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Examining the role of deictics, empathic concern and experiential avoidance in prosocial and coercive behaviour: contributions from relational frame theory

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EXAMINING THE ROLE OF DEICTICS, EMPATHIC CONCERN AND EXPERIENTIAL AVOIDANCE IN PROSOCIAL AND COERCIVE BEHAVIOUR: CONTRIBUTIONS FROM RELATIONAL FRAME THEORY

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CERTIFICATION

I, Priscilla V. Almada, declare that this thesis, submitted in fulfillment of the requirements for the award of Doctor of Philosophy, in the School of Psychology, University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged. The document has not been submitted for qualifications at any other academic institution.

Priscilla V. Almada

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"Never doubt that a small group of thoughtful committed citizens can change the world. Indeed, it is the only that that ever has." Margaret Mead.

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ABSTRACT

Contextual behavioural science (CBS) research has begun to investigate how to increase healthy social connection by exploring both (i.) the prosocial and coercive environments that influence adaptive social behaviour, and (ii.) better understanding the precise functional units of behaviour that facilitate it. The Flexible Connectedness Model (FCM) is an applied CBS approach that attributes the joint contributions of deictic relational responding, empathic concern, and experiential avoidance to successfully predicting maladaptive social behaviour. The first aim of the current thesis was to test the scope of the Flexible Connectedness Model (FCM) in predicting two functionally different types of prosocial behaviour (i.e., emotional prosocial tendency and altruistic prosocial tendency) and three functionally different types of coercive behaviour (i.e., narcissism, Machiavellianism, and psychopathy). The second aim was to explore a more fine-grained analysis of the contribution of deictic relational responding to the model, by examining the differential contributions of four types of deictic ability. The four functionally different types of deictic relational responding included basic I You and You You deictic relational responding, and I You and You You deictic relational responding with emotion cues. It was predicted that the different types of prosocial and coercive behaviours would have unique FCM behavioural constellations, highlighting functional differences, with the potential to inform future interventions with further scope and precision.

Method

Studies were organized by criterion variable, consisting of two large groups: prosocial (n=227) and coercive (n=227). Criterion measures consisted of the Prosocial Tendencies Measure (PTM; Carlo & Randall, 2002) and the Short Dark Triad (SD3; Jones & Paulhus, 2014). In each group, participants were randomly assigned to either the basic or emotion-based deictics task condition, consisting of two behavioural measures of deictic relational responding each (either the Deictic Relational Task and the RFT Perspective Taking Protocol, or the Deictic Relational Task- Emotion and the RFT Perspective Protocol- Emotion). Measures of experiential avoidance and empathic concern were also completed. Multiple regressions were used to test the ability of the Flexible Connectedness Model to predict both prosocial and all three coercive criterion variables. Predictor variables (i.e., deictic ability, empathic concern, and experiential avoidance) were entered sequentially to account for the differential effects each variable contributed. Four different multiple regressions were then completed for each criterion variable to account for differences in the four deictic relational responding measures.

Results

When testing the scope of the Flexible Connectedness Model (FCM) with prosocial behaviours, current results suggests that deictic relational responding, empathic concern, and experiential avoidance may play a role in evoking emotional and altruistic prosocial behaviour. Empathic concern was found to be related to higher levels of emotional and altruistic prosocial behaviour, and was a significant predictor of both. While empathic concern was observed to have had a strong, clear relationship with emotional and altruistic prosocial behaviour, their relationships with deictic relational responding and experiential avoidance varied. Deictic scores illustrated that an emotional prosocial tendency involves deficits in taking the perspective of two others

when it involves emotion-based contextual cues, while an altruistic prosocial tendency was found to have the ability to accurately take the perspective of others in emotion-based situations. Further, emotional prosocial tendency was positively correlated with and predicted by experiential avoidance, while altruistic prosocial tendency was negatively correlated with and predicted by experiential avoidance.

When considering narcissism, Machiavellianism, and psychopathy scores within the framework of the Flexible Connectedness Model, unique behavioural constellations emerged both between the three coercive criterions, and compared to what was observed with emotional and altruistic prosocial behaviours. While the model's scope did not extend to the coercive behaviours measured in the current thesis, some of the model's predictor variables were found to significantly predict them, highlighting their functional differences. Across all coercive criterion variables, empathic concern was consistently not a significant predictor- a direct contrast to the emotional and altruistic prosocial behaviour results. Similar to what was observed in the prosocial group, the relationships that set the coercive criterions apart were expressed in their varied relationships with deictic ability and experiential avoidance. Deficits in taking the perspective of others were found to significantly predict Narcissism scores. While Machiavelli scores were found to have significant negative correlations with several of the different deictic measures, none significantly predicted Machiavelli scores. Psychopathy scores had a clear relationship between deficits in deictic ability, with the most developmentally simple basic I -you trials being the only deictic measure to significantly predict Psychopathy scores. Narcissism was the only coercive criterion to have a significant relationship with experiential avoidance, having an unexpected positive relationship.

Discussion

The current thesis adds to the research literature by indicating that accounting for deictic relational responding, empathic concern, and experiential avoidance as functional units, can be a more precise way to predict and potentially influence various forms of prosocial and coercive behaviour. The results observed between the prosocial and coercive studies found unique behavioural patterns, showing both functional differences between them and limits to the scope of the Flexible Connectedness Model. An important and unique contribution of this thesis was the inclusion of utilizing four functionally distinct behavioural measures of deictic relational responding, providing the most fine-grained analysis of deictic ability to be empirically tested. Significantly distinct patterns of deictic ability were found across all the five criterion variables (both prosocial and coercive), illustrating the utility in accounting for different levels of complexity and functional processes. Although the work reported in this thesis highlights a set of potential manipulable variables, other manipulable predictors, such as verbal selfing behaviour and rule-governed social values, should also be explored before testing the impact of a Flexible Connectedness Model-based intervention.

CHAPTER 1 INTRODUCTION

The ability to develop and practice healthy social connection is vital to mental and physical wellbeing and thriving (Umberson & Montez, 2010). Communities that have been shown to nurture social connection prevent multiple problems including: mental illness, drug abuse, delinquency, violence, coercive parenting, self-harm, prejudice, and job burnout (Biglan, Flay, Embry & Sandler, 2012). In addition to prevention capacity, healthy social connection has been shown to provide resilience against stress, major life transitions, and economic adversity, as well as promoting health-enhancing behaviours, and interpersonal flourishing (National Institutes of Health, 2001). While adults who are socially connected experience better health and longevity (Berkman, 1995; Berkman & Kawachi, 2000), simply being socially connected is not sufficient- the quality of relationships must be prosocial and nurturing (Biglan, 2015). Healthy social connection involves an individual having a subjective sense of having close and positive relationships (Seppala, Rossomando, & Doty, 2013). It is necessary to highlight the importance of the positive quality of relationships required for healthy social connection (Smith & Christakis, 2008). While social connection can be a primary source of emotional support for most people, abusive and coercive social relationships can be extremely stressful (Walen & Lachman, 2000), often eroding physical health (Umberson, Williams, Powers, & Liu Hui, 2006). People who experience negative or abusive relationships have been found to have higher risk of coronary heart disease (De Vogli, Chandola, & Marmot, 2007), myocardial infarction (Orth-Gome´r, Wamala, Horsten, Schench-Gustafsson, Schneiderman, & Mittleman, 2000), congestive heart failure (Coyne, Rohrbaugh, Shoham, Sonnega, Nicklas, & Cranford, 2001), metabolic syndrome (Reaven, 1994), increased depression, and compromised immune and endocrine functioning (Keicolt-Glaser & Newtown, 2001).

Further exploring the importance of the positive quality of relationships required for healthy social connection, outlines two overarching targets (i.) the cultivation of emotional support, and (ii.) reducing social conflict and stress. There is significant research showing that coercive social environments reinforce coercive relationships and behaviour, leading to conflict and stress (Davies, Sturge-Apple, Chiccheti & Cummings, 2007; Wolchik et al., 2009), while alternatively, prosocial environments are emotionally and physically nurturing and reinforce future prosocial behaviour and healthy social connection (Biglan & Hinds, 2009). While coercive and prosocial behaviours reinforce the future probability of functionally similar behaviours being evoked, they also punish (decrease) the probability that the opposite response will be evoked (i.e., while coercive behaviour reinforces future coercive behaviour, it simultaneously punishes the future probability of prosocial behaviour being evoked). The research illustrating the critical role of coercive and prosocial behaviour in the development and sustainability of healthy social connection calls for a dual approach of understanding how to increase prosocial behaviour, while decreasing coercive behaviour.

Contextual behavioural science (CBS) researchers have begun to analyze how to increase healthy social connection by exploring the prosocial and coercive contexts that influence its development (Biglan, 2015), while also better understanding the precise functional units of behaviour that facilitate it (Flexible Connectedness Model; Vilardaga, Hayes & Levin, 2014). The Flexible Connectedness Model attributes the joint contributions of perspective taking ability, empathic concern, and experiential avoidance, to successfully predicting social connection. Future research would benefit from integrating the Flexible Connectedness Model with the community psychology

literature on prosocial and coercive behaviour for an approach to social connection that has both precision and scope.

1.1 Current Research

The following thesis is an extension of previous FCM research. The first aim is to test the model's scope: testing it's ability to predict five separate previously unresearched social behaviours that make up the prosocial and coercive contexts that shape social connection, including emotion-based prosocial behaviour, altruism, and the *Dark Triad* (i.e., subclinical narcissism, Machiavellianism, and psychopathy). The second aim of the thesis is to explore the model's precision, by examining if each of the model's predictor variables (i.e., perpective taking ability, empathic concern, and experiential avoidance) significantly and uniquely contributes to understanding the various prosocial and coercive behaviours targeted in this thesis. The third aim is a further extension on the goal of precision, with a focus on exploring a more fine-grained approach to the contribution of perspective taking to the model. In order to extend the perspective taking (PT) component, three additional PT tasks have been included, each measuring a functionally different type of PT ability, in addition to specifically examining interpersonal PT trials.

This chapter consists of an overview of the theoretical and empirical foundation that informed the program of research that was undertaken in this thesis. To that end, Chapter 1 will include: (i) a brief overview of the functional contextual philosophy of science that provides the foundation of the study aims and design; (ii) an introduction to the prosocial and coercive environments and behavioural functional classes that influence social connection; (iii) a detailed conceptual and empirical review of the Flexible Connectedness Model that aims to understand and organise the functional units of behaviour that either facilitate or impede social connection ability; (iv) a

compendium of the Relational Frame Theory (RFT) research- the behaviour analytic approach to language and cognition that informs the Flexible Connectedness Model; and (v) a detailed outline of the research aims, design and hypotheses. The chapter will conclude with an outline of the remaining chapters of the thesis.

1.2 Functional Contextualism

A science for increasing social connection will achieve the most progress if its goal is to predict *and* influence it, rather than exclusively predict or exclusively describe the phenomena. Without adopting this aim, research will continue to miss out on opportunities to produce practical methods for increasing social connection in a way that is efficiently generalizable with precision, scope and depth. A functional contextualist (FC) approach has been shown to accelerate progress in preventing and intervening with the various mental, emotional and behavioural problems caused by impaired or coercive social connection (Biglan & Hinds, 2009; Biglan, Flay, Embry & Sandler, 2012). While progress has been made targeting each of these problems individually with separate interventions, that approach is time and resource intensive, and the skillsets acquired are typically non-generalizable providing limits on intervention power and scope. By taking a FC approach, the focus is shifted from needing to find many separate mechanisms of change for what appear to be different problems topographically (e.g., substance abuse, domestic violence, anxiety, depression, risky sexual behaviour), to focusing on the environment (i.e., context) that creates the conditions for these problems based on both functional classes and functional units of behaviour.

Functional contextualism is a philosophy of science that grew out of philosophical pragmatism and contextualism. Philosophical pragmatism provides the base foundation for the truth criterion and goal of research in functional contextualism;

identifying the variables that predict and influence the behaviour of interest. Having this goal puts parameters around what to include in the analysis and how to evaluate its validity. Contextualism provides the root metaphor (Pepper, 1942) or "big picture" view of the functional contextualism philosophy, being the "act in context." The act in context informs the research process in which the behaviour of interest is interpreted as an ongoing act inseparable from its current and historical context. The distinction of seeing the behaviour as inseparable from its context, is an important one, and shifts the focus from the topography of a behaviour (i.e., describing what the behaviour looks like) to the function of a behaviour (i.e., both the context that shapes the behaviour, and the relationship between how the behaviour alters contextual probabilities).

The functional contextualist philosophy outlines how to influence and predict behaviour through a functional analysis. A functional analysis looks at the complete behavioural unit, consisting of the antecedent, behaviour, and consequence. For the purpose of this thesis, the behaviours of interest consist of various types of prosocial and coercive behaviour. The function of a behaviour refers to how it is shaped by its antecedent and consequence, and how the behaviour alters contextual probabilities. The antecedent serves either discriminative or establishing functions, and the consequence serves reinforcing or punishing functions. The function of a discriminative stimulus is to signal the availability of a consequence. Establishing operations influence the effectiveness of the reinforcing or punishing functions of a consequence (Catania, 2007). Consequences that have reinforcing functions, increase the frequency of the behaviour reoccurring, while punishing functions result in decreases of the behaviour (Ramnero & Torneke, 2011).

For the program of research undertaken in this thesis, functional contextualism has provided several major influences. Firstly, functional contextualism provides the

philosophical basis of Relational Frame Theory (RFT; Hayes, Barnes-Holmes, & Roche, 2001). RFT is a behavioural account of language and cognition, and serves as the empirical foundation for how this thesis conceptualizes, measures, and explores perspective taking, and its role in influencing prosocial and coercive behaviour. Secondly, the contexts that function to either reinforce or punish prosocial and coercive behaviour are central to the thesis, with an emphasis on functional behavioural units (i.e., perspective taking ability, empathic concern, and experiential avoidance).

1.3 Prosocial and Coercive Behaviour: Behavioural Functions and Contexts

Prosocial and coercive contexts have been shown to predict multiple phenomena such as mental, behavioural, and emotional well being (Biglan, Flay, Embry, & Sandler, 2012). These two broad repertoires consist of distinct ecologies and account for some of the most important aspects of healthy social connection (Biglan & Hinds, 2009). A functional contextualist approach allows us to understand the ecologies of prosocial and coercive behaviour by considering them as functional classes. A functional analysis of prosocial and coercive behaviour will consider function on two levels: (i.) the function of the behaviour (i.e., how the behaviour alters contextual probabilities), and (ii.) the context that shapes and influences prosocial and coercive behaviour (i.e., antecedents and consequences).

1.3.1 The Functions of Coercive Behaviour

Coercion consists of a person behaving in an aversive manner that influences others to decrease or stop their own aversive behaviour (Biglan & Hinds, 2009). In behavioural terms, coercion is the process of a person punishing (i.e., decreasing) another person's aversive behavior, by adding another aversive to the environment (i.e.,

positive punishment). While the aversive behaviour of the other person was momentarily punished, the person behaving with coercion is more likely to engage in the coercive behaviour again (reinforcement) when they come into contact with that same person being aversive or another situation in which they feel uncomfortable.

Coercive behaviour functions in social situations to reinforce the probability of using coercion in the future to punish behaviours others engage in that the individual finds personally aversive. A broad range of behaviours can develop that appear to topographically be different but share the same coercive functions, ranging from more benign behaviours such as tantrums, to more serious and devastating behaviours including depression (Biglan, Rothlind, Hops, & Sherman, 1989; Hops, Biglan, Sherman, Arthur, Friedman, & Osteen, 1987), domestic violence, risky sexual behaviour, substance abuse, and even homicide (Patterson, DeBaryshe, & Ramsey, 1989).

1.3.2 The Functions of Prosocial Behaviour

Similar to the way coercive behaviour increases the probability of future coercion, prosocial behaviour functions to increase future prosocial behaviour. Altruisim, cooperation, caring, acceptance (e.g., emotion and self-regulation), and supportive behaviours (i.e., praise and encouragement), all have been found to have prosocial functions (Dishion, Kavanagh, Schneiger, Nelson, & Kaufman, 2002; Embry, Flannery, Vazsonyi, Powell, & Atha, 1996; Olds, Henderson, Chamberlin, & Tatelbaum, 1986). While altruism and self-regulation are topographically different, they share a similar behavioural function being that they both increase the probability of future prosocial behaviour.

Depending on the targeted outcome and scope of a functional analysis, the functions of both coercive and prosocial behaviour can be understood with more depth.

While they both function to increase the probability of functionally similar behaviours occurring in the future, they also decrease the probability of other behaviours. Therefore, prosocial behaviour has dual functions- it functions to increase the probability of future prosocial behaviour, while simultaneously decreasing the probability of coercive behaviour.

1.3.3 The Context of Coercive and Prosocial Behaviour

Due to their pervasive effects, coercive and prosocial behaviours need to be better understood in a way that allows for the development of interventions that are precise and have generalizable effects. Understanding the function of both coercive and prosocial behaviours, provides an essential component to understanding parts of the context that shape and influences these behaviours, but on it's own it is incomplete. A more fine-grained analysis of the contextual variables that influence these behaviours is needed. Thus far we know that coercive behaviour functions to decrease aversive behaviours in others, and if historically effective in doing so, it increases the probability of coercion in the future. What is unknown, are the more specific details of the discriminative and establishing operants that both influence and differentiate coercive and prosocial behaviour from each other. Flexible Connectedness Model research may help to understand the more precise, manipulable functional units that better predict these behavioural patterns and differentiate one from the other.

1.4 Flexible Connectedness Model

Contextual behavioural science (CBS) is an application of functional contextualism that aims to accumulate multi-level evidence (e.g., basic, analog, applied) when exploring phenomena such as coercive and prosocial behaviour, while holding constant the unit of the functional analysis- the behavior of the individual in its context.

CBS scientists have suggested that the Flexible Connectedness Model is an effective framework for understanding healthy social connection (Levin, Luoma, Vilardaga, Lillis, Nobles & Hayes, 2016). The model consists of the individual and integrative effects of perspective taking ability, empathic concern, and psychological flexibility. The inclusion of these variables into a single model has been influenced by Relational Frame Theory and Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 2011) research; two related approaches that have a shared aim to understand how language and cognition frequently lead to ineffective behaviour rigidity.

The model is structured upon a developmental sequence, with perspective taking ability being the foundation upon which the other variables can be learned. When perspective taking skills fail to develop there are impairments in the development of self and relation to others, with serious implications on the development of social functioning (McHugh 2015; McHugh, Barnes-Holmes, & Barnes-Holmes, 2004). Perspective taking ability is necessary for the development of empathy, as it requires that an individual be able to accurately take the perspective of another and understand how they feel. Once these two abilities develop, problems with emotion regulation of an individual's feelings for others (empathic concern) can impede healthy social connection via experiential avoidance. Experiential avoidance is the core mechanism of change in ACT (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996), and refers to rigidly trying to change the form, frequency and intensity of thoughts and feelings, even when doing so leads to harmful consequences. The ability to successfully self regulate is therefor imperative to social relationships, which is why the development of psychological flexibility is necessary.

1.4.1 Understanding Perspective Taking as Deictic Relational Responding: A RFT Account

Perspective taking research has primarily attracted intervention-driven interest from educators and psychologists for its role in Autism Spectrum Disorder, Aspergers and developmental delay (Rehfeldt & Barnes-Holmes, 2009), however, there are clear implications that perspective taking research has a much wider scope than developmental disabilities (Levin, Luoma, Vilardaga, McHugh & Stewart, 2012; Nobles, & Hayes, in press; Nilsson, Vilardaga, & Nyman, 2015; Vilardaga, Levin, Hayes, & Estevez, 2012). When perspective taking skills fail to develop there are impairments in the development of self and relation to others.

Most psychological research on perspective taking has been conducted using a cognitive developmental approach, known as Theory of Mind (ToM). Under the rubric of Theory of Mind (ToM), researchers have created a type of diagnostic structure to understand, measure and influence the development of perspective taking skills. Theory of Mind (ToM) researchers have outlined five distinct levels of perspective taking ability that must be mastered in order to learn to take the perspective of another (Howlin, Baron-Cohen, & Hadwin, 1999). These five levels require varied levels of incremental complexity, testing the ability to mentally represent the mind (e.g., beliefs, emotions, intentions, etc.) of others (Baron-Cohen, 1991; Premack & Woodruff, 1978). Although ToM appears to provide a comprehensive description of the development of the complex cognitive phenomena underlying perspective taking, this approach cannot account for the functional processes involving the environment-behaviour contingencies influencing these skills (McHugh, Stewart, & Hooper, 2012). While ToM researchers have made careful descriptions of development, it is fundamental to be able to identify the manipulable processes that produce observed changes across the stages. The

description that ToM details involves a topographical account of behaviour, whereas examining the functional relations of behaviours establishes cause and effect relationships that allow for prediction and influence, and therefor, intervention. Recent developments in verbal behaviour analysis research within Relational Frame Theory have begun to work towards this goal, providing an increased advantage regarding intervention.

While behaviour analysis has not traditionally researched covert, "within the skin" behaviours (i.e., emotions, cognition, desires, etc.; Skinner, 1974), Relational Frame Theory has stimulated a significant body of empirical research that has broadened the scope of modern behaviour analysis, including language, social cognition, metaphor, and spirituality (Dymond & Roche, 2013; Hayes, 1984; Hayes, Dermot Barnes-Holmes, & Roche, 2001). From an RFT point of view, our experience of self and others is a byproduct of relating via language (i.e., verbal behaviour). Verbal behaviour is understood functionally via relational framing. In non-technical language relational framing is the process in which we learn the relationship between two or more events or things by deriving those relationships, rather than learning by direct contingencies. The process of relational framing is defined by having three properties: mutual entailment, combinatorial entailment, and transformation of stimulus functions. Mutual entailment is the process in which if you learn the relationship between two verbal stimuli in one direction (i.e. the relationship between A to B), you do not need to be directly taught the relationship in the opposite direction (i.e. from B to A); it will be derived. Combinatorial entailment is the same process as mutual entailment, but involves three or more stimuli being related, and is far more generative, illustrating how complex networks of relations can be built. Transformation of stimulus functions involves the alteration of stimulus functions in one stimulus through its derived

relationship with another. As an individual learns to relationally frame through interacting with their verbal community, they will continue to generatively elaborate their network of verbal behaviour and experiences via conversation and thinking, and the psychologically relevant functions of their environment will be transformed in varied and complex ways, setting the foundation for building a perspective taking repertoire.

The different types of derived relations that can be made between two or more stimuli are called relational frames. There are various types of relational frames, including coordination (same as), difference (distinction), comparison (more/less), spatial (behind/in front of, above/below), temporal (before/after), hierarchical (a part of), and perspective relations (Dymond & Barnes, 1996; Roche & Barnes, 1997; Steele & Hayes, 1991). The perspective taking relational frames are called deictics, and include speaker (I/you), space (here/there), and time (now/then). The verbal development of self involves learning to frame individual behaviour (I-here-now) as different from that of others (you-there-then). We learn to talk about our behaviour within our social environment because it is immediately useful to others (such as parents and siblings), as it allows for those around us to predict and influence our behaviour (Skinner, 1974). A unique quality of deictics compared to other relational frames is that they cannot be traced to physical properties (McHugh, Stewart, & Hooper, 2012). Frames of coordination (same as) and difference (distinction) can be based on physical sameness and physical difference, whereas deictics cannot. This is an important distinction because it stresses the importance of the socioverbal community for accurate demonstration and multiple exemplars of the relational repertoire. The development of self as perspective is shaped by being asked questions such as "What are YOU doing HERE?" "What am I doing NOW?" "What was I doing THEN?" We

learn to always answer these types of questions from the point of view of I-here-now. Over time, the physical environment in which these types of self referential questions are asked and answered, changes. The perspective of self is invariant and different from that of others (you-there-then), and is therefore abstracted through learning to distinguish one's own perspective in relation to others. This abstraction requires thorough demonstration and multiple examplars. Barnes-Holmes, Hayes, and Dymond (2001) have explained, "Abstraction of an individual's perspective on the world and that of others, requires a combination of a sufficiently well-developed relational repertoire and an extensive history of multiple exemplars that takes advantage of that repertoire" (p.122).

Relational Frame Theorists have argued that deictics are the verbal foundation of perspective taking (Barnes-Holmes, Stewart, Dymond, & Roche, 2000). McHugh, Barnes-Holmes & Barnes-Holmes (2004) have demonstrated a developmental profile of deictic framing skills paralleling ToM literature, with findings indicating that young children (aged 3-5) produce more errors than all older age groups. Empirical research supports the RFT account of deictic relational responding, illustrating that it is correlated with ToM skill sets, including false belief understanding and deception (McHugh, Barnes-Holmes, Barnes-Holmes, & Stewart, 2006; McHugh, Barnes-Holmes, Barnes-Holmes, Stewart, & Dymond, 2007). Research has also found that training deictic relations can remediate deficits in perspective taking (Heagle & Rehfeldt, 2006; Weil, Hayes & Capurro, 2011), while also demonstrating deictics are (i.) manipulable, (ii.) positively affect perspective taking ability on alternative ToM tasks, and (iii.) generalize to novel situations and real-world contexts. Lastly, deictic deficits have been demonstrated in clinical and subclinical populations, including Autism Spectrum Disorder (Rehfeldt, Dillen, Ziomek, & Kowalchuk, 2007),

schizophrenia (Villate, Monesttes, McHugh, Freiza I Baque, & Laos, 2010), and social anhedonia (Villardaga, Estevez, Levin, & Hayes, 2012; Villate, Monestez, McHugh, Freixa I Baque & Laos, 2008).

Deictic relational responding has been identified as an important manipulable variable for remediation and prevention, as previous research has demonstrated that deictic deficits predict various maladaptive social behaviours and can be trained. Although, basic deictic ability is important, there are a number of other factors that determine healthy social connection, including empathic concern and experiential avoidance, as has been demonstrated in previous Flexible Connectedness Model studies (Levin, Luoma, Vilardaga, Nobles, & Hayes, 2016; Nilsson, Vilardaga, & Nyman, 2015; Vilardaga, Levin, Hayes, & Estevez, 2012).

1.4.2 Empathic Behaviour as Relational Responding

According to the current Relational Frame Theory research, a handful of precursors including: basic deictic relational responding, understanding personal emotions and understanding the emotions of others need to be established in order for empathy to develop (Valdivia-Salas, Luciano, Gutierrez-Martinez, & Visdomine, 2009). An RFT approach to empathy, defines empathy as the transformation of emotional functions via deictic relational frames (i.e., transfer of emotional effects from the other having the perspective of YOU THERE THEN back to the "speaker" I HERE NOW) (McHugh, 2015; Vilardaga, 2009). This involves adopting the perspective of the other person, and "feeling" what they feel.

With regard to empathic ability, it is important to learn how to both verbally discriminate personal emotions, and also discriminate personal emotions from those of others. This larger skillset develops as a result of other types of discriminations, including (i.) accurate emotion recognition and labeling and (ii.) the transformation of

stimulus functions via relations of coordination between emotion names (e.g., sad, happy, angry, afraid), and individual feelings and thoughts. These two discriminations support the development of the ability to transform the functions of emotion label/feelings/thoughts via deictics. In some cases, this repertoire may function to reinforce empathic responding. However, there are also a number of possible reasons the transformation of emotional functions can be weakened, or the empathic response is not evoked. For example, if the transformation of emotional functions results in a strongly aversive emotional experience, in which the individual does not have a developed repertoire for emotional regulation, they may experientially avoid evoking an empathic response.

1.4.3 Experiential Avoidance

Transformation of stimulus functions is a verbal process that is important not only in the development of empathy, but also to an individual's larger behavioural repertoire. Once a person has minimally established a relational repertoire, the transformation of potential aversive functions cannot be prevented. Research has also found that direct attempts to change or suppress relational network content, extends the relational network (Torneke, Luciano & Valdivia, 2008), highlighting the futility of excessive and inflexible experiential avoidance with uncomfortable private events.

Language processes are influenced by context, which makes it possible to alter the context of relational networks in order to disrupt unhelpful language processes (rather than target relational content). Increasing psychological and behavioral flexibility undermines the verbal processes that lead to excessive experiential avoidance. Experiential avoidance is the mechanism of change within Acceptance and Commitment Therapy (Hayes, Strosahl, & Wilson, 2011), a therapeutic approach that was developed alongside Relational Frame Theory. The principal aim of ACT is to

dismantle inflexible repertoires that impede values-consistent behaviour.

Several studies have shown that ACT is efficacious with a wide range of behavioral problems (Hayes, Luoma, Bond, Masuda, & Lillis, 2006; Ruiz, 2010), including epilepsy, smoking cessation, diabetes, and psychosis. Within ACT research, experiential avoidance has been found to be related to and mediate a number of different symptoms and psychological disorders (Hayes et al., 2006). In regard to maladaptive social behaviours, a handful of ACT studies have either: (i.) targeted stigma and prejudice and have yielded successful results, or (ii.) have examined the relationship between experiential avoidance and prejudice, having found as experiential avoidance increases so does prejudice (Lillis & Hayes, 2007; Lillis, Luoma, Levin & Hayes, 2010; Masuda et al., 2007; Masuda, Price et al., 2009; Masuda & Latzman, 2011). Also, within the Flexible Connectedness Model research, experiential avoidance was negatively correlated and uniquely predicted social anhedonia, pathological altruism and generalized prejudice (Levin, Luoma, Vilardaga, McHugh & Stewart, 2012; Nobles, & Hayes, in press; Nilsson, Vilardaga, & Nyman, 2015; Vilardaga, Levin, Hayes, & Estevez, 2012).

As discussed earlier, there are a number of reasons the transformation of emotional functions can be compromised, weakened, or absent, preventing empathic concern responses and the resulting prosocial response. As a result of language processes, the transformation of emotional functions can be mediated by either strong fusion with self concept or experientially avoiding emotional distress (Stewart & McHugh, 2013; Vilardaga & Hayes, 2011). In the case of strong self concept fusion, a conceptualized self is excessively framed across all events, either (i.) decreasing the likelihood of taking the perspective of another, or (ii.) rigid self-rule following to preserve self concept that is insensitive to consequences (i.e., experiential avoidance of

behaving in ways that are inconsistent self-rules), such as the behavioural repertoires observed in pathological altruism (Nilsson, Vilardaga, & Nyman; Vilardaga & Hayes, 2011).

1.4.4 Understanding Prosocial and Coercive Behaviour Through the FCM Lens

The FCM seems to be relevant to a wide range of social problems, including social anhedonia (Vilardaga, Levin, Hayes, & Estevez, 2012), pathological altruism (Nilsson, Vilardaga, & Nyman, 2015), and generalized prejudice (Levin, Luoma, Vilardaga, Nobles, & Hayes, 2016). These studies illustrate that there are various ways the model variables interact to predict different types of social behaviours (see Figure 1). Social anhedonia and generalized prejudice consist of the same functional behavioural repertoire, consisting of low perspective taking ability and empathic concern, and high experiential avoidance. Pathological altruism consists of high perspective taking, empathy, and experiential avoidance.

The FCM provides a potentially useful theoretical and methodological framework to generate hypotheses about how to target manipulable variables, especially with regard to better understanding the potential contextual variables that have discriminative functions for coercive and prosocial behaviour. With the theoretical and empirical foundations of the FMC, perspective taking ability, empathic concern, and psychological flexibility are all discussed as having discriminative functions with various types of social behaviours (see Figure 2).

1.4.5 Flexible Connectedness Model State of Research, Gaps and Limitations

Future research should consider previous gaps and limitations of the FCM research. Some of the variables to consider include further exploring behavioural measurements of different aspects of perspective taking, including the addition of a

deictic relational responding measure of empathic ability to be used side by side with the utility of empathic concern as a function of prosocial motivation.

Figure 1
Combinations of Flexible Connectedness Model Variable Repertoires

Perspective Taking Ability (Low/High)	Empathic Concern (Low/High)	Experiential Avoidance (Low/High)	Examples	Repertoire
Low I-You You-You	Low	Low	✚ Autism (Pahnke, Lundgren, Hurst, & Hirvikoshi, 2014)	Either lacks a coherent self (I-You) and/or experiences deficits in taking the perspective of others (You-You), and therefor struggles to empathize. Without the ability to strongly reference themselves or others' emotional experience, there is little need to avoid feeling their suffering.
Low You-You	Low	High	◆ Social anhedonia (Vilardaga, Levin, Hayes, & Estevez, 2012) ◆ Generalized prejudice (Levin, Luoma, Vilardaga, Nobles, & Hayes, 2016)	Deficits in taking the perspective of another (You-You), preventing the development of empathy. Experiential avoidance exacerbates this process, and reinforces avoiding taking the perspective of others.
High I-You	High	High	◆ Pathological altruisim (Nilsson, Vilardaga, & Nyman, 2015)	Can understand how the emotional experiences of others are similar to their own, but struggle with the ability to emotionally regulate.
High I-You You-You	High	Low	✚ Adaptive Social Behaviours + Healthy Social Connection	Can accurately understand and emotionally connect with others, while effectively regulating their emotions.

◆ = empirical ✚ = theoretical

1.4.5.1 Measuring Perspective Taking: Basic Deictic Relational Responding and Empathy.

There have been inconsistencies in the measurement of perspective taking across the various FCM studies. Some have used global self report measures (Levin, Luoma, Vilardaga, Nobles, & Hayes, 2016), and others have used different behavioural measures of deictic relational responding, (Nilsson, Vilardaga, & Nyman, 2015; Vilardaga, Levin, Hayes, & Estevez, 2012). All these measures are capturing functionally different types of perspective taking. Keeping in line with a functional contextualist approach, we will explore the behavioural perspective taking measures of deictic relational responding in depth. While the two behavioural perspective taking task measures are both inspired by the Relational Frame Theory empirical literature, they are measuring two types of deictic relating.

The behavioural perspective taking tasks used in previous FCM research, are all based on a previously developed protocol (Barnes-Holmes, 2001; McHugh, Barnes-Holmes, Y., & Barnes-Holmes, D., 2004), that was designed to assess a RFT approach to perspective taking. The original protocol, included items such as, "I'm sitting in a red chair and you are sitting in a green chair. Which chair are you sitting in?" with the answer being "green chair." Due to the phrasing and language, other researchers developed the Deictic Relational Task (DRT, Vilardaga et al., 2012) to account for more natural language contexts. An example of an item from the DRT includes, "Hammish is floating in the pool, and John is jumping off of the diving board. If John were Hammish, what would he be doing?" with the answer being "floating in the pool." What differentiates the DRT from the original RFT Perspective Taking Protocol (RFT PT, McHugh et al., 2004), is that it measures the ability of an individual to transfer stimulus functions between two other people ("You-You"), rather than measuring the ability to shift stimulus functions between themselves ("I") to another person ("You").

The foundational FCM study (Vilardaga, Levin, Hayes, & Estevez, 2012) on social anhedonia used the DRT total to interpret perspective taking ability (I-you, Here-there, Now-then), while a follow-up study on pathological altruism (Nilsson, Vilardaga, & Nyman, 2015) used the original RFT Perspective Taking Protocol measure, but only used the interpersonal perspective taking subset (i.e., I-you trials) of the total items. These two separate measures have never been used side by side to capture the different types of perspective taking ability and their differential effects on the expression of different types of social behaviour.

In regard to the measurement of empathy, previous FCM studies have used a questionnaire subscale measuring empathic concern. While empathic concern (i.e., experience of compassion and sympathy for others) may serve important motivation functions for social behaviour, it is also essential to measure empathic cognitive ability with a deictic relational responding measure that measures emotional transformation of stimulus functions from both You-You and I-You. The perspective taking required for social behaviour is complex, and accounting for the various types of perspective taking allows for a more precise way of intervening when there are deficits. This thesis will include four separate measures of perspective taking. There will be two basic deictic relational responding measures, one measuring You-You transformation of stimulus functions (i.e., DRT) and the other measuring I-You transformation of stimulus functions (i.e., RFT PT Protocol). There will also be two emotion-based deictic relational responding measures, one measuring You-You transformation of emotional stimulus functions (i.e., DRT-E) and the other measuring I-You transformation of emotional stimulus functions (i.e., RFT PT Protocol-E).

Figure 2
Functional Analysis of Prosocial and Coercive Behaviour "The Act in Context"

Antecedent	Behaviour	Consequence	Analysis
◆The individual perceives another person's behaviour as aversive.	The individual responds in a way another would find so aversive it would decrease their individual aversive behaviour. Examples of functionally coercive behaviour can include: ◆Substance Abuse ◆Depression ◆Anxiety ◆Domestic Violence (behaviours others find aversive)	◆The behaviour results in decreasing an aversive behaviour in another person. ◆This leads to prosocial behaviour being punished, while coercive behaviour being reinforced in the individual.	Together, the antecedent and consequence make up the context that influences the behaviour. The function of the behaviour is determined by its effect on behavioural probabilities.
◆The individual perceives another person's behaviour as aversive. Establishing Operation= ✚ Social Values Discriminitive Stimulus= ✚ Deictic Relational Responding ✚ Empathy ✚ Psychological Flexibility	The individual responds in a way that increases the probability that both themselves and the other that was previously behaving aversively will behave prosocially. Examples of functionally prosocial behaviour can include: ◆Altruism ◆Cooperation ◆Caring ◆Acceptance ◆Praise	◆This leads to prosocial behaviour being reinforced, while coercive behaviour is punished in the individual.	In order to decrease coercive behaviour, the antecedent can also be influenced to shape different behavioural response. For example, different skillsets (perspective taking, empathy, psychological flexibility) can be trained so that in the presence of an aversive social experience, the individual is present to additional discriminative stimuli signaling the opportunity for various consequences including safety and connection in the presence of others.

◆ = empirical ✚ = theoretical

1.5 Research Design and Aims

Cross-sectional data was collected for all the Flexible Connectedness Model variables with two distinct types of prosocial behaviour (i.e., emotional prosocial tendency and altruistic prosocial behaviour) and three distinct types of coercive behaviour (Dark Triad; narcissism, Machiavelli, psychopathy) in a sample of Australian undergraduates. They completed two of the four different perspective taking tasks, either comprising of basic deictic relational responding or emotions-based deictic relational responding.

Contextual behavioural science (CBS) researchers have suggested that three core variables shape the development of healthy social connection: deictic relational responding, empathic concern, and experiential avoidance (i.e., the Flexible Connectedness Model). The Flexible Connectedness Model has been shown to significantly predict several maladaptive social behaviours, including social anhedonia, pathological altruism, and generalized prejudice (Levin, Luoma, Vilardaga, Nobles, & Hayes, in press; Nilsson, Vilardaga, & Nyman, 2015; Vilardaga, Levin, Hayes, & Estevez, 2012). CBS researchers have also developed a parallel line of research examining how best to shape the incidence and prevalence of nurturing communities for the cultivation of healthy social connection by reinforcing prosocial behaviour and reducing opportunities for coercive behaviour. The broad aim of the current thesis is to combine these two lines of research by testing the scope of the Flexible Connectedness Model in predicting prosocial and coercive behaviour.

As part of this project, several elements will be explored with the purpose of developing an account that includes both functions of prosocial and coercive behaviour, and some of the various contextual functions that may influence the probability of them being evoked. To date, research of prosocial and coercive behaviour has explained these

phenomena as mechanistic, behavioural topographies via relatively static, global personality constructs (Green, Hanze, & Wanstrath, 1994), or has underestimated the diversity in contextual functions within groups of behaviours that share similar behavioural functions (Biglan & Embry, 2013). To account for previous research gaps in prosocial and coercive research regarding global and topographical conceptualizations, five functionally distinct social behaviours that share either prosocial (i.e., emotional and altruistic prosocial behaviour) or coercive (i.e., narcissism, Machiavellianism, and psychopathy) behavioural functions have been identified. To further extend aims of developing a more precise account of these behaviours, the manipulable predictor variables outlined by the Flexible Connectedness Model will be explored, to account for the unique contextual function constellations that differentiate each of these social behaviours from one another.

A review of the Relational Frame Theory literature highlights the importance of utilizing an approach for overt and cognitive social behaviour that allows for both prediction and influence, requiring the specification of manipulable processes, such as deictic relational responding. Utilizing the Flexible Connectedness Model with a focus on understanding a more varied account of deictic relational responding will help to extend previous Relational Frame Theory accounts of healthy social functioning (McHugh & Stewart, 2012; Rehfeldt & Barnes-Holmes, 2009; Rehfeldt, Dillen, Ziomek, & Kowalchuk, 2007; Villatte, Monestes, McHugh, Reixa I Baque, & Laos, 2008; Villatte, Monestes, McHugh, Reixa I Baque, & Laos, 2010), in both precision and scope. In service of this aim, we have included four functionally different types of deictic responding: basic I-You and You-You deictic relational responding, and I-You and You-You deictic relational responding with emotional cues. Accounting for these four different types of deictic abilities, will help to develop a functional map

highlighting the fluencies and deficits across all criterion variables (both prosocial and coercive).

1.6 Thesis Structure

This first chapter has set out the purpose of the thesis, functionally defined key terms such as prosocial and coercive behaviour, and briefly described the theoretical and empirical basis of the research, which is guided by Relational Frame Theory. This introductory chapter provided an overview of the current literature of the Flexible Connectedness Model and an introduction to relevant Relational Frame Theory principles and terms, both informing research hypotheses and critically outlining gaps and limitations in the research literature that the current thesis will aim to address.

Chapter 2 describes the methods of the current study. Details are provided on participant demographics, data collection procedures, experimental measures, and the data analysis strategy. This chapter also details all four perspective taking measures utilized in the thesis, measuring deictic relational ability that spans (i.) basic I-You and (ii.)You-You interpersonal perspective taking, and (iii.) I-You and (iv.)You-You emotions-based interpersonal perspective taking. (See APPENDIX A for a complete list of items for each of the different perspective taking tasks).

Chapter 3 explores the ability of the Flexible Connectedness Model to predict two different types of prosocial behavior (i.e., emotional prosocial tendency and altruistic prosocial tendency). Each of the three Flexible Connectedness Model predictor variables are also discussed separately, examining their individual roles in understanding prosocial behaviour. There is a specific focus on how this model fit may vary according to individual differences in the four different types of deictic relational responding ability.

Chapter 4 utilizes the same data analysis strategy as Chapter 3, focusing on the understanding the ability of the model to predict the coercive behaviours measured by the Dark Triad (i.e., narcissism, Machiavellianism, and psychopathy). Chapter 4 also explores the unique contribution of each of the predictor variables on coercive behaviour, with an emphasis on understanding differences in deictic relational ability.

Chapter 5 summarises the findings of the current study. Limitations and opportunities for further research are outlined. The implications for increasing prosocial behaviour and limiting opportunities for coercive behaviour through the lens of the Flexible Connectedness Model are discussed, as are the original contributions of this study.

CHAPTER 2 METHOD

2.1 Participants

University students (N= 446) from the University of Wollongong in Australia participated in the five studies of this thesis as a component of either a first year introductory psychology course or a third year course in social psychology. A total of n= 227 participants were in the prosocial group and a total of n=219 participants were in the coercive group. A subset of the data was used to inform a writing assignment in the student's course to teach research methodology and scientific paper writing. The study complied with the requirements of the Ethics Board of the University of Wollongong, and informed consent was obtained from all students.

2.1.2 Demographic characteristics of the sample

A demographic analysis of the participants (see Table 1,Table 2, and Table 3) indicated that 72% of all participants were female. Ages ranged between 18 and 59 years across all conditions (M= 21.11, SD=5.76). Most of the participants were Caucasian (90%), with 10% of the participant pool representing various ethnic minorities. Twenty-two percent of the participant's fathers had a bachelor's degree, 11.7% received post graduate degrees, 22.2% received professional degree education (ie. trade training, apprenticeships, etc.), 19.5% received high school degrees, and 21.1% received less than high school education. Twenty-six percent of the participant's mothers had a bachelor's degree, 7.8% received post graduate degrees, 16.8% received professional degree education, 19.9% received high school degrees, and 27.6% received less than high school education.

Table 1
Sample Characteristics of Participants Across All Studies (N=446), Showing Means, Standard Deviations, and Percentages

Variable	Statistics
Demographics	
Age (years)	21.11 (±5.76)
Female (%)	72.4
Ethnicity (%)	
Caucasian	90.4
Mixed Race	4.7
Asian	2.2
African	1.3
Hispanic	.7
Middle Eastern	.4
Aboriginal	.2
Education of father (%)	
Post Graduate degree	11.7
Bachelor's degree	22.0
Professional degree	22.2
High school degree	19.5
Less than high school	21.1
Education of mother (%)	
Post Graduate degree	7.8
Bachelor's degree	26
Professional degree	16.8
High school degree	19.9
Less than high school	27.6

Table 2
Sample Characteristics of Participants in the Prosocial Condition (N=227), Showing Means, Standard Deviations, and Percentages

Variable	Statistics
Demographics	
Age (years)	21.03 (±5.14)
Female (%)	74.4
Ethnicity (%)	
Caucasian	88.5
Mixed Race	5.7
Asian	3.5
African	1.3
Hispanic	.4
Middle Eastern	.4
Aboriginal	0
Education of father (%)	
Post Graduate degree	12.8
Bachelor's degree	24.2
Professional degree	23.8
High school degree	19.8
Less than high school	17.2
Education of mother (%)	
Post Graduate degree	7.0
Bachelor's degree	30.4
Professional degree	16.3
High school degree	18.9
Less than high school	26.4

Table 3
Sample Characteristics of Participants in the Coercive Condition (N=219), Showing Means, Standard Deviations, and Percentages

Variable	Statistics
Demographics	
Age (years)	21.19 (±6.34)
Female (%)	70.3
Ethnicity (%)	
Caucasian	92.3
Mixed Race	3.7
Asian	.9
African	1.4
Hispanic	.9
Middle Eastern	.5
Aboriginal	.5
Education of father (%)	
Post Graduate degree	10.5
Bachelor's degree	19.6
Professional degree	20.5
High school degree	19.2
Less than high school	25.1
Education of mother (%)	
Post Graduate degree	8.7
Bachelor's degree	21.5
Professional degree	17.4
High school degree	21.0
Less than high school	28.8

2.2 Procedure

Data collection occurred in two waves; one wave designed to investigate possible predictors of prosocial behaviour and the other designed to investigate possible predictors of coercive behaviour. Each wave consisted of the same four unique perspective taking tasks (perspective taking tasks detailed below in Section 2.3.1.1). In each wave, participants were randomly assigned to complete 2 of the four perspective taking tasks- either the two basic perspective taking tasks or the two emotion-based perspective taking tasks.

Students completed the 2 different perspective taking tasks, a self report measure of experiential avoidance, a self report measure of empathic concern, and either a self report measure of coercive behaviour or prosocial behaviour. All tasks and measures were completed via SurveyMonkey on a computer in the tutorial classroom. In order to avoid cognitive fatigue, the self-report questionnaires were positioned in between the two perspective taking tasks.

2.3 Measures

2.3.1 Flexible Connectedness Model: Predictor Variables

2.3.1.1 Perspective Taking.

All four perspective taking tasks used in the current thesis are based on a previous protocol developed by McHugh et al. (2004) that was designed to assess a Relational Frame Theory approach to perspective taking. The original protocol involved a series of 62 scenarios that assessed participant fluency of the three perspective-taking

(deictic) relational frames of I-You, Here-There, and Now-Then, and relational complexity.

Relational complexity was measured on three different levels: simple relations, reversed relations, and double reversed relations. Simple relations consisted of scenarios that ask the participant to observe a stated perspective. For example, a sample simple relation item was, "I'm sitting in a red chair and you are sitting in a green chair. Which chair are you sitting in?" with the answer being "green chair." A reversal item requires the participant to transform stimulus functions across from either I to You, Here to There, or Now to Then. For example, a sample reversal item was, "I'm sitting in a red chair and you are sitting in a green chair. If I were you and you were me, which chair would you be sitting in?" with the answer being "red chair." To get to the right answer the participant has to transform the stimulus functions from "I" to "You." A double reversal item requires the participant to transform stimulus functions across two different deictic relational frames, either speaker and time (i.e., I-You and Now-Then), or time and space (i.e., Now-Then, Here-There. A sample double reversal item was, "I'm sitting in a red chair and you are sitting in a green chair. If I were you and you were me and if here were there and there were here, which chair would you be sitting in?" with the answer being "green chair." To get to the right answer the participant has to transform the stimulus functions from "I" to "You" (speaker) first, and from this new perspective, they then have to transform the stimulus functions from "Here" to "There" (space).

Due to both time constraints and the study design requiring the participant to complete 2 different perspective taking tasks in one sitting, the number of trials for each task used in the current thesis was reduced to both account for design efficiency and decrease cognitive fatigue. As a result of previous studies with adult populations

repeatedly yielding ceiling effects of close to zero mistakes on simple relation trials (Vilardaga, Levin, Waltz, Hayes, Long, & Muto, 2008; Vilardaga, Waltz, Levin, Hayes, Stromberg, & Amador, 2009), all simple relation trials were removed as they would not add variability in better understanding deictic ability. Current Flexible Connectedness Model research has also utilized deictic measures that do not contain simple relation trials (Vilardaga, Estevez, & Hayes, 2012), including the original, full length Deictic Relational Task detailed immediately below in Section 2.3.1.1.2.

2.3.1.1.2 Basic Perspective Taking Tasks.

Deictic Relational Task.

The *Deictic Relational Task* (DRT, Vilardaga et al., 2012) is one of the four behavioral measures of perspective taking used in the current thesis. A battery of 20 scenarios was selected from the original 50 items, resulting in 4 items being dedicated to each of the three types of reversal trials (i.e., reversed I-You, reversed Here-There, reversed Now-Then) and 4 items being dedicated to each of the two types of double reversal trials (i.e., double reversed I-You, Here-There, and double reversed Here-There, Now-Then).

All items describe a scenario that require the participant to take a unique perspective similar to the original McHugh et al. (2004) protocol, but instead of using the same set of contextual cues across all trials, (i.e., red and green brick, black or blue chair, and reading or watching tv) the overall content was changed to suit more natural language contexts. An example item from this measure is, “Right now, Timothy is walking his neighbor’s dog, but tomorrow in the afternoon he will be getting paid $10. If now were tomorrow in the afternoon, what would Timothy be doing?” All perspective taking item questions are followed by two choices, one of which being the correct answer. Following the above previous example item, the two possible options

are: A. Getting paid $10, and B. Walking his neighbor's dog, with A. being the correct answer. More frequent errors on this task indicate lower deictic relational ability.

Unlike the original DRT (2012) measure that included fluency data, participants were not timed for item completion. In line with previous studies (DRT, Vilardaga et al., 2012), some cultural language adaptations were made to match the national context of the Australian participants, involving changes to locations, regional names of characters, and some differences between American and Australian English words. A complete list of DRT items can be found in Appendix A.

RFT Perspective Taking Protocol.

RFT Perspective Taking Protocol (RFT PT, 2004). The RFT PT is the second behavioural measure of perspective taking used in the current thesis. The RFT PT was shortened to 25 trials from the original 62 used in the McHugh et al. (2004) protocol detailed above. This brief version of the RFT PT consists of 4 different trials for each relational type (ie. reversals and double reversals), and a subset of 5 foils. Foils were added to test for participant attention. The measure consisted of 12 reversed relation trials, and 8 double reversed relation items. All trials were randomized so that relational types and complexity were presented in random order. More frequent errors on this task indicate lower deictic relational ability. A complete list of the original protocol trial items and the brief version used in the current thesis can be found in Appendix A. Due to a translational error in the prosocial group, there were only 3 trials for double reversal I You Here There trial types, resulting in a total of 24 items for the prosocial group. Percentages correct were reported for all trial types to account for this error. The error was corrected for the coercive group so that all 25 items contributed to their final RFT PT accuracy score.

2.3.1.1.2 *Emotion-Based Perspective Taking Tasks.*

Piloting Emotion-Based Perspective Taking Tasks.

Since the content of these tasks have previously never been tested, contextual cue and emotion matching checks were included before completing the perspective taking tasks to ensure participants understood and agreed certain emotions are naturally typically paired with the scenarios used in the emotion-based perspective taking tasks. Participants were asked to indicate which emotion they would feel in the four different scenarios used in the tasks by choosing from four options (i.e., afraid, happy, angry, sad), and then they were asked how others would feel in the same scenarios. For example, to check how they would feel, they were asked, "What would you feel if you were watching a scary movie?" When asked how others would feel, they were asked "What do people typically feel when they're watching a scary movie?" In the items for both perspective taking tasks, the scary movie contextual cue was always matched with afraid. The participants were then asked to rate how they would feel in those same scenarios from 1 being "*never"* to 7 being "*always*," with the statements being: watching a movie makes me feel afraid; receiving a pay increase at work makes me feel happy; breaking up with my partner makes me feel sad; and getting cut off in traffic makes me feel angry. Table 4 below illustrates that the majority of participants agreed on the scenario/emotion matches used in the tasks.

Additional instructions were also created for these perspective taking tasks to clarify that even if the participant doesn't agree with the matching of the emotion and scenario outlined in each item, the task is not asking them how they would actually feel in those scenarios, but asking them to imagine they are feeling those emotions. The exact instructions are included with each of the tasks in Appendix A.

Table 4
Participant ratings (% and means) of perspective taking task contextual cues and emotion matches

Cue: Emotion Match	Prosocial Group	Coercive Group
What would you feel? (% Agree)		
Scary Movie: Afraid	83.16	84.82
Pay Increase: Happy	98.94	99.11
Break-up: Sad	94.74	93.75
Cut off in traffic: Angry	97.89	93.57
What do people typically feel? (% Agree)		
Scary Movie: Afraid	94.74	99.11
Pay Increase: Happy	100	99.11
Break-up: Sad	95.79	93.75
Cut off in traffic: Angry	98.95	98.21
When (Cue), I Feel (Emotion) Rating (1-7)*		
Scary Movie: Afraid	4.55	4.83
Pay Increase: Happy	6.68	6.73
Break-up: Sad	5.60	5.62
Cut off in traffic: Angry	4.88	4.66

*4= sometimes

Deictic Relational Task-Emotion.

Deictic Relational Task + Emotion (DRT-E, Almada & McHugh, 2015) is a

behavioural measure of emotions-based perspective taking. The DRT-E is identical in structure to the Basic DRT, with the exception of having an additional 5 foil items to check for participant attention, resulting in a total of 25 items.

The DRT-E was adapted from the brief DRT detailed. Instead of the items probing for perspective of situational details such as location, these items were designed to contain emotion-based contextual cues and probe for emotion-based perspective taking of the characters within the scenario. An example item from this measure is, "Yesterday Michelle was getting cut off in traffic and feeling angry. Today she is breaking up with her partner and feeling sad. If now was then and then was now: A. What would Michelle be feeling now? B. What would Michelle be feeling then? " More frequent errors on this task indicate lower deictic relational ability. A complete list of scenario items can be found in Appendix A.

RFT PerspectiveTaking Protocol- Emotion.

RFT Perspective Protocol- Emotion (RFT PT-E, Almada & McHugh, 2015) is a behavioral measure of emotions-based perspective taking. The RFT PT-E is identical in structure to the Basic RFT PT, consisting of 25 total items, 12 double reversals, 8 reversals, and 5 foils to test for participant attention. The functional difference between this protocol and the DRT-E is that this protocol requires the participant to switch perspective between themselves and a fictional character (I-You), rather than switch perspective between two fictional characters (You-You).

The RFT PT-E was adapted from the brief RFT PT. Instead of the items probing for perspective of situational details such as an arbitrary item (i.e., brick or chair), these items were designed to also include emotion based contextual cues and probe for emotions-based perspective taking between the I and You perspective. An example item from this measure is, "Yesterday I was watching a scary movie and feeling afraid.

Today I am breaking up with my partner and feeling sad. If now was then and then was now: A. What would I be feeling now? B. What would I be feeling then? " More frequent errors on this task indicate lower deictic relational ability. A complete list of scenario items can be found in Appendix A.

Figure 2
A Schematic of Behavioural Perspective Tasks: Basic and Emotion-Based

Basic Perspective Tasks Taking		**Emotion-Based Perspective Taking Tasks**	
DRT **20 items**	**RFT Protocol** **25 items**	**DRT- E** **25 items**	**RFT Protocol- E** **25 items**
You-You Reversals * 4 Trials	I-You Reversals * 4 Trials	You-You Reversals * 4 Trials	I-You Reversals * 4 Trials
Here-There Reversals 4 Trials	Here-There Reversals 4 Trials	Here-There Reversals 4 Trials	Here-There Reversals 4 Trials
Now-Then Reversals 4 Trials	Now-Then Reversals 4 Trials	Now-Then Reversals 4 Trials	Now-Then Reversals 4 Trials
You-You, Here-There Double Reversals * 4 Trials	I-You, Here-There Double Reversals * 4 Trials	You-You, Here-There Double Reversals * 4 Trials	I-You, Here-There Double Reversals * 4 Trials
Here-There, Now-Then Double Reversals 4 Trials	Here-There, Now-Then Double Reversals 4 Trials	Here-There, Now-Then Double Reversals 4 Trials	Here-There, Now-Then Double Reversals 4 Trials
Foils 0 Trials	Foils 5 Trials	Foils 5 Trials	Foils 5 Trials

* = interpersonal deictic trials

2.3.1.2 Psychological Flexibility.

Acceptance and Action Questionnaire (AAQ II; Bond, et al., 2011) is a self-report measure of experiential avoidance. The questionnaire consists of seven items rated on a 7-point Likert scale ranging from "*never true*" to "*always true*." An example item reads, "My painful experiences and memories make it difficult for me to live a life that I would value." Higher scores indicate lower psychological flexibility. The measure has adequate psychometric properties (e.g., mean alpha of .84; Bond et al., 2011). The AAQ has been shown to have good internal consistency and construct validity with Cronbach's alpha coefficients in the range of .76 to .87 (Hayes et al., 2006).

2.3.1.3 Empathy.

The *Interpersonal Reactivity Index* (IRI; Davis, 1983) is a self-report measure of empathy that consists of 4 subscales, representing separate facets of empathy. For the purposes of this study, only the empathic concern (EC) subscale was used. The EC subscale measures the tendency for the participant to experience feelings of sympathy and compassion for others. It consists of seven items rated on a 5-point Likert scale ranging from "*does not describe me at all*" to "*describe me very well*." An example item from this measure is, "I often have tender, concerned feelings for people less fortunate than me." The EC subscale has been shown to have good test-retest reliability, internal consistency and has been shown to be predictive of helping behaviors (Davis, 1980).

2.3.2 Flexible Connectedness Model Criterion Variables

2.3.2.1 Coercive Behaviour.

Short Dark Triad (SD3; Jones & Paulhus, 2014) is a 27-item self-report measure of coercive behavior. The Dark Triad is a personality constellation that captures the coercive behaviours of Machiavellianism, and subclinical narcissism and psychopathy. All items are rated on a 5-point Likert scale ranging from "*strongly disagree*" to

"*strongly agree*." Sample items on the SD3 include, "I like to use clever manipulation to get my way" and "People who mess with me always regret it." The SD3 has been shown to provide an efficient, reliable, and valid measure of the Dark Triad (Jones & Paulhus, 2014).

2.3.2.2 Prosocial Behaviour.

Prosocial Tendencies Measure (PTM; Carlo & Randall, 2002) is a 23-item self report measure that assesses 6 types of prosocial behaviour: altruistic, compliant, emotional, dire, public, and anonymous. All items were rated on a 5-point Likert scale ranging from "*does not describe me at all*" to "*describes me greatly*." Sample items from this measure read, "I respond to helping others best when the situation is highly emotional" (emotional prosocial tendency subscale item), and ,"I think there should be more recognition for the time and energy people spend on charity work," (reverse-scored altruistic prosocial tendency subscale item). The PTM has been shown to have adequate reliability and validity (Carlo & Randall, 2002). For the purposes of this thesis, only the altruistic and emotional prosocial tendencies subscales were used.

2.4 Overview of Thesis Data Analytic Strategy

Criterion variables (i.e., prosocial and coercive conditions) are analysed separately in Chapters 3 and 4. For each set of analyses, we examined frequencies, calculated skewness and kurtosis, and evaluated outliers. In previous studies, participants that had accuracy rates under 65% for the DRT were excluded from the analyses (Vilardaga, Estevez, Levin, & Hayes, 2012). The 65% accuracy rate cutoff was not observed in the current thesis to account for variance in deictic relational responding. The design consisted of four separate perspective taking tasks with the intention to capture deictic ability variance amongst different types of perspective

taking according to complexity. Previous studies using the RFT Perspective Taking Protocol have found lower accuracy rates compared to the DRT's (Villatte, 2008). Although the 65% cutoff was not observed, outliers were considered for each of the four tasks. Participants that had total scores above or below two standard deviations from the mean were excluded from the final analysis (Miller, 1991). This resulted in the removal of four participants from both the basic and emotion-based conditions each in the prosocial group, and an additional removal of 8 outliers from the basic and emotion-based condition each in the coercive group.

Multiple regressions were used to test the ability of the Flexible Connectedness Model to predict: (i.) emotional prosocial tendency, (ii.) altruistic prosocial tendency, and (iii.) the Dark Triad (i.e., Machiavellianism, narcissism, and Psychopathy). Each of the predictor variables (i.e. perspective taking, empathic concern, and experiential avoidance) were entered sequentially to account for the differential effects each variable contributed after controlling for the others. The first sequence included 1 of the 4 possible interpersonal deictic trial totals. In the second sequence, empathic concern scores were entered. Lastly, experiential avoidance scores were entered. This resulted in four different multiple regression outputs (organized by the four different perspective taking tasks) for each of the five criterion variables.

CHAPTER 3 PROSOCIAL BEHAVIOUR AND THE FLEXIBLE CONNECTEDNESS MODEL

3.1 General Introduction

Research on prosocial communities has found that prosocial contexts provide a buffer against stressors and prevent diverse social and intrapersonal problems (Biglan & Embry, 2013; Biglan & Hinds, 2009; Biglan, Flay, Embry, & Sandler, 2012). It has been suggested that prosocial contexts consist of distinct ecologies that: (i.) minimize biological and social toxins; (ii.) promote, teach, and richly reinforce prosociality; (iii.) limit opportunities for antisocial and coercive behaviour and monitor them; and (iv.) cultivate psychological flexibility (Biglan, 2015). Research on prosocial communities has already influenced the course of prevention research for behavioural and psychological disorders (Biglan & Cody, 2013; Biglan, Hayes, & Pistorello, 2008; Wilson, Hayes, Biglan & Embry, 2014), and continues to show that a possible way forward to effective intervention, prevention, and amelioration of various maladaptive social processes is rooted in the pervasive function and context of prosocial behaviour.

One of the functions of prosocial behaviour is to increase future prosocial behaviour, therefore given it's wide-spread effects, understanding how to influence it at the individual level would serve to compliment the current community research, by providing further precision, scope and depth. The following studies will consider a more fine grained approach to understanding the context of the discriminative and establishing operations that influence evoking prosocial behaviour, further extending previous Flexible Connectedness Model and deictics research (Levin, Luoma, Vilardaga, Nobles, & Hayes, in press; Nilsson, Vilardaga, & Nyman, 2015; Vilardaga, Estevez, Levin, & Hayes, 2012).

While the function of prosocial behaviour is often to increase future prosocial behaviour, it can have multiple functions. While altruism and self-regulation appear to be topographically different, they can share prosocial functions, however, in other cases, behaviours may topographically appear to be prosocial, but they have different or additional functions, and different contextual constellations. Research on the development and correlates of prosocial behaviour has predominantly considered prosocial behaviour as a global construct, putting a focus on behavioural topography. However, an interest in better understanding the various types of prosocial behaviours according to contexts and motives has begun to develop, with research showing that different types of prosocial behaviour have distinct personal and situational correlates (Carlo, Eisenberg, Troyer, Switzer, & Speer, 1991; Eisenberg & Fabes, 1998), encouraging a more multidimensional approach to understanding prosocial behaviour.

In the current prosocial studies, we will examine altruistic and emotional prosocial behaviour as measured by the Prosocial Tendencies Measure (PTM; Carlo & Randall, 2002), a multidimensional self-report assessment of six types of prosocial behaviour. The six functionally different types of prosocial behaviours measured in the PTM include: altruistic, emotional, compliant, dire, public, and anonymous prosocial behaviour (Carlo & Randall, 2002), each having uniquely distinct behavioural functions and contexts. *Altruistic* prosocial behaviour is defined by freely volunteering to behave in a way that involves concern and sympathy for the welfare of others (i.e., empathic concern) and as a result of the motivation of this social value, the helper sometimes experiences some kind of cost to helping (Eisenberg & Fabes, 1998; Krebs, 1970). This cost is not typically detrimental or excessive to the helper or person being helped. In contrast to altruistic prosocial behaviour, emotional prosocial behaviour is a general tendency and orientation toward helping others in situations that are highly emotionally

charged and evocative (Carlo & Randall, 2002). The motivation for this prosocial tendency will vary according to a number of different factors, including level of arousal caused by the emotionally evocative situations, the individual's ability to emotionally regulate, and engagement with empathic concern.

The utility in understanding the function and contexts of different types of prosocial behaviours is to ensure future research and interventions are intervening on the most effective mechanisms of change for their actual targeted outcome, and are not inadvertently reinforcing maladaptive social behaviours. For example, pathological altruism is a behavioural repertoire that appears to be topographically prosocial, but is functionally avoidant (Nilsson, Vilardaga, & Nyman, 2015). It consists of self-sacrificing behaviour to increase welfare of others in a way that is insensitive to consequences and context, and as a result is excessive and results in causing harm to self or others (Vilardaga & Hayes, 2011). Research using the Flexible Connectedness Model has been used to better understand the precise, manipulable functional units of the context that influences pathological altruism, and may be helpful in understanding and differentiating the unique functions and behavioural repertoires of emotional and altruistic prosocial tendencies (Nilsson, Vilardaga, & Nyman, 2015).

3.1.1 Flexible Connectedness Model and Prosocial Behaviour

One approach to understanding prosocial behaviour with more depth and precision, is to examine the contextual variables that may influence it. The Flexible Connectedness Model (Vilardaga, Hayes, & Levin, 2014) hypothesizes that the combination of fluent deictic relational responding, empathic concern, and psychological flexibility are key for building and supporting healthy social functioning. The FCM has the added advantage in that all three variables are manipulable and have been shown to be effectively targeted by evidence-based psychological interventions

(Ruiz, 2010; Weil, Hayes, & Capurro, 2011). The Flexible Connectedness Model (FCM) may help to explore potential discriminative and establishing operations that influence different types of prosocial behaviour, or minimally, distinguishing pathological from non-pathologically prosocial behaviours. Previous research has tested the model fit for pathological altruism as suggested by Relational Frame Theory (RFT) and Acceptance and Commitment Therapy (ACT), and found that deictic relational responding, empathic concern, and experiential avoidance all significantly predicted pathological altruism (Nilson, Vilardaga, & Nyman, 2015). Deictic relational ability, empathic concern and experientially avoidance were all found to be positively correlated with pathological altruism. In this study pathological altruism was found to be characterized as consisting of a behavioural repertoire that includes fluent deictic relational responding, high empathic concern, and experiential avoidance.

3.1.1.1 Deictic framing and prosocial behaviour.

While the relationship between perspective taking and prosocial behaviour is well established (Batson, 2002; Davis, 1983; Iannotti, 1985; Underwood & Moore, 1982), minimal empirical research has explored a deictic approach to understanding perspective taking and prosocial behaviour. From an RFT point of view, our experience of self and others is a social byproduct we learn by relating via language (i.e., verbal behaviour; refer to Section 1.4.1 for an overview). Derived relational responding has both advantages and disadvantages. Through the use of derived relations we can understand to avoid or minimize certain dangerous situations without directly experiencing them. We are also able to communicate to one another about the future, allowing for cooperation, prediction and influence. However, the generative nature of relational framing can also increase the pervasiveness of aversive events. When this process occurs with deictics, aversive relationships with self and others can rapidly

generalize (Törneke, 2010). As illustrated from the Flexible Connectedness Model (FCM) study on pathological altruism, deictic ability on it's own does not fully account for the variance in prosocial behaviour, but still is necessary. Various other variables influence whether prosocial behaviour will be evoked, especially in the presence of aversive social events exacerbated by deictic relational responding, including empathic concern and experiential avoidance.

3.1.1.2 Empathic concern and prosocial behaviour.

Previous FCM research has found a negative relationship between empathic concern and social anhedonia (Vilardaga, Estevez, Levin & Hayes, 2012), and generalized prejudice (Levin, Luoma, Vilardaga, Nobles, & Hayes, in press). In those two studies there were also observed deficits in perspective taking ability. As deictic ability increases, so does the ability to more accurately discriminate the thoughts, feelings and experiences of others from personal experience, setting the foundation for empathy (Vilardaga, 2009; Vilardaga, Estevez, Levin & Hayes, 2012). Empathy involves the transformation of emotional functions via deictic relational frames. In addition to this emotion-based deictic ability, there can also be an experienced empathic affect discussed in the FCM literature as empathic concern. Empathic emotional affect has been shown to be a motivator of prosocial behaviour (Preston & de Waal, 2002). While feeling empathic concern for the distress of others may function to motivate others to behave prosocially, it may also motivate others to avoid social situations, behave coercively to decrease their own personal aversive feelings, or in the case of pathological altruism, behave in a way that appears topographically to be prosocial, but is excessively self-sacrificing and can either be functionally antisocial or coercive (Vilardaga & Hayes, 2011).

3.1.1.3 Experiential avoidance and prosocial behaviour.

While basic and emotion-based deictic fluency and empathic concern are key for positive social functioning, they may not always be sufficient for promoting prosocial behavior. In some situations, people will feel personal distress as a result of their empathic concern or as a result of threat to what they perceive a social situation may suggest about their sense of self. In some social situations, people may feel a sense of self threat, and as a result of this threat or intense arousal resulting from empathic concern, they attempt to suppress, change, or alter aversive experiences (Vilaradaga, Estevez, Levin, & Hayes, 2012; Vilardaga & Hayes, 2011). This narrowing behavioural response is referred to as experiential avoidance (Hayes, Wilson, Gifford & Follette, 1996), and is often times ineffective and occurs without sensitivity to the consequences of doing so. The previous FCM research had found that experiential avoidance predicted all three criterions: pathological altruism, social anhedonia and generalised prejudice. This research suggests that having the ability to flexibly relate to aversive negative thoughts and feelings associated with social relationships, is important. Therefore, a functionally adaptive prosocial response, would require that an individual can take the perspective of others accurately in both emotional and less personal contexts and emotionally regulate their own personal experience so that they can effectively respond.

3.1.2 Research aims and hypotheses

The current studies will take a more fine-grained analysis of potential contextual variables influencing emotional and altruistic prosocial behaviour, with an aim to identify precise variables that are manipulable. Further research is required to address if the FCM can help to understand the unique behavioural repretoires of emotional and altruistic prosocial behaviour, and if they are functionally distinct. Previous FCM

studies have used different measures of perspective taking, including a deictics measure of you to you deictic relational responding (Vilardaga, Levin, Hayes, & Estevez, 2012), a deictics measure of I to you deictic relational responding (Nilsson, Vilardaga, & Nyman, 2015), and a global self report measure of participants reporting their perception of their perspective taking abilities (Levin, Luoma, Vilardaga, Nobles, & Hayes, in press). These studies will measure four functionally distinct types of deictic relational responding, including: basic I to you deictic responding, basic you to you deictic responding, and two measures that capture transformation of deictic stimulus functions involving emotions from both I to you and you to you (i.e., empathic ability).

The different types of perspective taking skills required for social behaviour are complex and need to be accounted for to allow for a more precise way of intervening when there are deficits. Current FCM research (Levin et al., in press; Nilsson, Vilardaga, & Nyman, 2015; Vilardaga et al., 2012) has theorized that deictic ability naturally leads to the development of empathic concern, and discusses it as though it is something that one can have a deficit in, like a skill or ability. From an RFT perspective, empathic concern is more likely a measure of social values and social rule governed behaviour that motivates social behaviour. In this case, empathic concern most likely functions as a establishing operation rather than as a discriminative one, like empathic ability would be. In order to account for this distinction, we are measuring both empathic concern as outlined in the previous FCM research for continuity, and are including two measures of deictic-based empathic ability, measuring the ability of shifting perspective from self to other with emotion cues and another task measuring the ability to shift perspective from two others with emotion cues.

The current studies test the Flexible Connectedness Model's scope to predict both emotional and altruistic prosocial behaviour, while exploring four functionally

distinct types of deictic relational responding, including the utility of two new behavioural measures of emotions-based deictic relational responding. Based on the FCM theoretical rationale and previous data, we made several predictions.

First, it is predicted that basic deictic ability (i.e., RFT PT I-You and DRT You-You basic trials), empathic concern, and experiential avoidance will be positively related to emotional prosocial tendency in a functionally similar pattern to what has been observed in the previous FCM pathological altruism study. The strong motivation to help others in emotionally evocative situations, may suggest that those situations cause personal distress through emotional arousal (Carlo & Randall, 2002). If emotional situations are intensely aversive, empathic concern and experiential avoidance will be significant predictors. Second, it was predicted that a negative relationship between emotion-based deictic ability (i.e., RFT PT-E I-You and DRT-E You-You) and emotional prosocial tendency, illustrating difficulty in taking the perspective of others due to the experiential avoidance of personal distress caused by others' emotions.

Third, it was predicted that all four deictic abilities (i.e., basic I-You and You-You trials, and emotion-based I-You and You-You trials) and empathic concern will be positively related to altruistic prosocial behaviour, and negatively related with experiential avoidance. Research has found that those that engage in altruistic prosocial behaviour, are motivated to relieve other's distress for non-egoic reasons (Batson, 1991; Hoffman, 1991), due to empathic concern for them (Batson, Bolen, Cross & Neuringer-Benefiel, 1986; Carlo et al., 1991). Altruistic behaviour has been found to have a strong relationship with self- regulation (Dishion & Connell 2006; Garner, Dishion, & Connell, 2008), making it functionally distinct from other types of prosocial behaviour.

If the Flexible Connectedness Model is supported and has scope with predicting emotional and altruistic prosocial behaviour, it will help to extend on the FCM research

and previous prosocial community research, orienting researchers to more effectively target the context and functions of prosocial behaviour in a way that is precise, generalizable, and has the practical advantages of using brief behavioural measures of various deictic measures.

3.2 Methods Overview

3.2.1 Participants

University students (N= 227) from the University of Wollongong participated in Studies 1 and 2 as a component of their psychology course. A total of n =132 participants were in the basic deictic relational responding condition, and n = 95 participants were in the emotion-based deictic relational responding condition.
A detailed demographic analysis of the participants including sex, age, ethnic ancestry, and parental education can be found in Table 2 in Chapter 2, Section 2.1.2.

3.2.2 Procedure & Measures

Participants were randomly assigned to either the basic deictic relational responding perspective taking tasks condition or the emotion-based deictic relational responding perspective taking task condition. The condition determined which of the four perspective taking tasks the student would complete. In the basic condition, participants completed the Deictic Relational Task (DRT, Vilardaga et al., 2012) and the RFT Perspective Taking Protocol (RFT PT, 2004). In the emotion-based condition, participants completed the Deictic Relational Task - Emotion (DRT-E, Almada & McHugh, 2013) and the RFT Perspective Protocol- Emotion (RFT PT-E, Almada & McHugh, 2013).

In addition to completing the two behavioural perspective taking tasks in their assigned condition, all participants also completed a self report measure of experiential

avoidance (Acceptance and Action Questionnaire, AAQ II; Bond, et al., 2011), a self report measure of empathic concern (Interpersonal Reactivity Index, IRI; Davis, 1983), and a self report measure of prosocial behavior (Prosocial Tendencies Measure, PTM; Carlo & Randall, 2002). All participants completed the study via SurveyMonkey on a computer in their classroom. In-depth procedural and measurement issues are detailed in Chapter 2, Section 2.2 and 2.3.

3.2.3 Data Analytic Strategy

Emotional and altruistic prosocial tendency scores were analysed separately in Study1A-D and Study 2A-D. Participants that had total perspective taking task scores above or below two standard deviations from the mean were excluded as outliers from the final analysis, resulting in the removal of four participants from each condition.

Multiple regressions were used to test the ability of the Flexible Connectedness Model to predict both emotional and altruistic prosocial tendencies. Predictor variables (i.e., perspective taking, empathic concern, and experiential avoidance) were entered sequentially to account for the differential effects each variable contributed after controlling for the others. The order in which the predictor variables were entered was determined through the theoretical and empirical foundations of previous research (Nilsson, Vilardaga, & Nyman, 2015; Levin, Luoma, Vilardaga, Nobles, & Hayes, in press; Vilardaga, Estevez, Levin & Hayes, 2012). To account for the four functionally different deictic relational responding measures, four different multiple regressions were completed for each criterion variable (i.e., emotional and altruistic prosocial tendencies).

3.3 Results

Mean percentages of correctly completed deictic relational responding for each of the four perspective taking tasks totals (i.e., DRT, RFT PT Protocol, DRT-E, and RFT PT Protocol-E) and relevant interpersonal frames, are presented in Table 5 and 6.

Table 5
Flexible Connectedness Model variable means, standard deviations, and percentages based on raw scores for the basic deictic relational responding condition (N=132)

Variable	Statistics
Predictor Variables	
Deictic Relational Responding	
DRT You You Reversal Total (%)	96.40 (±11.19)
DRT Interpersonal Deictics Total (%)	88.64 (±10.18)
DRT Total (%)	90.19 (±8.39)
RFT PT Protocol I You Reversal Total (%)	90.91 (±17.27)
RFT PT Protocol Interpersonal Deictics Total (%)	73.92 (±18.04)
RFT PT Protocol Total (%)	65.814 (±14.48)
Empathic Concern	27.60 (±4.321)
Experiential Avoidance	20.90 (±7.719)
Criterion Variables	
Emotional	14.08 (±3.48)
Altruism	21.41 (±3.07)

Table 6
Flexible Connectedness Model variable means, standard deviations, and percentages based on raw scores for the emotions-based deictic relational responding condition (N=95)

Variable	Statistics
Predictor Variables	
Deictic Relational Responding	
DRT-E You You Reversal Total (%)	96.06 (±10.52)
DRT-E Interpersonal Deictics Total (%)	68.82 (±22.40)
DRT-E Total (%)	60.84 (±16.28)
RFT PT Protocol-E I You Reversal Total (%)	89.47 (±17.71)
RFT PT Protocol-E Interpersonal Deictics Total (%)	62.89 (±19.51)
RFT PT Protocol-E Total (%)	61.52 (±13.37)
Empathic Concern	27.79 (±3.593)
Experiential Avoidance	20.86 (±8.42)
Criterion Variables	
Emotional	13.35 (±3.16)
Altruism	21.09 (±3.10)

3.3.1 Study 1 Emotional Prosocial Tendency

Pearson's correlation coefficients were calculated between all the predictor variables in the model and emotional prosocial tendency scores for both basic and emotion-based deictic relational responding conditions (see Table 7 and 8). A significant correlation was found between emotional prosocial tendency and the DRT You You Reversal trials total: $r = .19$, $p = .05$ in the basic perspective taking task condition. Empathic concern (Basic condition: $r = .32$, $p = .001$; Emotions-based condition: $r = .32$, $p = .001$) and experiential avoidance (Basic condition: $r = .18$, $p = .05$; Emotions-based condition: $r = .27$, $p = .001$) were also found to be significantly correlated with emotional prosocial tendency in both conditions.

Correlations were also calculated between all predictor variables. No perspective taking task trials were significantly correlated with empathic concern or experiential

avoidance in the basic condition. In the emotion condition, RFT Protocol- Emotion I You reversal trials were the only perspective taking task trials that were significantly correlated with experiential avoidance (r = -.235), while no perspective taking measures were significantly correlated with empathic concern. The relationship between empathic concern and experiential avoidance was not statistically significant in either condition.

Table 7
Emotional Prosocial Tendency correlations for basic deictic relational responding condition (N=132)

Variables	1	2	3	4	5	6
1. Emotional Tendency						
2. DRT You You	.189*					
3. DRT Total	.133	.495**				
4. RFT Protocol I You	.041	.175*	.163*			
5. RFT Protocol Total	.090	.148*	.267**	.261*		
6. Empathic Concern	.318**	.038	.056	-.080	.003	
7.Experiential Avoidance	.184*	-.034	-.034	-.103	.013	-.060

*p < .05. **p ≤.001.

Table 8
Emotional Prosocial Tendency correlations for emotions-based deictic relational responding condition (N=95)

Variables	1	2	3	4	5	6
1. Emotional Tendency						
2. DRT-E You You	-.143					
3. DRT-E Total	.076	.225*				
4. RFT Protocol-E I You	-.124	.167	.079			
5. RFT Protocol-E Total	-.047	.043	.452**	.338**		
6. Empathic Concern	.323**	.090	-.001	.011	-.032	
7.Experiential Avoidance	.271**	.105	-.011	-.235*	-.118	.011

*p < .05. **p ≤.001.

3.3.1.1 Study 1A: Deictic Relational Task (DRT) You You Reversal Trials, Basic Deictic Relational Responding Condition.

Overall analysis of the third step of the sequential multiple regression was statistically significant, F (3, 131)=9.26, p < .001, suggesting that the Flexible

Connectedness Model accounts for a statistically significant amount of variance explaining emotional prosocial tendency when accounting for DRT interpersonal You You reversal trials as the measure of perspective taking. In the first step, deictic ability (i.e., DRT You You reversal trials total) accounted for 2.8% of the variance, ΔF (1, 130) = 4.811, p = .05. In the second step, the inclusion of empathic concern to the model accounted for additional unique variance of 10.1%, ΔF (1, 129) = 15.953, p=.001. In the final step, experiential avoidance added 3% to the amount of the variance accounted for by the overall model, ΔF (1, 128) = 5.678, p = .05. Globally, the predictor model variables accounted for 17.8% (15.9% adjusted) for the total variance in the prediction of emotional prosocial tendency, constituting a medium effect size (Cohen, 1992). While a medium effect size was observed in the ability of the model to predict emotional prosocial tendency, it is in a similar range to previous Flexible Connectedness Model research predicting social anhedonia (i.e., 26% global variance), and pathological altruism (i.e., 22% global variance). The individual contribution of each of the predictor variables to the overall model can be found in Table 9.

Table 9
Model summary of regression analysis by blocks of variables predicting emotional prosocial tendency in basic deictic relational responding condition: DRT You You reversal trials (N=132)

Predictors	R^2	Adjusted R^2	ΔF	β	95% CI
Step 1	.036*	.028	4.811		
DRT You You				.189*	[.144,2.79]
Step 2	.142**	.129	15.953		
DRT You You				.201*	[.310,2.82]
Empathic Concern				.326**	[.133,.393]
Step 3	. 178*	.159	5.678		
DRT You You				.189*	[.230,2.70]
Empathic Concern				.337**	[.144,.400]
Experiential Avoidance				.192*	[.015,.158]

*p < .05. **p ≤.001.

3.3.1.2 Study 1B: Relational Frame Theory Perspective Taking (RFT-PT) Protocol I You Reversal Trials, Basic Deictic Relational Responding Condition.

Although the overall analysis of the third step of the sequential multiple regression was statistically significant, F (3, 131)= 7.585, $p < .001$, interpersonal deictic ability as measured by the RFT Protocol (i.e., RFT PT Protocol I You reversal trials total) did not account for a statistically significant amount of the variance. Empathic concern accounted for 9.2%, ΔF (1, 129) = 15.022, $p < .001$, and experiential avoidance added another 3.9%, ΔF (1, 128) = 6.800, $p = .05$, for a total of 13.1% variance. The individual contribution of each of the predictor variables to the overall model can be found in Table 10.

Table 10
Model summary of regression analysis by blocks of variables predicting emotional prosocial tendency in basic deictic relational responding condition: *RFT PT Protocol I You reversal trials (N=132)*

Predictors	R^2	Adjusted R^2	ΔF	β	95% CI
Step 1	.002	-.006	.222		
RFT Protocol I You				.041	[-.666,1.081]
Step 2	.106**	.092	15.022		
RFT Protocol I You				.067	[-.494,1.171]
Empathic Concern				.324**	[.128,.394]
Step 3	. 151**	.131	6.800		
RFT Protocol I You				.090	[-.365,1.274]
Empathic Concern				.338**	[.142,.403]
Experiential Avoidance				.214*	[.023,.170]

*p < .05. **p ≤.001.

3.3.1.3 Study 1C: Deictic Relational Task-E (DRT-E) You You Reversal Trials, Emotion-based Deictic Relational Responding Condition.

Overall analysis of the third step of the sequential multiple regression was statistically significant, F (3, 94)=9.26, $p < .001$, suggesting that the Flexible Connectedness Model accounts for a statistically significant amount of variance explaining emotional prosocial tendency when accounting for DRT-E interpersonal You

You reversal trials as the measure of deictic relational responding. In the first step, deictic ability (i.e., DRT-E You You reversal trials total) accounted for 1% of the variance, ΔF (1, 93) = 1.931, *p* = .168, which was not significant. On it's own, DRT-E You You reversal trials did not account for a statistically significant amount of the variance. When added into the model with empathic concern and experiential avoidance, DRT-E You You reversal trials were found to be significant contributions to the model (β= -.203, p = .05.). Empathic concern accounted for 10.5% of the total variance, ΔF (1, 92) = 12.067, *p* =.001, and experiential avoidance added an additional 7.5% to the amount of the variance accounted for by the overall model, ΔF (1, 91) = 9.568, p = .05. Together, DRT-E You You reversal trials, empathic concern and experiential avoidance accounted for 21.6% (19% adjusted) of the total variance, constituting a medium effect size. The observed effect size is in a similar range to previous Flexible Connectedness Model research ranging from 22- 26% global variance. The individual contribution of each of the predictor variables to the overall model can be found in Table 11.

Table 11
Model summary of regression analysis by blocks of variables predicting emotional prosocial tendency in emotions-based deictic relational responding condition: DRT-E You You reversal trials (N=95)

Predictors	R^2	Adjusted R^2	ΔF	β	95% CI
Step 1	.020	.010	1.931		
DRT–E You You				-.143	[-2.60,.459]
Step 2	.134**	.115	12.067		
DRT-E You You				-.173	[-2.75,.152]
Empathic Concern				.338**	[.127,.467]
Step 3	.216*	.190	9.568		
DRT-E You You				-.203*	[-2.92,-.130]
Empathic Concern				.338**	[.134,.459]
Experiential Avoidance				.289*	[.039,.178]

*p < .05. **p ≤.001.

3.3.1.4 Study 1D: Relational Frame Theory Perspective Taking Protocol-E (RFT PT Protocol-E) I You Reversal Trials, Emotion-based Deictic Relational Responding Condition.

Once again, although the overall analysis of the third step of the sequential multiple regression was statistically significant, F (3, 94)= 6.667, p < .001, deictic ability as measured by the RFT Protocol-E did not account for a statistically significant amount of the variance. Empathic concern accounted for 10%, ΔF (1, 92) = 10.990, p < .001, and experiential avoidance added another 5.3%, ΔF (1, 91) = 6.625, p = .05, for a total of 15.3% variance. The individual contribution of each of the predictor variables to the overall model can be found in Table 12.

Table 12
Model summary of regression analysis by blocks of variables predicting emotional prosocial tendency in emotions-based deictic relational responding condition: RFT PT Protocol-E I You Reversal Trials (N=95)

Predictors	R^2	Adjusted R^2	ΔF	β	95% CI
Step 1	.015	.005	1.459		
RFT Protocol-E: I You				-.124	[-1.464,.356]
Step 2	.121**	.101	10.990		
RFT Protocol-E: I You				-.128	[-1.434,.296]
Empathic Concern				.324**	[.114,.455]
Step 3	.180*	.153	6.625		
RFT Protocol-E: I You				-.069	[-1.170,.558]
Empathic Concern				.321**	[.116,.447]
Experiential Avoidance				.251*	[.022,.167]

*p < .05. **p ≤.001.

3.3.1.5 Study 1A-1D Summary.

Differences were observed between each of the various deictic relational responding measures and their ability to predict emotional prosocial tendency within the Flexible Connectedness Model. Both the basic and emotions-based Deictic Relational Task (DRT) You You reversal trials accounted for a statistically significant amount of

the variance within the model, whereas the basic and emotions-based Relational Frame Theory PT Protocol measures did not. Empathic concern and experiential avoidance were found to significantly predict emotional prosocial tendency across both conditions, with empathic concern accounting for 9-10.5% of the total variance, and experiential avoidance accounting for 3-7.5% of the total variance. See Table 13 for an overview of Study 1A-1D data.

Table 13
Summary of emotional prosocial tendency model regression data for Study 1A-1D

	Deictic Relational Responding	Empathic Concern	Experiential Avoidance
Basic Condition: DRT You-You	β= .189*	β= .337**	β=.192*
Basic Condition: RFT PT Protocol I You	β= .090 ns	β= .338**	β= .214
Emotions-based Condition: DRT You-You	β= -.203*	β= .338**	β= .289*
Emotions-based Condition: RFT PT Protocol-E I You	β= -.069 ns	β= .321 **	β= .251*

*p < .05. **p ≤.001.
ns= non-significant

3.3.2 Study 2 Altruistic Prosocial Tendency

Pearson's correlation coefficients were calculated between all the predictor variables in the model and altruistic prosocial tendency scores for both basic and emotion-based deictic relational responding conditions (see Table 14 and 15). No significant relationships were observed between altruistic prosocial tendency and any of

the basic deictic relational responding measures in the basic condition. In the emotions-based deictic relational responding condition, the DRT-E You You reversal trials total was found to be significantly correlated with altruistic prosocial tendency (r= .281, p = .001). Empathic concern was significantly correlated with altruistic prosocial tendency in both conditions (Basic condition: r = .270, p = .001; Emotions-based condition: r = .395, p = .001), and experiential avoidance (r = -.194, p = .05) was unexpectedly found to be significantly correlated only in the basic perspective taking task condition. Correlations were also calculated between all predictor variables for both conditions and can be found earlier in the chapter in Table 7 and 8.

Table 14
Altruistic Prosocial Tendency correlations for basic deictic relational responding condition (N=132)

Variables	r
DRT You You	.032
DRT Total	-.009
RFT PT Protocol I You	.060
RFT PT Protocol Total	-.041
Empathic Concern	.270**
Experiential Avoidance	-.194*

*p < .05. **p ≤.001.

Table 15
Altruistic Prosocial Tendency correlations for emotions-based deictic relational responding condition (N=95)

Variables	r
DRT-E You You	.281**
DRT-E Total	.034
RFT PT Protocol E I You	-.122
RFT PT Protocol E Total	-.042
Empathic Concern	.395**
Experiential Avoidance	.011

*p < .05. **p ≤.001.

3.3.2.1 Study 2A: Deictic Relational Task (DRT) You You Reversal Trials, Basic Deictic Relational Responding Condition.

Although the third step of the sequential block multiple regression was statistically significant, F (3, 131)=5.137, $p < .05$, deictic ability as measured by the interpersonal DRT You You reversal trials (i.e., DRT You You) did not account for a statistically significant amount of the variance. Empathic concern accounted for 6.0%, ΔF (1, 129) = 10.235, $p < .05$, and experiential avoidance added another 2.7%, ΔF (1, 128) = 4.733, $p = .05$, for a total of 8.7% variance. The individual contribution of each of the predictor variables to the overall model can be found in Table 16.

Table 16
Model summary of regression analysis by blocks of variables predicting altruistic prosocial tendency in basic deictic relational responding condition: DRT You You Reversal Trials (N=132)

Predictors	R^2	Adjusted R^2	ΔF	β	95% CI
Step 1	.001	-.007	.134		
DRT You You				.032	[-.970,1.41]
Step 2	.074*	.060	10.235		
DRT You You				.042	[-.860,1.44]
Empathic Concern				.271*	[.074,.312]
Step 3	.107*	.087	4.733		
DRT You You				.054	[-.763,1.51]
Empathic Concern				.261*	[.608,.303]
Experiential Avoidance				-.182*	[-.139,-.007]

*p < .05. **p ≤.001.

3.3.2.2 Study 2B: Relational Frame Theory Perspective Taking Protocol (RFT-PT) I You Reversal Trials, Basic Deictic Relational Responding Condition.

Overall analysis of the third step of the sequential block multiple regression was statistically significant, F (3, 131)=5.190, $p < .05$. Deictic ability as measured by the RFT Protocol I You reversal trials, did not account for a significant statistically amount of the variance. Empathic concern accounted for 6.5%, ΔF (1, 129) = 10.615, $p < .001$, and experiential avoidance added another 2.3%, ΔF (1, 128) = 4.733, $p = .05$, for a total

of 8.8% variance. The individual contribution of each of the predictor variables to the overall model can be found in Table 17.

Table 17
Model summary of regression analysis by blocks of variables predicting altruistic prosocial tendency in basic deictic relational responding condition: RFT Protocol I You Reversal Trials (N=132)

Predictors	R^2	Adjusted R^2	ΔF	β	95% CI
Step 1	.004	-.004	.467		
RFT Protocol I You				.060	[-.504,1.036]
Step 2	.079**	.065	10.615		
RFT Protocol I You				.082	[-.381,1.110]
Empathic Concern				.276**	[.077,.315]
Step 3	.108*	.088	4.180		
RFT Protocol I You				.063	[-.459,1.022]
Empathic Concern				.264*	[.070,.306]
Experiential Avoidance				-.172*	[-.135,-.002]

*p < .05. **p ≤.001.

3.3.2.3 Study 2C: Deictic Relational Task-Emotion (DRT-E) You You Reversal Trials, Basic Deictic Relational Responding Condition.

Although the overall analysis found the final step of the model to be statistically significant, F (3, 94)=8.395, p<.001, experiential avoidance did not contribute to the observed model variance of 19.1% (see Table 18). Deictic ability (DRT-E You You Reversal trials) accounted for 6.9%, and empathic concern contributed an additional 13%.

Table 18
Model summary of regression analysis by blocks of variables predicting altruistic prosocial tendency in emotions-based deictic relational responding condition: DRT-E You You Reversal Trials (N=95)

Predictors	R^2	Adjusted R^2	ΔF	β	95% CI
Step 1	.079*	.069	7.973		
DRT-E You You				.281*	[.612,3.52]
Step 2	.216**	.199	16.133		
DRT-E You You				.247*	[.466,3.18]
Empathic Concern				.372**	[.162,.480]
Step 3	.217	.191	.044		
DRT-E You You				.249*	[.467,3.21]
Empathic Concern				.372**	[.161,.480]
Experiential Avoidance				-.020	[-.075,.061]

*p < .05. **p ≤.001.

3.3.2.4 Study 2D: Relational Frame Theory Perspective Taking Protocol-Emotion (RFT PT Protocol-E): I You Reversal Trials, Basic Deictic Responding Condition.

The analysis of the third step of the sequential block multiple regression was statistically significant, F (3, 94)=6.313, p =.001, but only the empathic concern variable contributed to this outcome, accounting for 15.4% of variance alone and therefor inflating the contribution of the entire model. The amount of variance accounted for by each variable entered into the model is included in Table 19.

Table 19
Model summary of regression analysis by blocks of variables predicting altruistic prosocial tendency in emotions-based deictic relational responding condition: RFT Protocol-E I You Reversal Trials (N=95)

Predictors	R^2	Adjusted R^2	ΔF	β	95% CI
Step 1	.015	.004	1.410		
RFT Protocol-E: I You				-.122	[-1.428,.359]
Step 2	.175**	.154	17.410		
RFT Protocol-E: I You				-.126	[-1.378,.271]
Empathic Concern				.396**	[.179,.504]
Step 3	.172	.145	.063		
RFT Protocol-E: I You				-.132	[-1.431,.274]
Empathic Concern				.396**	[.178,.505]
Experiential Avoidance				-.025	[-.081,.063]

*p < .05. **p ≤.001.

3.3.2.5 Study 2A-2D Summary.

Empathic concern was the only variable in the model that consistently predicted altruistic prosocial tendency, accounting for 6.0 - 15.4% of the variance. Differences were observed between each of the various deictic relational responding measures and their ability to predict altruistic prosocial tendency, with the emotions-based Deictic Relational Task-E You You reversal trials being the only measure to account for a statistically significant amount of the variance within the model. Experiential avoidance was found to be a statistically significant predictor only in the basic condition, possibly in part due to a smaller sample size in the emotions condition (*n* = 95). See Table 20 for an overview of Study 2A-2D data.

Table 20
Summary of altruistic prosocial tendency model regression data for Study 2A-2D

	Deictic Relational Responding	Empathic Concern	Experiential Avoidance
Basic Condition: DRT You-You	β= .054 ns	β= .261*	β= -.182*
Basic Condition: RFT PT Protocol I You	β= .063 ns	β= .264**	β= -.172*
Emotions-based Condition: DRT You-You	β= .249*	β= .372**	β= -.020 ns
Emotions-based Condition: RFT PT Protocol-E I You	β= -.132 ns	β= .396**	β= -.025 ns

*p < .05. **p ≤.001.
ns= non-significant

3.4 Discussion

Studies 1A-1D and 2A-2D suggest that the various forms of basic and emotions-based You-You and I-You deictic relational responding, empathic concern, and experiential avoidance may play a role in emotional and altruistic prosocial tendencies, each consisting of uniquely different behavioural repertoires. For both criterion variables, empathic concern served as a statistically significant predictor, with increased empathic concern being related to higher levels of prosocial behaviour for both criterion variables, whereas the relationships with experiential avoidance and deictic relational responding were more complex and varied (see Tables 13 and 20 for study data summaries for each criterion variable).

3.4.1 Emotional Prosocial Tendency and the Flexible Connectedness Model

Differences were observed between each of the various deictic relational responding measures and their ability to predict emotional prosocial tendency. Neither version of the RFT PT Protocol I You reversal deictic trials significantly predicted emotional prosocial tendency, while both basic and emotions-based DRT You You reversal deictic trials contributed to the Flexible Connectedness Model fit and scope for better understanding functional components of emotional prosocial tendency. Empathic concern and experiential avoidance were both found to significantly predict emotional prosocial tendency, with empathic concern accounting for most of the variance observed within the model (see Tables 9-12 for data of overall model fit and individual contribution of each of the predictor variables). When accounting for DRT You You and DRT-E You You trials as measures of deictic ability, the predictor model variables globally accounted for 17.8% (DRT You-You) and 21.6% (DRT-E You-You) of the total variance in the prediction of emotional prosocial tendency, constituting a medium effect size (Cohen, 1992). The current observed effect sizes were within a similar range to previous Flexible Connectedness Model research predicting social anhedonia (i.e., 26% global variance), and pathological altruism (i.e., 22% global variance).

3.4.1.1 Does Deictic Relational Responding Predict Emotional Prosocial Tendency?

The role of deictic relational responding in predicting emotional prosocial tendency varied depending on what type of deictic relational responding was being analysed within the model. Neither basic or emotion based RFT PT Protocol I You reversal trials significantly predicted emotional prosocial tendency. While the basic DRT You You reversal trials were the only type of deictic relational responding to be significantly correlated with emotional prosocial tendency and significantly predicting

emotion prosocial tendency independently of the other FCM predictor variables (ΔF (1, 130) = 4.811, p = .05), both the basic and emotion-based condition DRT You You reversal trials significantly predicted emotional prosocial tendency, when entered into the Flexible Connectedness Model. It is possible that a significant correlation was not found between emotional prosocial tendency and the DRT-E You You trials due to a conservative sample size of n= 95 within the emotion-based deictic relational responding condition. Interestingly, the data show that basic DRT You You reversal trials are positively correlated with emotional prosocial tendency, while emotion-based DRT-E You You reversal trials are negatively correlated with emotional prosocial tendency. To use non-technical language, emotional prosocial tendency involves a fluent ability to take the perspective of two others, unless it involves being asked to accurately take the perspective of others' emotions.

3.4.1.2 Does Empathic Concern Predict Emotional Prosocial Tendency?

The role of empathic concern in predicting emotional prosocial tendency was consistent, accounting for 9-10.5% of total variance within the model. As expected, when empathic concern scores increased, so did emotional prosocial tendency.

3.4.1.3 Does Experiential Avoidance Predict Emotional Prosocial Tendency?

The role of experiential avoidance in predicting emotional prosocial tendency was consistent, accounting for 3-7.5% of total variance within the model. Contrary to expectations, higher experiential avoidance scores were found to predict higher emotional prosocial tendency scores.

3.4.1.4 Study Implications.

The Flexible Connectedness Model did have scope with predicting emotional prosocial tendency when accounting for You-You reversal deictic trials as measured by

the DRT and DRT-E. While I-You reversal deictic trails and emotional prosocial tendency were positively correlated with each other it was not a significant relationship, and the I-You reversal deictic trails in both conditions did not add to the observed model total variance. Considering the I-You reversal deictic trials are less complex than You-You deictic trials and theoretically necessary for the development of You-You deictic ability (Stewart & McHugh, 2013), it was expected that there would also be a significant positive correlation with emotional prosocial tendency, and like the You-You deictic trials, contribute to the model variance. It could be that there is minimum accuracy and fluency criteria that needs to be met for these types of prosocial behaviours to develop, which would not be captured when using multiple regression. It's also possible that developmental requirements for more advanced behaviour such as emotional prosocial tendency do not necessarily add to what makes a specific behaviour distinct from others. For example, other developmental prerequisites such as mutually responsive orientation and joint attention (Novak, 2012) were not measured in this study and were not considered to be essential for better understanding the unique behavioural repertoires that influence emotional prosocial tendency. This was not because joint attention is not necessary for the development of emotional prosocial tendencies, but because it is not a variable that would distinguish it from altruistic prosocial tendency or any other related prosocial behaviours.

The role of the You-You reversal deictic trials showed distinct patterns, where emotional prosocial tendency was predicted by increases in DRT You-You reversal deictic trials and decreases in emotions-based DRT-E You-You reversal trials. Participants that have an emotional prosocial tendency, are fluent in taking the perspective of others, but struggle when that involves emotions. The complexity of these findings are better understood when considering the additional role experiential

avoidance plays in predicting emotional prosocial tendency. Emotional prosocial tendency is predicted by higher levels of experiential avoidance. Within the context of the Flexible Connectedness Model data in Study1A-1D, emotional prosocial tendencies are predicted by deficits in taking the perspective of others in emotional situations, while expressing high empathic concern and being experientially avoidant.

The FCM predictor variables' patterns in predicting emotional prosocial tendency mimic what was observed in a previous study testing the ability of the FCM to predict pathological altruism (Nilsson, Vilardaga, & Nyman, 2015), with the exception that the pathological altruism study measured deictic relational responding by measuring I-You reversal trials only. It is possible that there may have been some participants who meet criteria for engaging in pathological altruism, and have confounded the emotional prosocial tendency results, or emotional prosocial tendency may be a more benign form of pathological altruism. Although the pathological altruism study did not test for DRT You You ability or DRT-E You You ability, the simpler and more basic I You deictics were found to predict pathological altruism, while they did not predict emotional prosocial tendency in our study, which may suggest I You deictic fluency is a functional distinction marker between pathological altruism and emotional prosocial tendency.

While deictic repertoires may vary between both types of prosocial behaviour, they both appear to involve experiential avoidance. Previous studies have suggested that experiential avoidance is due to a lack of contextual control of the transformation of emotion functions of a deictic framing repertoire between I to you (Nilsson, Vilardaga, & Nyman, 2015; Levin, Luoma, Vilardaga, Nobles, & Hayes, in press; Vilardaga, Estevez, Levin & Hayes, 2012). In nontechnical language, individuals try to minimize aversive feelings they have as a reaction to empathizing with someone else's emotional

experience, due to a lack of psychological flexibility. The deficit in DRT-E You You deictic ability observed in emotional prosocial tendency, may suggest that the source of emotional discomfort participants are avoiding may not be influenced by the emotional responses of others. If this is not the case, the source of emotional discomfort can possibly be accounted for by perceived threat to conceptualized self causing experiential avoidance in social situations and therefor, paralleling pathological altruistic-type behaviours. Previous contextual behavioural science theoretical accounts have discussed the possible role of threats to conceptualized self influencing the increased change of certain individuals with underdeveloped psychological flexibility, to fight to retain their self image at their expense or the expense of others (Roger & Hayes, 2011; McHugh, 2015). For example, they may have the thought, "If I don't help, what does that say about me? If I don't help in that means I'm a bad person. I will help even if my help is unwelcome or will harm me or others. The consequence doesn't matter as much as how I see myself does." Future research would benefit from exploring how individuals relate to their self concept to better understand the function of their empathic concern and experiential avoidance.

3.4.2 Altruistic Prosocial Tendency and the Flexible Connectedness Model

The emotions-based Deictic Relational Task-E You You reversal trials was the only measure of deictic relational responding to account for a statistically significant amount of the variance within the model. Similar to what was observed with emotional prosocial tendency, empathic concern accounted for the largest amount of the total predicted variance for explaining altruistic prosocial tendency within the model. Unexpectedly, experiential avoidance was found to be a statistically significant predictor only in the basic deictic relational responding condition, most likely due to

smaller sample size in the emotions-based condition (n = 95). See Tables 16-19 for data of overall model fit and individual contribution of each of the predictor variables.

3.4.2.1 Does Deictic Relational Responding Predict Altruistic Prosocial Tendency?

The DRT-E You You Reversal trials were the only deictic type that successfully predicted altruistic prosocial tendency scores, accounting for 6.9% of the observed total model variance, and were found to be positively correlated with altruistic prosocial tendency. According to this finding, altruistic prosocial tendency may involve the ability to take the perspectives of others emotions via deictic relational responding.

3.4.2.2 Does Empathic Concern Predict Emotional Altruistic Prosocial Tendency?

Empathic concern was significantly correlated with altruistic prosocial tendency (Basic condition: r = .270, p = .001; Emotions-based condition: r = .395, p = .001). Similar to what was found with the emotional prosocial tendency data, the role of empathic concern in predicting altruistic prosocial tendency was consistent, accounting for 6-15% of total variance within the model. As expected, when empathic concern scores increased, so did altruistic prosocial tendency.

3.4.2.3 Does Experiential Avoidance Predict Altruistic Prosocial Tendency?

Unexpectedly, the role of experiential avoidance in predicting altruistic prosocial behaviour was inconsistent. In the basic deictic relational responding condition, experiential avoidance was significantly correlated with altruistic prosocial tendency (r = -.194, p = .05) and accounted for 3-7.5% of total variance within the model. In the emotions-based condition, a negative correlation between experiential avoidance and altruistic prosocial tendency was still observed, but the relationship was

not statistically significant. This discrepancy between conditions may be due to the smaller sample size in the emotions-based condition (n = 95).

3.4.2.4 Study Implications.

While the Flexible Connectedness Model did not successfully predict an altruistic prosocial tendency, all three predictor variables did uniquely predict altruistic prosocial tendency. In regard to deictic relational responding ability, the DRT-E You You reversal trials were positive correlated with altruistic prosocial tendency and accounted for 6.9% observed variance. Altruistic prosocial behaviour was therefor predicted by the ability to accurately take the perspective of others and their emotions, unlike emotional prosocial tendency that was predicted by deficits in this ability. No other deictic relational responding measures were significantly correlated with or predicted altruistic prosocial behaviour.

The complexity of these findings when examined in the larger context of previous research using the FCM to understand pathological altruism (Nilsson, Vilardaga, & Nyman, 2015) and the current emotional prosocial tendency research (i.e., Study1A-1D), is better understood when exploring the varied role experiential role plays in these various types of prosocial behaviour. Altruistic prosocial behavior is distinctly predicted by decreased experiential avoidance. Although this relationship was only observed in the basic deictic relation responding condition, this is most likely due to smaller sample size in the emotion-based condition. Future research will need to further explore these findings using larger sample sizes. Within the context of the Flexible Connectedness Model data in Study 2A-2D, an altruistic prosocial tendency is predicted by increased ability to take the perspective of others in emotional situations, while expressing high empathic concern and being psychologically flexible.

Since both emotional and altruistic prosocial tendency were both positively correlated with and predicted by empathic concern, there may be an additional variable not accounted for that mediates the relationship between experiential avoidance and these various prosocial behaviours, explaining the difference observed between the two groups. Flexibility with self concept may mediate the relationship between experiential avoidance and prosocial behaviour, and may explain the difference in the relationship between experiential avoidance and altruistic prosocial tendency, as compared to emotional prosocial tendency. Increased psychological flexibility may provide the ability to accept any experiences that may be aversively associated with an individual's self concept, or facilitate acceptance with a negative self concept. Future research should consider the role of self concept in better understanding the relationship between different types of prosocial behaviour and experiential avoidance.

3.4.3 Limitations and Future Directions

These studies had a number of important strengths and unique contributions including the use of four functionally distinct behavioural measures of perspective taking, accounting for a varied range of previously untested types of deictic relational responding. No previous research has measured a RFT approach to emotions based perspective taking, providing the most fine-grained analysis of deictic relational responding to be empirically tested. These four types of deictic relational responding produced different patterns of responses among participants between the two criterion variables, illustrating the utility in accounting for different levels of functional complexity and processes (i.e. basic vs. emotions-based).

There are limitations to this study, and further research is required to address a number of questions arising from the project. First, our sample size was not large, especially for the emotions-based condition. The emotions-based condition only had 95

participants potentially leaving significant findings latent, possibly explaining the discrepancy of finding a significant relationship between experiential avoidance and altruistic prosocial tendency in the basic condition, but not in the emotions-based condition. Second, given our emotional prosocial tendency data, future research should control for pathological altruism to account for any possible confounds and confirm functional differences. Third, within the context of considering the pathological altruism FCM research and the current FCM prosocial studies, better understanding and accounting for a RFT approach to self concept would be useful to parse the differences observed in experiential avoidance between the different criterion variables. Finally, while the more foundational basic and emotions-based RFT PT Protocol I You trials did not account for predicting emotional or altruistic prosocial tendency, they may be helpful in understanding coercive behaviours that may result as an effect of deictic relational deficit rather than fluency. Inclusion of the I-You trials is also important for design consistency and to further test the various types of measured deictic relational responding and social behaviour.

3.4.3 Conclusions

The current studies add to the research literature by indicating that accounting for deictic relational responding, empathic concern, and experiential avoidance as functional units, can be a more precise and productive way to influence various forms of prosocial behaviour. Studies 1A-1D and 2A-2D tested the scope of the Flexible Connectedness Model to predict emotion and altruistic prosocial tendency, and have found mixed results, resulting in making progress on refining a more precise Relational Frame Theory approach to understanding social connection. In the next chapter we will utilize the same design to test the scope of the FCM to predict various coercive behaviours.

CHAPTER 4 COERCIVE BEHAVIOUR AND THE FLEXIBLE CONNECTEDNESS MODEL

4.1 General Introduction

Research has suggested that a wide range of diverse psychological and behavioural problems are interrelated (Biglan, Brennan, Foster, Holder, & Miller, 2004). There is comprehensive evidence (Biglan et al., 2004) that a major factor that connects all these varied behaviours together (i.e., aggressive social behaviour, drug abuse, risky sexual behviour, depression, etc.) is the coercive functions they share, and the coercive environments that produce and reinforce them (Biglan & Hinds, 2009). One of the behavioural functions of coercive behaviour is to decrease aversive behaviours in others, by behaving aversively. The contextual functions regarding the consequence of coercive behaviours, is to reinforce the probability of coercion being evoked in the future under similar conditions or with the same person. What coercive behaviour looks like topographically changes from situation to situation, but it can consist of a wide range of behaviours as long as they function to reduce aversive behaviours in others.

As a result of coercion's reinforcing properties, coercive environments are especially problematic. For example, children who are raised within coercive family dynamics, will more likely develop aggressive behaviour, due to (i.) the environment reinforcing it's effectiveness (Patterson, Reid & Dishion, 1992), and (ii.) the child not having access to other types of behaviours being modeled for them, resulting in a narrowed behavioural repertoire. Within coercive environments, there are limited or no discriminative or motivational stimuli present, to either signal or influence prosocial

behaviours. Prosocial behaviour is either not modeled, or not effective within these environments.

Coercive environments are stressful and threatening, and can be understood through the lens of evolutionary adaptations (Ellis, Deli Guidice, Dishion, Figuerado, Gray, Griskeivius, et al., 2011; Ellis & Bjorkland, 2012). Within harsh, frequently aversive and unpredictable environments (similar to coercive contexts), it is effective to counter-aggress in order to cope and survive (Wilson & Csikszentmihalyi, 2007). Unfortunately, coercive behaviour that has been so richly reinforced within these types of strongly aversive environments, often generalizes to situations where behaving coercively is not appropriate or effective. For example, children who have coercive home environments struggle to discriminate the differences between what works at home and how to behave socially at school, therefore they continue to behave coercively in the classroom, and as a result frequently experience social rejection from their peers (Dishion & Patterson, 2006; Dishion, Patterson & Griesler, 1994). Unfortunately this social rejection does not often function to decrease coercive behaviour, because these children have not developed the needed emotional self regulation skills or prosocial repertoires necessary to behave in a flexible and agile way, and as a result develop friendships with children who are similarly coercive or socially rejected (Dishion et al., 1994).

Research has focused predominantly on the effects of influencing the prevalence of coercive environments and their associated behavioural repertoires, through the development of creating nurturing, prosocial communities (Biglan, 2015). What makes a nurturing community a functionally distinct behavioural ecology from coercive communities, is it's ability to: minimize biological and social toxins, reinforce prosocial behaviour, limit opportunities for coercive behaviour, and foster psychological

flexibility (Biglan & Embry, 2013; Biglan, Flay, Emrby & Sandler, 2012; Biglan & Hinds, 2009). While this research has already affected the course of prevention research for influencing coercive social environments (Forgatch, Patterson, DeGarmo & Beldays, 2009; Martinez & Forgatch, 2001; Patterson, Forgatch, and DeGarmo, 2010), a possible way forward to developing more precise and effective intervention, prevention, and amelioration of various maladaptive social processes, could be explored in better understanding the functional units of behaviour that influence whether or how coercive behaviour is evoked. While current research accounts for the function of coercive behaviour, it has not fully accounted for the function of the context in which it occurs. As discussed in Chapter 1 (see Section 1.2), a functional analysis comprises of the function of the target behaviour, and the function of the behaviour's context. While research has accounted for how coercive behaviour is reinforced (i.e., consequence), information detailing the discriminative and motivational functions that influence coercion are not as well understood.

While the primary function of coercive behaviour is to decrease others aversive behaviour, while punishing the future probability of engaging in prosocial behaviour, it can still have multiple other functions. As previously discussed, behaviours that look different topographically may share the same function, but it is also possible that behaviours that topographically appear to have coercive functions, do not, and have completely distinct contextual constellations. Lastly, it is also possible that behaviours that share the same function, have completely distinct contextual functions (i.e., antecedents and consequences). Understanding these varied contextual constellations allows for a more fine grained and precise approach to influence evoking specific types of coercive behaviours. For example, previous research using the Flexible Connectedness Model (FCM) has found several different contextual ecologies

consisting of different levels of deictic ability, empathic concern, and psychological flexibility in different behaviours that serve social functions (i.e., social anhedonia; Vilardaga, Estevez, Levin & Hayes, 2012, generalized prejudice; Levin, Luoma, Vilardaga, Nobles, & Hayes, in press, and pathological altruism; Nilsson, Vilardaga, & Nyman, 2015). In the last chapter, we extended the Flexible Connectedness Model (FCM) research by examining two additional types of prosocial behaviour, and observed unique contextual functions for deictic ability and experiential avoidance, between emotional and altruistic prosocial behaviour (see Section 3.3).

Previous research on the development and correlates of coercive behaviour has predominantly focused on global personality factors, and has not explored the more specific and precise manipulable variables accounted for by understanding the discriminative and motivational functions of coercive behaviour. Recently, a subset of social psychology and personality literature has shown a marked shift of interest in better understanding various types of coercive behaviours according to their shared behaviour functions and varied functional contexts (Furnham, Richards, & Paulhus, 2013).

Paulus and Williams (2002) have suggested measuring various coercive behaviours together in the general population, in order to clarify their distinctiveness by conceptualizing the Dark Triad. The Dark Triad consists of three socially-aversive, sub-clinical "personalities"- namely, narcissism, Machiavellianism, and psychopathy (Paulhus & Williams, 2002). While topographically they share a common callous manipulation (Jones & Figueredo, 2012), all three exhibit distinct behavioural functions and contexts, illustrating the utility to taking a multidimensional approach to understanding coercive behaviour (Jones & Paulhus, 2014; Paulhus & Williams, 2002). Within the subclinical conceptualization of the Dark Triad, what makes narcissism

distinct from Machiavellianism and psychopathy, is the focus on ego-promoting outcomes via grandiosity, entitlement, dominance and superiority (Jones & Paulhus, 2010; Paulhus & Williams, 2002). Machiavellianism is uniquely characterized by manipulation via planning, coalition formation, and reputation building (Jones & Paulhus, 2011a), in direct contrast to psychopathy being distinguished by a tendency to engage in reckless and impulsive antisocial behaviour (Jones & Paulhus, 2011b).

While the current Dark Triad research has noted differences between narcissism, Machiavellianism, and psychopathy, exploring potential manipulable psychological processes has not yet been considered. Research using the Flexible Connectedness Model (FCM) has been used to better understand the precise, manipulable functional units that influence several other maladapative behaviours, including generalized prejudice, pathological altruism, and social anhedonia, (Levin, Luoma, Vilardaga, Nobles, & Hayes, in press; Nilson, Vilardaga, & Nyman, 2015; Vilardaga, Estevez, Levin & Hayes, 2012). Given its sensitivity to discriminate functional differences between social behaviours, the model may be helpful in understanding and differentiating the unique functions and behavioural repertoires of the Dark Triad. The following studies will test the scope of the Flexible Connectedness Model's ability to better understand potential manipulable discriminative and motivational antecedents that may influence evoking narcissism, Machiavellianism and psychopathy.

4.1.1 Flexible Connectedness Model and Coercive Behaviour

The Flexible Connectedness Model (FCM; Vilardaga, Hayes, & Levin, 2014) proposes that deictic relational responding, empathic concern, and psychological flexibility are key to understanding maladaptive social behaviour (Levin, Luoma, Vilardaga, Nobles, & Hayes, in press; Nilson, Vilardaga, & Nyman, 2015; Vilardaga, Estevez, Levin & Hayes, 2012). When utilizing the model to predict social anhedonia

(Vilardaga, Estevez, Levin & Hayes, 2012) and generalized prejudice (Levin, Luoma, Vilardaga, Nobles, & Hayes, in press), deficits in deictic ability, decreased empathic concern, and high levels of experiential avoidance were observed. A unique constellation was found when using the Flexible Connectedness Model to predict pathological altruism, finding a positive relationship with deictic ability, empathic concern, and experiential avoidance (Nilson, Vilardaga, & Nyman, 2015). In the last chapter we also observed distinctive behavioural patterns between emotional and altruistic prosocial behaviour as accounted for by the Flexible Connectedness Model, with emotional prosocial behaviour showing patterns parallel to previous pathological altruism research and altruistic prosocial behaviour showing distinct deictic fluency in emotions-based perspective taking and marked psychological flexibility (see Section 3.3). The varied results across different adaptive and maladaptive social behaviours suggests an ability for the model to discriminate unique functional contexts.

4.1.1.1 Deictic framing, empathic concern, and coercive behaviour.

Deictic deficits have been observed in Autism Spectrum Disorder (Rehfeldt, Dillen, Ziomek, & Kowalchuk, 2007), schizophrenia (Villate, Monesttes, McHugh, Freiza I Baque, & Laos, 2010), and social anhedonia (Villardaga, Estevez, Levin, & Hayes, 2012; Villate, Monestez, McHugh, Freixa I Baque, and Laos, 2008).When perspective taking skills fail to develop or are not well developed, there are impairments in the development of self and how the self relates to others. Deictics cannot be traced to physical properties, which demands a rich and varied socioverbal environment to provide accurate demonstration and multiple exemplars of the full deictic repertoire involving the development of self and construction of other. There are a wide range of variables that can theoretically impede deictic development and fluency in otherwise neurotypical populations, including neglect or uninvolved parenting, authoritarian

parenting, and permissive parenting. In the case of neglect, the multiple exemplars necessary for deictic development are not present. With authoritarian or abusive parents, children can be taught to self-reference in regard to their parent, causing confusion with their development of self concept and their ability to accurately track their own private experiences (i.e., thoughts, feelings, etc.). In regard to permissive parenting, parents may not accurately shape deictic responding by avoiding appropriate and frequent feedback, as to avoid potential conflicts caused by giving the necessary critical feedback. This could result in a deictic repertoire characterized by rigid self concept and dominant self-referencing, because the child was not cued to track the behaviour of others and learn to relate to others' unique perspective.

The relationship between perspective taking and the Dark Triad is both varied and unclear. The vast majority of the literature relating to perspective taking with the Dark Triad, has focused on differences in cognitive empathic ability and affective empathic concern (Wai & Tiliopoulos, 2012). While it is generally thought that the manipulative ability of the various coercive behaviours of narcissism, Machiavellianism, and psychopathy is a result of advanced perspective taking skills, this is most likely not the case. Research illustrating differential levels of perspective taking, empathy, and self awareness suggests that between these three coercive behaviours, there is have a basic perspective taking ability that is developed just enough for them to manipulate others, especially within the context of their comparatively short-term goals within social interactions (Jonason, Li, Webster, & Schmitt, 2009). Wai & Toliopoulos (2012) have argued:

> Individuals high on the dark triad traits appear to exhibit an empathic profile that allows them to retain their ability to read and assess others' emotions, and subsequently utilise this sensitive information to formulate strategies with which they can acquire what they want, while their lack of affective empathy may lead

them to overlook or ignore potential harm inflicted to others in the process. (p.736)

Black, Woodworth, and Porter (2013) found that each of the Dark Triad members had impairments in accurately assessing features in others, relying on limited evaluative cues and self reported 'intuition.' They also engaged in a superficial analysis of other's vulnerabilities, utilizing a 'negative other' heuristic in which all others are perceived as weak and vulnerable. This is consistent with previous research that has also observed a negative other bias, in which the Dark Triad members evaluate all targets negatively (Back, Schmukle, & Egloff, 2011).

The Dark Triad is characterized by compromised and dysfunctional morality (Campbell et al., 2009; Glenn, Iyer, Graham, Koleva, & Haidt, 2009). Extending the previous 'other bias' research, Jonason, Strosser, Kroll, Duineveld and Baruffi (2015) have examined how the interpersonal styles of the Dark Triad differ in regard to valuing self over others in regard to moral and social values. Narcissism was found to be related to socially desirable value systems. The authors argue this is a part of the narcissist's tendendency to posture themselves to gain social approval (Raskin & Terry, 1988). Narcissism was also associated with individualistic values via self-enhancement. Psychopathy scores demonstrated a lack of concern for all moral functions, while Machiavellianism was characterized by moral flexibility (i.e, willingness to compromise values for other gains such as money).

What distinguishes these various coercive behaviours from more adaptive social behaviour, appears to be a deficit in either the development or expression of empathic concern. Previous research has found some mixed results between the dark triad coercive behaviours with their individual relationships with cognitive empathy (Wai &

Tiliopoulos, 2012), but there are clear deficits in empathic concern across all three coercive behaviours (Giammarco & Vernon, 2014; Wai & Tiliopoulos, 2012).

Wai & Tiliopoulos (2012) gave all participants a series of images depicting various different people with different facial expressions. For each image they were asked to discriminate the emotion being expressed in the image (i.e., cognitive empathy), and then they were asked to rate how they felt towards the person in the image (i.e., affective empathy or empathic concern). All members of the Dark Triad reported feeling positive and happy when looking at images of sad faces. While they all generally were able to discriminate emotions of others in the image, participants who had high narcissism scores were the only ones able to correctly discriminate anger, suggesting enhanced cognitive empathy above Machiavellianism and psychopathy.

4.1.1.2 Experiential avoidance and coercive behaviour.

While accounting for perspective taking and empathic concern are necessary in understanding maladaptive behaviour, they are not sufficient by themselves. Within the context of the evolution literature previously referenced, it is theorized that coercive behavior may function as an adaptive coping mechanism (Ellis et al., 2011; Ellis & Bjorkland, 2012). The relationship between emotion regulation and the Dark Triad, may therefore help to further understand the distinct contextual functions between each of the three coercive behaviours.

There are a number of ways the transformation of emotional functions can be compromised, weakened, or absent preventing empathic concern responses and an appropriate prosocial response. The transformation of emotional functions can be mediated by either strong fusion with self concept, experientially avoiding emotional distress, or both (Stewart & McHugh, 2013; Vilardaga & Hayes, 2011). A dominant and fused self concept involves a conceptualized self that is excessively framed across all

events, decreasing the likelihood of taking the perspective of others and preoccupation with preserving self concept in a way that is insensitive to consequences.

Research has clearly shown that narcissism, Machiavellianism, and psychopathy respond to stress in different ways (Noser, Ziegler-Hill, & Besser, 2014), suggesting potential varied relationships with experiential avoidance. The narcissistic tendency to have a grandiose view of self, means that any threat to self is highly stressful (Jonason & Krause, 2013; Kealy & Rasmussen, 2012; Zeigler-Hill & Besser, 2013), and frequently results in aggression (Bushman & Baumeister, 1998). Their preoccupation with ego-reinforcement (Morf & Rhodewalt, 2011), frequently leads to self-destructive behaviours and self-deception (Paulhus & Williams, 2002; Vazire & Funder, 2006). The narcissistic rigid focus on sense of self appears to create intense arousal that results in experiential avoidance.

Machiavellianism is distinct from narcissism and psychopathy, lacking some of the impulsivity present in the others (Jones & Paulhus, 2011). What differentiates Machiavellianism from narcissism and psychopathy is that it is characterized by a strategic-calculating orientation (Jones & Paulhus, 2014). This strategic orientation is consistent with the moral values research discussed earlier (Jonasen, 2015), that found that Machiavelli scores are predicted by a flexible morality. The relationship between stress and Machiavellianism is unclear (Noser, Zeigler-Hill, & Besser, 2014), especially given the context of their ability to be comparatively more cautious and deliberate in their behaviour, while also not evoking or discriminating empathic concern. While high Machiavellianism scores have been positively correlated with self-monitoring (Snyder, 1974) and personal control (Fehr et al., 1992), it is not clear there is a marked relationship with a general tendency of experiential avoidance.

Similar to Machiavellianism, the relationship between psychopathy and experiential avoidance is unclear. While psychopathy has been associated with deficits in emotional reactivity with respect to fear (Patrick et al., 1994), individuals who exhibit psychopathic behavioural traits are especially reactive to stress (Noser, Zeigler-Hill, & Besser, 2014), possibly due to their sensitivity to frustration (Blair, 2010) and marked impulsivity. The lack of self control and impulsivity manifests itself as callousness, resulting in behaviours that are controlled by short-term interests and insensitive to long-term consequences (Paulus & Jones, 2012; Visser, Bay, Cook, & Myburgh, 2012). Although there are lower levels of perceived distress in regard to fear and anxiety, they may still be experiencing distress via frustration and anger. Without the emotion regulation skills to regulate frustration and anger effectively, individuals with high psychopathy scores may behave impulsively and callously. This is especially complex given the context of lowered arousal around anxiety and fear, because they are not experiencing the motivational stimuli to self regulate antisocial behaviour and would have difficulty tracking responses from others that would motivate or influence a change in behaviour.

While anger is typically used to regulate feelings of vulnerability (Gardener & Moore, 2008), it can also function as emotional relief from tension and frustration, although this pattern of emotion regulation reinforces aggression (Lewis & Bucher, 1992). Previous research (Gerhart, Heath, Fitzgerald, & Hoerger, 2013) has shown that experiential avoidance, anger and delay of gratification are significantly related, such that anger is positive correlated with experiential avoidance and negatively correlated with delay of gratification, and experiential avoidance is negatively correlated with delay of gratification. Path analysis suggests a direct relationship between experiential avoidance and delay of gratification, and an indirect relationship between experiential

avoidance and anger. In the context of this research, it is possible that anger expressed impulsively in individuals with high psychopathic scores functions to avoid feelings of tension and frustration.

4.1.2 Research aims and hypotheses

The current studies will extend previous Flexible Connectedness Model research by testing the model's scope in predicting subclinical narcissism, Machiavellianism, and psychopathy scores. Following the same research design as used in the emotional and altruistic prosocial studies, the current chapter's studies will explore a fine-grained analysis of the complex role perspective taking plays in evoking coercive behaviour, by measuring four functionally distinct types of deictic relational responding. Although the most basic form of deictic relational responding involving I to you relating was not found to significantly predict prosocial behaviour in the previous studies, it is especially important to account for all four of these types of deictic relational responding due to the conflicting results found in personality and social psychology literature detailing the relationships between perspective taking and the coercive behaviour within the Dark Triad (Black, Woodworth, & Porter, 2013; Jonason, Li, Webster, & Schmitt, 2009; Wai & Tiliopoulos, 2012).

Based on the Flexible Connectedness Model's theoretical rational and previous research, several predictions were made. First, it was predicted that all three coercive behaviours would be positively correlated with I- You basic deictic relational responding (i.e., RFT PT I-You basic trials), paralleling previous research illustrating all three have basic perspective taking fluency (Jonason, Li, Webster, & Schmitt, 2009). Second, it was predicted that narcissism and psychopathy would be negatively correlated with both basic and emotion-based You-You deictic relational responding (i.e., DRT You-You and DRT-E You-You trials), and Machiavelli scores would be

positively correlated with basic and emotion-based You You deictic relational responding (Jones & Paulhus, 2011; Jones & Paulhus, 2014), showing the functional differences between the three coercive behaviours, and the differential perspective taking fluency needed to differentiate between the callousness in isolation seen in narcissistic and psychopathic behaviours, and the deliberate manipulation observed in Machiavelli-type behavioural repertoires. Third, it was predicted that all three Dark Triad coercive behaviours would be negatively correlated with empathic concern (Back, Schmukle, & Egloff, 2011; Black, Woodworth, & Porter, 2013). Fourth, it was hypothesized that narcissism and psychopathy would be positively correlated with experiential avoidance due to research suggesting they both engage in avoidant-type behaviours in the presence of aversive emotions (Blair, 2010; Jonason & Krause, 2013; Kealy & Rasmussen, 2012; Noser, Zeigler-Hill, & Besser, 2014; Zeigler-Hill & Besser, 2013). We also hypothesized that Machiavellianism would be negatively correlated with experiential avoidance, as a result of their ability to take on a strategic-calculating orientation (Jones & Paulhus, 2014), and practice moral flexibility, allowing them to commit to their goal even in the presence of aversive behaviours (Jonasen, 2015).

The results from the current studies will help to further develop the Flexible Connectedness Model research, and extend previous contextual behavioural science research into coercive behaviour (Biglan & Hinds, 2009), by accounting for a more complex understanding of social cognition understood through the lens of social verbal behaviour (i.e., deictic relational responding). By providing an in-depth analysis of perspective taking and the functional differences between empathic ability and concern, our results can orient researchers to more effectively predict and influence coercive behaviour.

4.2 Methods Overview

4.2.1 Participants

University students (N = 219) from the University of Wollongong participated in Studies 3, 4, and 5. A total of n =107 participants were in the basic deictic relational responding condition, and n = 112 participants were in the emotion-based deictic relational responding condition. A detailed participant demographic analysis can be found in Table 3 in Chapter 2, Section 2.1.2.

4.2.2 Procedure & Measures

Participants were randomly assigned to either complete the basic or emotion-based deictic relational responding task condition. Participants completed the Deictic Relational Task (DRT, Vilardaga et al., 2012) and the RFT Perspective Taking Protocol (RFT PT, 2004) in the basic condition, and the Deictic Relational Task - Emotion (DRT-E, Almada & McHugh, 2013) and the RFT Perspective Protocol- Emotion (RFT PT-E, Almada & McHugh, 2013) in the emotion-based condition. In addition to completing the basic condition's two deictic tasks, they also completed a self report measure of experiential avoidance (Acceptance and Action Questionnaire, AAQ II; Bond, et al., 2011), empathic concern (Interpersonal Reactivity Index, IRI; Davis, 1983), and coercive behavior (Short Dark Triad, SD3; Jones & Paulhus, 2014). More in-depth procedural and measurement details can be found in Chapter 2 Section 2.2 and 2.3.

4.2.3 Data Analytic Strategy

Narcissism, Machiavellianism, and psychopathy scores were analysed separately in Study 3A-3D, 4A-4D, and 5A-5D respectively. Previous deictic research has utilized a 65% accuracy rate for participation inclusion (Vilardaga et al., 2012), but due to the

untested breadth of deictic measures we are measuring, we wanted to capture variance, while also controlling for participants who may have not been engaging in the task and were responding randomly. Participants that had total deictic measure scores that were two standard deviations above or below the mean on either of the two tasks they completed, were treated as outliers and removed from the final analysis (Miller, 1991). This resulted in the removal of four participants from each condition. To test the scope of the Flexible Connectedness Model, multiple regressions were used to test the model's ability to predict narcissism, Machiavellianism, and psychopathy scores. Deictic relational responding, empathic concern, and experiential avoidance were entered sequentially to account for the differential effects each variable contributed. Four different multiple regressions were completed for each criterion variable to explore if and how the four different deictics measures predict different types of coercive behaviour.

4.3 Results

Mean percentages of correctly completed deictic relational responding for each of the four perspective taking tasks and interpersonal deictic trials are presented in Table 21 (basic condition) and Table 22 (emotion based condition). Dark Triad subscale (i.e., narcissism, Machiavellianism, and psychopathy) mean scores between basic and emotion-based perspective taking task groups were compared to the mean ranges observed in previous studies (Jones & Paulhus, 2014). Our sample had: (i.) narcissism mean scores of 2.74 in the basic group and 2.69 in the emotion-based group, falling within the range of values reported in previous SD3 research (M=2.64-2.92); (ii.) Machiavellianism mean scores of 3.03 in the basic group and 2.98 in the emotion-based group, falling within the range of previously reported scores (M=2.91-3.40); and (iii.)

psychopathy mean scores of 2.33 in the basic group and 2.11 in the emotion-based group, also falling within the range or preciously reported mean scores (M= 1.96-2.42).

Table 21
Flexible Connectedness Model variable means, standard deviations, and percentages based on raw scores for the basic deictic relational responding condition (N=107)

Variable	Statistics
Predictor Variables	
Deictic Relational Responding	
DRT You You Reversal Total (%)	96.73 (±9.14)
DRT Interpersonal Deictics Total (%)	87.73 (±9.86)
DRT Total (%)	89.21 (±9.12)
RFT Protocol I You Reversal Total (%)	92.06 (±15.20)
RFT Protocol Interpersonal Deictics Total (%)	74.42 (±18.92)
RFT Protocol Total (%)	66.73 (±14.61)
Empathic Concern	27.68 (±4.31)
Experiential Avoidance	20.78 (±7.75)
Criterion Variables	
Narcissism	2.74 (±.50)
Machiavellianism	3.03 (±.60)
Psychopathy	2.33 (±.58)

Table 22
Flexible Connectedness Model variable means, standard deviations, and percentages based on raw scores for the emotion-based deictic relational responding condition (N=112)

Variable	Statistics
Predictor Variables	
Deictic Relational Responding	
DRT-E You You Reversal Total (%)	95.76 (±10.00)
DRT-E Interpersonal Deictics Total (%)	67.86 (±19.83)
DRT-E Total (%)	82.59 (±26.60)
RFT Protocol-E I You Reversal Total (%)	87.50 (±18.07)
RFT Protocol-E Interpersonal Deictics Total (%)	61.72 (±19.00)
RFT Protocol-E Total (%)	60.18 (±12.15)
Empathic Concern	28.17 (±4.27)
Experiential Avoidance	20.98 (±8.45)
Criterion Variables	
Narcissism	2.69 (±.57)
Machiavellianism	2.98 (±.51)
Psychopathy	2.11 (±56)

4.3.1 Study 3 Narcissism and the Flexible Connectedness Model

Pearson's correlation coefficients were calculated between narcissism and all the predictor variables in the model for both conditions (see Table 23 and 24). A significant correlation was found between narcissism and the DRT Interpersonal trials total (i.e., You You reversals and You You double reversals), r = -.282, p =.001. Experiential avoidance was significantly correlated with narcissism in both conditions: r = -.189, p = .05 (Basic condition, Table 23) and r = -.308, p = .001 (Emotion-based condition, Table 24). All remaining deictic relational responding trial types and empathic concern were not found to be significantly correlated with narcissism in either condition.

Correlations were also calculated between all predictor variables. No perspective taking task trials were significantly correlated with empathic concern or experiential

avoidance in either condition. The relationship between empathic concern and experiential avoidance was not significant in either condition.

Table 23
Narcissism correlations for basic deictic relational responding condition (N=107)

Variables	1	2	3	4	5	6
1. Narcissism						
2. DRT Interpersonal Total	-.282**					
3. DRT Total	-.107	.599**				
4. RFT Protocol I You	-.156	.150	-.089			
5. RFT Protocol Total	-.068	.104	.100	.188*		
6. Empathic Concern	-.016	-.079	.007	-.143	.069	
7.Experiential Avoidance	-.189*	.002	-.064	-.035	-.012	.082

*p < .05. **p ≤.001.

Table 24
Narcissism correlations for emotion-based deictic relational responding condition (N=112)

Variables	1	2	3	4	5	6
1. Narcissism						
2. DRT-E Interpersonal Total	.105					
3. DRT-E Total	.082	.323**				
4. RFT Protocol E I You	-.061	.140	.110			
5. RFT Protocol E Total	.089	.125	.442**	.367**		
6. Empathic Concern	-.101	.049	-.109	.063	.053	
7.Experiential Avoidance	-.308**	-.038	-.041	.007	-.052	-.003

*p < .05. **p ≤.001.

4.3.1.1 Study 3A: Deictic Relational Task (DRT) Interpersonal Trials Total, Basic Deictic Relational Responding Condition.

Overall analysis of the third step of the sequential block multiple regression was statistically significant, F (3, 107)=4.47, p < .05, accounting for 8.9% of the total variance in predicting narcissism in the basic condition. While the overall model variance was significant, empathic concern did not account for a statistically significant amount of the variance. Interpersonal deictic ability (i.e., DRT You You reversal trials

and double reversal You You trials) accounted for 7.1% of the total variance, and experiential avoidance accounted for 1.8% of the total variance. The individual contribution of each variable can be found in Table 25.

4.3.1.2 Study 3B: Relational Frame Theory Perspective Taking (RFT-PT) Protocol Interpersonal Total, Basic Deictic Relational Responding Condition.

Overall analysis of the third step of the sequential block multiple regression was not statistically significant, F (3, 107)=1.441, p = .235. Uniquely, no predictor variable significantly predicted narcissism, but experiential avoidance approached significance p =.054, accounting for 1.2% variance. The sequential block multiple regression data for the model is included in Table 26.

Table 25
Model summary of regression analysis by blocks of variables predicting narcissism in basic deictic relational responding condition: *DRT interpersonal total (N=107)*

Predictors	R^2	Adjusted R^2	ΔF	β	95% CI
Step 1	.079*	.071	9.045		
DRT Interpersonal Total				-.282*	[-.297,-.061]
Step 2	.081	.063	.168		
DRT Interpersonal				-.285*	[-.300,-.062]
Total				-.039	[-.026,.017]
Empathic Concern					
Step 3	.115*	.089	4.001		
DRT Interpersonal				-.283*	[-.297,-.063]
Total				-.023	[-.024,.019]
Empathic Concern					
Experiential Avoidance				-.186*	[-.024,.000]

*p < .05. **p ≤.001.

Table 26
Model summary of regression analysis by blocks of variables predicting Narcissism in basic deictic relational responding condition: RFT Protocol interpersonal total (N=107)

Predictors	R^2	Adjusted R^2	ΔF	β	95% CI
Step 1	.005	-.005	.500		
RFT Protocol Interpersonal Total				-.069	[-.087,.041]
Step 2	.005	.-.014	.012		
RFT Protocol Interpersonal Total				-.068	[-.087,.042]
Empathic Concern				-.011	[-.024,.021]
Step 3	.040	.012	3.802		
RFT Protocol Interpersonal Total				-.069	[-.086,.041]
Empathic Concern				.005	[-.022,.023]
Experiential Avoidance				-.189	[-.025,.000]

*p < .05. **p ≤.001.

4.3.1.3 Study 3C: Deictic Relational Task-E (DRT-E) Interpersonal Total, Emotion-based Deictic Relational Responding Condition.

Overall analysis of the third step of the sequential block multiple regression was statistically significant, F (3, 112)= 4.687, p < .05, accounting for 9.1% of the total variance in predicting narcissism in the emotion condition (see Table 27). While the overall model variance was significant, only experiential avoidance accounted for a statistically significant amount of the observed total variance in the model (see Table 27).

Table 27
Model summary of regression analysis by blocks of variables predicting Narcissism in emotion-based deictic relational responding condition: DRT-E interpersonal total (N=112)

Predictors	R^2	Adjusted R^2	ΔF	β	95% CI
Step 1	.011	.002	1.229		
DRT-E Interpersonal Total				.105	[-.030,.105]
Step 2	.020	.002	.977		
DRT-E Interpersonal Total				.098	[-.032,.103]
Empathic Concern				-.094	[-.038,.013]
Step 3	.115**	.091	11.640		
DRT-E Interpersonal Total				.099	[-.029,.100]
Empathic Concern				-.095	[-.037,.011]
Experiential Avoidance				-.309**	[-.033,-.009]

*p < .05. **p ≤.001.

4.3.1.4 Study 3D: Relational Frame Theory Perspective Taking Task Protocol-E (RFT PT Protocol-E) Interpersonal Total, Emotion-based Deictic Relational Responding Condition.

The same pattern that was observed with the DRT-E Interpersonal Total, was replicated with the RFT Protocol-E Interpersonal Total being used as deictic ability. While the overall model was found to be statistically significant, F (3, 112)= 4.0242, p < .05, experiential avoidance was the only variable that accounted for a statistically significant contribution to the observed 8.1% variance in the model (see Table 28).

Table 28
Model summary of regression analysis by blocks of variables predicting Narcissism in emotion-based deictic relational responding condition: RFT Protocol Interpersonal Total (N=112)

Predictors	R^2	Adjusted R^2	ΔF	β	95% CI
Step 1	.013	-.009	.019		
RFT Protocol-E Interpersonal Total				.013	[-.066,.075]
Step 2	.010	.-008	1.114		
RFT Protocol-E Interpersonal Total				.009	[-.067,.074]
Empathic Concern				-.101	[-.039,.012]
Step 3	.105**	.081	11.483		
RFT Protocol-E Interpersonal Total				.008	[-.065,.070]
Empathic Concern				-.102	[-.038,.010]
Experiential Avoidance				-.308**	[-.033,-.009]

*p < .05. **p ≤.001.

4.3.1.5 Study 3A-3D Summary.

The Deictic Relational Task (DRT) Interpersonal (i.e., You You reversals and You You double reversals) trials total was the only deictic measure that accounted for a statistically significant amount of observed variance within the model, accounting for 7.1% of the total variance, β = -.283, p =.001. Empathic concern consistently did not predict narcissism across both basic and emotion-based conditions. Experiential avoidance consistently predicted narcissism, accounting for 1.2-9.1% of the observed total variance explained by the FCM, with the exception of the model fit in the basic condition using the RFT PT Protocol Interpersonal trials total as the measure of deictic ability where experiential avoidance accounted for 1.2% of total variance, just below significance level β= -.189, p =.054. See Table 29 for an overview of Study 3A-3D data.

Table 29
Summary of Narcissism model regression data for Study 3A-3D

	Deictic Relational Responding	Empathic Concern	Experiential Avoidance
Basic Condition: DRT Interpersonal Total	β= -.283*	β= .-.023 ns	β=.-.186*
Basic Condition: RFT PT Protocol Interpersonal Total	β= -.069 ns	β= -.068 ns	β= -.189, p =.054
Emotion-based Condition: DRT-E Interpersonal Total	β= .099 ns	β= .-.095 ns	β= -.309**
Emotion-based Condition: RFT PT Protocol-E Interpersonal Total	β= .008 ns	β= .-.102 ns	β= .-308**

*p < .05. **p ≤.001.
ns= non-significant

4.3.2 Study 4 Machiavellianism and the Flexible Connectedness Model

Pearson's correlation coefficients were calculated between all the predictor model variables and Machiavellianism scores in both conditions (see Table 30 and 31). A significant correlation was found between Machiavellianism and the DRT You You reversal trials in the basic condition: r = -.162, p =.05. A significant correlation between Machiavellianism and the DRT-E Total was found in the emotion-based condition: r = .161, p = .05. No other predictor variables were found to be significantly correlated in either condition. Correlations were also calculated between all predictor variables for both conditions and can be found earlier in the chapter in Table 23 and 24 in Section 4.3.1.

Table 30
Machiavellianism correlations for basic deictic relational responding condition (N=107)

Variables	R
DRT You You	-.162*
DRT Total	-.014
RFT Protocol I You	.029
RFT Protocol Total	-.157
Empathic Concern	-.080
Experiential Avoidance	.056

*p < .05. **p ≤.001.

Table 31
Machiavellianism correlations of for emotion-based deictic relational responding condition (N=112)

Variables	R
DRT-E You You	.043
DRT-E Total	.161*
RFT Protocol E I You	-.031
RFT Protocol E Total	.115
Empathic Concern	.045
Experiential Avoidance	.096

*p < .05. **p ≤.001.

4.3.2.1 Study 4A: Deictic Relational Task (DRT) You You Reversal Trials, Basic Deictic Relational Responding Condition.

Although a significant correlation was found between deictic ability (DRT You You Reversal trials) with Machiavellianism (r = -.162, p = .05), no predictor variables uniquely predicted Machiavellianism and the model was found to not be statistically significant, F (3, 107)=1.203, p = .312. The sequential block multiple regression data for the model is included in Table 32.

4.3.2.2 Study 4B: Relational Frame Theory Perspective Taking Protocol (RFT-PT) I You Reversal Trials, Basic Deictic Relational Responding Condition.

The model using the RFT-PT I You reversal trials as the measure of perspective taking, did not predict Machiavellianism, F (3, 107)=1.203, p = .312, and no predictor

variables uniquely accounted for a significant amount of variance. The data for the sequential block multiple regression for the model is included in Table 33.

Table 32
Model summary of regression analysis by blocks of variables predicting Machiavellianism in basic deictic relational responding condition: DRT You You Reversal (N=107)

Predictors	R^2	Adjusted R^2	ΔF	β	95% CI
Step 1	.026	.017	2.836		
DRT You You				-.162	[-.576,.047]
Step 2	.031	.012	.488		
DRT You You				-.157	[-.569,.058]
Empathic Concern				-.068	[-.036,.017]
Step 3	.034	.006	.321		
DRT You You				-.154	[-.565,.064]
Empathic Concern				-.072	[-.037,.017]
Experiential Avoidance				.055	[-.011,.019]

*p < .05. **p ≤.001.

Table 33
Model summary of regression analysis by blocks of variables predicting Machiavellianism in basic deictic relational responding condition: RFT Protocol I You Reversals (N=107)

Predictors	R^2	Adjusted R^2	ΔF	β	95% CI
Step 1	.029	-.009	.087		
RFT Protocol I You				.029	[-.161,.218]
Step 2	.082	-.012	.621		
RFT Protocol I You				.018	[-.175,.209]
Empathic Concern				-.078	[-.038,.016]
Step 3	.104	-.018	.422		
RFT Protocol I You				.019	[-.174, .211]
Empathic Concern				-.083	[-.039,.016]
Experiential Avoidance				.064	[-.010,.020]

*p < .05. **p ≤.001.

4.3.2.3 Study 4C: Deictic Relational Task-Emotion (DRT-E) You You Total, Emotion-based Deictic Relational Responding Condition.

Although the DRT-E Total deictic ability was found to be significantly correlated with Machiavellianism (r = .161, p = .05), no predictor variables uniquely predicted Machiavellianism, and the model was found to not be statistically significant,

F (3, 112)=1.481, *p* = .310. The data for the sequential block multiple regression for the model data is included in Table 34.

Table 34
Model summary of regression analysis by blocks of variables predicting Machiavellianism in emotion-based deictic relational responding condition: DRT-E Total (N=112)

Predictors	R^2	Adjusted R^2	ΔF	β	95% CI
Step 1	.026	.017	2.928		
DRT-E Total				.161	[-.004,.054]
Step 2	.037	.019	1.224		
DRT-E Total				.172	[-.002,.056]
Empathic Concern				.105	[-.010,.035]
Step 3	.040	.013	.310		
DRT-E Total				.175	[-.002, .056]
Empathic Concern				.105	[-.010,.035]
Experiential Avoidance				.053	[-.008,.014]

*p < .05. **p ≤.001.

4.3.2.4 Study 4D: Relational Frame Theory Perspective Taking Protocol-Emotion (RFT PT Protocol-E): I You Total, Basic Emotion-based Deictic Responding Condition.

The model was found to not be statistically significant in predicting Machiavellianism, *F* (3, 107)=.816, *p* = .488. No predictor variable was observed to have uniquely predicted Machiavellianism. The amount of variance accounted for by each variable entered into the model is including in Table 35.

4.3.2.5 Study 4A-4D Summary.

The Flexible Connectedness Model was not observed to have the scope to predict Machiavellianism scores. While there were significant correlations between Machiavellianism scores and Deictic Relational Task (DRT) You You reversal trials total (*r* = -.162, *p* =.05) and Deictic Relational Task-Emotion Total (*r* = .161, *p* = .05), neither was found to predict Machiavellianism uniquely or within the Flexible Connectedness Model. Empathic concern and experiential avoidance also did not uniquely predict Machiavellianism scores.

Table 35
Model summary of regression analysis by blocks of variables predicting Machiavellianism in emotion-based deictic relational responding condition: RFT Protocol-E Total (N=112)

Predictors	R^2	Adjusted R^2	ΔF	β	95% CI
Step 1	.013	.004	1.467		
RFT Protocol-E				.115	[-.012,.051]
Total	.020	.002	.711		
Step 2					
RFT Protocol-E				.110	[-.013,.050]
Total				.080	[-.013,.032]
Empathic Concern					
Step 3	.022	-.005	.289		
RFT Protocol-E				.113	[-.013, .051]
Total				.080	[-.013,.032]
Empathic Concern					
Experiential Avoidance				.051	[-.008,.015]

*p < .05. **p ≤.001.

4.3.5 Study 5 Psychopathy

Correlations were calculated between all the predictor model variables and Psychopathy in both conditions (see Table 36 and 37). A significant correlation was found in the basic condition between psychopathy and both the DRT You You double reversal trials: r = -.166, p =.05, and the RFT Protocol Total: r = -.216, p = .05. In the emotion-based perspective taking condition, a significant correlation between Psychopathy and the DRT-E You You reversal trials was found: r = -.168, p = .05. No other predictor variables were found to be significantly correlated in either condition. Correlations were also calculated between all predictor variables for both conditions and can be found earlier in the chapter in Table 23 and 24 in Section 4.3.1.

Table 36
Psychopathy correlations for basic deictic relational responding condition (N=107)

Variables	r
DRT You You Double Reversal	-.166*
DRT Total	-.135
RFT Protocol IYou	.017
RFT Protocol Total	-.216*
Empathic Concern	-.006
Experiential Avoidance	-.007

*p < .05. **p ≤.001.

Table 37
Psychopathy correlations for emotion-based deictic relational responding condition (N=112)

Variables	r
DRT-E You You	-.168*
DRT-E Total	.096
RFT Protocol E IYou	-.112
RFT Protocol E Total	.051
Empathic Concern	.094
Experiential Avoidance	.096

*p < .05. **p ≤.001.

4.3.3.1 Study 5A: Deictic Relational Task (DRT) You You Double Reversal Trials, Basic Deictic Relational Responding Condition.

Overall analysis of the third step of the sequential block multiple regression was not statistically significant, F (3, 107)= 1.002, p = .395. Although DRT You You Double Reversal trials total was significantly correlated with psychopathy (r = -.166, p = .05), it did not significantly account for psychopathy variance. Empathic concern and experiential avoidance entered into Step 2 and 3 respectively, also did not account for a unique amount of variance. Model summary data can be found in Table 38.

Table 38
Model summary of regression analysis by blocks of variables predicting Psychopathy in basic deictic relational responding condition: DRT You You Double Reversal (N=107)

Predictors	R^2	Adjusted R^2	ΔF	β	95% CI
Step 1	.028	.018	2.978		
DRT You You Double Reversal				-.166	[-.298,.021]
Step 2	.028	.010	.084		
DRT You You Double Reversal				-.170	[-.303,.020]
Empathic Concern				-.028	[-.028,-2.90]
Step 3	.028	.000	.000		
DRT You You Double Reversal				-.170	[-.304,.021]
Empathic Concern				-.028	[-.030,.023]
Experiential Avoidance				.000	[-.015,.015]

*p < .05. **p ≤.001.

4.3.3.2 Study 5B: Relational Frame Theory Perspective Taking Protocol (RFT-PT) Total, Basic Deictic Relational Responding Condition.

The model was found to not be statistically significant in predicting Psychopathy, F (3, 107)= 1.687, p = .174. Deictic ability (i.e., RFT Protocol Total) was the sole predictor variable that individually accounted for a significant amount of variance. Deictic ability accounted for 3.8% variance, ΔF (1,107) = 5.137, p = .025. The individual contribution of each predictor variable to the overall model can be found in Table 39.

4.3.3.3 Study 5C: Deictic Relational Task-Emotion (DRT-E) You You Reversal Trials, Emotion-based Deictic Relational Responding Condition.

The model was found to not be statistically significant in predicting psychopathy, F (3, 112)=1.756, p = .160. The DRT-E You You was found to be significantly correlated to psychopathy, r=-.168, p =.05 (see Table 37), but it did not uniquely predict it. Empathic concern and experiential avoidance also did not uniquely predict psychopathy scores. The amount of variance accounted for by each variable entered into the model is including in Table 40.

Table 39
Model summary of regression analysis by blocks of variables predicting Psychopathy in basic deictic relational responding condition: RFT Protocol Total (N=107)

Predictors	R^2	Adjusted R^2	ΔF	β	95% CI
Step 1	.047*	.038	5.137		
RFT Protocol Total				-.216*	[-.065,-.004]
Step 2	.047	.028	.009		
RFT Protocol Total				-.217*	[-.065,-.004]
Empathic Concern				.009	[-.025,.027]
Step 3	.047	.019	.012		
RFT Protocol Total				-.217*	[-.065,-.004]
Empathic Concern				.010	[-.025,.027]
Experiential Avoidance				-.011	[-.015,.014]

*p < .05. **p ≤.001.

Table 40
Model summary of regression analysis by blocks of variables predicting Psychopathy in emotion-based deictic relational responding condition: DRT-E You You (N=112)

Predictors	R^2	Adjusted R^2	ΔF	β	95% CI
Step 1	.028	.019	3.181		
DRT-E You You				-.168	[-.499,.026]
Step 2	.039	.021	1.180		
DRT-E You You				-.173	[-.507,.019]
Empathic Concern				.102	[-.011,.038]
Step 3	.047	.020	.906		
DRT-E You You				-.169	[-.502,.025]
Empathic Concern				.102	[-.011,.038]
Experiential Avoidance				.090	[-.006,.018]

*p < .05. **p ≤.001.

4.3.3.4 Study 5D: Relational Frame Theory Perspective Taking Protocol-Emotion (RFT PT Protocol-E): I You Reversal Trials, Emotion-based Deictic Responding Condition.

The model was found to not be statistically significant in predicting psychopathy, F (3, 112)=1.191, p = .317. Deictic ability as measured by the RFT Protocol-E I You trials, empathic concern and experiential avoidance did not uniquely predict psychopathy scores. The amount of variance accounted for by each variable entered into the model is including in Table 41.

Table 41
Model summary of regression analysis by blocks of variables predicting Psychopathy in emotion-based deictic relational responding condition: RFT Protocol-E I You (N=112)

Predictors	R^2	Adjusted R^2	ΔF	β	95% CI
Step 1	.012	.003	1.387		
RFT Protocol-E I You				-.168	[-.234,.060]
Step 2	.023	.005	1.137		
RFT Protocol-E I You				-.173	[-.239,.055]
Empathic Concern				.102	[-.011,.038]
Step 3	.032	.005	1.046		
RFT Protocol-E I You				-.169	[-.240,.054]
Empathic Concern				.102	[-.011,.038]
Experiential Avoidance				.090	[-.006,.019]

*p < .05. **p ≤.001.

4.3.2.5 Study 5A-5D Summary.

Empathic concern and experiential avoidance were not significantly correlated with psychopathy, and did not predict psychopathy scores individually or within the Flexible Connectedness Model (FCM). Differences were observed between each of the various deictic relational responding measures and their ability to predict psychopathy within the FCM. While the basic (r = -.166, p =.05) and emotion-based DRT You You double reversal trials (r = -.168, p = .05) were significantly correlated with psychopathy, the RFT Protocol total was the only measurement of deictic ability to predict psychopathy scores, accounting for 3.8% of total observed variance in psychopathy scores.

4.4 Discussion

The studies in this chapter suggest uniquely different behavioural constellations to what was observed in the previous chapter with the prosocial criterion variables. While the Flexible Connectedness Model's scope did not extend to the coercive

criterion variables measured in this chapter's studies, some of the model's predictor variables were found to significantly predict the coercive criterions in a varied way highlighting their functional differences. Unlike the emotional prosocial tendency and altruistic prosocial tendency findings, empathic concern was consistently not a significant predictor of our coercive criterion variables. The relationships between the various coercive behaviours, experiential avoidance and deictic relational responding ability, were more complex and varied.

4.4.1 Narcissism and the Flexible Connectedness Model

Of the three coercive criterion variables, narcissism was the only one to have had at least two of the Flexible Connectedness Model (FCM) predictor variables significantly predict it providing partial model fit. While empathic concern did not predict narcissism in either condition, deictic ability and experiential avoidance did contribute to observed variance in studies 3A-3D (see Tables 25-28 Section 4.3.1 for data of overall model fit and individual contribution of deictic ability and experiential avoidance).

The Deictic Relational Task (DRT) Interpersonal (i.e., You You reversals and You You double reversals) trials total were the only deictic type that successfully predicted narcissism scores, accounting for 7.1% of the total variance, $\beta = -.283$, $p = .001$., and was found to be negatively correlated with narcissism ($r = -.282$, $p = .001$). According to this finding, narcissism may be distinguished by the inability to take the perspectives of others (i.e., you to you) via deictic relational responding. As predicted, empathic concern consistently did not predict narcissism across both basic and emotion-based conditions. Interestingly, experiential avoidance consistently predicted narcissism scores across conditions, but in the opposite direction to what was expected. Experiential avoidance accounted for a statistically significant 1.2-9.1% of the observed

total variance explained by the Flexible Connectedness Model. In the basic condition using the RFT PT Protocol interpersonal trials total, experiential avoidance variance was just below significance level (β= -.189, p =.054). Unlike what would be expected in a subset of coercive behaviour, lower experiential avoidance scores (i.e., psychological flexibility) were associated with higher narcissism scores.

4.4.1.1 Study Implications.

The Flexible Connectedness Model (FCM) did not successfully predict narcissism scores. While all three predictor variables did not significantly predict narcissism scores within the model, deictic ability and experiential avoidance uniquely accounted for a statistically significant amount of variance. As predicted, deficits in taking the perspective of others (DRT interpersonal trials) were observed. This finding did not generalize to taking the perspective of others regarding emotions (i.e., DRT-E interpersonal trials). The possible rationale for this deficit not emerging in a more complex form of deictic responding, may not be an indication of lack of deficits in that ability, but the emotion-based trials' ability to distinguish high from low narcissism scores. No other deictic relational responding measures were significantly correlated with or predicted narcissism scores. We expected to observe a clear developmental progression with significant relationships between narcissism and the four types of deictic responding. It's possible that a minimum accuracy and fluency criteria is needed for these complex social behaviour to be evoked, which would not be captured when using multiple regression.

No relationship was found between narcissism and empathic concern. As discussed previously, empathic concern and empathic ability appear to be different measures when examining content validity at a glance between the emotion-based deictic measures and the empathic concern subscale of the Interpersonal Reactivity

Index (IRI; Davis, 1983). Empathic concern appears to be a measure of social values and verbal rules, which would have more utility being analysed as an establishing operation versus a discriminative stimulus as the Flexible Connectedness Model suggests. Reconsidering our measure of empathic concern as a measure of social values would be consistent with our findings of the strong relationship between empathic concern and the prosocial criterions we studied previously and the larger prosocial behaviour literature (Batson, Bolen, Cross & Neuringer-Benefiel, 1986; Carlo, Eisnberg, Toyer, Switzer, & Speer, 1991).

Unexpectedly, lower experiential avoidance scores consistently predicted narcissism across conditions. The possible rationale for this finding may be due to the characteristic narcissistic tendency to inflate one's ability and engage in self deception (Vazire & Funder, 2006), which highlights the limitation of using a self report measure of ability, versus a behavioural measure that cannot be completed with bias. Hypotheses were previously framed in the context of narcissism research involving emotion regulation (Jonason & Krause, 2013; Kealy & Rasmussen, 2012), which would be best measured using observer ratings, rather than self report in a population that may over exaggerate their ability, or not have the capacity to do so accurately. It is well documented in the social psychology literature that getting participants to accurately report perceived antisocial behaviours is difficult and can be unreliable (Donaldson & Grant-Vallone, 2002; Catania, Gibson, Chitwood, & Coates, 1990).

4.4.2 Machiavellianism and the Flexible Connectedness Model

As hypothesized, the Flexible Connectedness Model did not successfully predict Machiavellianism scores. While there were significant correlations with some of the deictic measures (DRT You You reversal trials total r = -.162, p =.05, and DRT-E Total r = .161, p = .05), neither significantly predicted Machiavellianism scores.

Empathic concern and experiential avoidance did not predict Machiavellianism (see Tables 32-35 for data of overall model fit and individual contribution of each of the predictor variables).

4.4.2.1 Study Implications.

The Machiavellianism data illustrate the functional differences between different types of social behaviours that may mediate social connection, and may not be captured by the FCM. While Machiavelliani-type behaviour is functionally coercive, the literature does not suggest clear relationships with any of the Flexible Connectedness Model predictor variables, except affective empathy. Due to the tendency for Machiavelli behaviour to be flexible across contexts and situations (Jonasen, 2015) this form of coercive behaviour may require measures that are able to capture this sensitivity.

4.4.3 Psychopathy and the Flexible Connectedness Model

Like the other coercive criterion variables, empathic concern was not significantly correlated or predictive of psychopathy scores. While differences were observed between each of the various deictic relational responding measures, with the basic and emotion-based DRT You You double reversal trials being significantly negatively correlated with psychopathy, the RFT Protocol total was the only measurement of deictic ability to predict psychopathy scores. Unexpectedly, experiential avoidance was not found to be a statistically significant predictor.

4.4.3.1 Study Implications.

Our data reflected a clear relationship between psychopathy scores and deficits in deictic ability. A majority of our deictic measures were significantly negatively correlated with psychopathy, but they did not all predict psychopathy individually or

within the Flexible Connectedness Model (FCM). The RFT Protocol total results illustrated that psychopathy scores were associated with deictic deficits within the most basic form of perspective taking ability, which illustrates the difference between what we would expect to find in our subclinical sample and a clinical sample of psychopathy. It is possible that this observation is not necessarily due to actual deictic ability deficits, but is a result of the characteristic impulsivity found in both subclinical and clinical populations (Jonason & Tost, 2010). While impulsivity is a clear characteristic in psychopathy, there was no clear significant relationship between psychopathy scores and experiential avoidance.

4.4.4 Limitations and Future Directions

These studies have a number of unique contributions, including the use of four functionally distinct measures of deictic ability, and the first documented studies using measures of deictic ability requiring the transformation of emotion-based stimulus functions. Together these two contributions have provided the most fine-grained analysis of deictic ability to be empirically tested for better understanding the functional differences between different forms of coercive behaviour. The inclusion of four functionally distinct behavioural measures of deictic relational responding, has accounted for distinctive differences between the three coercive criterion variables that would not have been accounted for if only measuring basic you to you or basic I to you deictic ability, as previous studies had done (Levin, Luoma, Vilardaga, Nobles, & Hayes, in press; Nilsson, Vilardaga, & Nyman, 2015; Vilardaga, Levin, Hayes, & Estevez, 2012).

Given our research findings of no observed relationship between psychopathy and experiential avoidance, and a negative relationship with Narcissism scores, it may be necessary to look into more sensitive measures of experiential avoidance. A more

sensitive measure would need to include items that captured avoidance of physical sensations, and was designed in such a way to prevent inflation of self-perceived psychological flexibility, while controlling for differences in self awareness. This may require concentrated efforts into designing a behavioural measure of experiential avoidance (Hooper, Villatte, Neofotistou, & McHugh, 2010).

While a participant may intentionally attempt to inflate their abilities, they may also lack a sense of self awareness that may confound their experiential avoidance scores. Not controlling for self concept is another potential limitation, which could have provided more depth to the analysis and understanding of these different coercive behaviours in the context of perspective taking ability and experiential avoidance. As briefly mentioned with considering the results in the prosocial studies, better understanding and accounting for a RFT approach to self concept may help to better understand the differences observed, especially in relation to others and with regard to social values.

Given the distinct difference observed between prosocial and coercive behaviours and their relationship with empathic concern, future research should include the role social values may play in moderating or mediating these social behaviours. Instead of being conceptualised as a discriminative stimulus like empathic ability, empathic concern would better be understood as an establishing operation, affecting the probability of a given behaviour rather than signaling a possible consequence.

While the results between the prosocial and coercive studies have found uniquely significant patterns of deictic ability across all the five different criterion variables, not all the predictors followed a developmental sequence. For example, in the psychopathy group, RFT Protocol trials were found to predict psychopathy, but the remaining more developmentally complex measures of deictic ability were not found to

significantly predict psychopathy scores, despite being significantly negatively correlated. There may be minimum scores necessary across the different types of deictic ability to develop specific types of social behaviour, rather than increased deictic ability always resulting in the development of more advanced social behaviours.

4.4.5 Conclusions

The current studies add to the research literature by (i.) further testing the scope of the Flexible Connectedness Model (FCM) with coercive behaviours, (ii.) accounting for how considering deictic relational responding and experiential avoidance as functional units, can be a more precise approach to understanding coercive behaviour, and (iii.) utilizing a RFT approach to understanding coercive behaviour through the fine grained measurement of four different types of deictic ability. In it's current form, the Flexible Connectedness Model does not account for better understanding coercive behaviour. Studies 3A-3D, 4A-4D, and 5A-5D suggest that the scope of the Flexible Connectedness Model is limited when considering coercive behaviours, especially with the inclusion of empathic concern as a predictor variable. Results from these studies suggest that a deictic approach to self concept should be considered in relation to understanding the relationship between deictic ability and experiential avoidance in both prosocial and coercive behaviour, as well as the possible mediating effects of social values on advanced social behaviours. In the next chapter we will discuss additional variables to consider in future Flexible Connectedness Model research.

CHAPTER 5 GENERAL DISCUSSION

5.1 Overview

In the past couple of decades, contextual behavioural science (CBS) research has made strides in investigating how to influence adaptive and maladaptive social behaviours by exploring (i.) the prosocial and coercive environments that shape them (Biglan, 2015; Biglan & Emrby, 2013; Biglan, Flay, Embry, & Sandler, 2012; Biglan & Hinds, 2009), and (ii.) the precise functional and manipulable units of verbal behaviour that influence their development (McHugh, Barnes-Holmes & Barnes-Holmes, 2004; McHugh & Stewart, 2012; Rehfeldt & Barnes-Holmes, 2009; Rehfeldt, Dillen, Ziomek, & Kowalchuk, 2007; Villatte, Monestes, McHugh, Reixa I Baque, & Laos, 2008; Villatte, Monestes, McHugh, Reixa I Baque, & Laos, 2010). The following thesis is an extension of previous Flexible Connectedness Model research (FCM; Roger, Hayes, & Levin, 2014); a line of investigation that has suggested that accounting for the joint contributions of deictic relational responding, empathic concern, and experiential avoidance, will provide a substantial amount of scope for understanding how to influence various types of maladaptive social behaviour (Levin, Luoma, Vilardaga, Nobles, & Hayes, in press; Nilsson, Vilardaga, & Nyman, 2015; Vilardaga, Levin, Hayes, & Estevez, 2012). The broad aim of the current thesis was to combine the parallel CBS research contributions of the community psychology research into prosocial and coercive contexts, and the Flexible Connectedness Model research in better understanding the functional contexts that shape various types of prosocial and coercive behaviour.

To this end, several elements were explored with the purpose of testing the scope of the Flexible Connectedness Model to uniquely predict various prosocial and

coercive behaviours, with the intention to develop a more precise account of the various contextual functions that may influence the probability of prosocial and coercive behaviour being evoked. A disproportionate amount of previous prosocial and coercive behaviour research has explained these phenomena topographically via static and mechanistic, global personality constructs (Green, Hanze, & Wanstrath, 1994). An interest in better understanding various types of prosocial and coercive behaviours according to their functional contexts has begun to develop (Carlo, Eisenberg, Troyer, Switzer, & Speer, 1991; Eisenberg & Fabes, 1998; Furnham, Richards, & Paulhus, 2013), suggesting utility in investigating a multidimensional approach to both. To account for previous gaps in research utillizing global and topographical conceptualizations of prosocial and coercive behaviour, we identified five distinct social behaviours that share either prosocial (i.e., emotional and altruistic prosocial behaviour) or coercive (i.e., narcissism, Machiavellianism, and psychopathy) behavioural functions.

Previous research has predominantly focused on topography-based interventions for prosocial and coercive behaviour, focusing predominantly on the consequences that shape them, while underestimating the importance of discriminative stimuli and establishing operations and their role in shaping prosocial and coercive behaviour with more precision (Biglan & Embry, 2013). Exploring the Flexible Connectedness Model using a cross-sectional design had two purposes: (i.) to explore the model's scope in predicting prosocial and coercive behaviour, and (ii.) examining the model's predictor variables as hypothetical discriminative and motivational antecedents of prosocial and coercive behaviour. The later exploration of hypothetical antecedents was in the service of identifying precise and manipulable variables with an eye towards future experimental designs and potential intervention.

A further extension on the aim of precision, included a fine-grained analysis of the contribution of deictic relational responding as a variable that explains unique variance observed in prosocial and coercive behaviours individually and within the Flexible Connectedness Model. To build a varied account of deictic relational responding, four functionally different types of deictic responding were measured: basic I You and You You deictic relational responding, and I You and You You deictic relational responding with emotional cues. Accounting for these four different types of deictic abilities, allowed for the development of a functional map highlighting the fluencies and deficits across all prosocial and coercive criterions.

All aims were tested separately by criterion and by behavioural function. In Chapter 3 both prosocial behaviours (i.e., emotional prosocial tendency and altruistic prosocial tendency) were explored within the scope of the Flexible Connectedness Model, with an emphasis on individual differences in varied deictic relational responding ability. In Chapter 4 the thesis aims were similarly examined with three coercive behaviours as constructed by the Dark Triad (i.e., narcissism, Machiavellianism, and psychopathy). The current discussion will commence with a section summarizing the findings of Chapters 3 and 4, followed by a separate section further exploring theoretical and empirical extensions, and briefly considering future directions.

5.2 Summary of Findings

In Chapter 3 emotional and altruistic prosocial tendency were explored through the lens of the Flexible Connectedness Model. Separate models were run for each different type of deictic relational responding, and the studies were organized by deictic measure (i.e., A-D): basic I-You, Basic You-You, Emotion-based I-You, and Emotion-based You-You. Study 1A-1D looked a the scope of the Flexible Connectedness

Model's applicability to understanding emotional prosocial behaviour, and Study 2A-2D followed the same design applied to understanding altruistic prosocial behaviour.

5.2.1 Study 1A-1D: Emotional Prosocial Behaviour

In Studies 1A-1D deictic relational responding ability differences were observed in predicting unique variance of emotional prosocial tendency. While neither basic nor emotion-based I You trials significantly predicted emotional prosocial tendency, both basic and emotion-based You You trials did. When the You-You trials were added to the Flexible Connectedness Model, all three model predictors (deictics as measured by both types of You-You trials, empathic concern, and experiential avoidance) significantly predicted emotional prosocial tendency extending the model's scope to better understanding emotional prosocial tendency. Looking at the relationship between basic You You deictic ability, emotion based You You deictic ability, and emotional prosocial tendency, illustrated that while an emotional prosocial tendency is associated with fluency in basic perspective taking, it is also characterized as having deficits in accurately being able to take the perspective of others. Emotional prosocial behaviour had a positive relationship with both empathic concern and experiential avoidance, illustrating that while individuals who had higher emotional prosocial scores demonstrated empathic concern (despite having deficits in taking the perspective of others situations involving emotions), they also showed a tendency towards experiential avoidance. This behavioural pattern is parallel to what was observed in a previous FCM study with pathological altruism (Nilsson, Vilardaga, & Nyman, 2015), with the exception that the pathological altruism study measured basic I-You deictic responding, and did not include any measures of emotion-based deictic responding.

5.2.2 Study 2A-2D: Altruistic Prosocial Behaviour

In Studies 2A-2D, emotions-based You You trials were the only measure of deictic relational responding to predict unique variance of altrustic prosocial behaviour, accounting for a positive relationship between them. This finding alone differentiates altruistic prosocial behaviour from emotional prosocial tendency. Similar to what was observed with our emotional prosocial behaviour data and pathological altruism data, all were observed to have a significant, positive relationship with empathic concern. Another observed functional difference that differentiates altruistic prosocial behaviour from both emotional prosocial behaviour and pathological altruism, is its observed negative relationship with experiential avoidance.

In Chapter 4 narcissism, Machiavellianism, and psychopathy were explored through the lens of the Flexible Connectedness Model. Following the same design as Chapter 3 with the prosocial behaviours, separate models were run for each different type of deictic relational responding, and the studies were organized by deictic measure (i.e., A-D): basic I-You, Basic You-You, Emotion-based I-You, and Emotion-based You-You. Study 3A-3D looked at the scope of the Flexible Connectedness Model's applicability to understanding narcissism. Study 4A-4D and 5A-5D followed the same design applied to understanding Machiavellianism and psychopathy respectively.

5.2.3 Study 3A-3D: Narcissism

While all the predictor variables in the Flexible Connectedness Model did not account for a statistically significant amount of unique variance between any of the coercive behaviours (illustrating limited model scope with coercive behaviours), useful functional differences between deictic relational responding and experiential avoidance were observed. In Studies 3A-3D, basic You-You deictic trials were the only measure of deictic relational responding to predict narcissism scores. A negative relationship

was observed, indicating that high narcissism scores were characterized by deficits in taking the perspective of others. A significant relationship between empathic concern and narcissism scores was not observed, although surprisingly high narcissism scores were predicted by low experiential avoidance scores.

5.2.4 Study 4A-4D: Machiavellianism

While there were significant correlations observed between Machiavellianism scores and basic You You trials (negative correlation) and emotion-based You You (positive correlation) trials, they were small correlations, and neither accounted for unique contribution to variance observed in Machiavellianism scores. Empathic concern and experiential avoidance were not found to account for a unique contribution to variance observed in Machiavellianism scores.

5.2.5 Study 5A-5D: Psychopathy

A clear relationship between deictic relational deficits and psychopathy scores emerged across the various measures of deictic ability. Significant negative correlations were observed for all measures of deictic relational responding, with the exception of emotion-based I You trials. While significant negative correlations were observed with the remaining three deictic measures, only basic I You trials accounted for significant unique variance observed in psychopathy scores. Empathic concern and experiential avoidance did not appear to have a significant relationship with psychopathy.

As predicted, the various prosocial and coercive behaviours measured in the current thesis were observed to have unique Flexible Connectedness Model behavioural constellations, demonstrating possible functional differences. When testing the scope of the model with emotional and altruistic prosocial behaviour, current results suggested that deictic relational responding, empathic concern, and experiential avoidance may play a role in evoking emotional and altruistic prosocial behaviour. When considering

narcissism, Machiavellianism, and psychopathy scores within the framework of model, uniquely different behavioural repertoires emerged both between the three coercive criterions, and compared to what was observed with emotional and altruistic prosocial behaviours. Although the model's scope successfully extended to both measured prosocial behaviours, the predictor variables failed to all successfully account for a unique contribution to the variance observed in any of the coercive behaviours.

Clear relationships between deictic deficits and fluency in emotional and altruistic prosocial behaviours illustrated functional differences between the two. High emotional prosocial behaviour scores were associated and predicted by deficits in taking the perspective of others when emotion-based cues were involved, whereas high altruistic prosocial scores were associated with fluency in this deictic ability.While the three coercive behaviours also demonstrated behavioural patterns between each other, they also demonstrated different functional deictic patterns in comparison to the prosocial behaviours. High narcissism scores were predicted in an individual's inability to take the perspective of others, and while high psychopathy scores were associated with deficits in all but one measure of deictic ability, I You basic deictic deficits were the only measure to predict unique variance in scores. Generally, the coercive behaviours were associated with demonstrated deficits in deictic abilities that are developmentally less complex.

While we observed variations in deictic ability across the prosocial and coercive criterion variables, a clear developmental sequence was not observed. It was predicted that if deictic ability was essential to explaining the variance of various types of social behaviours, the data would reflect significant regressions parallel to the deictic development literature (McHugh, Barnes-Holmes & Barnes-Holmes, 2004; Vilardaga & Hayes, 2011; Stewart & McHugh, 2013). For example, high narcissism scores were

associated with deficits in basic You You deictic relational responding. If deictic ability is relevant in understanding narcissist behaviour, we should have also observed significant deficits in deictic abilities that were more complex (i.e., emotion-based I You and You You deictic abilities), which we did not. A lack of developmental consistency across all the criterion variables was observed. It is possible that this varied statistical pattern is indicative of a non-linear relationship between perspective taking abilities and social behaviours. Rather than increased deictic ability always resulting in the development of more advanced fluency with various types of complex social behaviour, there may be minimum scores necessary across the different types of deictic abilities to develop complex social behaviour, rather than increased deictic ability always resulting in the development of more advanced social behaviours. A non-linear relationship between deictic ability and social behaviour, may also suggest the importance of other mediating behavioural processes that create motivational limits to the generalizability of deictic skillsets across contexts, such as rule governed behaviour and maladaptive selfing behaviour (Luciano, Valdiva-Salas, & Ruiz, 2012; Stewart & McHugh, 2013; Torneke, Luciano, & Valdivia Salas, 2008; Vilardaga & Hayes, 2011).

Relationships between empathic concern and the prosocial and coercive criterions demonstrated clear functional differences between the two behavioural clusters. Empathic concern was positively associated with higher scores of emotional and altruistic prosocial behaviour, consistently accounting for the largest amount of unique variance of any of the three model predictor variables. In contrast, the coercive behaviours consistently were not found to have a significant relationship with empathic concern.

As a result of observing distinct differences between empathic concern scores and deictic measures capturing transformation of emotion-based functions between I-

You and You-You deictic relational responding, the data suggest these measures are capturing functionally different behaviours. While previous research has conceptualized empathic concern as a discriminative antecedent for prosocial behaviour (Vilardaga et al., 2012), it appears to be more akin to highlighting the presence of social values mediated by rule-governed behaviour, and not empathic ability. If empathic concern is more indicative of these behavioural processes functioning as motivational antecedents rather than discriminative antecedents, results observed in the current thesis would be consistent with previous research finding a strong relationship between social values and social rules about social responsibility, predicting prosocial behaviour (Batson, Bolen, Cross & Neuringer-Benefiel, 1986; Carlo, Eisnberg, Toyer, Switzer, & Speer, 1991), and their clear absence and minimized importance in the dark triad (Back, Schmukle, & Egloff, 2011; Jonason, Strosser, Kroll, Duineveld and Baruffi, 2015). Given the distinct difference observed between prosocial and coercive behaviours and their relationship with empathic concern, future research should explore the role social values mediated by rule-governed behaviour plays in predicting adaptive and maladaptive social behaviours.

Experiential avoidance demonstrated varied relationships between both prosocial and coercive behaviours. Experiential avoidance scores demonstrated clear functional differences between emotional and altruistic prosocial behaviour, illustrating the social utility of psychological flexibility with altruistic behaviour being negatively associated with experiential avoidance. Unexpectedly, high narcissism scores were also negatively associated with experiential avoidance.

With regard to our observed findings with experiential avoidance and the dark triad, it is possible that the AAQ-II (Bond et al., 2011) is not a sensitive and accurate measure of experiential avoidance when considering coercive behaviours. Previous

research (Wolgast, 2014) has found the AAQ-II to be more strongly related to behavioural patterns of distress vs. acceptance. If the AAQ-II is more similar to a measure of distress, rather than agile experiential acceptance, this would contextualize null findings with the relationship between psychopathy scores and experiential avoidance, but not the unexpected negative relationship between narcissism and experiential avoidance. Domain specific measures of experiential avoidance (e.g., smoking cessation, diabetes, substance abuse, and stigma), have been found to be more sensitive (e.g., Gifford et al, 2004; Gregg, Callaghan, Hayes, & Glenn-Lawson, 2007; Levin, Luoma, Lillis, Hayes & Vilardaga, 2014; Luoma, Drake, Kohlenberg, & Hayes, 2011), but given the narcissistic tendency for self deception and grandiosity (Vazire & Funder, 2006), an effective measure of experiential avoidance would need to be constructed that controls for "faking good" and deficits in self-awareness.

Research has begun to develop behavioural measures of experiential avoidance, having observed enhanced sensitivity of measuring changes in experiential avoidance over time when compared to a self-report measure of experiential avoidance (Hooper, Villatte, Neofotistou, & McHugh, 2010).This type of behavioural measure (Implicit Relational Assessment Procedure, IRAP; Barnes-Holmes, Barnes-Holmes, Power, Hayden, Milne, & Stewart, 2006) is especially promising as it's been shown to account as a sensitive measure of individual differences (Barnes-Holmes, Murtagh, Barnes-Holmes, & Stewart, 2010; Barnes-Holmes, Waldron, Barnes-Holmes, & Stewart, 2009), controls for "faking good" (McKenna, Barnes-Holmes, Barnes-Holmes, & Stewart, 2007), and accounts for a more accurate report of behaviours that are socially sensitive, such as racism and deviant attitudes in child sex offenders (Barnes-Holmes, Murphy, Barnes-Holmes, & Stewart, 2010; Dawson, Barnes-Holmes, Gresswell, Hart, & Gore, 2009).

In addition to future research further exploring and developing behavioural measures of experiential avoidance, the complex role of the various types of selfing behaviour (i.e., self-as-content, self-as-process, self-as-context) should also be considered in further depth with regard to both prosocial and coercive behaviours. Emotional prosocial behaviour was found to be associated with deficits in taking the perspective of others when it involves emotion cues, increased empathic concern, and experiential avoidance. Despite increased empathic concern, it does not appear that with emotional prosocial behaviour individuals are being motivated by experiencing distress as a result of taking the perspective of others, as an emotional contagion hypothesis would predict. It's possible that with an emotional prosocial tendency, individuals are consumed with how the social demands of others reflect upon their self concept, being more concerned with protecting their conceptualization of themselves rather than accurately tracking what is occurring in their social environment. Both emotional and altruistic prosocial behaviours were shown to have positive relationships with empathic concern, but had inverse relationships with experiential avoidance. It's possible that rigid self concept mediated the relationship between empathic concern and experiential avoidance. It is also possible that rigid self concept predicts the relationship between being able to take the perspective of others in emotional settings, since we also observed an inverse relationship between emotional and altruistic prosocial behaviour in this ability. If rigid self concept predicts deficits in taking the perspective of others, and predicts a positive relationship with experiential avoidance this would help to contextualize what we observed with the Flexible Connectedness Model constellation observed in high narcissism scores and previous non-FCM research on narcissism demonstrating a clear deficit in empathic ability, stress-regulation, and preoccupation

with ego-reinforcement (Jonason & Krause, 2013; Kealy & Rasmussen, 2012; Morf & Rhodewalt, 2011).

5.3 Future Considerations

The five studies in the current thesis have a number of important strengths and have made several unique contributions. This is the first empirical Relational Frame Theory-based account of prosocial and coercive behaviours. This is also the first account of measuring emotion-based deictic abilities. With the inclusion of four functionally distinct behavioural measures of perspective taking, the current thesis has provided the most fine-grained empirical analysis of deictic relational responding in the context of both advanced social behaviour and Flexible Connectedness Model research. By accounting for these four functionally different deictic abilities within the Flexible Connectedness Model, we were able to observe five functionally distinct behavioural constellations across all five criterion variables, illustrating the utility for including these predictor variables when trying to better understand prosocial and coercive behaviour.

There were some notable limitations in the Studies 1-5, and further research is required to address a number of questions arising from the current thesis. A possible concern in understanding coercive behaviours is related to utilizing a sub-clinical college student (e.g. convenience) sample. While narcissism and psychopathy conceptualizations originated in the clinical literature, the Short Dark Triad (SD3; Jones & Paulhus, 2014) was designed to capture coercive personality behavioural tendencies that are within the normal range of functioning, and deliberately subclinical (i.e., referring to the continuous distributions in larger community samples). The authors make a point of the distinctiveness of subclinical conceptualizations of narcissism and psychopathy as well (Jones & Paulhus, 2011; Jones & Paulhus, 2014). While utilizing a

subclinical sample may very well include extreme cases, our observed means were in the same range as those found by Jones and Paulhus (2014).

While one of the main strengths of the current thesis is the focus on utilizing behavioural measures of perspective taking, the remaining measures were self-report measures, including the AAQ-II (Bond et al., 2011) measuring experiential avoidance. Previous research has found the AAQ-II to be a less sensitive measure of experiential avoidance, when compared to domain specific measures of experiential avoidance (e.g., Gifford et al, 2004; Gregg, Callaghan, Hayes, & Glenn-Lawson, 2007; Levin, Luoma, Lillis, Hayes & Vilardaga, 2014; Luoma, Drake, Kohlenberg, & Hayes, 2011) and behavioural measures (Hooper, Villatte, Neofotistou, & McHugh, 2010). Research has also suggested it may be a stronger indicator of experienced distress rather than practiced agile acceptance (Wolgast, 2014), possibly influencing interpretation of observed relationships in the current studies. Given the focus on coercive behaviours that are socially sensitive, future research would find a behavioural measure of experiential avoidance the best fit to: (i.) control for "faking good" (McKenna, Barnes-Holmes, Barnes-Holmes, & Stewart, 2007), (ii.) maintain consistency with a RFT verbal behaviour account of experiential avoidance (Barnes-Holmes, Barnes-Holmes, Power, Hayden, Milne, & Stewart, 2006), and (iii.) it's practical advantages of objective measurement, including not requiring participant self awareness and reflection, or observational methods that are logistically complex and time and resource intensive.

Utilizing a cross sectional design does not allow for the same kind of inference as would an experimental or longitudinal design would. Therefore, the differences observed across all five criterion variables and the observed medium effect sizes need to be considered with caution. Future studies should consider designs (i.e., longitudinal or experimental) and analyses that would also account for the observed variations in

deictic ability that did not follow a developmental sequence. These thesis studies suggest that while basic deictic ability and emotion-based deictic ability are imperative prerequisites to social behaviour, there may be a minimum amount of fluency required, and the ability for this repertoire being generalized and/or evoked is potentially mediated by other factors.

Previous research has suggested a complex relationship with perspective taking and the dark triad (Jonason, Li, Webster, & Schmitt, 2009; Wai & Toliopoulos; 2012), with minimum ability required to engage effectively in social contexts. Dark triad research has also suggested a clear relationship between coercive behaviours and the practice of valuing self over others in regard to moral and social values (Jonason, Strosser, Kroll, Duineveld & Baruffi, 2015), and practicing a negative other' heuristic in which all others are perceived as weak and vulnerable (Campbell et al., 2009; Glenn, Iyer, Graham, Koleva, & Haidt, 2009). This is in complete contrast with the prosocial literature finding that altruistic behaviour is associated with internalized norms of principles concerning helping, high moral reasoning (Eisenberg, Carlo, Murphy, & Van Court, 1995), and both social responsibility and ascription of responsibility (e.g., duty to attend to the needs and welfare of others) (Carlo, Eisenberg, Troyer, Switzer, & Speer, 1991; Schroeder, Penner, Dovidio, & Piliavin, 1995). As discussed earlier, distinct differences were observed between prosocial and coercive behaviours with empathic concern. Data also demonstrated different behavioural patterns between empathic concern and emotion based deictic ability across all the criterion variables, suggesting functional differences between them. It is possible that empathic concern is not necessarily a measure of empathic ability, but a measure of rule-governed behaviour that specifies social values. If empathic concern is a marker for the presence of verbal rules signaling the importance of social values being practiced, that would be consistent

with previous findings on the distinct differences between prosocial and coercive behaviours in regard to social values and moral reasoning. Empathic concern as rule governed behaviour would also better contextualize the varied relationships we observed between all the criterion variables and the other predictor variables.

While empathic concern may indicate the presence of potential rule governed behaviour generally indicating that to practice social values requires evoking worry when another is in distress, there would most likely be several more other verbal rules also present involving self and others, such as (i.) how to help when someone is in distress, (ii.) when to help, (iii.) who to help (i.e., other-as-content), (iv.) what kind of person helps (i.e., self-as-content), etc. One of the behavioural functions of rule governed behaviour is to utilize self-rules to describe how a person should behave in certain contexts, and as a result of the bidirectional and relational characteristics of language (i.e., combinatorial entailment and transformation of stimulus functions), this process results in varied and complex relational networks.

While the current studies accounted for the base foundational deictic abilities regarding basic perspective taking and the ability to transform emotion based stimulus functions with deictic repertoires, more complex selfing behaviour (i.e., ability to defuse from self-as-content, adaptive engagement with self-as-process, and fluency with self-as context) was not accounted for. As discussed earlier in Chapter 1, Section 1.4.1, the selfing repertoire develops within the socioverbal community through the abstraction of rule governed behaviour, and when that ability fails to develop there are impairments in both the development of self and how the self relates to others. Due to deictics unique relational properties requiring abstraction rather than being traced to physical properties, repertoire of self develops through the interaction of verbal rules set up by the individual's verbal community.

While we've previously outlined how deficits can occur when a rich and varied socioverbal environment is absent or infrequent, we did not discuss the role of self-rules mediating the development of selfing behaviour by the community. When problems emerge during the development of selfing behaviour, this results in deficits in the emergence of self-knowledge and self-rules. Depending on the type of verbal regulation that is most dominant, different adaptive or maladaptive patterns in self-knowledge, selfing behaviour and relation to others will occur. There are three functional classes of rule-governed behaviour: pliance, tracking and augmentals. Pliance involves rule-following that is controlled by socially-mediated contingencies. In non technical terms, pliance is rule-following that involves the social community (i.e., a parent, partner, coworker, etc.) to determine whether a rule has been followed or not, by outlining the conditions and consequences of the individual's behaviour. Tracking involves rule-following that is controlled by natural consequences, while augmentals involve "rule-governed behaviour due to relational networks that alter the degree to which events function as consequences" (p.109; Hayes, Barnes-Holmes, & Roche, 2001). All three verbal rule functional classes differentially shape selfing behaviour in varied ways across individuals and contexts.

Self rules are typically more adaptive when people are able to accurately track the contingencies that are actually occurring in the environment (given that the track itself is not false), or able to interact with augmentals that are self chosen (Atkins & Styles, 2015). In general this rule-governed behavioural pattern, increases the chances of an adaptive flexible self that is able to:

> "Discriminate self-as-content (rules concerning oneself and one's behaviour that may become rigid and ineffective) from self-as-process (i.e., the moment-to-moment experiences of thoughts, memories, feelings and sensations as they happen) and self-as-context (i.e., the abstraction of the common perspective to

all these actions that establishes the function for behaviour regulation (p.159; Luciano, Valdivia-Salas, & Ruiz, 2012)."

It appears as though the three types of selfing behaviour do not develop in a concrete linear sequence, and develop in tandem (Luciano et al., 2009). Future research would benefit from further exploring rule governed behaviour in regard to self and other rules, and selfing behaviour ability. Some research has begun to examine the relationship between self rules, selfing behaviour and well being (Atkins & Styles, 2015). Consistent with theoretical accounts, more frequent negative self-as-content conceptualizations were associated with reduced wellbeing. Together, self-as-context and values oriented self-rulesreliably predicted various forms of wellbeing 6 and 12 months later. In order to measure self-rules and selfing behaviour, the authors utlised text analysis, highlighting the utility of using multi-method designs. Text analysis may help to further explore the functional differences in expression, dominance or absence of self-rules, selfing behaviour ability, and how selfing ability is mediated by self-rules and the interaction between deictic repertoires and other relational frames (Foody, Barnes-Holmes, Barnes-Holmes, & Luciano, 2013) in the context of prosocial and coercive behaviour.

5.4 Conclusion

Uniquely different behavioural constellations emerged between all the prosocial and coercive criterions, providing a functional map of potential, manipulable discriminative and establishing operants. Results from the current thesis suggest that deictic relational responding, empathic concern, and experiential avoidance may play a role in evoking emotional and altruistic prosocial behaviour in distinctly varied functional patterns, but the Flexible Connectedness Model in it's current form does not account for better understanding coercive behaviour. While the Flexible Connectedness

Model's scope did not extend to the coercive behaviours, deictic ability and experiential avoidance were found to significantly predict narcissism and psychopathy in varied ways. Across all coercive criterion variables, empathic concern was consistently not a significant predictor- a direct contrast to the emotional and altruistic prosocial behaviour results where empathic concern consistently accounted for the most observed unique variance. Significantly distinct patterns of deictic ability were found across all the five criterion variables, none of which followed a clear developmental trajectory between the various types of deictic ability. Although the work reported in this thesis highlights a set of potential manipulable variables and the most fine-grained analysis of deictic ability to be empirically tested with complex social behaviours to date, other variables such as rule-governed behaviour and selfing behaviour should also be considered in future research. Collectively, the studies in the current thesis suggest the utility in further exploring the Flexible Connectedness Model's predictor variables in the context of better understanding prosocial behaviours. Future research should explore research analyses and designs that can account for additional potential contributions of rule governed behaviour and selfing behaviour.

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APPENDIX A:

PERSPECTIVE TAKING TASKS

Deictic Relational Task (DRT) Brief

*Note: * indicates correct answer; all items have deictic relational type and complexity evaluated in the task nominated below the answer choices.*

Instructions: This first perspective taking task consists of answering 20 questions that will require that you take the perspectives of other people. The answers may seem simple, but it is not as easy as it looks. You are being asked to imagine a complex scenario and to visualize a change in perspective. Therefore, please try to pay close attention and try to answer as accurately as possible.

1. Sarah is at Oxford University defending a dissertation, and Darin is at Stanford University teaching a lecture. If Darin were Sarah and if Oxford University was Stanford University, where would she be?
    a. At Stanford
    b. At Oxford*

Double reversal I-You, Here-There

2. Right now, Timothy is walking his neighbor's dog, but tomorrow in the afternoon he will be getting paid $10. If now were tomorrow in the afternoon, what would Timothy be doing?
    a. Getting paid $10*
    b. Walking his neighbor's dog

Reversal Now-Then

3. Michelle is at Byron Bay meditating in the sand, and Dave is in the Mediterranean Sea floating on a raft. If Michelle were Dave and if the Mediterranean Sea were Byron bay, where would she be?
    a. At Byron Bay*
    b. At the Mediterranean Sea

Double Reversal I You-Here there

4. Right now, Samantha is trying on clothing in a dressing room in Nowra, and in four years she will be designing clothing in an office in New York City. If now were in four years and if New York City was Nowra, where would she be?
    a. In Nowra*
    b. In New York City

Double Reversal- Here There, Now then

5. Hammish is floating in the pool, and John is jumping off of the diving board. If John were Hammish, what would he be doing?
    a. Floating in the pool*
    b. Jumping off the diving board

Reversal I You

6. Patrick is watching the sunset on the rooftop, and Jessica is watching TV in the lounge room. If the rooftop were the lounge room, what would Patrick be watching?
    a. The television*
    b. The sunset

Reversal Here-there

7. Peter is entertaining friends, and Claire is playing the guitar. If Peter were Claire, what would he be doing?
    a. Entertaining friends
    b. Playing the guitar*

Reversal I You

8. Linda is picking up her nephew from the bus stop. Justin is buying his nephew a soda at the movie theater. If the bus stop were the movie theater, where would Linda be?
    a. Bus stop
    b. Movie theater*

Reversal Here There

9. Today Jackie is doing the washing, and tomorrow she will be relaxing on the beach. If today were tomorrow, what would Jackie be doing today?
    a. Relaxing on the beach*
    b. Doing the laundry

Reversal Now-Then

10. Right now, Sophie is getting a facial at a beauty salon in Sydney. In two weeks she will be modeling in a fashion show in Melbourne. If it was two weeks from now, and Melbourne was Sydney, where would she be?
    a. In Melbourne
    b. In Sydney*

Double Reversal Now Then, Here There

11. Steve is catching a frog in the creek and Amelia is catching a butterfly in the paddock. If Amelia were Steve, what would she be doing?
    a. Catching a frog*
    b. Catching a butterfly

Reversal I You

12. Now William is having dinner, but three hours ago he was standing in line at the ice cream shop. If now were three hours ago, what would William be doing?
    a. Standing in a line*
    b. Having dinner

Reversal Now Then

13. Mark is picking a rose from the rose garden, and in an hour he will be handing the rose to his wife at a fancy restaurant. If it were an hour from now and the restaurant were the garden, where would Mark be?
    a. In the garden*
    b. At the restaurant

Double Reversal Now Then, Here-There

14. Kingston is in Manchester getting knighted by the queen, and Martin is in Ethiopia building a hut. If Martin were Kingston and if Manchester were Ethiopia, where would he be?
    a. In Manchester
    b. In Ethiopia*

Double Reversal, I You, Here There

15. Plato is discussing the Republic and Aristotle is lecturing in Athens. If Aristotle were Plato, what would he be doing?
    a. Lecturing
    b. Discussing the republic*

Reversal I-You

16. Josh is at the laundromat folding clothes. Kathryn is at the salon getting a pedicure. If Josh were Kathryn and if the salon were the laundromat, where would he be?
    a. Laundromat*
    b. Salon

Double Reversal- I You, Here There

17. Right now, Rowan is riding a horse in the Grand Canyon, and next summer he will be sailing in the Caribbean Sea. If now were next summer and the Caribbean Sea were the Grand Canyon, where would he be?
    a. Grand Canyon*
    b. Caribbean Sea

Double Reversal now-then, here-there

18. Ashley is floating newspaper boats down the stream. Jack is ordering pasta at an Italian restaurant. If the Italian restaurant were the stream, where would Jack be?
    a. Stream*
    b. Restaurant

Reversal-Here There

19. Right now Taylor is posing for the camera. In five hours he will be sitting in a hot tub. If it were 5 hours from now, what would Taylor be doing?
    a. Posing for the camera
    b. Sitting in a hot tub *

Reversal Now Then

20. Bella is watering her flowers in her apartment in New York, Aiden is in the North Pole ice fishing. If New York were the North Pole, where would Bella be?
    a. New York
    b. North Pole*

Reversal- here there

Relational Frame Theory Perspective Taking Task (RFT-PT) Brief

Note: The correct answer is written in capitals after each question; all items are organized by deictic relational type and complexity evaluated. They were presented to participants in random order and not in the order listed below.

Instructions: This second perspective taking task consists of answering 25 questions that will require that you pay close attention to subtle changes in perspectives. You will want to imagine the scenario and visualise the perspective change. Please try to pay close attention and try to answer as accurately as possible.

Reversed Relations I-YOU (4 items, 1 FOIL)

1. I have a green brick and you have a red brick. If I was you and you were me,
a. Which brick would I have? RED
b. Which brick would YOU have? GREEN

2. I have a red brick and you have a green brick. If I was you and you were me,
a. Which brick would I have? GREEN
b. Which brick would YOU have? RED

3. I am sitting here on the blue chair and you are sitting there on the black chair. If I was you and you were me,
a. Where would I be siting? BLACK
b. Where would YOU be sitting? BLUE

4. I am sitting here on the black chair and you are sitting there on the blue chair. If I was you and you were me,
a. Where would YOU be sitting? BLACK
b. Where would I be sitting? BLUE

5. FOIL: You have a red brick and I have a green brick. If I was me, and you were you,
a. Which brick would I have? GREEN
b. Which brick would YOU have? RED

Reversed Relations HERE-THERE (4 items, 1 FOIL)

6. I am sitting here on the black chair and you are sitting there on the blue chair. If here was there and there was here,
a. Where would YOU be sitting? BLACK
b. Where would I be sitting? BLUE

7. Yesterday you were sitting there on the black chair, today you were sitting here on the blue chair. If here was there and there was here,
a. Where would YOU be sitting then? BLUE
b. Where would YOU be sitting now? BLACK

8. Yesterday I was sitting there on the blue chair, today I am sitting here on the black chair. If here was there and there was here,
a. Where would I be sitting then? BLACK
b. Where would I be sitting now? BLUE

9. Yesterday you were sitting there on the blue chair, today you are sitting here on the black chair. If here was there and there was here.
a. Where would you be sitting now? BLUE
b. Where would you be sitting then? BLACK

10. FOIL: You are sitting there on the blue chair and I am sitting here on the black chair. If here was here and there was there,
a. Where would YOU be sitting? BLUE
b. Where would I be sitting? BLACK

Reversed Relations NOW-THEN (4 items, 1 FOIL)

11. Yesterday I was reading, today I am watching television. If now was then and then was now,
a. What would I be doing now? Reading
b. What would I be doing then? Watching television

12. Yesterday I was watching television, today I am reading. If now was then and then was now,
a. What would I be doing then? Reading
b. What would I be doing now? Watching television

13. Yesterday you were watching television, today you are reading. If now was then and then was now,
a. What would you be doing then? READING
b. What would you be doing now? WATCHING TV

14. Yesterday I was sitting there on the black chair, today I am sitting here on the blue chair. If now was then and then was now,
a. Where would I be sitting now? BLACK
b. Where would I be sitting then? BLUE

15. FOIL: Yesterday I was reading, today I am watching television. If now was now and then was then,
a. What would I be doing now? WATCHING TV
b. What would I be doing then? READING

Double Reversed Relations I-YOU/HERE-THERE (3 items, 1 FOIL= ProSocial Group; #19 added for Coercive Group 4 items, 1 FOIL)

16. I am sitting here on the black chair and you are sitting there on the blue chair. If I was you and you were me and if here was there and there was here,
a. Where would YOU be sitting? BLUE
b. Where would I be sitting? BLACK

17. I am sitting here on the black chair and you are sitting there on the blue chair. If I was you and you were me and if here was there and there was here,
a. Where would I be sitting? BLACK
b. Where would YOU be sitting? BLUE

18. I am sitting here on the blue chair and you are sitting there on the black chair. If I was you and you were me and if here was there and there was here,
a. Where would I be sitting? BLUE
b. Where would YOU be sitting? BLACK

19. I am sitting here on the blue chair and you are sitting there on the black chair. If I was you and you were me and if here was there and there was here.
a. Where would YOU be sitting? BLACK
b. Where would I be sitting? BLUE

20. FOIL: I am sitting here on the black chair and you are sitting there on the blue chair. If I was you and you were me, and if here was here and there was there,
a. Where would I be sitting? BLUE
b. Where would YOU be sitting? BLACK

Double Reversed Relations HERE-THERE/NOW-THEN (4 items, 1 FOIL)

21. Yesterday you were sitting there on the black chair, today you are sitting here on the blue chair. If here was there and there was here and if now was then and then was now.
a. Where would you be sitting now? BLUE
b. Where would I be sitting then? BLACK

22. Yesterday I was sitting there on the black chair, today I am sitting here on the blue chair. If here was there and there was here and if now was then and then was now,
a. Where would I be sitting then? BLACK
b. Where would I be sitting now? BLUE

23. Yesterday you were sitting there on the blue chair, today you are sitting here on the black chair. If here was there and there was here and if now was then and then was now,
a. Where would you be sitting now? BLACK
b. Where would you be sitting then? BLUE

24. (Yesterday you were sitting there on the black chair, today you are sitting here on the blue chair. If here was there and there was here and if now was then and then was now,
a. Where would you be sitting then? BLACK
b. Where would you be sitting now? BLUE

25. FOIL: Yesterday you were sitting there on the blue chair, today you are sitting here on the black chair. If here was there and there was here and if now was now and then was then,
a. Where would you be sitting then? BLACK
b. Where would you be sitting now? BLUE

Deictic Relational Task Emotion (DRT-E) Brief

*Note: * indicates correct answer; all items have deictic relational type and complexity evaluated in the task nominated below the answer choices.*

Instructions: This perspective taking task consists of answering 25 questions that will require that you take the perspectives of other people. You will want to imagine the scenario and visualise the perspective change. Some of these changes are subtle. Therefore, please try to pay close attention and try to answer as accurately as possible.

1) Sarah feels happy and Darin feels angry. If Sarah was Darin and Darin were Sarah,
How would Sarah feel? Happy Angry*
How would Darin feel? Happy* Angry
Reversed I-YOU

2) Andy is here getting cut off in traffic and feeling angry. Michael is there breaking up with his partner and feeling sad. If here was there and there was here,
What would Andy be feeling? Angry Sad*
What would Michael feeling? Angry* Sad
Reversed Here-There

3) Yesterday Emma was there getting cut off in traffic and feeling angry. Today Peter was here watching a scary movie and feeling afraid. If here was there and there was here,
What would Emma be feeling there? Angry Afraid*
What would Peter be feeling here? Angry* Afraid
Reversed Here-There

4) Linda is here watching a scary movie and feeling afraid. Patrick is there getting a pay increase at work and feeling happy. If Linda was Patrick and Patrick were Linda, AND if here was there and there was here,
What would Patrick be feeling? Afraid Happy*
What would Linda be feeling? Afraid* Happy
Double Reversed I-You, Here-There

5) Yesterday Rob was there getting cut off in traffic and feeling angry. Today Martin was getting a pay increase at work and feeling happy. If here was there and there was here, AND if now was then and then was now.
What would Martin be feeling now? Angry Happy*
What would Rob be feeling then? Angry* Happy
Double Reversed Here-There, Now-Then

6) Yesterday Sophie was there breaking up with her partner and feeling sad. Today Charlie is here watching a scary movie and feeling afraid. If here was there and there was here, AND if now was then and then was now,
What would Charlie be feeling now? Sad Afraid*
What would Sophie be feeling then? Sad* Afraid
Double Reversed Here-There, Now-Then

7) Yesterday Kate was watching a scary movie and feeling afraid. Today she is breaking up with her partner and feeling sad. If now was then and then was now
What would Kate be feeling now? Afraid* Sad
What would Kate be feeling then? Afraid Sad*
Reversed Now-Then

8) Yesterday Lee was watching a scary movie and feeling afraid. Today he is getting a pay increase at work and feeling happy. If now was then and then was now,
What would Lee be feeling now? Afraid* Happy
What would Lee be feeling then? Afraid Happy*
Reversed Now-Then

9) Sean is here feeling afraid. Claire is there feeling happy. If Sean was Claire and Claire were Sean,
What would Sean be feeling? Afraid Happy*
What would Claire I feeling? Afraid* Happy
Reversed I-You

10) Yesterday Michelle was getting cut off in traffic and feeling angry. Today she is breaking up with her partner and feeling sad. If now was then and then was now,
What would Michelle be feeling now? Angry* Sad
What would Michelle be feeling then? Angry Sad*
Reversed Now-Then

11) William is here getting a pay increase at work and feeling happy. Mark is there breaking up with his partner feeling sad. If William was Mark and Mark were William, AND if here was there and there was here,
What would William be feeling? Happy* Sad
What would Mark be feeling? Happy Sad*
Double Reversed I-You, Here-There

12) Yesterday Jackie was there watching a scary movie and feeling afraid. Today Matt is here getting a pay increase at work and feeling happy. If here was there and there was here, AND if now was then and then was now,
What would Matt be feeling now? Afraid Happy*
What would Jackie be feeling then? Afraid* Happy
Double Reversed Here-There, Now-Then

13) Tim feels sad and Ryan feels afraid. If Tim was Tim and Ryan was Ryan,
How would Tim feel? Sad* Afraid
How would Ryan feel? Sad Afraid*
Reversed I-You FOIL

14) Zoe is there breaking up with her partner and feeling sad. Samantha is here getting cut off in traffic and feeling angry. If here was here and there was there,
What would Zoe be feeling? Sad* Angry
What would Samantha be feeling? Sad Angry*
Reversed Here-There FOIL

15) Luke is here breaking up with his partner and feeling sad. Amelia is there watching a scary movie and feeling afraid. If Luke was Amelia and Amelia were Luke, AND if here was there and there was here,

What would Amelia be feeling? Sad Afraid*

What would Luke be feeling? Sad* Afraid

Double Reversed I-You, Here-There

16) Yesterday Taylor was there getting cut off in traffic and feeling angry. Today Joseph is here breaking up with his partner feeling sad. If here was there and there was here, AND if now was then and then was now,

What would Joseph be feeling now? Angry Sad*

What would Taylor be feeling then? Angry* Sad

Double Reversed Here-There, Now-Then

17) Yesterday Hannah was there getting a pay increase at work and feeling happy. Today Aiden is here breaking up with his partner feeling sad. If here was there and there was here, AND if now was now and then was then,

What would Aiden be feeling now? Happy* Sad

What would Hannah be feeling then? Happy Sad*

Double Reversed Here-There, Now-Then FOIL

18) April is here getting a pay increase at work and feeling happy. Kylie is there watching a scary movie and feeling afraid. If here was there and there was here,

What would April be feeling? Happy Afraid*

What would Kylie be feeling? Happy* Afraid

Reversed Here-There

19) Yesterday Hammish was getting a pay increase at work and feeling happy. Today he is getting cut off in traffic and feeling angry. If now was then and then was now.

What would Hammish be feeling now? Happy* Angry

What would Hammish be feeling then? Happy Angry*

Reversed Now-Then

20) Yesterday Justin was there breaking up with his partner and feeling sad. Today Steve is here getting a pay increase at work and feeling happy. If here was there and there was here,

What would Justin be feeling? Sad Happy*

What would Steve be feeling? Sad* Happy

Reversed Here-There

21) Stacey is here feeling angry and Jodie is there feeling sad. If Stacey was Jodie and Jodie were Stacey,

What would Stacey be feeling? Angry Sad*

What would Jodie be feeling? Angry* Sad

Reversed I-You

22) Ben feels happy and Jack feels afraid. If Ben was Jack and Jack were Ben,

What would Jack be feeling? Happy* Afraid

What would Ben be feeling? Happy Afraid*

Reversed I-You

23) Yesterday James was watching a scary movie and feeling afraid. Today he is getting cut off in traffic and feeling angry. If now was now and then was then,
What would James be feeling now? Afraid Angry*
What would James be feeling then? Afraid*Angry
Reversed Now-Then FOIL

24) Emily is here getting cut off in traffic and feeling angry. Louise is there getting a pay increase at work and feeling happy. If Emily was Louise and Louise were Emily,
AND if here was here and there was there,
What would Emily be feeling? Angry Happy*
What would Louise be feeling? Angry* Happy
Double Reversed I-You, Here-There FOIL

25) Dave is there watching a scary movie and feeling afraid. Greg is here getting a pay increase at work and feeling happy. If Dave was Greg and Greg were Dave,
AND if here was there and there was here,
What would Greg be feeling? Afraid Happy*
What would Dave be feeling? Afraid* Happy
Double Reversed I-You, Here-There

Relational Frame Theory Perspective Taking Emotion (RFT PT-E) Brief

Instructions: This perspective taking task consists of answering 25 questions that will require that you take the perspectives of other people. In the next task there will be situations that can cause some people to feel afraid (i.e. watching a scary movie), situations that can cause some people to feel happy (i.e. getting a pay increase at work), situations that can cause some people to feel to feel sad (ie. breakup with boyfriend or girlfriend, pet dies), and some situations that can cause some people to feel angry (ie. getting cut off in traffic). Although different people may feel differently when they're watching a scary movie (i.e. they may instead feel excited), the point of this exercise is not asking how you would actually feel in these scenarios. The questions are asking to imagine you feel those emotions during those events.

The answers to these questions may seem simple, but it is not as easy as it looks. You are being asked to imagine a complex scenario and to visualize a change in perspective. Some of these changes are subtle. Therefore, please try to pay close attention and try to answer as accurately as possible.

*Note: * indicates correct answer; all items have deictic relational type and complexity evaluated in the task nominated below the answer choices*

1. I feel happy and you feel angry. If I was you and you were me,
    How would I feel? Happy Angry*
    How would YOU feel? Happy* Angry
Reversed I-YOU

2. Yesterday YOU were there breaking up with your partner and feeling sad. Today I am here getting a pay increase at work and feeling happy. If here was there and there was here,
    How would I be feeling? Sad* Happy
    How would YOU feeling? Sad Happy*
Reversed Here-There

3. Yesterday you were there getting cut off in traffic and feeling angry. Today you are here watching a scary movie and feeling afraid. If here was there and there was here,
    What would YOU be feeling there? Angry Afraid*
    What would YOU be feeling here? Angry* Afraid
Reversed Here-There

4. I am here watching a scary movie and feeling afraid. You are there getting a pay increase at work and feeling happy. If I was you and you were me, AND if here was there and there was here,
    What would YOU be feeling? Afraid Happy*
    What would I be feeling? Afraid* Happy
Double Reversed I-You, Here-There

5. Yesterday I was getting cut off in traffic and feeling angry. Today I am breaking up with my partner and feeling sad. If now was then and then was now,

What would I be feeling now? Angry* Sad

What would I be feeling then? Angry Sad*

Reversed Now-Then

6. Yesterday you were there getting cut off in traffic and feeling angry. Today you are getting a pay increase at work and feeling happy. If here was there and there was here, AND if now was then and then was now.

What would you be feeling now? Angry Happy*

What would you be feeling then? Angry* Happy

Double Reversed Here-There, Now-Then

7. I am here getting cut off in traffic and feeling angry. You are there getting a pay increase at work and feeling happy. If I was you and you were me, AND if here was here and there was there,

What would I be feeling? Angry Happy*

What would YOU be feeling? Angry* Happy

Double Reversed I-You, Here- There FOIL

8. I am here feeling angry and you there feeling sad. If I was you and you were me,

What would YOU be feeling? Angry* Sad

What would I be feeling? Angry Sad*

Reversed I-You

9. I am here getting cut off in traffic and feeling angry. YOU are there breaking up with your partner and feeling sad. If here was there and there was here,

What would YOU be feeling? Angry* Sad

What would I be feeling? Angry Sad*

Reversed Here-There

10. Yesterday you were watching a scary movie and feeling afraid. Today you are getting a pay increase at work and feeling happy. If now was then and then was now,

What would you be feeling now? Afraid* Happy

What would you be feeling then? Afraid Happy*

Reversed Now-Then

11. Yesterday I was there getting cut off in traffic and feeling angry. Today I am here breaking up with my partner feeling sad. If here was there and there was here, AND if now was then and then was now,

What would I be feeling now? Angry Sad*

What would I be feeling then? Angry* Sad

Double Reversed Here-There, Now-Then

12. I am here breaking up with my partner and feeling sad. You are there watching a scary movie and feeling afraid. If I was you and you were me, AND if here was there and there was here,

What would I be feeling? Sad* Afraid

What would YOU be feeling? Sad Afraid*

Double Reversed I-You, Here- There
13. Yesterday I was watching a scary movie and feeling afraid. Today I am breaking up with my partner and feeling sad. If now was then and then was now,
What would I be feeling now? Afraid* Sad
What would I be feeling then? Afraid Sad*
Reversed Now-Then

14. I feel sad and you feel afraid. If I was you and you were me,
How would I feel? Sad Afraid*
How would YOU feel? Sad* Afraid
Reversed I-You

15. I am here getting a pay increase at work and feeling happy. YOU are there watching a scary movie and feeling afraid. If here was there and there was here,
What would YOU be feeling? Happy* Afraid
What would I be feeling? Happy Afraid*
Reversed Here-There

16. Yesterday you were there breaking up with your partner and feeling sad. Today you are here watching a scary movie and feeling afraid. If here was there and there was here, AND if now was then and then was now,
What would you be feeling now? Sad Afraid*
What would you be feeling then? Sad* Afraid
Double Reversed Here-There, Now Then

17. Yesterday you were there getting a pay increase at work and feeling happy. Today you are here breaking up with your partner feeling sad. If here was there and there was here, AND if now was now and then was then,
What would you be feeling now? Happy* Sad
What would you be feeling then? Happy Sad*
Double Reversed Here-There, Now-Then FOIL

18. I am here getting a pay increase at work and feeling happy. You are there breaking up with your partner and feeling sad. If I was you and you were me, AND if here was there and there was here,
What would I be feeling? Happy* Sad
What would YOU be feeling? Happy Sad*
Double Reversed I-You, Here-There

19. Yesterday you were getting a pay increase at work and feeling happy. Today you are getting cut off in traffic and feeling angry. If now was then and then was now.
What would you be feeling now? Happy* Angry
What would you be feeling then? Happy Angry*
Reversed Now-Then

20. I am here feeling afraid and you there feeling happy. If I was you and you were me,
What would YOU be feeling? Afraid* Happy
What would I be feeling? Afraid Happy*
Reversed I-You

21. I feel happy and you feel afraid. If I was me and you were you,
What would YOU be feeling? Happy* Afraid
What would I be feeling? Happy Afraid*
Reversed I-You FOIL

22. Yesterday I was there watching a scary movie and feeling afraid. Today I am here getting a pay increase at work and feeling happy. If here was there and there was here, AND if now was then and then was now,
What would I be feeling now? Afraid Happy*
What would I be feeling then? Afraid* Happy
Double Reversed Here-There, Now-Then

23. You are there watching a scary movie and feeling afraid. I am here getting a pay increase at work and feeling happy. If I was you and you were me, AND if here was there and there was here,
What would I be feeling? Afraid Happy*
What would YOU be feeling? Afraid* Happy
Double Reversed I-You, Here-There

24. Yesterday I was watching a scary movie and feeling afraid. Today I am getting cut off in traffic and feeling angry. If now was now and then was then,
What would I be feeling now? Afraid Angry*
What would I be feeling then? Afraid* Angry
Reversed Now-Then FOIL

25. You are there breaking up with your partner and feeling sad. I am here getting cut off in traffic and feeling angry. If here was here and there was there,
What would YOU be feeling? Sad* Angry
What would I be feeling? Sad Angry*
Reversed Here-There FOIL