discussed in Chapter 4.

There are, however, some fundamental characteristics of this equation that will not vary, and require discussion.

First, note the absence of a Y-intercept term. Again, this constraint (in conjunction with the absence of an “ X^1 ” term) allows for perfect cognitive consistency to be associated with affective neutrality (i.e. $Y = 0$). If one allows the Y-intercept to stray away from zero, then cognitive consistency will be associated with either positive or negative affect. As was discussed in Chapter 1, this would run counter to the basic premise of the pure cognitive consistency model. As was also discussed in Chapter 1, one may choose to ignore this assumption, and allow either positive or negative affect to arise from pure cognitive consistency. In this study, the archetypal form of the revised cognitive consistency principle will constrain the y-intercept to zero, as is evidenced in the equation above. However, an alternate version of the revised cognitive consistency principle in which the y-intercept is not constrained will be offered as well. Hypotheses reflecting both assumptions will be provided in Chapter 4.

Second, note the absence of an X^1 term. As with the pure cognitive consistency model, this is done to center the function on the origin. If this constraint is not applied, then the local minimum currently found at the origin could vary along the X-axis, implying that cognitive consistency was no longer the standard around which actors attempted to control their contextual meanings. Since this assumption is the element *sine qua non* of the cognitive consistency principle, the X^1 term is always constrained to have a slope of zero.

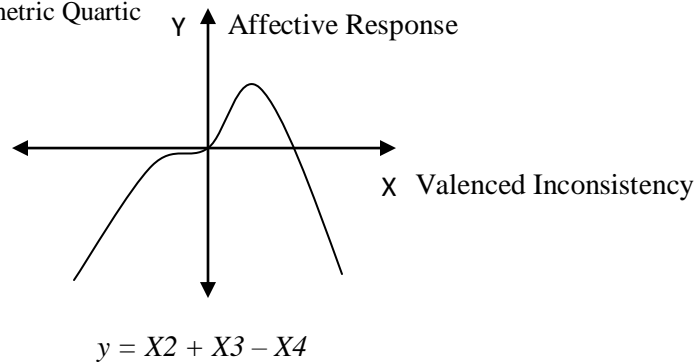
Third, notice the negative slope on the X^4 term. While the magnitude of this slope may vary, it may never pass into the positive range. As will be shown in the following chapter, it may have any magnitude of negative slope, but it may not be positive. This ensures that large cognitive inconsistencies never produce positive affect in the actor. As such, the slope on the X^4 term is conceptually constrained to be less than zero.

Last, notice the positive slope on the X^2 term. Again, while the magnitude of this slope may vary, its valence may not. As will be shown in the following chapter, the X^2 term may have any magnitude of positive slope, or may under some conditions have a slope of zero, but it may not have a negative slope. In conjunction with the negative X^4 term, this ensures that slight inconsistencies produce either positive affect or are a simple negative curvilinear function of valenced inconsistency, but never produce *worse* negative affect than more severe inconsistencies. As such, the slope on the X^2 term is constrained to be greater than or equal to zero.

The term missing from the quartic equation above, and missing from the preceding discussion as well, is the X^3 term. In its ideal typical form shown above, the modified cognitive consistency principle constrains the slope on the X^3 term to zero. If X^3 is allowed to vary from zero, either in a positive or negative direction, then either the positive or negative local maximum of the quartic curve will become steeper and more pronounced, respectively. In other words, one of the “humps” in the function would be taller than the other. This would imply that the social actor is experiencing differing emotional reactions to the incongruity dependent upon which “perceptual direction” that

incongruity is occurring in. For example, if a small incongruity occurs in one direction, the actor may experience strong positive emotions, whereas if it occurs in the other direction he/she may experience only slight positive, or even negative emotions. Figure 3.3 provides a hypothetical illustration of one such curve.

Figure 3.3: A Non-Symmetric Quartic Curve



The key principle of a cognitive consistency model in which the X^3 term is allowed to vary from zero is that actors prefer some inconsistencies to others (exemplified by their stronger positive reactions to consistencies of a certain direction). If actors show preference for cognitive inconsistencies of a certain type, than by definition these inconsistencies are occurring along an evaluative dimension. As was discussed earlier, when contextual meanings with an evaluative dimension are shown to be incongruous, these inconsistencies are defined as “better-” or “worse-than-normal” depending on the direction of the perceived discrepancy. In other words, actors are responding differently to cognitive inconsistency depending on which direction that inconsistency occurs in. This is precisely the situation occurring when one allows the X^3 term to vary from zero.

Once again, because this study must be careful not to confound the experiencing of positive emotion from over-reward or over-evaluation with the positive emotion that arises simply from small levels of cognitive inconsistency, all meanings measured in this study are explicitly non-evaluative in nature. Insofar as they are non-evaluative in nature, subjects should not “prefer” deviations in one direction to another; deviations in either direction should elicit similar responses. As such, for the archetypal form of the revised cognitive consistency principle, the X^3 term is always constrained to be zero.

In all mathematized versions of the cognitive consistency principle thus far offered, cognitive consistency and affective response are given to exist in a simple bivariate, zero-order relationship. This has been done for the sake of (theoretical and literary) parsimony and ease of (graphical and conceptual) presentation. Reality, however, is rarely so simple.

There are a number of additional factors which may moderate the relationship between cognitive consistency and an actor’s affective response. While a revised theory of cognitive consistency in its most simple form may focus on the simple bivariate relationship discussed up to this point, a more robust research tradition hoping to highlight the nuances of this relationship will be tasked with fleshing out the covariates and confounding factors that can affect this proposed relationship. The following chapter outlines four variables common to social psychological research that are here proposed to moderate the relationship between cognitive consistency and actors’ affective responses.

Chapter 4: Variables Influencing Reactions to Cognitive Inconsistency

This study does not suggest that all actors at all times will experience positive emotion from small cognitive inconsistencies. In some situations, and with some meanings, even small inconsistencies may elicit strong negative emotions in actors. For example, if one's religious faith or one's love for their child is being questioned, even in a small way, it is probably unlikely that an actor will feel positive emotion from these events. There will be situations and meanings whereby *no* amount of inconsistency is acceptable, let alone pleasurable.

Stated concretely: there are facets of both the meaning and the situational context which will influence social actors' predicted reactions to cognitive inconsistency. The archetypal quartic curve of the modified cognitive consistency principle offered in the prior chapter is just that: archetypal. It will vary according to the characteristics of both the meaning and the situational context. At times, it will appear much as it does in its archetypal form. Under different conditions, it may appear indistinguishable from the original cognitive consistency principle, in which all inconsistencies are met with exponentially increasing negative emotion.

This study proposes four factors which will influence social actors' reactions to cognitive inconsistency. This is by no means intended to be an exhaustive list, but rather a starting point for further studies to understand what variables influence reactions to cognitive inconsistency. The four variables chosen here have been chosen for their perennial inclusion in the very theories that rely upon the cognitive consistency principle, and which have been shown time and again to influence social actors' responses to

cognitive inconsistency. These four factors are: salience of meaning, prominence of meaning, locus of meaning, and source of meaning. The first two factors (salience and prominence) are best considered as characteristics of the meaning itself, implying they are relatively enduring and will remain associated with a meaning across various situations. On the other hand, the third and fourth factors (locus and source) are perhaps best considered as characteristics of the situational context in which the meaning is being created, and thus a meaning's values on these factors will change as situations change. Each will now be discussed in turn, with formal hypotheses regarding each factor to be offered at the conclusion of the chapter.

Salience of Meaning

Salience is a characteristic of the meaning itself, and is defined in this study as the frequency with which an actor becomes consciously aware of a particular meaning (i.e. the meaning enters the actor's perceptual field). The salience of a meaning is unique to each particular actor, implying that meanings which are commonly encountered and perceived by some actors (high salience) may be infrequently encountered or perceived by others (low salience).

The concept of salience in social psychological research is perhaps best exemplified by the work of Sheldon Stryker (1968; Stryker and Serpe 1982). Stryker's work focuses on the salience of identities, which can be defined as sets of meanings an actor attaches to themselves, often related to structural positions in society, memberships in various groups, or personal attributes that identify the actor as a unique individual (Burke and Stets 2009). In his own work, Stryker defines salience as the probability that

an identity (i.e. set of meanings attached to the self) will be invoked across a number of situations (Stryker and Burke 2000). Thus, the salience of an identity is directly related to the frequency of its invocation.

Salience is here presumed to influence actors' reactions to cognitive inconsistency. Recall that actors form stable meanings about themselves, other actors, and objects in order to more predictably and efficiently navigate the social world. If highly salient meanings are those that the actor comes into contact with most often, then it is particularly important that these meanings be accurate and reliable. If the meanings an actor has attached to themselves, another actor, or object are inaccurate enough to be commonly inconsistent with contextual information, the consequences of this inaccuracy will only be compounded if this meaning is commonly encountered by the actor in question. For example, if one has a very inaccurate understanding of their own prowess as a public speaker, and the person has recently been hired as a politician, the inaccuracy of the meaning they'd attached to themselves will frequently (and painfully) become clear. If, however, this same person is never (or infrequently) placed into situations of public speaking, the inaccuracy of this self-referential meaning may be allowed to remain as it is rarely challenged. Due to the high salience of the inaccurate meaning in the former example, and low salience in the latter, the consequences of this meaning structure are highly divergent.

The higher the salience of an inaccurate meaning, the greater the consequences for the actor who possesses this meaning. As such, actors will be more motivated to avoid cognitive inconsistencies related to highly salient meanings, as these

inconsistencies may signal deficiencies in a meaning that frequently arises for that actor. On the other hand, inconsistencies for meanings that infrequently (or never) arise for the actor may be more acceptable, as they at worst signal a breakdown in meaning structures that will only rarely affect an actor's daily life.

Following this reasoning, it is suggested that small levels of cognitive inconsistency are most likely to elicit positive emotional responses from an actor when the inconsistent meaning is of low salience for that actor. In other words, salience of the meaning will be inversely related to the probability of a positive emotional response to cognitive inconsistency. Testable hypotheses for this and all following principles will be offered at the conclusion of the chapter.

Prominence of Meaning

Prominence is a characteristic of the meaning itself, and is defined in this study as the importance that an actor places on that meaning. The prominence of a meaning is unique for each actor, and "importance" in this study is taken to be a primitive term, and is not defined for an actor by the study instrument. Instead, importance is given to be whatever an actor chooses to define it as, with "more important" meanings being more prominent for an actor, and "less important" meanings being less prominent. The prominence of a meaning for an actor is assumed to be relatively trans-situational and enduring.

Prominence of meaning as a concept in social psychology finds its roots in the work of McCall and Simmons (1978). As with salience, prominence as a term is related in the literature most heavily to meanings attached to the self. A prominent self-meaning,

according to McCall and Simmons, is one which a person identifies as being most closely connected to what is “central” or “important” to them (McCall and Simmons 1978; Stets 2006). The more prominent a meaning, the more it will act as a priority for an actor in guiding their behavior to express and maintain that meaning. More prominent meanings, then, should be another indicator of meanings that an actor will work to maintain, because they reflect meanings that are central to, or important for, that actor.

Based on these considerations, cognitive inconsistency involving highly prominent meanings should be less likely to elicit positive emotional responses than cognitive inconsistencies involving less prominent meanings. In other words, prominence of meaning should be negatively associated with the probability of positive emotional response to cognitive inconsistency.

Locus of Meaning

Locus is a characteristic of the situational context, and is defined as the person, place, or thing a given meaning refers to within that context; it is the “reference point” for the meaning at a point in time. In some situations, a dimension of meaning may refer to a single person, or to a group of people. In other situations, that same dimension of meaning may not be associated with a person at all, but rather a place or a thing. Thus, the locus of a meaning is determined by situational factors. In this study, locus will be defined and measured specifically in terms of the meaning’s relation to the self. In other words, there will only be two possible loci that a meaning can take on in a situation: 1) the meaning refers to the self or a group the self is a part of, or 2) the meaning refers to a non-self other. For example, if an actor is both an American and a woman, then meanings

with loci of “Americans” or “women” (i.e. meanings that in a situation refer to either group) would be defined as self-located meanings for that actor because she is part of both of these groups. On the other hand, meanings in that same situation related to “men” or the “Japanese” would be other-located meanings, as she considers herself part of neither of these groups.

This study suggests that individuals will be less likely to experience positive emotions from cognitive inconsistency when the inconsistent meanings refer to the self. Barring the evidence related to over-reward (e.g. Stets and Osborn 2008), social actors seem to be especially protective of meanings attached to the self or groups the self is a part of, as is evidenced by decades of corroborating research in both the identity theory (Burke and Stets 2009) and social identity theory (Hogg 2006) research programs. A joke at someone else’s expense is often much more pleasurable than a joke at one’s own expense.

Based on these considerations, this study suggests that cognitive inconsistencies which involve meanings referencing an actor’s self (either directly or through an actor’s membership in a larger group) will be less likely to elicit positive emotions. In other words, inconsistencies involving self-referential meanings will be less likely to produce positive emotions in actors.

Source of Meaning

Source is a characteristic of the situational context, and is defined as the person, place, or thing that is generating the contextual information about the meaning in question. In some situations, a particular dimension of meaning may be actively created

by the self, such as when a person is telling a story to a group of friends, and is actively generating new information into the group's perceptual field. At other times, that same dimension of meaning may be created by something else, such as when that same group of friends is gathering and the television or radio is providing the new information into the perceptual field. Both instances may involve the generation of contextual information for the same dimension of meaning, but the source of this information is different across the two examples. Once again, as with the locus of meaning, source of meaning will be defined and measured specifically in terms of the self. There will only be two possible sources of meaning: the self, or the non-self. If an actor is creating the meaning in a situation, then the source is the self. If any other actor, place, or thing is creating the meaning, then the source is the non-self.

The importance of the source of a meaning in determining an actor's emotional response to inconsistency is well illustrated by expectation states theory. As was discussed in Chapter 1, expectation states theory supposes that actors form stable understandings of one another regarding their relative statuses during interaction, arranging themselves and others into what is termed a power and prestige hierarchy. Once established, this status hierarchy forms its own inertia, and actors will behave in ways that maintain this social pecking order. High status actors will be given more credence and influence in decision making for the group, while low status actors are expected to "mind their place" and not overstep their bounds (Chizhik, Alexander, Chizhik, and Goodman 2003; Oxoby 2002). Thus, the *source* of information is often as important (if not more important) than the information itself. Good ideas from low-

ranking members will often be overlooked in favor of (often worse) ideas from high ranking members, a phenomenon that the “Delphi technique” of group decision making was explicitly designed to overcome (Erffmeyer, Erffmeyer, and Lane 1986; Rowe and Wright 2001). In short, the exact same information may be seen as incongruent if coming from one person, and congruent coming from another. As such, people’s emotional reactions to incongruity can be influenced by the source of that incongruity.

In this study, it is assumed that people will react more negatively to incongruent information if it originates from an outside source, and will be more tolerant of such information if they themselves are producing it. In other words, inconsistencies arising from sources external to the actor will be less likely to produce positive emotions in that actor.

Emotional Neutrality

As was discussed in Chapter 3, there are two versions of the modified cognitive consistency principle offered here: the strong version, and the weak version. The distinguishing characteristic between these two versions is subtle but important.

In the strong version of the modified cognitive consistency principle, it is assumed that in the absence of cognitive inconsistency, actors will experience emotional neutrality. This manifests itself in the mathematization of the principle through the constraint of the y-intercept term to “0,” forcing (when coupled with the suppression of the X^1 term) the local minimum of the quartic curve to pass through the origin (i.e. emotional neutrality). This constraint reflects, in the opinion of this author, the most common and accepted interpretation of the cognitive consistency principle.

However, there is insufficient evidence present in the literature to accept without debate this theoretical constraint. It is possible that actors will experience low levels of positive or negative emotion from cognitive consistency, such as with a particularly “good” or “bad” meaning structure, respectively [See Chapter 1 for further discussion]. As such, this dissertation must also account for the possibility that the local minimum of the quartic curve sits naturally slightly above or slightly below the origin. As such, all following formal hypotheses will be patterned to test both sets of theoretical assumptions.¹⁶

Hypotheses

Based on the discussion of the four factors just given, three sets of hypotheses to be tested by this study will now be offered. Each set will contain two versions of the same hypothesis. Version A in each set will provide the strong version of the modified cognitive consistency principle outlined here. The distinctive characteristic of this version of the modified principle is the theoretical constraint it places on the functional form of emotional response to incongruity. Specifically, Version A of all hypotheses constrains (theoretically and statistically) actors’ predicted emotional state to neutrality when no cognitive inconsistency exists. As was shown and discussed in Chapter 3, this

¹⁶ Note that suppression of the constant in a regression can be problematic insofar as the data itself is found in a region of Cartesian space which itself is not around the origin. However, if the data clusters around the origin (as the data in this study does), and there is strong theoretical reason to suppress the constant (such as a similar constraint in the original cognitive consistency principle), then the suppression of the constant is less problematic, and is in fact common in some applications of OLS linear regression (Clemen 1986; Guerard 1987; Terregrossa 2005).

constraint takes the form of the suppression of the y-intercept term (i.e. $a = 0$) in all regressions testing Version A hypotheses.

Version B of all hypotheses will test the weak version of the modified cognitive consistency principle. In this version, actors' emotional states will be allowed to vary along the y-axis even when discrepancy does not exist, implying that actors may experience positive or negative emotion even in the absence of discrepancy.

Hypothesis Set 1

The first set of hypotheses will test the relationship between incongruity and emotional reaction at the zero-order level. The four factors predicted to influence the relationship between cognitive inconsistency and emotion are not included, so as to elucidate the functional form of the relationship in their absence.

H_{1A}: The relationship between actors' emotional states (Y) and cognitive inconsistency (X) will follow the functional form of $Y = X^2 - X^4$.

H_{1B}: The relationship between actors' emotional states (Y) and cognitive inconsistency (X) will follow the functional form of $Y = a_i + X^2 - X^4$.

Hypothesis Set 2

The second set of hypotheses will test the relationship between incongruity and emotional reaction when controlling for the four factors outlined in this chapter. This set is designed to test whether the relationship observed at the zero-order level is maintained when controlling for factors known to influence actors' reactions to incongruity.

H_{2A}: When controlling for salience, prominence, locus, and source, the relationship between actors' emotional states (Y) and cognitive inconsistency (X) will follow the functional form of $Y = X^2 - X^4$.

H_{2B}: When controlling for salience, prominence, locus, and source, the relationship between actors' emotional states (Y) and cognitive inconsistency (X) will follow the functional form of $Y = a_i + X^2 - X^4$.

Hypothesis Set 3

The third hypothesis set will test for interactions between the four factors and the intensity/shape of the functional relationship between incongruity and emotional reaction. As will be discussed in Chapter 5 in the statistical analysis section, a set of interaction variables will be created that are the product of each factor with the X² and X⁴ terms in the regression. It is predicted that the functional relationship between cognitive inconsistency and emotional reaction will be significantly influenced by the values on the four factors.

H_{3A}: As salience and/or prominence increase, the magnitude of the coefficient on the X² term will decrease and the magnitude of the coefficient on the X⁴ term will increase. As locus moves from other-referential to self-referential, and/or as the source of the meaning moves from the self to another, the magnitude of the coefficient on the X² term will decrease and the magnitude of the coefficient on the X⁴ term will increase. Given such movements across all variables, the relationship between cognitive inconsistency and emotional reaction will begin to resemble the original cognitive consistency principle with the functional form of $Y = -X^4$.

H_{3B}: As salience and/or prominence increase, the magnitude of the coefficient on the X² term will decrease and the magnitude of the coefficient on the X⁴ term will increase. As locus moves from other-referential to self-referential, and/or as the source of the meaning moves from the self to another, the magnitude of the coefficient on the X² term will decrease and the magnitude of the coefficient on the X⁴ term will increase. Given such movements across all variables, the relationship between cognitive inconsistency and emotional reaction will begin to resemble the original cognitive consistency principle with the functional form of $Y = a_i - X^4$.

As is clear from this final set of hypotheses, it is entirely possible for the functional relationship between cognitive inconsistency and emotional reaction to resemble the binomial relationship proposed by the original cognitive consistency principle. If, for example, a meaning set is highly salient and highly prominent for an actor, is referring to the actor him/herself (self-locus), and is being generated by an outside source (other-sourced), the functional form of the modified cognitive consistency principle (strong version) will come to resemble $Y = -X^4$, which does not allow for positive emotions from inconsistency and at low values of inconsistency will be nearly identical to the original formulation of $Y = -X^2$.

To give concreteness to this example, if Cindy believes that she is highly feminine and holds this gender identity to be highly prominent and highly salient, and Paul begins referring to Cindy's gender identity in incongruous terms ("Cindy, you're kind of a masculine woman."), Cindy will likely grow upset, regardless of the magnitude of this discrepancy. This is because the particular constellation of factors in the hypothetical situation (high prominence, high salience, self-locus, other-sourced) were all predicted to decrease the magnitude of the X^2 term, making it indistinguishable from zero and moving the function form from the "humped" quartic $Y = X^2 - X^4$ to the negative parabolic $Y = -X^4$.

In short, this study predicts that the quartic function will persist at the zero-order level, and when controlling for the four factors discussed in this dissertation, but will be contingent upon values of these four factors when interaction terms are included into the

analyses. Operationalization, data collection methodology, and analyses techniques to test these hypotheses will now be discussed.

Chapter 5: Methods

Sample

The sample used in this study was a convenience sample of undergraduates at a large southwestern university in the United States. Most students sampled were business or sociology majors, as the classes sampled from were courses in these disciplines. Students were offered a small amount of extra credit to participate in two internet surveys over the span of two weeks. Each survey was made available to the students for the span of one week, during which time they could sign on and complete the survey at their convenience. Students were not required to participate, and were made aware that all answers were anonymous. All respondents were over 18 years of age.

Survey Instruments

Two internet surveys were made available to students. Both surveys were hosted at www.surveymonkey.com, a professional survey hosting website (surveymonkey 2010). Each student received two unique emails, each of which provided them one-time access to one of the two surveys. Email invitations were sent out at two week intervals, and each survey was able to be accessed and taken for the space of one week. Students could not take a survey more than once. Each survey was designed to last no more than 15 minutes in total time. All students who began a survey completed the survey in its entirety. Approval from the UC Riverside IRB was obtained prior to the surveys being administered, and proof of IRB approval can be made available upon request.

Survey #1: Pre-existing Meanings, Prominence and Salience

The first of the two surveys measured basic demographic characteristics (gender and race/ethnicity)¹⁷, as well as the preexisting meanings held by the survey respondents, and the prominence and salience of those meanings. Meanings for both loci (self- and other-locus) were included in the survey. For the self-locus, respondents were asked about the meanings they associated with both themselves and a group they were a part of (the university class they were attending). For other-locus meanings, respondents were asked about the meanings they associated with their best childhood friend at age 12. Respondents were asked to locate each of these two loci on four semantic differential scales: introverted/extroverted, individualistic/collectivistic, emotional/rational, and traditional/non-traditional. The semantic differentials consisted of seven ordinal values in a Likert-style question.

Figure 5.1 provides an example from the first internet survey in which a person has designated themselves as “Extremely Introverted.” After respondents rated themselves, the members of their class, and their best childhood friend at 12 years old across the four semantic differentials, they were asked “how often” they think of these loci as having these characteristics (i.e. salience), and “how important” it is to them that these three loci have these characteristics (i.e. prominence) respectively for each loci. Each of these two dimensions (prominence/salience) was also measured on a seven point Likert-scale from “Not At All” to “Extremely.”

¹⁷ Demographic variables were measured but were not found to be significant predictors of subjects’ affective responses to incongruity. They are not included in the final analyses.

Figure 5.1: Introverted/Extroverted Subject Self-Rating

Introverted individuals are focused primarily on their own thoughts and feelings. Extroverted people are focused on engaging with others through communication and social interaction. How do you see yourself?

- Extremely Introverted
- Very Introverted
- Somewhat Introverted
- Neutral
- Somewhat Extroverted
- Very Extroverted
- Extremely Extroverted

Figure 5.2 provides an example of a Likert ranking for salience (the questions for prominence are similar, but with “IMPORTANT” as the operative term):

Figure 5.2: Prominence Subject Self-Rating

How OFTEN do you think of yourself in these terms?

- Not At All Often
- Not Very Often
- Somewhat Often
- Very Often
- Extremely Often

Survey #2: Contextual Meanings, Source of Discrepancy

The second of the two surveys was administered two weeks after the original survey, and was designed to produce the inconsistencies across the four dimensions of measured meanings, and to measure the respondents' emotional responses. On this survey, each respondent read through a series of vignettes and was asked to respond to how the vignettes made them feel, an increasingly common methodology when measuring emotional responses to inconsistency (Aquino and Reed 2002; Stets, Carter, Harrod, Cerven, and Abrutyn 2008). The vignettes themselves consisted of briefly described fictional situations where the respondent, members of the respondent's class, or the respondent's childhood friend at 12 years old are in a situation where they are subsequently labeled as more or less introverted/extroverted, individualistic/collectivistic, emotional/rational, or traditional/non-traditional. In order to vary the source of the meanings to match the provided hypotheses, this labeling process involved meanings created by the respondent him/herself (i.e. self-sourced meanings) as well as by a fictional third party (i.e. other-sourced meanings). Measurement of meaning will take place using Likert scaled questions.

Figure 5.3 provides an example of a vignette measuring meanings of one's classmates along the traditional/non-traditional semantic differential scale. After reading each vignette, the respondents were asked to indicate how the ratings of themselves/classmates/friend made them feel, both when the rating was done by a third party (i.e. a fictional "other"), and when it was done by themselves.

Figure 5.3: Example of Vignette

When you have finished reading the following short passage, please answer the questions below.

THINK OF THE CLASS YOU ARE TAKING THIS SURVEY TO GET EXTRA CREDIT FOR. Recently, the professor of your class asked everyone to share stories about their heritage with the rest of the class. You and all the students thought about your heritage, and had trouble thinking of anything to talk about. The discussion in class was very brief, and was quickly over.

Imagine this situation. If this had really happened, where would you locate ALL THE STUDENTS IN YOUR CLASS that day on the following scale?

Traditional individuals are focused on maintaining the practices and beliefs common to members of their family and/or community. Non-traditional individuals are focused on creating new practices and beliefs based on personally held values.

- Extremely Traditional
- Very Traditional
- Somewhat Traditional
- Neutral
- Somewhat Non-Traditional
- Very Non-Traditional
- Extremely Non-Traditional

Emotional responses were measured across only two axes, intensity (strong/weak) and valence (positive/negative). This form of measurement corresponds with contemporary neurological research on emotions (Bradley and Lang 2000), and is isomorphic with the way emotions are conceptualized in the revised formalization of the cognitive consistency principle offered here.

Figure 5.4 provides an example of emotional response measurement for the previous vignette rating classmates on the semantic differential of traditional/non-traditional:

Figure 5.4: Affective Response

How do you feel about seeing your classmates in this way?

- Extremely Negative
- Very Negative
- Somewhat Negative
- Neutral
- Somewhat Positive
- Very Positive
- Extremely Positive

The full survey instruments are available in the appendices.

Measurement

Due to the large number of variables involved in this study, each will now be briefly defined according to their operationalization, and a table will be provided with the measurement and coding scheme for all variables.

Affective Response

Affective response is defined as the emotional reaction a respondent has to cognitive inconsistency, and is measured on the 7-point Likert scales provided in survey

#2. Affective responses are measured along two dimensions (intensity and valence), with values of “0” implying emotional neutrality, positive values implying positive emotion and negative values implying negative emotion. Distance from zero indicates intensity.

Cognitive Inconsistency

Cognitive inconsistency is defined as the difference between pre-existing meanings and contextual meanings. This value is calculated by subtracting a respondent’s pre-existing meaning (as obtained on survey #1) from their vignette-based contextual meaning (as obtained on survey #2).¹⁸ A value of “0” implies cognitive consistency, and distance from zero implies increasing cognitive inconsistency.

Saliency

A meaning’s saliency is defined as how often a respondent encounters the dimension of meaning in question, and is calculated by the saliency questions found on survey #1. Saliency questions are Likert-style questions, with a value of “0” implying “Not at all Often,” and a value of “5” implying “Extremely Often.”

Prominence

A meaning’s prominence is defined as how important the dimension of meaning is to a respondent, and is calculated by the Likert-style prominence questions found on survey #1. A value of “0” implies “Not at all Important,” and a value of “5” implies “Extremely Important.”

¹⁸ Because there is no evaluative dimension to the meanings involved, directionality of the difference is unimportant, and thus one may also reverse this operation and subtract the contextual meaning from the pre-existing meaning. The absolute value of the difference is what is sought.

Locus

A meaning's locus is defined as the actor or group the meaning is referring to.¹⁹ Loci are contextual, and thus vary by the specifics of the vignettes found on survey #2. While there are three possible reference points for this study (i.e. self, classmates and self, other), there are only two loci: those that involve the self or a group the self is a part of (self-locus), and those that involve another (other-locus). A value of "0" implies an other-locus meaning, while a value of "1" implies a self-locus meaning.

Source

A meaning's source is defined as the actor or group of actors that is creating the meaning.²⁰ The source of a meaning is contextual, and thus is determined by the specifics of the vignette involved. In this study, there are only two relevant sources: the self, or another. A value of "0" implies the meaning is being created by the self (self sourced), while a value of "1" implies the meaning is being created by a non-self actor (other sourced).

Table 5.1 provides the coding scheme of each variable included in this study²¹.

¹⁹ Meanings can, in other contexts, also obviously refer to objects, behaviors, settings, etc.

²⁰ Meanings can, in other contexts, come from non-actor sources, such as objects, settings, etc.

²¹ While a number of the variable operationalized as Likert-style ordinal variables, the number of data points (min 5) for these variables has allowed for their analysis as interval-level data.

Table 5.1: Measurement and Coding

Variable	Measurement	Coding
<i>Affective Response</i>	7-Point Likert	-3 "Extremely Negative"; 0 "Neutral"; 3 "Extremely Positive"
<i>Cognitive Inconsistency</i>	7-Point Likert	0 No Inconsistency; > Deviations from 0 Imply > Inconsistency
<i>Saliency</i>	5-Point Likert	0 "Not at All Often"; 5 "Extremely Often"
<i>Prominence</i>	5-Point Likert	0 "Not at All Important"; 5 "Extremely Important"
<i>Locus</i>	Dichotomous	0 Other Locus; 1 Self Locus
<i>Source</i>	Dichotomous	0 Self Sourced; 1 Other Sourced

Data Collection and Cleaning

Data collection took place over the course of five weeks. Students were briefed in class of the opportunity to participate in the online surveys for extra credit during week 1, were provided access to survey #1 for the duration of week 2, and then were provided access to survey #2 for the duration of week 5. A total of 80 students were provided the opportunity to participate in the extra credit surveys, of which 66 completed both surveys, for a response rate of 82.5%. All students who started a survey completed it in full.

Emergent Issues

On both the first and second survey, a “name check” was inserted into the instrument in the section involving the respondent’s childhood best friend. Due to the necessity that the subject be referring to the same person during both surveys (i.e. identical meaning locus), and the fear that the two-week lag between survey participation would cause confusion about which friend was referred to on survey #1, subjects were asked to write the first name of the childhood friend they would be referring to on each survey. In a minority of cases (N = 9, 14%), the name check revealed that different

childhood friends were referred to on the first vs. the second survey. The childhood friend locus data for these nine cases was removed from final analyses.

Statistical Analysis

The unit of analysis is the interaction between the subject and the vignette (subject*vignette). Each subject responded to multiple vignettes, and each vignette provides the locus and source of discrepancy, and thus is the source of the contextual information which produces the cognitive (in)consistency. While respondent data was collected in wide format (i.e. one case per respondent), it has subsequently been reshaped into long format (i.e. multiple cases per subject), with each respondent having one data entry point per vignette.

All analyses have been carried out using Stata v. 10 (StataCorp 2007). Univariate analyses appropriate for the level of measurement for ordinal and continuous variables (mean, median, standard deviation) were run to provide simple description of the dispersion and central tendency of the variables. Pearson's correlations were also run to show zero-order bivariate relationships between all variables.

For multivariate analyses, panel-clustered maximum likelihood robust regression analyses were carried out to determine the unique effects of the predictor variables (i.e. cognitive inconsistency, salience, prominence, locus, source, and interaction variables) on the outcome variable (i.e. affective response). Panel clustered regressions account for the autocorrelation within subjects that arises when there are multiple or "grouped" responses from a single entity (such as a survey respondent) (Rogers 1993; Williams 2000). Each respondent's set of answers is seen as a "cluster," and responses are assumed to be

independent across clusters but are allowed to covary within clusters. Specifically, the variance/covariance matrix used for coefficient estimates is derived using a modified form of the Huber/White “sandwich” technique of estimates (Huber 1967; White 1980), which estimates standard errors that are sufficiently robust to account for autocorrelation among clustered responses (Froot 1989).

As is necessitated by the structure of the hypotheses presented Chapter 4, two versions of each analysis is run. Version A of an analysis corresponds with the strong version of the modified cognitive consistency principle, and suppresses the constant (i.e. y-intercept) in the regression by constraining it to be zero. In essence, these analyses assume that in the absence of discrepancy, respondents will experience emotional neutrality. As hypothesis sets 2 and 3 both include dummy variables, the interpretation of these dummy variables is premised on the assumption that (as with all variables) the “zero category” of these dummy variables (i.e. other-referential and/or self-created meanings) are associated with emotional neutrality and the coefficient on the dummy variable expresses the movement away from zero as the meanings become self-referential or other-created.

There are a number of issues that can arise with intercept-constrained regressions. Although they are common practice in certain areas of the behavioral sciences (e.g. economics—Clemen 1986; Terregrossa 2005), they are not as common in the sociology or social psychology. This is because if used without proper care, they can produce misleading results. Most problems arising from the use of constrained constants in linear regression arises when the data being regressed is itself distant from the origin (i.e. $X = 0$

& $Y = 0$). Suppressing the constant in such a situation can produce significant regression coefficients even in the absence of any real effects. This can be mitigated, however, if one centers or standardizes any continuous variables prior to regression. This study centers all continuous variables prior to analysis, with the exception of the cognitive inconsistency and emotional variables, as their original metric must be maintained to ensure interpretability of the results. However, this itself should not be problematic, as both cognitive inconsistency and affective response are centered roughly on zero (both have a mean value of $0 < \mu < 1$).

Furthermore, the original cognitive consistency principle is itself constrained to be centered on the origin, and has served admirably well (and without controversy) as the basis for most social psychology for the preceding six decades. As was discussed in Chapter 1, the assumption that cognitive inconsistency produces emotional neutrality is essential to ensure that cognitive inconsistencies aren't producing positive emotions, or that cognitive consistency isn't producing negative emotion. This study simply seeks to maintain that assumption, and Versions A of all hypothesis tests are designed to test the strong version of the modified cognitive consistency principle with this theoretical and analytical constraint intact. Once again, to ensure that any results gained are not a function simply of this mathematical constraint, all continuous variables are centered prior to analysis.

However, not all readers of this study may accept either this theoretical or analytical constraint. Even some recent theories that rely upon the cognitive consistency principle as their element *sine qua non* have proposed that slight positive or negative

emotion could be gained from either minimal inconsistencies (such as with over-reward, Jasso 1980) or through “spoiled” identities (as in affect control theory, Robinson and Smith-Lovin 2006). As such, Version B of each hypothesis test does not suppress the constant, and instead allows it to vary from zero. However, this study does not propose that variation in the constant should through any interpretation be a fixed effect constant across all individuals at all times. If the constant does in fact vary from zero, this is likely due to situational factors (i.e. the person entered into the situation in a “good” or “bad” mood), factors associated with the meaning (i.e. the meaning is “spoiled” or laced with negative emotional content to begin with), or is simply due to random affective “noise.”

As such, all Version B analyses compute the constant as a random effect, rather than a fixed effect. In essence, this analytical technique assumes that any variation in the constant away from zero occurring for each person across vignettes is unique to that person, and does not represent a fixed population effect. Furthermore, all Version B analyses are presented with standardized coefficients, to allow for comparisons in effect sizes within regressions.

Chapter 6: Results

Survey respondents were split evenly between male (N = 34, 52%) and female (N = 32, 48%). Respondents were predominantly Asian (N = 33, 50%) and Latino (N = 17, 26%), with whites, blacks, and multi-racial respondents combined comprising only 24% of the sample.

Table 6.1 provides the means and standard deviations for each of the variables.²²

Table 6.1: Means and Standard Deviations (N = 66)

Variable	Mean	Standard Deviation
<i>Affective Response</i>	0.22	1.27
<i>Cognitive Inconsistency</i>	0.59	2.14
<i>Saliency</i>	1.91	1.02
<i>Prominence</i>	1.89	0.98

The low (i.e. < 1) mean values evidenced by the affective response and cognitive inconsistency variables indicate that respondents on average did not experience very strong emotions from the survey vignettes, and on average they did not perceive strong inconsistencies from the vignettes. On face value this may seem to imply that the vignettes were ineffective at calling forth the appropriate reactions from respondents, but recall that the effect being sought in this study is that which arises *from small inconsistencies*. As such, the vignettes appeared to elicit (at least at first glance) the appropriate magnitude and direction of emotional response and cognitive inconsistency.

Table 6.2 provides the bivariate correlations for all variables.

²² Note that locus and saliency are not included because their values are set by the survey instrument for each vignette and do not vary freely.

Table 6.2: Bivariate Correlations (N = 66)

Variable	<i>Affective Response</i>	<i>Cognitive Inconsistency</i>	<i>Salience</i>	<i>Prominence</i>	<i>Locus</i>	<i>Source</i>
<i>Affective Response</i>	1	-	-	-	-	-
<i>Cognitive Inconsistency</i>	0.12*	1	-	-	-	-
<i>Salience</i>	0.01	-0.04	1	-	-	-
<i>Prominence</i>	-0.03	-0.08	0.57*	1	-	-
<i>Locus</i>	-0.13*	0.14*	0.01	0.04	1	-
<i>Source</i>	-0.16*	0.23*	0.00	0.00	0.00	1

* Sig at $p < .05$

As can be seen, cognitive inconsistency and affective response share a weak positive significant relationship. This implies that a simple standardized regression predicting affective response using cognitive inconsistency at the zero-order level would produce a slight positive effect. This is clearly counter to the cognitive consistency principle. Recall, however, that most of the inconsistencies occurring as a result of this study are in fact small inconsistencies. And, as theorized, small inconsistencies should actually produce positive emotions in actors. As such, insofar as one has accepted the argument presented by this dissertation, it may be unsurprising that this weak significant relationship is observed. It does, however, fly in the face of six decades of assumed knowledge in social psychology.

It is also interesting to note that affective response shares weak (but significant) negative relationships with locus and source, implying that as meanings begin to refer to the self or be produced by an outside actor, the subject may experience less positive emotion than references to others and/or references from internal sources. Affective response is unrelated to salience or prominence at the zero order level. Please also note that prominence and salience share a moderate positive significant relationship, but the

magnitude of this association is probably insufficient to be concerned with multicollinearity during the multivariate analyses (as is true with all predictor variables).

Version A Analyses

Recall that Version A of all hypotheses adopts the same assumptions as the original cognitive consistency principle and constrains the intercept to be zero to center the function on the origin. To reduce the probability that significant results are achieved through spurious effects of this artificial constraint, salience and prominence are both standardized to give them a mean of zero and a standard deviation of one (effectively centering them on the origin). To increase interpretability and comparability of the results, the outcome variable (affective response) and the cognitive consistency variables are both scaled to have a standard deviation of 1 (i.e. were divided by their own standard deviation), so as to compare the relative strength of the effects with the standardized prominence and salience variables. Last, the dichotomous locus and source variables are left in their original metric to show the absolute effect their variation is having on affective response.

Table 6.3 provides the results for Version A of all hypotheses. In line with predicted effects, all tests involving cognitive consistency (either as a main effect or as part of an interaction effect) are 1-tailed tests, while all significance tests not involving cognitive inconsistency (i.e. the salience, prominence, locus, and source main effects) are 2-tailed tests.

Table 6.3: Clustered Regressions Predicting Affective Response to Incongruity (N = 66)

Variable	Model 1 <i>Coef.</i>	Model 2 <i>Coef.</i>	Model 3 <i>Coef.</i>
<i>Cognitive Inconsistency</i> ^2 (Scaled)	.193***	.323***	.478***
<i>Cognitive Inconsistency</i> ^4 (Scaled)	-.152*	-.227***	-.17†
<i>Saliency</i> (Standardized)	-	-.016	.076
<i>Prominence</i> (Standardized)	-	-.002	-.001
<i>Locus</i> (Dichotomous)	-	-.083	.048
<i>Source</i> (Dichotomous)	-	-.268***	-.212**
<i>ZSaliency * Scaled Cog Inc</i> ^2	-	-	-.196*
<i>ZSaliency * Scaled Cog Inc</i> ^4	-	-	.157
<i>ZProminence * Scaled Cog Inc</i> ^2	-	-	.002
<i>ZProminence * Scaled Cog Inc</i> ^4	-	-	-.01
<i>Locus * Scaled Cog Inc</i> ^2	-	-	-.38**
<i>Locus * Scaled Cog Inc</i> ^4	-	-	.33
<i>Source * Scaled Cog Inc</i> ^2	-	-	.006
<i>Source * Scaled Cog Inc</i> ^4	-	-	-.239†
† p < .15; * p < .05; ** p < .01; *** p < .001	Prob > χ^2 = 0.003	Prob > χ^2 = 0.000	Prob > χ^2 = 0.000

Model 1 in Table 6.3 presents the results of the zero-order regression of affective response on cognitive inconsistency. Note that both the squared and quartic terms of the polynomial are significant, and occur in the predicted directions. Model 2 reveals that these same results hold when controlling for saliency, prominence, locus, and source. Source also reveals a significant effect on affective response, implying that when controlling for cognitive inconsistency and the other covariates, people tend to experience more negative emotions when meanings are produced by an outside source. A χ^2 analysis was run to test the appropriateness of the inclusion of these four added variables, and the more inclusive model was a significantly ($p < .001$; $\chi^2 = 25.4$) better fit to the data than the nested model. Model 3 includes cognitive inconsistency, the four covariates, and all possible interactions between cognitive inconsistency and these covariates. The

predicted relationship between cognitive inconsistency and affective response is maintained (although the quartic term slips to marginal significance), and source remains the only significant main effect among the four covariates. As can be seen, however, only three of the eight predicted interaction effects reached significance in the predicted direction. These results will be discussed in greater detail in the following chapter. Once again, a χ^2 analysis was run to test the appropriateness of the inclusion of the eight interaction variables, and the more inclusive model was a significantly ($p < .001$; $\chi^2 = 27.97$) better fit to the data than the nested model. Last, all analyses produced a highly significant χ^2 (max $p = .003$) statistic, implying that all models are a “good fit” to the empirical data.

Version B Analyses

Versions B of all hypothesis tests include the constant as a random effect, allowing it to vary as a unique effect across subjects.²³ All variables in these analyses have been standardized to allow for comparison of effect sizes. Once again, any significance tests involving cognitive inconsistency (either as a main effect or as part of an interaction) are 1-tailed, while all remaining tests are 2-tailed. Table 6.4 provides the results for all Version B hypothesis tests.

Model 4 provides the zero-order results of regressing affective response on cognitive inconsistency. The squared term reaches marginal significance in the

²³ For all analyses including the random intercept, a χ^2 test was run testing the appropriateness of the random intercept formulation in favor of a simple linear regression with a fixed intercept. In all cases the test reached significance ($p < .000$), implying that the inclusion of a random intercept is statistically preferable to a standard fixed intercept.

hypothesized direction, as does the quartic term. However, the χ^2 goodness-of-fit statistic indicates that this model fit could be achieved by chance alone almost 40% of the time, implying at best a marginal fit to the data. Model 5 shows that it is only when the covariates are included in the model that the predicted relationship between cognitive inconsistency and affective response is revealed. Locus and source also have a significant negative relationship with affective response, and the full model reaches significance ($p < .000$). Note that the random intercepts had a mean of .23, implying that on average people experienced slight positive emotion at perfect cognitive consistency, a pattern shared by all three models that will be discussed in more detail later. The dichotomous variables of locus and source both had negative coefficients that individually would not overpower the average random intercept, but together would move the intercept into the negative range. A χ^2 analysis was run to test the appropriateness of the inclusion of the four additional variables, and the more inclusive model was a significantly ($p < .001$; $\chi^2 = 62.05$) better fit to the data than the nested model.

Last, Model 6 shows that only the squared term reaches marginal significance, whereas the quartic term is not significantly different from zero. However, with so many interaction effects included and absent the constraint on the constant some of this may be due to collinearity among terms. Locus and source maintain their effects from Model 5 (although the coefficient on source is now nearly strong enough to overcome the average random intercept), and salience and source exhibit the predicted interaction effects. The full model is a significantly ($p < .000$) good fit to the empirical data, and a χ^2 analysis

testing the appropriateness of the inclusion of the interaction variables reveals that the more inclusive model is a significantly ($p < .004$; $\chi^2 = 22.68$) better fit than the nested model. These results will be discussed in greater detail in the following chapter.

Table 6.4: Clustered Standardized Regressions Predicting Affective Response to Incongruity (w/ Random Effect Constant)

Variable	Model 4 <i>Coef.</i>	Model 5 <i>Coef.</i>	Model 6 <i>Coef.</i>
<i>Cognitive Inconsistency</i> ^2	.099†	.19**	.094†
<i>Cognitive Inconsistency</i> ^4	-.084†	-.13*	.031
<i>Saliency</i>	-	.001	.001
<i>Prominence</i>	-	-.011	-.006
<i>Locus</i>	-	-.131***	-.132***
<i>Source</i>	-	-.185***	-.201***
<i>Saliency * Cog Inc</i> ^2	-	-	-.189*
<i>Saliency * Cog Inc</i> ^4	-	-	.15
<i>Prominence * Cog Inc</i> ^2	-	-	.009
<i>Prominence * Cog Inc</i> ^4	-	-	-.036
<i>Locus * Cog Inc</i> ^2	-	-	.023
<i>Locus * Cog Inc</i> ^4	-	-	.007
<i>Source * Cog Inc</i> ^2	-	-	.15
<i>Source * Cog Inc</i> ^4	-	-	-.241**
<i>Random Effects: Constant</i>	.23***	.232***	.22***
† $p < .15$; * $p < .05$; ** $p < .01$; *** $p < .001$	Prob > $\chi^2 = 0.386$	Prob > $\chi^2 = 0.000$	Prob > $\chi^2 = 0.000$

Chapter 7: Discussion

Version A of all hypotheses were designed to test the strong version of the modified cognitive consistency principle. These tests adopted the same theoretical and analytical constraints as the original cognitive consistency principle, including the suppression of the y-intercept to zero.

As Model 1 showed, the proposed relationship between cognitive inconsistency and affective response exists at the zero-order level. The areas surrounding perfect cognitive consistency are characterized by predominantly positive emotional reactions, while areas further away from perfect cognitive consistency are characterized by negative emotions. Recall from the bivariate correlations (Table 6.2) that cognitive inconsistency and affective response shared a weak positive correlation. This implies that if regressed using a simple standardized linear regression, one would find cognitive inconsistency to be a significant predictor of positive emotion (i.e. as inconsistencies increased, positive emotions would increase). This runs directly counter to the original cognitive inconsistency principle, and is a strange finding indeed.

However, recall that the vignettes used in this study were designed precisely to created small-to-moderate cognitive inconsistencies. Furthermore, the three dimensions of meaning that were utilized were chosen for their non-evaluative nature. As a consequence of this, however, the meanings also seemed to be relatively “unimportant” (low prominence) and infrequently encountered (low salience) by the respondents (see Table 6.1). When one combines these two factors (i.e. small inconsistencies and low prominence/salience meanings), this dissertation would precisely predict that most

inconsistencies would produce positive (rather than negative) emotions. It is only for the relatively few respondents that did view the meanings as being highly salient/prominent, or that viewed the vignettes as highly inconsistent with preexisting meanings, that negative emotions became the common response. Thus, the quartic curve discovered in Models 1, 2 and 3 all reflect the fact that most of the variation around perfect cognitive consistency was producing positive emotions, and it is only at the edges of the distribution do we see the pattern shift to predominantly negative emotions. However, if this downturn in the functional form did not occur, the quartic term would not be negative, and would not be significant. However, it is both, as was predicted.

In Model 2, the covariates are added and this pattern continues. However, we also see that the source of meanings becomes a highly significant predictor of affective response. When controlling for salience, prominence, locus, and inconsistency, we see that people tend to respond more negatively to meanings when they are produced by others (Source = 1) than when they are producing the meanings themselves. In essence, the local minimum of perfect consistency is lowered a slight amount (approximately one quarter of a point) and it is only when slight inconsistencies are produced that positive or even neutral emotions are felt.

This finding highlights that people respond with more favorable emotions to meanings that they create themselves, rather than those created by other actors. Do people always prefer their own opinions or ideas over those of other people? This is an interesting research question raised by these empirical results, but it raises further questions. Specifically, might these results change if one were to have more information

about the “other” person who is creating the meaning? As expectation states theory reveals, the status of other actors is often a large determinate in how we react to that individual’s ideas. While at the most basic level, people may prefer their own ideas to others, it would be important and interesting to test these same findings while varying the status of the other actor. While people may tend to prefer their own opinions over the opinions of others, does this same tendency hold when the “other” is the President of the United States, or a Supreme Court justice?

This same pattern is revealed in Model 3, both as a main effect and as an interaction effect with the quartic term. The strength of the quartic term’s negative coefficient more than doubles when the meaning in question is being produced by another. This implies that the point at which the quartic function’s local maximums will reach their point of inflection and begin their descent will occur much more quickly when meanings are being produced by another actor.

Furthermore, salience of meaning becomes a significant predictor in Model 3 in its interaction with the squared inconsistency term. While there is still no main effect of salience, the predicted effect is present, with higher salience meanings moderating the positive relationship between squared inconsistencies and affective responses. Whereas the main effect of squared inconsistency is positive, this effect is mitigated by the negative coefficient on the salience interaction term. In other words, as the salience of the meaning increases, the positive effects accrued through slight inconsistencies fade. This is consistent with earlier theorizing that suggested that actors are less likely to accept

even small inconsistencies when dealing with oft-encountered (i.e. highly salient) meanings.

Locus also becomes a significant predictor of affective response in Model 3 in its interaction with the squared inconsistency term. Once again, the positive coefficient on the squared inconsistency term is moderated by the issue of locus. It was predicted that actors would be far less likely experience positive emotions from inconsistency when these meanings refer to the self. As the empirical evidence shows, the coefficient on the locus interaction effect almost entirely wipes out the main effect of the squared inconsistency term, implying that people will be less likely to experience any positive emotion from small inconsistencies when the meanings refer to self. This is especially true if the meanings are also more salient than average. If one combines the terms from the salience and locus interaction effects, one can see that the two negative coefficients in fact overpower the positive main effect on the squared inconsistency term, implying that highly-salient self-referential meanings are unlikely to produce positive emotions at any level of inconsistency. This finding is consistent with theories and hypotheses presented in this study.

Version A of hypothesis 1 and hypothesis 2 go fully supported, while hypothesis 3 goes only partially supported. Not all interaction effects produced the significant results predicted. Further studies may seek to refine predictions regarding interaction effects.

Version B of all hypotheses were designed to test the weak version of the modified cognitive consistency principle, in which the original constraint on the y-

intercept is abandoned in favor of allowing random variation in the local minimum across individuals. This necessitated all Version B hypotheses be tested using a mixed-model panel regression, including both fixed- and random effects. All variables were standardized prior to Version B analyses to allow for comparison of effect sizes within each regression.

Model 4 tests the zero-order relationship between cognitive inconsistency and affective response. While marginal significance was reached with the squared and quartic terms, the model did not display significantly good “fit” to the empirical data. As such, one must tentatively conclude that absent any statistical controls, the proposed relationship between cognitive inconsistency and affective response may not hold.

Model 5 tests for the proposed relationship between cognitive consistency and affective response when controlling for the covariates of salience, prominence, locus, and source. As can be seen, the proposed relationship is found. This supports prior claims in this study that one may need to control for important characteristics of both the meaning and the situational context to discover the relationship between cognitive consistency and affect. Once again, the coefficient on the squared term is of a larger magnitude.

Locus and source both enter as significant predictors in Model 5; source maintains the direction of its effect, and locus joins source in its negative effect on baseline affective response.

Model 6 tests for all main and interaction effects. As can be seen, the relationship between cognitive inconsistency and affective response with all main and interaction effects is similar in form for Version B as for Version A. It is very important to note that

only the main effect on the squared cognitive inconsistency term reaches significance, fully revealing that the importance of both cognitive inconsistency terms can be illustrated only by the interaction terms. As with Model 3, salience interacts significantly with the squared inconsistency term, and source interacts significantly with the quartic term. Actors experience more negative emotions when a) inconsistencies occur with highly salient meanings, and b) when inconsistent meanings are being produced by another actor. So, whereas the model predicts only positive emotions from inconsistency when the self is producing the meaning (i.e. source = 0, quartic term indistinguishable from zero, squared term positive), the model also predicts strong negative reactions to large inconsistencies when those inconsistencies are being produced by an outside source. Additionally, if the meanings in this same scenario are highly salient, then the positive coefficient on the squared term is overpowered by the negative interaction effect coefficient, and positive emotional reactions are not predicted at any level of inconsistency. These findings are consistent both with results garnered by Model 3 as well as by prior theorizing done in this study. The implications of these findings require deeper discussion.

Recall that at the bivariate level, affective response was shown to share a weak positive relationship with cognitive inconsistency. While flying in the face of the existing cognitive consistency principle and decades of research on cognitive inconsistency, this result is unsurprising when one realizes that the inconsistencies designed in this study were designed to be small, and thus elicit predominantly positive emotions. Model 6 reveals the true importance not just of the size of the inconsistency

(the importance of which is clearly demonstrable by model 4), but also of the covariates of salience, source, locus, and their interactions with cognitive consistency. As model 6 shows, when one is dealing with a low salience, other located, self-sourced set of situational meanings, there is actually *no level* of inconsistency measured that will elicit negative emotion²⁴. Instead, inconsistencies with this particular constellation of characteristics is perhaps so non-threatening to the subject's meaningful understanding of the world that they experience only novelty, pleasure, or amusement at such inconsistencies. But, as soon as one varies this archetypal form of non-threatening inconsistency, and whole new pattern is achieved. As the meaning becomes either self-focused or other sourced, the average intercept immediately drops from low-level positive emotion to near neutrality, and if both are in evidence the subject begins to feel low levels of negative emotional arousal. Next, as salience increases by one standard deviation, all significant predictions of positive emotional arousal are reversed, and subjects are suddenly reacting to any inconsistency with negative emotions, a trend that is further exacerbated by other-sourced meanings. Thus, while the issue of small vs. large inconsistencies is clearly important, and highlighted by the earlier models, the importance of the interactions with the covariates is most clearly expressed by models 3 and six. Positive emotional reactions to inconsistency are the *norm* until the issues of salience, locus, or source are introduced.

²⁴ This finding should be taken with a grain of salt, as one must assume that at high enough levels of inconsistency (not measured in this study), one would begin to see negative emotional arousal.

In further speaking towards this point, Version B analyses all produced a random effect intercept of approximately .2, implying that the average emotional state at perfect consistency was actually one of slight positive emotion. At first glance, this may seem to reopen the earlier debate of whether perfect consistency should be expected to produce emotional neutrality or positive emotion. Putting aside the argument presented earlier, there is perhaps another explanation for this finding.

The methodology used in this study, internet surveys, do not allow for the direct manipulation or control of people's emotional states upon beginning the study. In truth, the very nature of the instrument is such that people may participate in the study virtually anywhere, so long as a computer terminal is present. With the ubiquity of laptops on college campuses the world over, it is not hard to imagine that students may have taken these surveys while watching TV, while hanging out with friends, or while zooming down the interstate at 80 mph (hopefully not while driving themselves)!

This insight truly highlights the necessity for the conceptualization of the y-intercept (if it is to be included at all) as a random effect that can vary freely between subjects. Undergraduates, and human beings in general, are likely not sophisticated enough in the appreciation and examination of their own emotions to be able to properly differentiate what proportion of their emotional arousal is due simply to the stimulus of the survey versus what proportion is due to preexisting emotions or emotions from another source. The arguments against a cognitive consistency principle with a free-floating intercept are sound and valid. However, the messiness of real emotions and everyday life are such that people will often enter into laboratories or surveys with an

existing emotional state or emotional bias, which could “shift” the quartic curve up or down along the y-axis. This, I believe, explains the overall tendency for subjects to have a very slight positive emotional state when experiencing perfect cognitive consistency.

For Version B, hypothesis 1 goes unsupported, hypothesis 2 goes fully supported, and hypothesis 3 goes partially supported. Once again, only a portion of the interaction effects predicted to be significant revealed any efficacy in predicted affective responses to inconsistency, and further studies may wish to refine these predictions.

When approaching these results as a whole, especially the “full” analyses of models 3 and 6, the implications of this study for the existing state of social psychology becomes clear: while the existing research and findings have been and remain valid, new work should seek to incorporate the more subtle nuances of the modified cognitive consistency principle into their formulations. The work presented here does *not* stand as a challenge or refutation of existing research in the sundry research programs of social psychology. Much of this research was done using relatively large inconsistencies, using salient meanings that refer to the experimental subject that are produced by the experimenter, confederate, or some other outside source. And, as models 3 and 6 reveal, under these conditions we would *not expect* subjects to experience positive emotions for any level of inconsistency. Thus, the decades of research on these inconsistencies remain valid.

However, these types of inconsistencies so often reproduced in the laboratory are not the whole story. Instead, each of these factors (salience, prominence, locus, source) are variables that influence how people react to the contextual information they are

presented with. And, insofar as they have been held constant, the type of reactions measured have remained more-or-less constant. Future studies in social psychology, however, need to take notice of these variables and incorporate them into their studies of emotion and cognition, especially in regards to how people react to slightly disconfirming information. The effect of large inconsistencies on emotions has been so well documented as to be a foundational assumption in the discipline. Until now, however, that the effect of small inconsistencies has gone undocumented and unnoticed. Let us work to overcome this gap in the literature.

Furthermore, there is the issue of the difference between the original functional form of the cognitive consistency principle presented here (i.e. $Y = -X^2$) and the form of the modified cognitive consistency principle that the full quartic equation reduces to under the specific situations typified by high salience, high prominence, self-locus, and other source (i.e. $Y = -X^4$). Both produce similar curves in terms of shape and qualitative interpretation, but the modified curve predicts much stronger negative emotional reactions to cognitive inconsistency than the curve originally presented. Is there a meaningful difference between the two, and if so, which should be used in future research assuming these conditions?

In truth, there is likely little substantive difference between the two potential functional forms. While the latter (i.e. $Y = -X^4$) is likely more appropriate from a merely theoretical/analytical standpoint (due to its compatibility with the non-reduced modified form of $Y = X^2 - X^4$), both may serve the purpose in actual practice. First, the predictions made by the two curves are highly similar at low levels of inconsistency,

implying that for most situations the curves are nearly interchangeable. Second, let us not lose sight of the function these negative emotions are intended to serve. Such emotions signal to the actor that an inconsistency is present, and motivate that actor to resolve that inconsistency. Whether the magnitude of the relationship between inconsistency and negative emotional arousal is squared or quartic is of less concern than the inclusion and understanding of that mechanism in the theoretical programs populating social psychology. Thus, the adoption of the quartic term in studies that continue to focus on large inconsistencies is most theoretically appropriate, but likely will not significantly impact the interpretation or significance of the results.

However, let us hope that the existing research programs do not continue their replication of results focused merely on large inconsistencies. The research presented here should signal to each of the social psychological research programs whose work relies upon the cognitive consistency principle (e.g. identity theory, affect control theory, expectation states theory, etc.) that the principle requires modification, and that this will impact future directions their research programs may take. Insofar as these theoretical traditions should turn their focus to the nuances of interaction, and the countless small inconsistencies that arise during everyday interaction, they will find that the broad strokes they've been painting the human mind with will not suffice in explaining the intricacies of human emotion occurring at this level. Not all small inconsistencies produce positive emotion, there are structural and symbolic factors that influence the functional form this relationship will take, but the blanket assumption that all inconsistencies produce negative affect is provably wrong. As the unintended scope condition of these programs'

focus on large inconsistencies is relaxed, the research provided here has shown that they will find their existing tools insufficient for the job. To build the theories of the future, a more delicate and precise understanding of human cognition will be necessary.

Chapter 8: Conclusions

Social actors compare information from their environment to their preexisting understandings of the world, and they prefer the two to be consistent with one another. This basic principle of human cognition has served as a stable foundation for social psychological theorizing and research for decades. And yet, it appears as though this principle may be incomplete, or at least oversimplified. As this study has shown, social actors' preferred relationship between preexisting and contextual information may be, at least under certain conditions, one of slight inconsistency, rather than perfect consistency.

The original cognitive consistency principle holds great verisimilitude. After all, if one is faced with inconsistent information, it implies that one's understanding of the world may be flawed or insufficient, perhaps dangerously so. One risks embarrassment, the loss of valuable resources, and maybe even physical harm. And so, it is easy to imagine that actors would feel "best" when the world they live in confirms their expectations.

And yet, what would such a world be like? If a thought experiment is applied, it seems that such a world would be populated by people who never seek out new or novel experiences. Technology, it stands to reason, would never advance. Music and art would remain stagnant as we told ourselves the same stories and hummed the same tunes across the millennia. Each retelling of the tale or recanting of the melody would scratch that itch to confirm, confirm, confirm. A world driven by consistency alone would be a world of pure habit, of repetition, and of conformity. Monogamy would certainly be more attainable.

Is this the world we live in? I argue that we do not. Music and movies and art may have genres that provide similar and stable forms that people recognize and enjoy, but there are slight variations within those genres that people find great pleasure in. We all know what “rock” music is, we can identify the aspects of music that confirm our expectations for this musical form, but we enjoy hearing people make slight variations to this theme, showing us slightly new ways to understand something familiar. Over time, these small changes to art forms like rock and roll accumulate into the big changes we recognize taking place over decades or even centuries. If the music that will be popular in two hundred years was introduced today, very few people may enjoy it, because it is *too* different, it breaks from our expectations too much. But, given two hundred years of small and enjoyable changes to the themes we recognize, and we will slowly adopt the new cultural practices over time until what would be jarring today is seen as commonplace. Such is the importance and function of enjoying small amounts of incongruity for sweeping cultural change.

This research can be applied to individual level changes in meaning, as well. As an example, changes in opinion and identity are often crucial in the context of rehabilitation. Interventions are designed to reform a person’s understanding of themselves and their habits to form more healthy lifestyle choices and behaviors. And yet, people are often very resistant to change, even if their present lifestyle is very unhealthy. As a remedy, this research suggests that a conscious effort by friends, family, and professionals to provide new definitions of self and situation over time that are only slightly inconsistent with existing cognitive schemata may produce more positive

reactions from subjects. Rather than suggesting wholesale changes to the meanings attached to self, other, and behaviors, it may be more successful and beneficial to bring about these changes slowly, allowing for the positive affect of slight inconsistency to work *with* the process. The covariates included in this study also suggest that allowing the subject to produce some of these new meanings of self (i.e. allow the meanings to be self-sourced) may help the process along as well.

Thus, this study's contributions include the ability to better understand the change of meaning over time (both on the societal/cultural level, and on the individual/small-group level), as well as the more accurate specification of a principle that underlies many contemporary social psychological theories. Most actors most of the time are not plagued by ever-present (or ever looming) negative emotion. Most people I know are relatively happy²⁵. And yet, the existing foundation of social psychological theorizing, the cognitive consistency principle, provides no mechanism for the experience of positive emotion. The modified cognitive consistency principle suggested here looks to overcome this shortcoming.

However, this study has shortcomings of its own. Future studies should look to move beyond the usage of simple surveys, and attempt to measure and study this phenomenon in the laboratory and even (eventually) in the real world. Surveys may be time and cost effective, but they often fail to capture the depth and intricacy of the phenomenon being studied. As an example of this, the surveys used in this study produced on average only relatively small inconsistencies with relatively low

²⁵ As is evidenced by the "average" intercept of approximately .2 in models 4-6

prominence/salience meanings. While useful for this study design, it necessarily also hampered this study's ability to discuss the role of large discrepancies within the modified framework being proposed. More reactive measures to actors' affective responses to incongruity would likely be able to measure a more complete range of emotions.

Second, future studies on this topic must work to provide further specification of how the modified cognitive consistency principle can be applied to existing research programs. How, for example, is expectation states theory, affect control theory, or identity theory to integrate the insights gained from this study into their own theories and research? While a general outline of each theory's dependence on the principle was outlined in brief, this is likely insufficient for a wholesale adoption of the proposed revisions, and future research should focus on more complete integration of these new understandings and principles into the robust research traditions these programs have established.

Third, future theorizing and research should focus on establishing a better and more complete list of the covariates that moderate and mediate the relationship between cognitive consistency and affect. This will likely come with the further integration of this principle into the existing research programs, and will allow more robust understanding of when and why social actors are most likely to experience positive emotions from cognitive inconsistency.²⁶ Related to this issue, better specification of which covariates

²⁶ Some preliminary suggestions of variables that may prove fruitful in subsequent studies were provided in Chapter 7 of this study, including the suggestion that "status" may be an important consideration along with a meaning's source.

interact with the functional relationship between cognitive inconsistency and affective response must be provided, as many of the predicted relationships given in this “kitchen sink” approach did not bear fruit.

Last, future studies must remove the restriction applied in this study to evaluative dimensions of meaning. While this study was careful to remove evaluative dimensions of meaning from consideration, so as to avoid confounding the effects of over-reward with the pleasure from slight incongruity, future studies should seek to integrate the evaluative dimension into their theorizing and research. As has been shown by affect control theory, the evaluative dimension of meaning is one of the most fundamental found in the human mind, and future examinations of this modified principle must take this into account.

Despite its shortcomings, and the ample room it has left for subsequent theory and research, this study has provided important evidence that one of the fundamental principles in social psychology may be incomplete. Evidence has been mounting that people prefer more than just constant confirmation of their preexisting beliefs. Our history as a species, and our daily interactions with ourselves and others has revealed time and again that humans are often fickle, silly, capricious, and quick to bore. Perfectly confirming evidence may have its appeal in terms of mathematical and analytical simplicity, but it doesn't *feel* like the truth. The preliminary theory and empirical evidence provided in this study has attempted to show that people are more complex, more interesting, and less predictable than the existing cognitive consistency principle implies.

References

- Abelson, Robert P., Elliot Aronson, William J. McGuire, Theodore M. Newcomb, Milton J. Rosenberg, and Percy H. Tannenbaum. 1968. "Theories of Cognitive Consistency: A Sourcebook." Chicago, IL: Rand McNally and Company.
- Anderson, Carl R. 1976. "Coping Behaviors as Intervening Mechanisms in the Inverted-U Stress-Performance Relationship." *Journal of Applied Psychology* 61:30-34.
- Aquino, Karl and Americus Reed. 2002. "The Self-Importance of Moral Identity." *Journal of Personality and Social Psychology* 83:1423-1440.
- Arnheim, Rudolf. 1961. "Gestalten-- Yesterday and Today." Pp. 90-96 in *Documents of Gestalt Psychology*, edited by M. Henle. Berkeley, CA: University of California Press.
- Aronson, Elliot and Judson Mills. 1959. "The effect of severity of initiation on liking for a group." *Journal of Abnormal and Social Psychology* 59:177-181.
- Austin, William and Elaine Walster. 1974. "Reactions to Confirmation and Disconfirmation of Equity and Inequity." *Journal of Personality and Social Psychology* 30:208-216.
- Backman, C. W. and P. F. Secord. 1962. "Liking, Selective Interaction, and Misperception in Congruent Interpersonal Relations." *Sociometry* 25:321-335.
- Berger, Joseph, Thomas L. Connor, and Hamit Fisek. 1974. *Expectations States Theory*. Washington, D.C.: Winthrop.
- Berger, Joseph and Murray Webster Jr. 2006. "Expectations, Status, and Behavior." in *Contemporary Social Psychological Theories*, edited by P. J. Burke. Stanford, CA: Stanford University Press.
- Berlyne, DE. 1950. "Novelty and Curiosity as Determinants of Exploratory Behavior." *British Journal of Psychology* 41:68-80.
- Blau, Peter M. 1964. *Exchange and Power in Social Life*. New York: John Wiley and Sons.
- Bradley, Margaret M. and Peter J. Lang. 2000. "Measuring Emotion: Behavior, Feeling, and Physiology." in *Cognitive Neuroscience of Emotion*, edited by R. D. Lane and L. Nadel. Oxford: Oxford University Press.
- Brown, Roger. 1965. *Social Psychology*. New York: Basic Books.

- Burke, Peter J. 1991. "Identity Processes and Social Stress." *American Sociological Review* 56:836-849.
- . 2006. "Contemporary Social Psychological Theories." Stanford, CA: Stanford University Press.
- Burke, Peter J. and Jan E. Stets. 1999. "Trust and Commitment through Self-Verification." *Social Psychology Quarterly* 62:347-366.
- . 2009. *Identity Theory*. Oxford: Oxford Press.
- Carmichael, Mary 2009. "Who Says Stress Is Bad For You?" *Newsweek*, Feb 23, 2009.
- Chizhik, Alexander W., Michele G. Alexander, Estella W. Chizhik, and Jeffrey A. Goodman. 2003. "The Rise and Fall of Power and Prestige Orders: Influence of Task Structure."
- Clemen, R.T. 1986. "Linear Constraints and the Efficiency of Combined Forecasts." *Journal of Forecasting* 5:31-38.
- Crary, W.G. 1966. "Reactions to Incongruent Self-Experiences." *Journal of Consulting Psychology* 30:246-252.
- Davidson, Bernard. 1984. "A Test of Equity Theory for Marital Adjustment." *Social Psychology Quarterly* 47:36-42.
- Dittes, J.E. 1959. "Attractiveness of Group as a Function of Self Esteem and Acceptance by Group." *Journal of Abnormal and Social Psychology* 59:77-82.
- Emerson, Ralph Waldo. 2007 [1841]. *Self-Reliance: An Excerpt from Collected Essays, First Series*. Rockville, MD: Arc Manor.
- Erffmeyer, Robert C., Elizabeth S. Erffmeyer, and Irving M. Lane. 1986. "The Delphi Technique: An Empirical Evaluation of the Optimal Number of Rounds." *Group and Organization Management* 11:1200-128.
- Festinger, Leon. 1957. *A Theory of Cognitive Dissonance*. Stanford: Stanford University Press.
- Festinger, Leon and J.M. Carlsmith. 1959. "Cognitive Consequences of Forced Compliance." *Journal of Abnormal Social Psychology* 58:203-210.
- Festinger, Leon, H.W. Riecken Jr., and S. Schachter. 1956. *When Prophecy Fails*. Minneapolis: University of Minnesota Press.

- Fiske, Donald W. and Salvatore R. Maddi. 1961. "Functions of Varied Experience." in *The Dorsey Series in Psychology*, edited by H. F. Hunt and D. W. Taylor. Homewood, IL: The Dorsey Press, Inc.
- Foschi, Martha. 1989. "Status Characteristics, Standards, and Attributions." Pp. 58-72 in *Sociological Theories in Progress: New Formulations*, edited by J. Berger, J. M. Zelditch, and B. Anderson. Newbury Park, CA: Sage Publications.
- Froot, K.A. 1989. "Consistent Covariance Matrix Estimation with Cross-Sectional Dependence and Heteroskedasticity in Financial Data." *Journal of Financial and Quantitative Analysis* 24:333-355.
- Giddens, Anthony. 1986. *The Constitution of Society: Outline of the Theory of Structuration*. Berkeley, CA: University of California Press.
- Giesler, R. Brian, Robert A. Josephs, and William B. Swann, Jr. 1996. "Self-Verification in Clinical Depression: The Desire For Negative Evaluation." *Journal of Abnormal Psychology* 105:358.
- Goffman, Erving. 1963. *Stigma: Notes on the Management of a Spoiled Identity*. New York: Simon and Schuster.
- Gray-Little, Bernadette and Charles B. Teddlie. 1978. "Racial Differences in Children's Responses to Inequity." *Journal of Applied Social Psychology* 8:107-116.
- Guerard, J.B. 1987. "Linear Constraints, Robust Weighting and Efficient Composite Modeling." *Journal of Forecasting* 6:193-199.
- Guerrero, Laura K., Angela G. La Valley, and Lisa Farinelli. 2008. "The Experience and Expression of Anger, Guilt, and Sadness in Marriage: An Equity Theory Explanation." *Journal of Social and Personal Relationships* 25:699-725.
- Hamilton, Vernon. 1975. "Socialization and Information Processing: A Capacity Model of Anxiety-Induced Performance Deficits." in *Stress and Anxiety*, edited by I. G. Sarason and D. D. Spielberger. Washington D.C.: Hemisphere.
- Hartmann, George W. 1935. *Gestalt Psychology: A Survey of Facts and Principles*. New York: The Ronald Press Company.
- Hebb, D.O. 1955. "Drives and the C.N.S. (Conceptual Nervous System)." *Psychological Review* 62:243-254.

- Hegtvedt, Karen A. and Caitlin Killian. 1999. "Fairness and Emotions: Reactions to the Process and Outcomes of Negotiations." *Social Forces* 78:269-303.
- Heider, Fritz. 1944. "Social Perception and Phenomenal Causality." *Psychological Review* 51:358-374.
- . 1946. "Attitudes and Cognitive Organization." *Journal of Psychology* 21:107-12.
- . 1958. *The Psychology of Interpersonal Relations*. New York: Wiley.
- Heise, David R. 1985. "Affect Control Theory: Respecification, Estimation and Tests of the Formal Model." *Journal of Mathematical Sociology* 11:191-222.
- Henle, Mary. 1961. "On Field Forces." Pp. 286-297 in *Documents of Gestalt Psychology*, edited by M. Henle. Berkeley, CA: University of California Press.
- Herrnstein, Richard. 1970. "On the Law of Effect." *Journal of the Experimental analysis of Behavior* 17:243-266.
- Hogg, Michael A. 2006. "Social Identity Theory." in *Contemporary Social Psychological Theories*, edited by P. J. Burke. Stanford, CA: Stanford University Press.
- Homans, George C. 1961. *Social Behavior: Its Elementary Forms*. New York: Harcourt Brace and World Inc.
- . 1974. *Social Behavior: Its Elementary Forms (Second Edition)*. New York: Harcourt Brace and World Inc.
- Huber, P.J. 1967. "The Behavior of Maximum Likelihood Estimates Under Non-Standard Conditions." Pp. 221-233 in *Proceedings of the Fifth Berkeley Symposium on Mathematical Statistics and Probability*, vol. 1. Berkeley, CA: University of California Press.
- Jasso, Guillermina. 1978. "On the Justice of Earnings: A New Specification of the Justice Evaluation Function." *American Journal of Sociology* 83:1398-1419.
- . 1980. "A New Theory of Distributive Justice." *American Sociological Review* 45:3-32.
- . 2006. "The Theory of Comparison Processes." Pp. 165-193 in *Contemporary Social Psychological Theories*, edited by P. J. Burke. Stanford, CA: Stanford University Press.

- Jex, Steve M. 1998. *Stress and Job Performance: Theory, Research, and Implications for Managerial Practice*. Thousand Oaks, CA: Sage Publications Ltd.
- Kant, Immanuel. 1892. *Kritik of Judgment*. Translated by J. Bernard. London: MacMillan and Co.
- Katz, David. 1950. *Gestalt Psychology: Its Nature and Significance*. Translated by R. Tyson. New York: The Ronald Press Company.
- Koffka, Kurt. 1935. *Principles of Gestalt Psychology*. New York: Harcourt, Brace.
- Kohler, Wolfgang. 1929. *Gestalt Psychology*. New York: Liveright.
- . 1967. "Gestalt Psychology." *Psychologische Forschung* 31:XVIII-XXX.
- Korman, A.K. 1968. "Task Success, Task Popularity, and Self-Esteem as Influences on Task Liking." *Journal of Applied Psychology* 52:484-490.
- Kuhn, Thomas. 1962. *The Structure of Scientific Revolutions*. Chicago: University of Chicago Press.
- Lecky, P. 1945. *Self-Consistency: A Theory of Personality*. New York: Island Press.
- Lucas, Jeffrey W., Victor Wynn, and Anastasia Vogt. 1995. "The Effect of Status on Emotion in Face-to-Face Group Interaction." in *American Sociological Association (ASA)*.
- MacKinnon, Neil J. 1994. *Symbolic Interactionism as Affect Control*. Albany: State University of New York Press.
- Maddi, Salvatore R. 1961. "Affective Tone During Environmental Regularity and Change." *The Journal of Abnormal and Social Psychology* 62:338-345.
- . 1965. "Motivational Aspects of Creativity." *Journal of Personality* 33:330-347.
- . 1968. "The Pursuit of Consistency and Variety." Pp. 267-274 in *Theories of Cognitive Consistency: A Sourcebook*, edited by R. P. Abelson, E. Aronson, W. J. McGuire, T. M. Newcomb, M. J. Rosenberg, and P. H. Tannenbaum. Chicago, IL: Rand McNally and Company.
- Maddi, Salvatore R. and S. Andrews. 1966. "The Need for Variety in Fantasy and Self-Description." *Journal of Personality* 34:610-625.

- Maddi, Salvatore R. and Naomi Berne. 1964. "Novelty of Productions and Desire for Novelty as Active and Passive Forms of the Need for Variety." *Journal of Personality* 32:270-277.
- Maddi, Salvatore R., Alan M. Charlens, Dorothy-Anne Maddi, and Adrienne J. Smith. 1962. "Effects of Monotony and Novelty on Imaginative Productions." *Journal of Personality* 30:513-527.
- Maddi, Salvatore R., Barbara S. Propst, and Irwin Feldinger. 1965. "Three Expressions of the Need for Variety." *Journal of Personality* 33:82-98.
- Markovsky, Barry. 1985. "Toward a Multilevel Distributive Justice Theory." *American Sociological Review* 50:822-839.
- Markus, Hazel. 1977. "Self-Schemata and Processing of Information About the Self." *Journal of Personality and Social Psychology* 35:63-78.
- Martens, Rainer and Daniel M. Landers. 1970. "Motor Performance Under Stress: A Test of the Inverted-U Hypothesis." *Journal of Personality and Social Psychology* 16:29-37.
- McCall, George J. and J.L. Simmons. 1978. *Identities and Interactions: An Examination of Human Associations in Everyday Life*. New York: The Free Press.
- McClelland, D.C., J.W. Atkinson, R.A. Clark, and E.L. Lowell. 1953. *The Achievement Motive*. New York: Appleton-Century-Crofts.
- Milsum, John H. 1996. "A Model of the Eustress System for Health/Illness." *Behavioral Science* 30:179-186.
- Montgomery, K.C. 1951. "The Relation Between Exploratory Behavior and Spontaneous Alternation in the White Rat." *Journal of Comparative and Physiological Psychology* 44:582-589.
- . 1952. "Exploratory Behavior and its Relation to Spontaneous Alternation in a Series of Maze Exposures." *Journal of Comparative and Physiological Psychology* 45:50-57.
- . 1953a. "The Effect of Activity Deprivation Upon Exploratory Behavior." *Journal of Comparative and Physiological Psychology* 46:438-441.
- . 1953b. "Exploratory Behavior as a Function of "Similarity" of Stimulus Situations." *Journal of Comparative and Physiological Psychology* 46:129-133.

- Morreall, John. 1987. "The Philosophy of Laughter and Humor." Albany, NY: State University of New York Press.
- . 1989. "Enjoying Incongruity." *HUMOR: International Journal of Humor* 2:1-18.
- Muse, Lori A., Stanley G. Harris, and Hubert S. Feild. 2003. "Has the Inverted-U Theory of Stress and Job Performance had a Fair Test?" *Human Performance* 16:349-364.
- Newcomb, Theodore M. 1956. "The Prediction of Interpersonal Attraction." *American Psychologist* 1956.
- . 1968. "Introduction." Pp. xv-xvii in *Cognitive Consistency: A Sourcebook*, edited by R. P. Abelson, E. Aronson, W. J. McGuire, T. M. Newcomb, M. J. Rosenberg, and P. H. Tannenbaum. Chicago, IL: Rand McNally.
- Osgood, Charlie E. and Percy H. Tannenbaum. 1955. "The Principle of Congruity in the Prediction of Attitude Change." *Psychological Review* 62:42-55.
- Oxoby, Robert J. 2002. "Status Characteristics, Cognitive Bias, and Incentives in Teams." *Journal of Socio-Economics* 31:301-316.
- Ridgeway, Cecilia and Cathryn Johnson. 1990. "What Is the Relationship between Socioemotional Behavior and Status in Task Groups?" *American Journal of Sociology* 95:1189-1212.
- Ridgeway, Cecilia L. 1991. "The Social Construction of Status Value: Gender and Other Nominal Characteristics." *Social Forces* 70:367-386.
- . 2006. "Expectation States Theory and Emotion." Pp. 347-367 in *Handbook of the Sociology of Emotions*, edited by J. E. Stets and J. H. Turner: Springer.
- Ridgeway, Cecilia L. and Henry A. Walker. 2001. "Status structures." Pp. 298-320 in *Self and society, Blackwell readers in sociology*, edited by A. Branaman: , 2001 xi, 400.
- Robinson, Dawn T. and Lynn Smith-Lovin. 2006. "Affect Control Theory." Pp. 137-164 in *Contemporary Social Psychological Theories*, edited by P. J. Burke. Stanford, CA: Stanford University Press.
- Rock, Irvin and Stephen Palmer. 1990. "The Legacy of Gestalt Psychology." *Scientific American* 263:48-61.

- Rogers, W. H. 1993. "Regression Standard Errors in Clustered Samples." *Stata Technical Bulletin* 13:19-23.
- Rosenberg, Milton J. 1956. "Cognitive Structure and Attitudinal Affect." *Journal of Abnormal and Social Psychology* 53:367-372.
- . 1960a. "An Analysis of Affective-Cognitive Consistency." Pp. 15-64 in *Attitude Organization and Change*, edited by M. J. Rosenberg, C. I. Hovland, W. J. McGuire, R. P. Abelson, and J. W. Brehm. New Haven, CT: Yale University Press.
- . 1960b. "Cognitive Reorganization in Response to the Hypnotic Reversal of Attitudinal Affect." *Journal of Personality* 28:39-63.
- . 1960c. "A Structural Theory of Attitude Dynamics." *Public Opinion Quarterly* 24:319-340.
- . 1968. "Hedonism, Inauthenticity, and Other Goads Toward Expansion of a Consistency Theory." in *Theories of Cognitive Consistency: A Sourcebook*, edited by R. P. Abelson, E. Aronson, W. J. McGuire, T. M. Newcomb, M. J. Rosenberg, and P. H. Tannenbaum. Chicago, IL: Rand McNally and Company.
- Rosenberg, Morris. 1965. *Society and the Adolescent Self-Image*. Princeton, NJ: Princeton University Press.
- Rowe, Gene and George Wright. 2001. "Expert Opinions in Forecasting: The Role of the Delphi Technique." in *Principles of Forecasting: A Handbook for Researchers and Practitioners*, edited by J. S. Armstrong. New York: Springer.
- Sarason, Irwin G. 1984, "Stress, anxiety, and cognitive interference: Reactions to tests", Retrieved
- Schopenhauer, Arthur. 1883. *The World as Will and Idea*. Translated by R. Haldane and J. Kemp. London: Routledge & K. Paul [1948-1950].
- Secord, P. F. and C. W. Backman. 1961. "Personality Theory and the Problem of Stability and Change in Individual Behavior: An Interpersonal Approach." *Psychological Review* 68:21-32.
- Sedikides, Constantine. 1999. "Assessment, Enhancement, and Verification Determinants of the Self-Evaluation Process." Pp. 402-425 in *The Self in Social Psychology*, edited by R. Baumeister. Philadelphia: Taylor and Francis.

- Sedikides, Constantine, Lowell Gaertner, and Yoshiyasu Toguchi. 2003. "Pancultural Self-Enhancement." *Journal of Personality and Social Psychology* 84:60-79.
- Selye, H. 1978. "On the Real Benefits of Eustress." *Psychology Today* 2:60.
- Skinner, B. F. 1974. *About Behaviorism*. New York: Alfred A. Knopf.
- Skinner, B.F. 1953. *Science and Human Behavior*. New York: Macmillan.
- StataCorp. 2007. "Stata Statistical Software: Release 10." College Station, TX: StataCorp LP.
- Stets, Jan E. 2006. "Identity Theory." Pp. 88-110 in *Contemporary Social Psychological Theories*, edited by P. J. Burke. Palo Alto, CA: Stanford University Press.
- Stets, Jan E. and Emily K. Asencio. 2008. "Consistency and Enhancement Processes in Understanding Emotions." *Social Forces* 86:1055-1078.
- Stets, Jan E. and Peter J. Burke. 2005. "Self-Verification, Control, and Aggression " *Social Psychology Quarterly*.
- Stets, Jan E., Michael J. Carter, Michael M. Harrod, Christine Cerven, and Seth Abrutyn. 2008. "The Moral Identity, Status, Moral Emotions, and the Normative Order." in *Social Structure and Emotion*, edited by D. T. Robinson and J. Clay-Warner. San Diego, CA: Elsevier.
- Stets, Jan E. and Michael M. Harrod. 2004. "Verification Across Multiple Identities: The Role of Status." *Social Psychology Quarterly* 67:155-171.
- Stets, Jan E. and Shelley N. Osborn. 2008. "Injustice and Emotions Using Identity Theory." *Advances in Group Processes* 25:151-179.
- Stryker, Sheldon. 1968. "Identity Saliency and Role Performance." *Journal of Marriage and the Family* 4:558-64.
- . 2003. *Symbolic Interactionism: A Social Structural Version*: The Blackburn Press.
- Stryker, Sheldon and Peter J. Burke. 2000. "The Past, Present, and Future of an Identity Theory." *Social Psychology Quarterly* 63:284-297.
- Stryker, Sheldon and Richard T. Serpe. 1982. "Commitment, Identity Saliency, and Role Behavior: A Theory and Research Example." Pp. 199-218 in *Personality, Roles, and Social Behavior*, edited by W. Ickes and E. S. Knowles. New York: Springer-Verlag.

- surveymonkey. 2010, "About Us", Retrieved 8-28-2010, 2010
(<http://www.surveymonkey.com/AboutUs.aspx>).
- Swann Jr., William B., John J. Griffin, Steven C. Predmore, and Bebe Gaines. 1999. "The Cognitive-Affective Crossfire: When Self-Consistency Confronts Self-Enhancement." Pp. 391-401 in *The Self in Social Psychology*, edited by R. Baumeister. Philadelphia: Taylor and Francis.
- Swann Jr., William B., Peter J. Rentfrow, and Jennifer S. Guinn. 2003. "Self-Verification: The Search for Coherence." Pp. 367-383 in *Handbook of Self and Identity*, edited by M. R. Leary and J. P. Tangney. New York: The Guilford Press.
- Swann, William B., Jr. 1983. "Self-Verification: Bringing Social Reality Into Harmony With the Self." Pp. 33-66 in *Psychological Perspectives on the Self*, edited by J. Suls and A. Greenwald. Hillsdale, NJ: Erlbaum.
- Swann, William B., Jr., J. Gregory Hixon, Alan Stein-Seroussi, and Daniel T. Gilbert. 1990. "The Fleeting Gleam of Praise: Cognitive Processes Underlying Behavioral Reactions to Self-Relevant Feedback." *Journal of Personality and Social Psychology* 59:17-26.
- Swann, William B., Jr., Brett W. Pelham, and Douglas S. Krull. 1989. "Agreeable Fancy Or Disagreeable Truth? Reconciling Self Enhancement and Self-Verification." *Journal of Personality and Social Psychology* 57:782-791.
- Swann, William B., Jr., Richard M. Wenzlaff, Douglas S. Krull, and Brett W. Pelham. 1992. "Allure of Negative Feedback: Self-Verification Strivings among Depressed Persons." *Journal of Abnormal Psychology* 101:293.
- Tannenbaum, Arnold S. and Walter J. Kuleck Jr. 1978. "The Effect on Organization Members of Discrepancy Between Perceived and Preferred Rewards Implicit in Work." *Human Relations* 31:809-822.
- Tannenbaum, Percy H. 1968. "The Congruity Principle: Retrospective Reflections and Recent Research." in *Theories of Cognitive Consistency: A Sourcebook*, edited by R. P. Abelson, E. Aronson, W. J. McGuire, T. M. Newcomb, M. J. Rosenberg, and P. H. Tannenbaum. Chicago, IL: Rand McNally and Company.
- Terregrossa, Salvatore J. 2005. "On the Efficacy of Constraints on the Linear Combination Forecast Model." *Applied Economics Letters* 12:19-28.

- Turner, Jonathan H. 2006. "The State of Theorizing in Sociological Social Psychology: A Grand Theorist's View." Pp. 353-374 in *Contemporary Social Psychological Theories*, edited by P. J. Burke. Stanford, CA: Stanford University Press.
- Wagner, David G. and Joseph Berger. 2002. "Expectation States Theory: An Evolving Research Program." Pp. 41-76 in *NEW DIRECTIONS IN CONTEMPORARY SOCIOLOGICAL THEORY*, Berger, Joseph, & Zelditch, Morris, Jr. [Eds], Lanham, MD: Rowman & Littlefield.
- Wertheimer, Max. 1912. "Experimentelle Studien Uber das Sehen von Bewegung [Experimental Studies of the Seeing of Motion]." *Zeitschrift fur Psychologie* 61:161-265.
- Westman, Mina and Dov Eden. 1996. "The Inverted-U Relationship Between Stress and Performance: A Field Study." *Work and Stress* 10:165-173.
- White, H. 1980. "A Heteroskedasticity-Consistent Covariance Matrix Estimator and a Direct Test for Heteroskedasticity." *Econometrica* 48:817-830.
- Whiting, J.W. and O.H. Mowrer. 1943. "Habit Progression and Regression-- A Laboratory Study of some Factors Relevant to Human Socialization." *Journal of Comparative Psychology* 36:229-253.
- Wiest, W. M. 1965. "A Quantitative Extension of Heider's Theory of Cognitive Balance Applied to Interpersonal Perception and Self-Esteem." *Psychological Monographs* 79.
- Williams, R.L. 2000. "A Note on Robust Variance Estimation for Cluster-Correlated Data." *Biometrics* 56:645-646.
- Younts, C. Wesley and Charles W. Mueller. 2001. "Justice Processes: Specifying the Mediating Role of Perceptions of Distributive Justice." *American Sociological Review* 66:125-145.

Appendix A: Survey #1

Introduction

Thank you for your participation in this short survey. The entire process should not take more than 10-15 minutes. Please take your time to answer the questions thoughtfully and carefully.

Are you introverted or extroverted?

To begin this first section, please take a moment and consider how you see yourself.

1. Introverted individuals are focused primarily on their own thoughts and feelings. Extroverted people are focused on engaging with others through communication and social interaction. How do you see yourself?

- Extremely Introverted
- Very Introverted
- Somewhat Introverted
- Neutral
- Somewhat Extroverted
- Very Extroverted
- Extremely Extroverted

2. How OFTEN do you think of yourself in these terms?

- Not At All Often
- Not Very Often
- Somewhat Often
- Very Often
- Extremely Often

3. How IMPORTANT is it that you think of yourself in these terms?

- Not At All Important
- Not Very Important
- Somewhat Important
- Very Important
- Extremely Important

Are you individualistic or collectivistic?

Please take a moment and consider how you see yourself.

4. Individualists are focused primarily on pursuing their own goals and living life according to self-determined standards. Collectivists are focused on working together with others towards common goals and living life according to standards important to the community. How do you see yourself?

- Extremely Individualistic
- Very Individualistic
- Somewhat Individualistic
- Neutral
- Somewhat Collectivistic
- Very Collectivistic
- Extremely Collectivistic

5. How OFTEN do you think of yourself in these terms?

- Not At All Often
- Not Very Often
- Somewhat Often
- Very Often
- Extremely Often

6. How IMPORTANT is it that you think of yourself in these terms?

- Not At All Important
- Not Very Important
- Somewhat Important
- Very Important
- Extremely Important

Are you traditional or non-traditional?

Please take a moment and consider how you see yourself.

7. Traditional individuals are focused on maintaining the practices and beliefs common to members of their family and/or community. Non-traditional individuals are focused on creating new practices and beliefs based on personally held values. How do you see yourself?

- Extremely Traditional
- Very Traditional
- Somewhat Traditional
- Neutral
- Somewhat Non-Traditional
- Very Non-Traditional
- Extremely Non-Traditional

8. How OFTEN do you think of yourself in these terms?

- Not At All Often
- Not Very Often
- Somewhat Often
- Very Often
- Extremely Often

9. How IMPORTANT is it that you think of yourself in these terms?

- Not At All Important
- Not Very Important
- Somewhat Important
- Very Important
- Extremely Important

Are you emotional or rational?

Please take a moment and consider how you see yourself.

10. Emotional individuals make decisions based on “gut” feelings and intuition. Rational individuals make decisions based on logic and calculation. How do you see yourself?

- Extremely Emotional
- Very Emotional
- Somewhat Emotional
- Neutral
- Somewhat Rational
- Very Rational
- Extremely Rational

11. How OFTEN do you think of yourself in these terms?

- Not At All Often
- Not Very Often
- Somewhat Often
- Very Often
- Extremely Often

12. How IMPORTANT is it that you think of yourself in these terms?

- Not At All Important
- Not Very Important
- Somewhat Important
- Very Important
- Extremely Important

Are your fellow classmates introverted or extroverted?

To begin this second section, please take a moment and consider how you see the students in your class, the one you want to receive extra credit in.

13. Please indicate where you would locate all the students in your class on the following scale.

Introverted individuals are focused primarily on their own thoughts and feelings. Extroverted people are focused on engaging with others through communication and social interaction.

- Extremely Introverted
- Very Introverted
- Somewhat Introverted
- Neutral
- Somewhat Extroverted
- Very Extroverted
- Extremely Extroverted

14. How OFTEN do you think of them in these terms?

- Not At All Often
- Not Very Often
- Somewhat Often
- Very Often
- Extremely Often

15. How IMPORTANT is it that you think of them in these terms?

- Not At All Important
- Not Very Important
- Somewhat Important
- Very Important
- Extremely Important

Are your fellow classmates individualistic or collectivistic?

Please take a moment and consider how you see the students in your class.

16. Please indicate where you would locate all the students in your class on the following scale.

Individualists are focused primarily on pursuing their own goals and living life according to self-determined standards. Collectivists are focused on working together with others towards common goals and living life according to standards important to the community.

- Extremely Individualistic
- Very Individualistic
- Somewhat Individualistic
- Neutral
- Somewhat Collectivistic
- Very Collectivistic
- Extremely Collectivistic

17. How OFTEN do you think of them in these terms?

- Not At All Often
- Not Very Often
- Somewhat Often
- Very Often
- Extremely Often

18. How IMPORTANT is it that you think of them in these terms?

- Not At All Important
- Not Very Important
- Somewhat Important
- Very Important
- Extremely Important

Are your fellow classmates traditional or non-traditional?

Please take a moment and consider how you see the students in your class.

19. Please indicate where you would locate all the students in your class on the following scale.

Traditional individuals are focused on maintaining the practices and beliefs common to members of their family and/or community. Non-traditional individuals are focused on creating new practices and beliefs based on personally held values.

- Extremely Traditional
- Very Traditional
- Somewhat Traditional
- Neutral
- Somewhat Non-Traditional
- Very Non-Traditional
- Extremely Non-Traditional

20. How OFTEN do you think of them in these terms?

- Not At All Often
- Not Very Often
- Somewhat Often
- Very Often
- Extremely Often

21. How IMPORTANT is it that you think of them in these terms?

- Not At All Important
- Not Very Important
- Somewhat Important
- Very Important
- Extremely Important

Are your fellow classmates emotional or rational?

Please take a moment and consider how you see the students in your class.

22. Please indicate where you would locate all the students in your class on the following scale.

Emotional individuals make decisions based on “gut” feelings and intuition. Rational individuals make decisions based on logic and calculation.

- Extremely Emotional
- Very Emotional
- Somewhat Emotional
- Neutral
- Somewhat Rational
- Very Rational
- Extremely Rational

23. How OFTEN do you think of them in these terms?

- Not At All Often
- Not Very Often
- Somewhat Often
- Very Often
- Extremely Often

24. How IMPORTANT is it that you think of them in these terms?

- Not At All Important
- Not Very Important
- Somewhat Important
- Very Important
- Extremely Important

Who was your childhood best friend?

THANKS!!! Now just a few more questions. This time, about your best childhood friend.

In the space provided, please write the FIRST NAME of your best friend when you were 12 years old.

25. Childhood Friend's First Name:

Is your childhood friend introverted or extroverted?

To begin this third section, please take a moment and consider how you see your childhood friend. Specifically, consider the childhood friend named on the previous page.

26. Please indicate where you would locate your childhood friend on the following scale.

Introverted individuals are focused primarily on their own thoughts and feelings. Extroverted people are focused on engaging with others through communication and social interaction.

- Extremely Introverted
- Very Introverted
- Somewhat Introverted
- Neutral
- Somewhat Extroverted
- Very Extroverted
- Extremely Extroverted

27. How OFTEN do you think of him/her in these terms?

- Not At All Often
- Not Very Often
- Somewhat Often
- Very Often
- Extremely Often

28. How IMPORTANT is it that you think of him/her in these terms?

- Not At All Important
- Not Very Important
- Somewhat Important
- Very Important
- Extremely Important

Is your childhood friend individualistic or collectivistic?

Please take a moment and consider how you see your childhood friend.

29. Please indicate where you would locate your childhood friend on the following scale.

Individualists are focused primarily on pursuing their own goals and living life according to self-determined standards. Collectivists are focused on working together with others towards common goals and living life according to standards important to the community.

- Extremely Individualistic
- Very Individualistic
- Somewhat Individualistic
- Neutral
- Somewhat Collectivistic
- Very Collectivistic
- Extremely Collectivistic

30. How OFTEN do you think of him/her in these terms?

- Not At All Often
- Not Very Often
- Somewhat Often
- Very Often
- Extremely Often

31. How IMPORTANT is it that you think of him/her in these terms?

- Not At All Important
- Not Very Important
- Somewhat Important
- Very Important
- Extremely Important

Is your childhood friend traditional or non-traditional?

Please take a moment and consider how you see your childhood friend.

32. Please indicate where you would locate your childhood friend on the following scale.

Traditional individuals are focused on maintaining the practices and beliefs common to members of their family and/or community. Non-traditional individuals are focused on creating new practices and beliefs based on personally held values.

- Extremely Traditional
- Very Traditional
- Somewhat Traditional
- Neutral
- Somewhat Non-Traditional
- Very Non-Traditional
- Extremely Non-Traditional

33. How OFTEN do you think of him/her in these terms?

- Not At All Often
- Not Very Often
- Somewhat Often
- Very Often
- Extremely Often

34. How IMPORTANT is it that you think of him/her in these terms?

- Not At All Important
- Not Very Important
- Somewhat Important
- Very Important
- Extremely Important

Is your childhood friend emotional or rational?

Please take a moment and consider how you see your childhood friend.

35. Please indicate where you would locate your childhood friend on the following scale.

Emotional individuals make decisions based on “gut” feelings and intuition. Rational individuals make decisions based on logic and calculation.

- Extremely Emotional
- Very Emotional
- Somewhat Emotional
- Neutral
- Somewhat Rational
- Very Rational
- Extremely Rational

36. How OFTEN do you think of him/her in these terms?

- Not At All Often
- Not Very Often
- Somewhat Often
- Very Often
- Extremely Often

37. How IMPORTANT is it that you think of him/her in these terms?

- Not At All Important
- Not Very Important
- Somewhat Important
- Very Important
- Extremely Important

Demographics

Finally, would you tell us just a little about yourself?

38. What is your gender?

- Female
- Male

39. What is your race/ethnicity?

- White/Caucasian
- Black/African American
- Asian/Pacific Islander
- Chicano American/Latino
- Native American
- Multiracial/Other

Thank You

Thank you for taking the time to complete this survey. The survey is now complete.

If you have any questions, you can contact the Principle Investigator at jflet001@ucr.edu.

If you have any concerns or comments about the content or usage of this survey, you can contact the UC Riverside Office of Research Integrity at:

University Office Building, 2nd Floor
University of California, Riverside
irb@ucr.edu

PLEASE CLICK THE "DONE" BUTTON BELOW TO EXIT THE SURVEY.

Appendix B: Survey #2

Introduction

Thank you for your participation in this short survey. The entire process should not take more than 10-15 minutes. Please take your time to answer the questions thoughtfully and carefully.

Part 1

To complete the following section, you will be asked to read a couple sentences describing a fictional social situation. After reading these sentences, please take a moment and imagine this situation had really occurred.

A Party at Your Friend's House

When you have finished reading the following short passage, please answer the questions below.

You recently attended a party at your friend's house. Many people were at this party, including a lot of people you did not know. While at this party, you noticed that someone had accidentally broken something belonging to your friend. You did not see who broke the item, and no one had come forward to admit their mistake. This bothered you, and you spent most of the party keeping to yourself and avoiding interaction with other people.

1. Imagine this situation. If this had really happened to you, where would you locate yourself THAT NIGHT on the following scale?

**Introverted individuals are focused primarily on their own thoughts and feelings.
Extroverted people are focused on engaging with others through communication and social interaction.**

- Extremely Introverted
- Very Introverted
- Somewhat Introverted
- Neutral
- Somewhat Extroverted
- Very Extroverted
- Extremely Extroverted

2. How do you feel about seeing yourself this way?

- Extremely Negative
- Very Negative
- Somewhat Negative
- Neutral
- Somewhat Positive
- Very Positive
- Extremely Positive

3. One of the other party guests noticed your behavior THAT NIGHT. Based on your behavior, they labeled you as “Very Introverted.” How do you feel when being labeled as “Very Introverted?”

- Extremely Negative
- Very Negative
- Somewhat Negative
- Neutral
- Somewhat Positive
- Very Positive
- Extremely Positive

4. Once again, imagine yourself having experienced the party described above. If this had really happened to you, where would you locate yourself THAT NIGHT on the following scale?

Emotional individuals make decisions based on “gut” feelings and intuition. Rational individuals make decisions based on logic and calculation.

- Extremely Emotional
- Very Emotional
- Somewhat Emotional
- Neutral
- Somewhat Rational
- Very Rational
- Extremely Rational

5. How do you feel about seeing yourself this way?

- Extremely Negative
- Very Negative
- Somewhat Negative
- Neutral
- Somewhat Positive
- Very Positive
- Extremely Positive

6. Another party guest noticed your behavior THAT NIGHT, and based upon your behavior, labeled you as "Extremely Emotional." How do you feel when being labeled as "Extremely Emotional?"

- Extremely Negative
- Very Negative
- Somewhat Negative
- Neutral
- Somewhat Positive
- Very Positive
- Extremely Positive

A Family Reunion

When you have finished reading the following short passage, please answer the questions below.

You recently attended a family reunion. All of your closest relatives were there. During this reunion, many of your older relatives gathered into a group and began to reminisce and tell stories about when they were young. Instead of spending time with the people at the reunion who were your own age, you spent most of the party listening to the stories told by your older relatives.

7. Imagine this situation. If this had really happened to you, where would you locate yourself THAT DAY on the following scale?

Traditional individuals are focused on maintaining the practices and beliefs common to members of their family and/or community. Non-traditional individuals are focused on creating new practices and beliefs based on personally held values.

- Extremely Traditional
- Very Traditional
- Somewhat Traditional
- Neutral
- Somewhat Non-Traditional
- Very Non-Traditional
- Extremely Non-Traditional

8. How do you feel about seeing yourself this way?

- Extremely Negative
- Very Negative
- Somewhat Negative
- Neutral
- Somewhat Positive
- Very Positive
- Extremely Positive

9. One of the other reunion attendants noticed your behavior THAT DAY. Based on your behavior, they labeled you as “Somewhat Non-Traditional.” How do you feel when being labeled as “Somewhat Non-Traditional?”

- Extremely Negative
- Very Negative
- Somewhat Negative
- Neutral
- Somewhat Positive
- Very Positive
- Extremely Positive

10. Once again, imagine yourself having experienced the family reunion described above. If this had really happened to you, where would you locate yourself THAT DAY on the following scale?

Individualists are focused primarily on pursuing their own goals and living life according to self-determined standards. Collectivists are focused on working together with others towards common goals and living life according to standards important to the community.

- Extremely Individualist
- Very Individualist
- Somewhat Individualist
- Neutral
- Somewhat Collectivist
- Very Collectivist
- Extremely Collectivist

11. How do you feel about seeing yourself this way?

- Extremely Negative
- Very Negative
- Somewhat Negative
- Neutral
- Somewhat Positive
- Very Positive
- Extremely Positive

12. Another reunion attendant noticed your behavior THAT DAY, and based upon your behavior, labeled you as "Extremely Individualistic." How do you feel when being labeled as "Extremely Individualistic?"

- Extreme Negative Emotion
- Strong Negative Emotion
- Weak Negative Emotion
- No Emotion
- Weak Positive Emotion
- Strong Positive Emotion
- Extreme Positive Emotion

Class Participation

When you have finished reading the following short passage, please answer the questions below.

THINK OF THE CLASS YOU ARE TAKING THIS SURVEY TO GET EXTRA CREDIT FOR. Recently, during a lecture for this class, the students were very active in answering questions and participating with the professor's lecture. As a part of the class, you noticed how involved you and your fellow classmates were in learning the material.

13. Imagine this situation. If this had really happened, where would you locate ALL THE STUDENTS IN YOUR CLASS that day on the following scale?

**Introverted individuals are focused primarily on their own thoughts and feelings.
Extroverted people are focused on engaging with others through communication and social interaction.**

- Extremely Introverted
- Very Introverted
- Somewhat Introverted
- Neutral
- Somewhat Extroverted
- Very Extroverted
- Extremely Extroverted

14. How do you feel about seeing your classmates in this way?

- Extremely Negative
- Very Negative
- Somewhat Negative
- Neutral
- Somewhat Positive
- Very Positive
- Extremely Positive

15. Another professor noticed the behavior of the students in your class THAT DAY. Based on this behavior, the professor labeled the class as “Extremely Extroverted.” How do you feel when your class is labeled as “Extremely Extroverted?”

- Extremely Negative
- Very Negative
- Somewhat Negative
- Neutral
- Somewhat Positive
- Very Positive
- Extremely Positive

16. Once again, imagine yourself having experienced the day in class described above. If this had really happened, where would you locate ALL OF THE STUDENTS IN YOUR CLASS that day on the following scale?

Individualists are focused primarily on pursuing their own goals and living life according to self-determined standards. Collectivists are focused on working together with others towards common goals and living life according to standards important to the community.

- Extremely Individualist
- Very Individualist
- Somewhat Individualist
- Neutral
- Somewhat Collectivist
- Very Collectivist
- Extremely Collectivist

17. How do you feel about seeing your classmates in this way?

- Extremely Negative
- Very Negative
- Somewhat Negative
- Neutral
- Somewhat Positive
- Very Positive
- Extremely Positive

18. Another professor noticed the behavior of the students THAT DAY, and based upon their behavior, labeled the class as "Very Collectivistic." How do you feel when your class is labeled as "Very Collectivistic?"

- Extremely Negative
- Very Negative
- Somewhat Negative
- Neutral
- Somewhat Positive
- Very Positive
- Extremely Positive

A Discussion of Heritage

When you have finished reading the following short passage, please answer the questions below.

THINK OF THE CLASS YOU ARE TAKING THIS SURVEY TO GET EXTRA CREDIT FOR. Recently, the professor of your class asked everyone to share stories about their heritage with the rest of the class. You and all the students thought about your heritage, and had trouble thinking of anything to talk about. The discussion in class was very brief, and was quickly over.

19. Imagine this situation. If this had really happened, where would you locate ALL THE STUDENTS IN YOUR CLASS that day on the following scale?

Traditional individuals are focused on maintaining the practices and beliefs common to members of their family and/or community. Non-traditional individuals are focused on creating new practices and beliefs based on personally held values.

- Extremely Traditional
- Very Traditional
- Somewhat Traditional
- Neutral
- Somewhat Non-Traditional
- Very Non-Traditional
- Extremely Non-Traditional

20. How do you feel about seeing your classmates in this way?

- Extremely Negative
- Very Negative
- Somewhat Negative
- Neutral
- Somewhat Positive
- Very Positive
- Extremely Positive

21. Another student in the class noticed the behavior of class THAT DAY. Based on this behavior, this student labeled the class as “Extremely Non-Traditional.” How do you feel when your class is labeled as “Extremely Non-Traditional?”

- Extremely Negative
- Very Negative
- Somewhat Negative
- Neutral
- Somewhat Positive
- Very Positive
- Extremely Positive

22. Once again, imagine yourself having experienced the day in class described above. If this had really happened, where would you locate ALL OF THE STUDENTS IN YOUR CLASS that day on the following scale?

Emotional individuals make decisions based on “gut” feelings and intuition. Rational individuals make decisions based on logic and calculation.

- Extremely Emotional
- Very Emotional
- Somewhat Emotional
- Neutral
- Somewhat Rational
- Very Rational
- Extremely Rational

23. How do you feel about seeing your classmates in this way?

- Extremely Negative
- Very Negative
- Somewhat Negative
- Neutral
- Somewhat Positive
- Very Positive
- Extremely Positive

24. Another professor noticed the behavior of the students THAT DAY, and based upon their behavior, labeled the class as "Very Rational." How do you feel when your class is labeled as "Very Rational?"

- Extremely Negative
- Very Negative
- Somewhat Negative
- Neutral
- Somewhat Positive
- Very Positive
- Extremely Positive

Best Childhood Friend

THANKS!!! Almost done, just a few more questions.

In the space provided, please write the first name of your best friend when you were 12 years old. THIS SHOULD BE THE SAME PERSON YOU NAMED ON THE FIRST SURVEY TAKEN EARLIER THIS QUARTER.

25. Name of Childhood Friend:

Seeing an Old Friend

When you have finished reading the following short passage, please answer the questions below.

THINK OF YOUR CHILDHOOD FRIEND. Recently, you had a full day of activities planned with your childhood friend. However, on the morning of the planned get together, they called and cancelled. They said their grandmother was ill, and they had to take care of her.

26. Imagine this situation. If this had really happened, where would you locate YOUR CHILDHOOD FRIEND that day on the following scale?

Individualists are focused primarily on pursuing their own goals and living life according to self-determined standards. Collectivists are focused on working together with others towards common goals and living life according to standards important to the community.

- Extremely Individualistic
- Very Individualistic
- Somewhat Individualistic
- Neutral
- Somewhat Collectivistic
- Very Collectivistic
- Extremely Collectivistic

27. How do you feel about seeing your childhood friend in this way?

- Extremely Negative
- Very Negative
- Somewhat Negative
- Neutral
- Somewhat Positive
- Very Positive
- Extremely Positive

28. A different friend heard about the behavior of your childhood friend THAT DAY. Based on this behavior, this person labeled your childhood friend as “Very Collectivistic.” How do you feel when your childhood friend is labeled as “Extremely Collectivistic?”

- Extremely Negative
- Very Negative
- Somewhat Negative
- Neutral
- Somewhat Positive
- Very Positive
- Extremely Positive

29. Once again, imagine yourself having experienced the situation with your childhood friend described above. If this had really happened, where would you locate YOUR CHILDHOOD FRIEND that day on the following scale?

Emotional individuals make decisions based on “gut” feelings and intuition. Rational individuals make decisions based on logic and calculation.

- Extremely Emotional
- Very Emotional
- Somewhat Emotional
- Neutral
- Somewhat Rational
- Very Rational
- Extremely Rational

30. How do you feel about seeing your childhood friend in this way?

- Extremely Negative
- Very Negative
- Somewhat Negative
- Neutral
- Somewhat Positive
- Very Positive
- Extremely Positive

31. A different friend heard about the behavior of your childhood friend THAT DAY, and based upon their behavior, labeled your childhood friend as "Very Emotional." How do you feel when your childhood friend is labeled as "Very Emotional?"

- Extremely Negative
- Very Negative
- Somewhat Negative
- Neutral
- Somewhat Positive
- Very Positive
- Extremely Positive

Your Friend on TV

When you have finished reading the following short passage, please answer the questions below.

THINK OF YOUR CHILDHOOD FRIEND. Recently, you were watching television when you saw your childhood friend appear on the news. Your childhood friend was participating in a public cultural celebration with many other people. They seemed to know many people at the celebration, and were shown having lots of conversations.

32. Imagine this situation. If this had really happened, where would you locate YOUR CHILDHOOD FRIEND that day on the following scale?

Traditional individuals are focused on maintaining the practices and beliefs common to members of their family and/or community. Non-traditional individuals are focused on creating new practices and beliefs based on personally held values.

- Extremely Traditional
- Very Traditional
- Somewhat Traditional
- Neutral
- Somewhat Non-Traditional
- Very Non-Traditional
- Extremely Non-Traditional

33. How do you feel about seeing your childhood friend in this way?

- Extremely Negative
- Very Negative
- Somewhat Negative
- Neutral
- Somewhat Positive
- Very Positive
- Extremely Positive

34. A different friend heard about the behavior of your childhood friend THAT DAY. Based on this behavior, this person labeled your childhood friend as “Somewhat Traditional.” How do you feel when your childhood friend is labeled as “Somewhat Traditional?”

- Extremely Negative
- Very Negative
- Somewhat Negative
- Neutral
- Somewhat Positive
- Very Positive
- Extremely Positive

35. Once again, imagine yourself having experienced the situation with your childhood friend described above. If this had really happened, where would you locate YOUR CHILDHOOD FRIEND that day on the following scale?

Note: Introverted individuals are focused primarily on their own thoughts and feelings. Extroverted people are focused on engaging with others through communication and social interaction.

- Extremely Introverted
- Very Introverted
- Somewhat Introverted
- Neutral
- Somewhat Extroverted
- Very Extroverted
- Extremely Extroverted

36. How do you feel about seeing your childhood friend in this way?

- Extremely Negative
- Very Negative
- Somewhat Negative
- Neutral
- Somewhat Positive
- Very Positive
- Extremely Positive

37. A different friend heard about the behavior of your childhood friend THAT DAY, and based upon their behavior, labeled your childhood friend as “Extremely Extroverted.” How do you feel when your class is labeled as “Extremely Extroverted?”

- Extremely Negative
- Very Negative
- Somewhat Negative
- Neutral
- Somewhat Positive
- Very Positive
- Extremely Positive

Thank You

Thank you for taking the time to complete this survey. The survey is now complete.

If you have any questions, you can contact the Principle Investigator at jflet001@ucr.edu.

If you have any concerns or comments about the content or usage of this survey, you can contact the UC Riverside Office of Research Integrity at:

University Office Building, 2nd Floor
University of California, Riverside
irb@ucr.edu

PLEASE CLICK THE "DONE" BUTTON BELOW TO EXIT THE SURVEY.