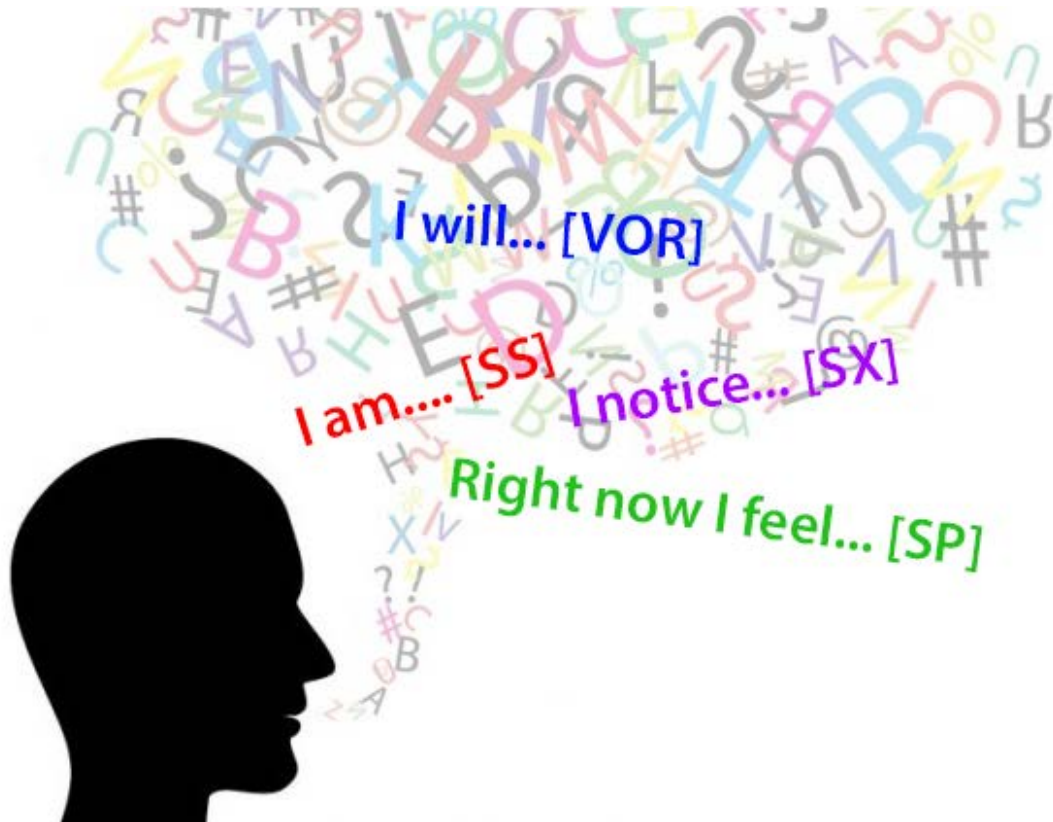# The Functional Self-Discrimination Measure and Interview:

A Measure of Verbal Behaviour that Predicts Wellbeing

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The Functional Self-Discrimination Measure and Interview: A Measure of Verbal Behaviour that Predicts Wellbeing

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Abstract

"How do words and speech influence covert and overt behaviour?" This question was distilled more precisely to a focus on how personal utterances regarding the 'self' acting in the world function to predict wellbeing. From the philosophical orientation of functional contextualism, we undertook an empirical analysis of language using Relational Frame Theory (RFT) in order to understand the functional relation between the term's being used by the speaker as they recalled the antecedent and consequent events related to emotionally charged events in their lives. This, in part, involved identifying the values that were controlling the speaker's observation and discrimination of what was important to them. This led to the development of a method, the Functional Self-Discrimination Measure & Interview (FSDM-FSDI), for classifying functional ways that the interviewees took perspective on experience and talked about themselves. Applying this method showed that: speaking of 'values' and their means of implementation significantly predicted long-term wellbeing; if a speaker uttered both value oriented self-rules and perspective taking statements, the combined effect was a stronger relationship with wellbeing; the way a person viewed themselves was significantly and positively related to their view of others; and, specific ratios of different categories of utterances equated to high levels of psychological flexibility.

The FSDM-FSDI method represents a new approach to analysing natural language, which allows for the prediction and potential influence of the future behaviour and wellbeing of the speaker. This work, we believe, is a *functional assessment* of verbal behaviour, which is new in the field of Contextual Behavioural Science (CBS), and has important implications for those working and researching in the fields of psychological wellbeing and behaviour change. This enquiry coincidently led us to a consideration of the social implications of this work and the development of prosocial and moral behaviour more broadly. We share this work with you and look forward to learning of further developments with its application in the service of enhancing valued living.

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Chapter One

Pre Analytic Assumptions

Chapter One Contents

Philosophical Orientation

This manual provides a method for analysing how words and speech influence covert and overt behaviour. Specifically, it is a method for analysing how personal utterances function to predict wellbeing. The philosophical orientation is behavioural. Our approach to designing this method did not postulate hypothetical inner causes of overt behaviour. Rather, we assumed the position of a functional contextualist and undertook an empirical analysis of language in order to understand the functional relation between the terms being used by the speaker as they recalled the antecedent and consequent events related to their current and historically situated acts. This in part involved identifying the values that were controlling the speaker's observation and discrimination of what was important to them. We have shown that if certain kinds of utterances are made, wellbeing can be predicted.

Before introducing the Functional Self-Discrimination Measure (FSDM) and Interview (FSDI) we provide an overview of the pre-analytic assumptions underpinning this approach. We have taken a contextualist orientation, which we contrast with those one might assume from other philosophical traditions. This is important, as some of the approaches in this method may seem unnecessarily complex or unfamiliar to researchers and practitioners anchored in the dominant psychological worldview. We are coming from a Contextual Behavioural perspective (Gifford & Hayes 1999; Hayes et al. 2012a; Hayes et al. 1988), which, while having a venerable history, is not the dominant worldview in psychology. Adopting this perspective has allowed for the functional analysis of language using a recent contextual behavioural approach, Relational Frame Theory (Hayes et al. 2001a). Below we briefly discuss and contrast the Contextual Behavioural perspective with two Elemental Realist perspectives – Modern Positivism and Postmodern Constructivism, as we have adapted methods from these traditions to contextualist purposes.

Elemental Realism

If we were to adopt an Elemental Realist worldview our assumptions would be based on the 'root metaphor' (Pepper 1942) of the world as a 'machine' with isolable parts that work together to cause behaviour. Our truth criterion would be

'correspondence', and the purpose of our scientific endeavour would be to attain closer correspondence between our predictions as scientists and actual events unfolding in the world. From this perspective, theoretical propositions would be true to the degree that they successfully predicted what was actually observed in the world. Two such scientific traditions built upon elemental realist assumptions are Modern Positivism and Postmodern Constructivism. These theories postulate causal links between hypothetical mental constructs and emphasise causal relations between these hypotheticals and what is 'real'. They differ in that the 'hypotheticals' in modern positivism are conceived as general laws that can be stated in propositional and quantitative terms. Whereas in Postmodern Constructivism those 'hypotheticals' are conceived as subjectively constructed beliefs and paradigms that reflect known reality. Both these scientific traditions are directed towards obtaining greater correspondence between what is hypothesised, the 'parts', and what is 'real'. We briefly discuss both these traditions below before discussing Functional Contextualism.

Modern Positivism

A Modern Positivist worldview is based on the assumption that psychological and social reality is governed by general laws that can be stated in propositional and quantitative terms (Feldman 1997; Hjørland & Hjørland 2005; Radford 1992). Positivism holds that the laws governing human behaviour are objectively knowable, and employing the natural science method would lead to the discovery of these laws. Applying this view means, in part, that humans are perceived as similar to other animals whose behaviour is motivated by individual and group survival, as described in evolutionary biology and sociology (Fishman 1999). Attempts to explain, predict and control human behaviour are in terms of personal mechanist type processes, which are governed by deterministic, general laws of nature. Traditional behaviourism is a good example of the natural science approach to the study of social behaviour (Skinner 1953, 1974). Equally, varying views assumed within psychology reflect a mechanist or modal account of the self as an object that has attributes, roles and traits; including characteristics such as self-awareness, self-esteem and identity which cause behaviour (Gallagher 2011; Leary & Tangney 2012).

The philosophical basis for the natural sciences holds that in order for a statement to be 'true' it must be objective, open to verification, or at least falsification, by particular sense-experiences (Feldman 1997; Hjørland & Hjørland 2005; Radford 1992). That is, statements are viewed as facts that represent observable, quantifiable phenomena. In Positivism, statements of individual or cultural value are viewed as subjective and are not considered part of a legitimate process of acquiring knowledge with the scientific method. Positivism explicates how scientific theories are deductively used to generate predictions of events that are subsequently tested through empirical observation. The results of theory testing involve the creation of discrete, atomic statements of fact. These are phrased in terms of a general summary with a de-emphasis on the particulars of context and actor's intentions and experience. Ultimately, the search for 'truth' is guided by the data and the sense experience that empirical observation provides.

The FSDM & FSDI, in part, adapts positivist methods for contextualist purposes. We employ a methodology for 'content analysis' in which small 'syntactical units' in interview transcripts are quantitatively coded as to their presence and strength, and the resulting quantitative data is then treated in traditional positivist ways. An analysis of the relations between the frequency of coded utterances and observed measures of psychological wellbeing over time serve to show which utterances predict wellbeing. Adapting positivist methods in this way facilitates a functional assessment of natural language.

Postmodern Constructivism

Postmodern Constructivism is a worldview based on the assumption that reality is not objectively knowable (Adler 1997; Barkin 2003; Price & Reus-Smit 1998; Raskin 2002). Rather, reality is constructed by individuals and groups and manifests as particular beliefs about historical, cultural and social contexts. The nature of reality is relative, depending on the observer's point of view. A constructivist asserts the incompleteness, limitations and relativity of knowledge as illustrated in the concepts of the heuristic circle, web of belief, language as intrinsic to experienced reality, and

scientific knowledge as paradigm-driven (Gee 2014b; Gergen et al. 2004; Heracleous 2004; Oswick et al. 2004; Raskin 2002; Thorne 2014; Trent & Cho 2014). The application of a constructivist view reinforces the idea that social progress is contingent on historical and situated conditions, values and decisions.

Two philosophical underpinnings of post modernism are Hermeneutics and Social Constructivism (Heracleous 2004; Raskin 2002; Spencer et al. 2014; Thorne 2014; Trent & Cho 2014). Hermeneutics holds what is knowable is an individual's holistic experience of engaged, intentional, practical activity. Social constructivism holds what is knowable is a particular group's experienced social reality, which is created through the communal interchange of the group's members. A social scientist taking a grounded approach to understanding an individual's or group's functioning would do so interactively with the research subject/s and construct theory through a thematic analysis of individual and group processes (Bryant 2014). These disciplines hold that 'language' and 'experience' cannot be separated; that holistic experience, combined perceptions, beliefs, intentions, and values are not separable from 'facts'. Human behaviour is viewed and understood in a way that is similar to how we interpret written texts. Thus, understanding the meaning of language is intimately tied to the interests and purposes of language users and the particular Wittgensteinian language game in which they are engaged (Heracleous 2004; Thorne 2014; Trent & Cho 2014). In this way statements symbolise a subjectively experienced reality rather than an objectively observed world.

The methods employed by the postmodern social scientist are thus qualitative, involving words, not numbers. Making sense of human behaviour is from the researcher's and research subject's conscious experience of life, with its mixture of thoughts, feelings, sensations, images, intentions, and intuitions. In the FSDM and FSDI we have also, in part, adapted constructivist methods to contextualist purposes. The method employs a thematic analysis of interview transcripts in order to capture the complex meaning and function of classes of verbal responses to historical and situated events in the lives of the interviewees. Again, these classes of verbal behaviour are related to quantitative measures of psychological wellbeing. This further facilitates a functional assessment of natural language.

Functional Contextualism

While we have adapted quantitative and qualitative methods that befit Elemental Realist traditions, we have adopted the worldview of a Functional Contextualist (Hayes 1993; Hayes et al. 1988) and a set of assumptions based on the root metaphor of, 'the ongoing act of the whole organism in context' (Pepper 1942). To understand the act, the context in which it is performed needs to be understood, which includes the historical and current influences upon the organism. From this standpoint, the world is understood as an undifferentiated process, and the divisions and dichotomies that we impose upon the flow of experience are purely functional; we divide up the world in ways that help us achieve our goals (Atkins 2012). Our truth criterion, as contextualists, is not the correspondence between subjective or objective models that predict or reflect what is 'real', but 'effective action' (Gifford & Hayes 1999) – asking "Does this way of viewing the world help me to achieve my goals?"

In particular, the FSDM and FSDI adopt a recent functional contextualist approach that has evolved out of the human sciences, Relational Frame Theory (Hayes et al. 2001a), which is a behaviour analytic approach to language that aims to better understand the link between human language and behaviour. Specifically, the stated goal of Functional Contextualism is "to predict-and-influence, with precision, scope, and depth, whole organisms interacting in and with a context considered historically and situationally" (Hayes et al. 2012a, p.4). The goal of prediction and influence provides a specific kind of utility, the truth criterion of "successful working". Prediction and influence are accomplished when analysis identifies the contextual features that permit the prediction of a behaviour of interest, and demonstrates that the manipulation of related contextual features affects the probability of that behaviour occurring (Gifford & Hayes 1999; Hayes & Long 2013).

The adoption of "successful working" as a truth criterion provides a way of understanding 'purpose' and distinctions between 'verbal' and 'non-verbal time' (Gifford & Hayes 1999; Hayes & Long 2013). All action occurs in an extended present, a history of consequences in similar situations, and the satisfaction of the goal being striven for. For non-verbal organisms, purpose involves the past as an activated history of events in which certain consequences have occurred, and the future in the

present as the behaviour being performed "purposefully" with regard to the said consequence. For verbal organisms this issue becomes more complex as their interactions with the past and future in the present become symbolic. Verbal repertoires introduce the "remembered" past and "predicted" future. We construct a 'before' and 'after' and futures that may have never been experienced. For verbal organisms what is at stake is the *activity* of 'deriving' futures, not the hypothetical symbolic events in themselves.

Being able to 'verbally derive' the future based on symbolic representations of the past as it is recalled in the present describes the pragmatic approach we adopted to the analysis verbal behaviour in the FSDM and FSDI. Verbally derived futures and temporally related events are not considered inner mental causes of overt behaviour. Rather, verbal behaviour, from an RFT perspective, is understood to be the behaviour of deriving relations between symbolic representations of events and desired change, and then acting affirmatively with regard to those derived relations. Thus, behaving purposefully in a verbal sense is considered rule-governed behaviour. The unit of analysis, the 'act-in-context', is the 'verbal-act-in-context'. Our empirical formulation of the verbal-act-in-context distinguishes the contextual relations between the terms being used by a speaker as they describe the antecedent and consequent events related to historically situated acts (Gifford & Hayes 1999); what values are controlling the speakers observation, discrimination and selection amongst environmental events (Leigland 2005; Skinner 1974); and, the potential function of classes of statements uttered by the speaker (Barnes-Holmes et al. 2001b). This involves the application of the Functional Self-Discrimination Measure & Interview (FSDM-FSDI), a measure of the speaker's perspective-taking and derived future consequences of rule-following. This method assesses, when a speaker verbally constructes their future, the extent their articulation of what would be important to them predicts long-term wellbeing.

In the next chapter we discuss in more detail the Contextual Behavioural Science (CBS) (Hayes et al. 2012a) perspective on the function of language, Relational Frame Theory (Hayes et al. 2001a) which is required for the successful application of the FSDM-FSDI method. In subsequent chapters we discuss how to apply the Functional

Self-Discrimination Measure & Interview (FSDM-FSDI), which is a new method for the analysis of natural language. In the concluding chapter we discuss the implications of this method based on the results from our research to date. This work, we believe, is a *functional assessment* of verbal behaviour and new in the field of CBS.

Chapter Two

Relational Frame Theory

Chapter Two Contents

Contextual Behavioural Science

As briefly discussed in the Introduction, the *Contextual Behavioural Science* (CBS) perspective on the function of language provides some insight into how we may be able to regulate our own behaviour and work together in ways that enhance our wellbeing. Work in this field has shown that personal, and social, flexibility and responsiveness is enhanced if we develop perspective-taking skills, learn to pragmatically and strategically evaluate what is important, and take value-directed responses to prevailing circumstances (Hayes et al. 2001a; Hayes et al. 1999). This is inherently verbal behaviour and is contingent on effective dialogical exchanges within the privacy of our own minds and between individuals. Further, it is contingent on our values functioning intrinsically to regulate behaviour and reinforcing the consequences of our actions (Deci & Ryan 2008; Ryan & Deci 2006; Villatte et al. 2016). If we can understand this behaviour, we can understand how language works for and against us. Understanding how language works may provide an insight into what it takes to cultivate moral behaviour and the good life.

As a prelude to discussing the FSDM-FSDI methods in the following chapters, below we discuss key theoretical accounts of the 'self' and how language functions from the recent contextual behavioural approach, Relational Frame Theory (RFT), that underpins the method. Specifically, we discuss: an RFT account of the 'self'; the function of language; rule-governed behaviour; motivation; how self-rules function; and, forms of pragmatic verbal analysis. To begin the discussion of an RFT account of the 'self' it is helpful to consider these words of Helen Keller as an example.

> *The most important day I remember in all my life is the one on which my teacher, Anne Mansfield Sullivan, came to me. I am filled with wonder when I consider the immeasurable contrasts between the two lives which it connects. It was the third of March, 1887, three months before I was seven years old.*
>
> *Have you ever been at sea in a dense fog, when it seemed as if a tangible white darkness shut you in, and the great ship, tense and anxious, groped her way toward the shore with plummet and sounding-line, and you waited with beating heart for something to happen? I was like that ship before my education began,*

only I was without compass or sounding-line, and had no way of knowing how near the harbour was. "Light! give me light!" was the wordless cry of my soul, and the light of love shone on me in that very hour.

We walked down the path to the well-house, attracted by the fragrance of the honeysuckle with which it was covered. Someone was drawing water and my teacher placed my hand under the spout. As the cool stream gushed over one hand she spelled into the other the word 'water', first slowly, then rapidly. I stood still, my whole attention fixed upon the motions of her fingers. Suddenly I felt a misty consciousness as of something forgotten – a thrill of returning thought; and somehow the mystery of language was revealed to me. I knew then that "w-a-t-e-r" meant the wonderful cool something that was flowing over my hand. That living word awakened my soul, gave it light, hope, joy, set it free! There were barriers still, it is true, but barriers that could in time be swept away. I left the well-house eager to learn. Everything had a name, and each name gave birth to a new thought. As we returned to the house every object which I touched seemed to quiver with life. That was because I saw everything with the strange, new sight that had come to me.

Helen Keller

This quote of Helen Keller (2012) draws a distinction between the 'self' that has the use of the language and the language itself. Her words point metaphorically to a 'self' that was transformed the moment she engaged in verbal behaviour. The transformation was from that of a ship without compass and sounding-line, from a wordless and dark inner world in which her soul cried for light, to one of light and love in which everything that was touched quivered with life. This quivering new world occurred with the thrill of returning thought revealed through the mystery of language. Language gave a strange, new sight that not only revealed the world, it also revealed the 'self.' The living word gave her awareness, hope, joy, and freedom. It is the distinction between the 'self' that has the use of language and the way language enables us to identify with the world and ourselves verbally that is of interest in this discussion.

The 'Self' Defined from a CBS Perspective

The distinction between the 'self' that has the use of language and language itself (apparent in Helen Keller's experience) can be understood from a contextual behavioural perspective. The contextual behavioural approach to understanding language and cognition, RFT, defines the self in terms of three behavioural processes – the *conceptualised self* which is identified with the content or object of verbal relations; the *knowing self* which is identified with the ongoing process of verbal relations; and the *perspective-taking self* which is identified with the deictic context of verbal relations (Hayes 1995; Hayes et al. 2001a; McHugh & Stewart 2012). By this definition, the 'self' that has the use of language is the *perspective-taking self*. Language, when in use, is known as *verbal behaviour* and pertains to the *conceptualised self* and the *knowing self*.

The verbal behaviours associated with both the conceptualised self and knowing self amount to what we 'know' (the two lower circles in Figure 2.1). The conceptualised self and knowing self constitute responses relevant to evaluation, problem solving and rule-governed behaviour. The perspective-taking self, or self-as-context of one's internal verbal behaviour (the top circle in Figure 2.1), is the observer of this behaviour that takes perspective from the position 'I-HERE-NOW.' As one develops the sense of self-as-context, the dynamics of the verbal behaviour pertaining to the other two selves can be discriminated. From this transcendent perspective a broader and more flexible repertoire can be brought to bear on any event. These three selves are illustrated in Figure 2.1 and explained in more detail below. It should be noted that, from this perspective, these selves do not exist as entities or things; they are processes – specifically processes of relating one event to another.
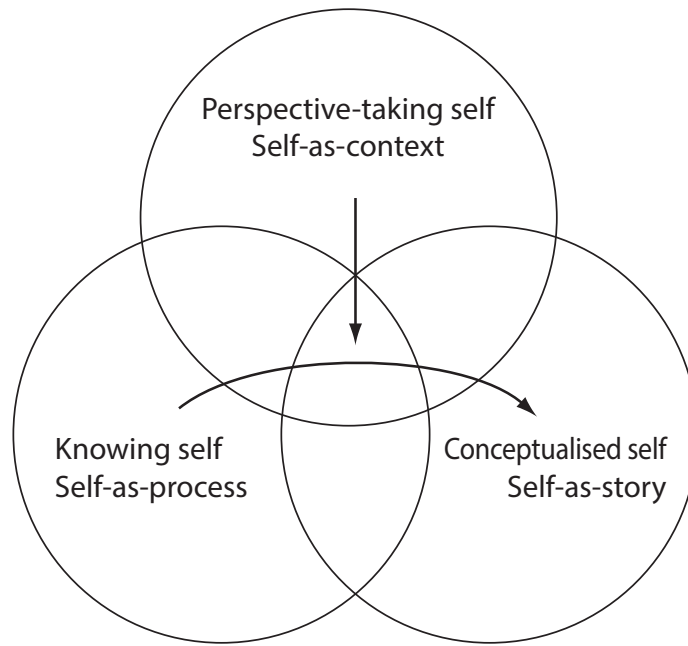
Figure 2.1. The three 'self' processes

The Conceptualised Self: Self-as-Story

Each of us engage in evaluating our ongoing unified stream of behaviour in terms of a panoply of categorical concepts. These categorical concepts constitute the *conceptualised self* or *self-as-story*. We use the term 'story' because the content or object of our verbal relations essentially becomes a story about our experience and 'who' we are. We evaluate, interpret, predict, explain, rationalise, and continue to interact with our own and others' behaviour. As soon as we can interact with ourselves and the world verbally in terms of I-YOU, HERE-THERE, and NOW-THEN we begin to form a "conceptualised self" (Barnes-Holmes et al. 2001a). For example, the "mystery of language" enabled Helen Keller to evaluate herself "I (not YOU) – HERE and NOW" based on once being "without compass and sounding-line" in a "wordless and dark inner world" in which her "soul cried for light" THERE and THEN, and later as a 'self' that had an "awakened soul, had light, hope, joy, and freedom" in a world that "quivered with life" that also happened THERE and THEN. Constructing a conceptualised self means verbally making sense of ourselves by referring to our history and tendencies and forming a coherent sense of identity. A coherent sense of identity serves important social functions. Various self categorisations allow for the

prediction of our behaviour; and, in this way, the self becomes important to us as it becomes important to others (Skinner 1974, p.30). In short, self-as-story refers to the descriptive and evaluative verbal constructs HERE and NOW about 'who' we are when talking about I, ME or MY behaviours, qualities and personal characteristics, derived from our history located THERE and THEN. In this way, constructing a sense of self involves evaluative verbal responding to personal history in terms of the relations I and YOU, HERE and THERE, and NOW and THEN.

The Knowing Self: Self-as-Process

Where the conceptualised self pertains to the categorical concepts and evaluations of 'who' we are, the *knowing self* relates to the ongoing process of verbally evaluating our stream of behaviour in current and historically situated contexts. Being able to describe and categorise our own behaviour HERE and NOW, for example, in terms of emotional feeling states, allows us to interact socially in highly individualised ways in changing circumstances. For example, Helen Keller tells us she is "filled with wonder" HERE and NOW as she recounts her story of the most important day she can remember in her life. Such emotional talk is a way we discuss HERE and NOW our personal history THERE and THEN. Being sensitive when we relate allows us to cut across many differences and provides a common ground for us to be human. In this way, our private worlds are intensely social and publically useful. It is how we, as a verbal community, speak with consistency about the conditions that influence our behaviour. The social construction of our private world allows us to function as social beings with regard to events that are supposedly private. Without this kind of self-knowledge, self-directed behaviour would be limited, as it would not be possible to construct a story about our current situation and future goals in quite the same way. For example, on the 3rd of March, 1887, there were moments when Helen Keller's whole attention was fixed upon the motion of her teacher's finger spelling "w-a-t-e-r" on the palm of her hand. In those, and following moments, she is gaining "vision" as she comes in contact with a world "quivering with life" revealed through the "mystery of language." She experiences being "set free." Equally, she could have experienced those same moments without gaining "vision" only to remain "tense and anxious, groping her way forward." Making such diverse inner experiences public,

influences how we are understood by others and the future direction important relationships might take. While our knowing self is key to empathy, self-control, self-knowledge, personal integration, social sensitivity, and so on, the knowing self also feeds the conceptualised self (Barnes-Holmes et al. 2001a). Hence the arrow from the *Knowing self* to *Conceptualised self* in Figure 2.1. In this way, the fluid, present based, verbal knowledge that the self as verbal process provides, can become content for the ossified, rigid, explanatory nature of the conceptualised self as current and historically situated present moment insights become the source of new stories, reasons, and causal constructions about 'who' we are. For example, identified preferences for solitude on an ongoing basis can consolidate into "being an introvert".

The Perspective-taking Self: Self-as-Context

Perspective taking involves identifying with the verbally constructed private and phenomenal world events from the perspective of I-HERE-NOW. Whenever we talk to someone else it will be from the perspective of I, located HERE and NOW, about events located THERE and THEN. Hence the downward arrow from the *Perspective-taking self* in Figure 2.1. For example, if I ask Helen Keller what she did on 3rd March 1887, she will report from her point of view as 'I', the speaker, located HERE and NOW, about the events "walking down the path to the well-house" having "my teacher place my hand under the spout" and realising "that 'w-a-t-e-r' meant the wonderful cool something that flowed over my hand" located THERE and THEN. If asked many questions, the only thing that will be consistent will not be the content of her answer, but the perspective "I, HERE and NOW" from which her answers occur (Barnes-Holmes et al. 2001a; Foody et al. 2012). The perspective-taking self is the context from which we become conscious of the objects of our experience. Like consciousness, perspective is not thing-like. Taking perspective on things means becoming conscious of the limits of those things. You cannot be conscious of the limits of your own consciousness, it is not thing like, it is no-thing and everything (Barnes-Holmes et al. 2001a). This sense of perspective is the locus from which things occur to us and it does not change. You, as the context of your experience, have been everywhere you have ever been. Wherever you go, there you are looking out at the world. This sense of a point-of-view or perspective is critical when working on

adaptive change as it is the one stable, unchangeable, immutable fact about who we are that is experienced directly. Self-as-perspective is not a belief, hope or idea, it is the conscious experience of an ongoing perspective on life itself.

The Nonverbal Self

Having discriminated the three verbal selves there is a question about verbal versus nonverbal knowing. Our nonverbal self is the biological locus of our behavioural activities; and, knowing nonverbally can be thought of as contacting direct experience as a behavioural stream (Hayes 1997). Verbal knowing augments nonverbal knowing. As seen in Helen Keller's experience, the nature of the self is expanded when verbal relating becomes part of her behavioural repertoire. She explains, "I saw everything with the strange, new sight (language) that had come to me". As we become verbal our behavioural and experiential stream as a bialogical organism becomes the object of our attention and our sense of self-as-process, -story and -context emerges. From a behavioural point of view, this kind of self-awareness is responding to ones' own responding. Skinner (1974, p.30-31) used the example of seeing. Most nonhuman animals see, but humans also see or know that they see.

Central to both verbal and nonverbal knowing is our experience as the locus of both biological and verbal behaviour. To function effectively as a species we need to increasingly organise our statements about ourselves as whole organisms interacting with our historical and current environments in order to predict and influence our social enterprises with precision, scope, and depth (Hayes et al. 2012a). Further, in order to have the ability to report events verbally, it is necessary to develop a sense of perspective or point of view (Barnes-Holmes et al. 2001a).

What is Language?

With an understanding of the three behavioural processes of the 'self'' we now consider the question, "What is language?" For all animals the influence-behaviour distinction can be thought of in terms of stimulus and response (Skinner 1953, 1974). However, uniquely for humans, along with environmental stimuli, verbal behaviour

also functions as a stimulus for both overt and covert behaviour (Hayes et al. 2001a; Wilson & DuFrene 2008). Central to language functioning as a stimulus is the behaviour of *relational framing*.

Relational Framing

The term relational frame specifies a particular pattern of responding to historically established contextual cues, or stimuli, and the response is to frame these cues relationally. Functionally, relational responding takes the forms of mutual entailment, combinatorial entailment, and transformation of stimulus functions (Hayes 1989; Hayes et al. 2001a; Torneke 2010), which we explain below. These forms of relational responding are acquired when learning to use language. Humans acquire the ability to relate arbitrary cues to events, for example words to objects. Initially we might speak the word "water", then we are taught the object to word relation "What is that?" – the wonderful cool something that flows over your hand = "w-a-t-e-r." In this way we learn two way relations, that is, *mutual entailment*. Many mutually entailed relations are learned: if A is above B, B is below A; if A causes B, B is caused by A; and so forth. As we learn that relations are entailed in two directions we also learn that relations combine. That is, if A is bigger than B and B is bigger than C, then A is bigger than C. Combining relations in this way is referred to as *combinatorial entailment*. Finally, this process involves the transformation of the effect of the word or the event, which is known as *transformation of stimulus functions*. For example, if I say (picking up a Y shaped stick) "this is a divining stick for finding water!" the stimulus functions of the stick have been transformed. It now means something to you.

Rule-Governed Behaviour

Our capacity for relational framing makes rule-formulation and rule-governed behaviour possible. Simply, rule-governed behaviour is, "behaviour controlled by antecedent verbal stimuli" (Hayes et al. 2001c, p.17). More precisely, a verbal rule can be understood as a description, or a verbal contingency which consists of a response, an outcome, and a discriminative stimulus in the presence of which the response will produce that outcome (Hayes 1989; Hayes et al. 2001a).

Our capacity for relational framing allows for the construction of verbal rules. Constructing a verbal rule is the action of organising verbal stimuli into arbitrarily applicable relational networks so that stimulus functions transfer throughout these networks. Take the verbal rule, "When the sun rises, go to the well and fetch water." The desired outcome is fresh water in the morning. The desired response is for the listener to actually go to the well and get the water. The discriminative stimuli are specified by the speaker in the first instance. The speaker of this rule specifies a contingency, that is, events are "specified" and organised into a relational network as follows in Table 2.1:
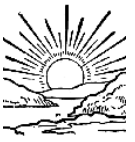
Verbal rule						
sunrise	then	go to	well	then	fetch	water
r	r	r	r	r	r	r
	(temporal)	f		(temporal & coordination)	f	
Entailed environmental objects and events that assume verbal functions						

Table 2.1. Contextual relations and functions of a verbal rule

The letters 'r' and 'f' refer to the contextual *relations* (C$_{rel}$) and behavioural *functions* (C$_{func}$) involved. The relations established between the words and symbols in the rule, and the environmental objects and events, take the form of mutual entailment (the middle row of 'r'). The environmental events and objects (sunrise, well), and motor behaviours (go to, fetch) constitute the relata that are framed relationally (temporal, coordination). The stipulated behavioural responses take the form of 'going' and 'fetching.' In this way the specified environmental objects and events participate in the rule by virtue of relations established by the rule. The environmental objects and events now have verbal functions in terms of the rule. Overall, the verbal rule constitutes a set of discriminative stimuli that define a pattern of responding that, if followed, should deliver the desired outcome, fresh water in the morning.

Just as a picture frame can hold many pictures, a relational frame can include different 'relata'. Classes of relational responding include, coordination, opposition, distinction, comparison, hierarchical, temporal, spatial, conditionality, causality, and deictic. Contextual cues, or stimuli, that can be framed relationally include virtually any environmental, behavioural or verbal event. Relational frames define an overall pattern of responding where as the current or historical context provides the specific formal features that occur in specific parts of the pattern (Hayes et al. 2001a). Consider the statement, "when you see _____, you will receive _____. " Different relata might complete the overall pattern as, "when you see the sun rise, you will receive a cool drink" alternately, "when you see your best friend, you will receive a hug." In this way, highly elaborated forms of relational framing involve deriving relations among relations, for example, paragraphs, chapters, analogies, metaphors, stories, trilogies, symphonies and mathematical formula. Our capacity for relational framing enables complex behaviours such as analysis, problem solving, strategic planning, persuasion, rhetoric, and other social processes that underpin social behaviour.

Understanding a Rule

Once a verbal rule is specified by a speaker, for it to be understood, the listener has to respond to the verbal stimuli firstly by organising events into a relational network. If this occurs the speaker is speaking with meaning and the listener is listening with understanding (Hayes & Hayes 1989). For a verbal rule to be specified and understood in this way both the speaker and listener require training of a similar kind. Mature speakers and listeners must learn to produce and respond to the same speech products in terms of the arbitrary applicable relations they specify, which are sustained by the linguistic community (Hayes & Hayes 1989). Behaving verbally is a social activity.

In this way, our capacity for relational framing allows for the specification of highly elaborate rules designed to establish complex forms of behaviour over time. In their most complete form, rules detail antecedent conditions appropriate for the desired

behaviour sequence such as time, place and circumstance; features of the response classes involved such as topography, rate and duration; and, desired consequences such as type, quality, and scheduling of events (Hayes 1989). Depending on the audience, the amount of detail varies. Examples of rules range from verbal instructions from books, websites and blogs promising self-awareness, fulfilment, and weight loss to road maps, cookbooks, and owner's manuals for personal appliances. Weather reports, navigation assistance, help with homework, and directions in a strange place are all examples of verbal rules. In each case verbal rules are a partial statement of contingencies that, once understood, require the rule-follower(s) to gather the remaining aspects from the environment and past history.

Relationship Between Verbal and Motor Behaviours

Understanding a rule is not the same as following it. Once a verbal rule is specified and understood, the verbal functions of the previously nonverbal environment make it possible to move from rule-understanding to rule-following (Hayes et al. 1989). The behaviour required to mediate the consequences specified in the rule can occur in an entirely different context to that in which the rule was specified because aspects of the new context now function as verbal stimuli with effects established by the rule.

This still does not fully explain rule-following, however. When the sun rises, you may make contact with the altered functions of the sunrise and well and still not get out of bed to go and fetch the water. You, for example, may point toward the well when asked "Where are you meant to go to get the water?" and still not get up and go. This is a matter of "motivation" which is discussed below. To get up and walk to the well is a coordination of behaviour with a different stimulus function than that established by virtue of the well's participation in a relational frame with the word *well* as specified in the rule. To take the bucket in your hand requires the coordination of motor behaviour moment by moment as you lower it into the water in the well (reaching down, scooping water, lifting, moving the bucket out of the well, placing it over the shoulder, balancing, walking). These functions involve the verbal functions of the well and water but primarily as a matter of coordinating the nonverbal functions of reaching down, scooping, and so on.

All rule-governed behaviour makes contact with two types of contingencies: those established by the rule and past history with rules; and, the natural contingencies involving coordination of the nonverbal functions required to carry out the rule. In the case of natural contingencies, the consequences of the action are determined completely by the topography of the action itself in the given situation. For example, the amount of water in the bucket is 100% determined by the form of the action of reaching down and scooping. The water cannot react to why the bucket is there, only how it is there. The natural consequence of water in the bucket is determined by the precise manner in which the bucket dips into and scoops the water.

If the required nonverbal functions for effective rule-following are not already established, a rule may be understood and still not lead to effective behaviour (Hayes & Hayes 1989). A child might understand that bicycles are for riding. The behaviour of riding may be observed and understood verbally in that the child may be able to match the word *riding* to the observed actions of cycling and visa versa. Nonetheless, the child still may not be able to actually ride a bike. If asked, "please ride to the well and get some water?" effective action may be impossible even though the verbal rule is understood. This is because the nonverbal functions of bike riding have not been established.

Further, if a rule is understood and the nonverbal functions required for rule following are established there still remains the matter of actualising those nonverbal functions in coordination with the verbal functions specified in the rule. This is a question of motivation, a topic to which we now turn.

Motivation

Motivation involves three distinct types of rule-governed behaviours organised by the contingencies that specify action with regard to the rule, they are pliance, tracking and augmenting (Hayes 1989; Hayes et al. 2001a; Torneke 2010).

Pliance

Pliance, which comes from the word *compliance,* is the most fundamental unit of rule-governed behaviour and is the clearest instance in which behaviour controlled by a rule can be said to be rule-governed. It is "rule-governed behaviour under the apparent control of socially mediated consequences for a correspondence between the rule and the specified behaviour" (Hayes et al. 1989, p.203). A rule functioning this way is said to be functioning as a *ply* (Barnes-Holmes et al. 2001c).

If a person is ordered, "When the sun rises go to the well and fetch water!" and does so in order to gain the approval of the speaker of the rule or avoid the consequences for non-compliance, the rule is functioning as a ply. With pliance, the consequences are socially mediated as only the social/verbal community can discern the presence of the rule and check for behaviour that corresponds with it. The fact of social mediation is background, the foreground issue is that the socially mediated consequences are for rule-following *per se* (Hayes et al. 1989). In this way, the consequences are explicitly designed to organise responding into the class: rule-following. What might be termed obedience.

Tracking

Tracking, which suggests following a path, is rule-governed behaviour under the control of an apparent correspondence between the specified rule and the topography of the traversed environment. A rule functioning this way is termed a *track* (Hayes 1989). Take our water-fetching example, "When the sun rises go to the well and fetch water." If the listener's behaviour is brought under control of the rule because of the correspondence between it and how to actually get the water, then it is tracking. In this way the natural contingencies for water fetching are contacted because of the nonverbal properties of the behaviour involved – the form, frequency, or situational sensitivity of the relevant behaviour produces the consequence(s) specified or implied in the rule (Hayes et al. 2001a).

For our early morning riser, tracking would have her fetch water to quench a thirst, rather than simply gain approval for compliance with the rule. In this way, tracking is

sensitive to a number of variables affecting the correspondence between the rule, the natural contingencies contacted and the importance of that correspondence. For example, it is influenced by the listener's history of contacting natural consequences of following other rule-givers, the correspondence between the specified rule and other rules and events in the listener's history, the importance of the consequences for following the rule, and so on (Hayes et al. 2001a).

Unlike pliance, with tracking, the verbal community does not mediate compliance. Tracking would be as likely to occur if the rule were written in a book. This distinction between tracks and plys is not a formal one though. The consequences for tracking can be socially-mediated at times as the natural environment includes social variables. For example, our thirsty early morning riser might get lost on the way to the well and receive directions from a satiated co-traveller. In this way, with tracking, the social consequences are due to the form of the behaviour, not the social detection of a correspondence between the rule and the behaviour.

Augmenting

Augmenting, which suggests a changed or heightened state of affairs, is rule-governed behaviour under the control of apparent changes in the degree to which events function as consequences (Hayes et al. 2001a). A rule functioning in this way is termed an *augmental*. There are two types of augmentals. *Motivative augmentals* are verbal stimulus functions that *alter* the apparent capacity of events to function as reinforcers or punishers (Hayes et al. 1989). *Formative augmentals* are verbal stimulus functions that *establish* apparent reinforcing or punishing stimulus functions of events. Augmenting is a subtle and important form of rule-following that is mixed with pliance or tracking. Each of these forms of rule-governed behaviour can be augmented because they each involve implied or specified consequences.

Motivative augmenting is behaviour under the control of temporarily altered functions of previously established reinforcers or punishers due to their participation in relational networks (Barnes-Holmes et al. 2001c). For example, the statement "Wouldn't a refreshing drink of cool water from the well be good right now?" may

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function as a motivative augmental. If this statement motivates you to drink fresh water from the well then it is probably functioning as a verbal establishing stimulus, not a verbal discriminative stimulus, since the well of fresh water was available irrespective of the rule being present. Motivative augmentals work by presenting sensory or perceptual functions of the specified consequence. The words "refreshing drink" and "cool water" come to have sensory functions via transformation of stimulus functions. In other words, they bring to the fore the presence of an existing reinforcer. "In everyday language, you would say a formative augmental makes something new important, and a motivative augmental makes something that is already important even more important in the moment." (Torneke 2010, p.123).

Formative augmenting is behaviour under the control of newly established reinforcers or punishers due to their participation in relational networks. For example, the statement "Refreshing cool water from the well is worth money in the market place" may function as a formative augmental. If fresh water now functions for the first time as a reinforcer in the context of the market place, then the statement is a formative augmental. Once the value of fresh water is contacted in this way, rules that include "refreshing cool water" will now function as an augmental. The previous motivative augmental "Wouldn't a refreshing drink of cool water from the well be good right now?" may become the functional equivalent of "Refreshing cool water from the well would be good right now as it will earn me money" as money is an existing reinforcer. Thus, formative augmentals can verbally establish new events as reinforcers even if those events have never previously been contacted.

At this stage, we would like to stress that pliance, tracking and augmenting are units of verbal regulation or rule-following that are based on rule understanding. To be motivated to follow a rule first requires that the rule be understood, and further, for the rule to be enacted requires that the nonverbal functions for rule following be established. So, once these conditions are in place under what conditions do rules function effectively or not? Particularly "self-rules" which are rules that have been self-authored and pertain to one's own behaviour?

Self-Rules that Don't Function Well

Having considered the formation of verbal rules and how rules function to govern behaviour, we are now in a position to consider the function of the rules in use personally and collectively. Function in this discussion is understood to be a workability issue. If life is not vital it potentially means the self-rules being employed to govern behaviour are not functioning well; they are not regulating personal behaviour in a way that results in a vital life. The question is, what distinguishes verbal self-rules that allow apt functions to be augmented or diminished, for valued outcomes to be detected, and for lengthy behavioural sequences to be performed with regard to those valued consequences?

Context Outside the Skin

There are two contexts in which behaviour takes place. Firstly, there is the phenomenal world outside our skin in which motor behaviours function in the service of manipulating the physical environment. This context is actual, causal and controllable. If you desire a fresh drink of water from the well it is obtainable either directly from the well or from the market place for a price. The specified consequences of following such a rule will be determined precisely by topography of the actions taken. The amount of water scooped from the well or the amount of cash you are prepared to pay in the market place will literally and causally determine the consequence – a drink of water. These events are controllable. If you don't like the water you don't have to drink it, you can ask for your money back. Highly elaborated rules function in the phenomenal world in the same way. A plan to build a dam so everyone in the town has fresh water on tap would specify in great detail the antecedent conditions for the project to begin, detail sequences of behavioural responses required for all involved in the management and construction process and the desired consequences at each stage of the project for it to be deemed a success.

In the context of the phenomenal world our observational behaviour (an aspect of perspective-taking) functions to seek out and select among discriminative stimuli (Skinner 1974). Such discernment serves an important mediating function in further specifying and sequencing the responses required to carry out lengthy behavioural

sequences (Hayes et al. 2001e). Verbal behaviour in this context serves the function of manipulating the social environment such that coordinated effort delivers the specified consequences. Rules that govern complex and integrated sequences of motor behaviours in such a way make it possible for dams to be built and for people to have fresh water on tap. These rules function literally and causally in that events are controlled and desired consequences are brought about.

Context Inside the Skin

The second context in which behaviour takes place is inside our skin, our inner world, where events cannot be controlled in the same actual and causal way. Events inside the skin consist of thoughts, feelings and emotions. Unlike the unwanted glass of water in the market place you can't give an unwanted thought or emotion back and ask for a refund. Unwanted feeling states such as the bodies stress response cannot be avoided. Yet, in order to deal with such unwanted experience a person may abstract a self-rule in an attempt to control or avoid that experience based upon how events occur in the external world. Where in fact engaging in efforts to control and avoid unwanted internal experience such as bodily stress has been shown to exacerbate trauma (Poppen 1989). Engaging in such reactive effort to control and avoid unwanted thoughts and emotion has been shown to often perversely lead to an increase in what is being avoided (Hayes et al. 2012b).

How are such ineffective self-rules constructed? As we become fluent in relational framing we begin to construct a sense of 'self'. We frame thoughts, emotions, memories and other experiences of ourselves as "literal" descriptions of who we are. This behaviour pertains to the object or content of verbal relations (self-as-story). For example, "*I* am not good enough, (look at my body, role, history, feelings!), what can I do to be good enough?" or "*We* are not good enough, what can we do?" The verbal community provides conditions for us to discriminate our ongoing behaviours in terms of such "literal" descriptions. Rationalistic traditions, cultural norms and codes of conduct are socially constructed sets of specifications by which we discriminate the apparent funtionality of our ongoing behaviour. We discern "By this norm I really am not good enough, they are all laughing at me!" or "By this code we

really are not good enough, we are being outcast!" According to RFT, being attached to such verbal constructs is technically understood as behaving *fused* with self-as-story and behaving with a lack of *acceptance* toward self-as-process (Luciano et al. 2011; Luciano et al. 2012). It has been shown that fusion with verbal content and avoidance of experiential process leads to patterns of problematic behaviour regulation as behaviour becomes governed according to the "literal" descriptions of who we are (Wilson et al. 2001). These patterns of destructive behaviour can be understood in terms of pliance, tracking and augmenting.

Ineffective Pliance

Identifying literally with the statement, "I really am not good enough, they are all laughing at me!" may lead you to specify the rule "*I* ought to comply with what they think so they are happy with me." Following this rule, or a functionally equivalent one, as a core life-rule may lead you to put your life in others' hands. Behaving to "please others" in this way may become problematic as the explicit or assumed consequences sought from others might not be what is personally good for you in the long run. You may find yourself seeking to be "doing the right thing" through the eyes of others, needing others' approval, behaving to get it and often not obtaining it, which then becomes a reoccurring pattern (Hayes et al. 1999, 2012b; Luciano et al. 2011). Similarly, the rule "By this code *we* really are not good enough, we are being outcast!" may lead a community to decide, "We ought to obey so we stay out of trouble." The likely result of following functionally equivalent rules will be a restricted life and poor contact with potentially reinforcing consequences for tracking a valued lifestyle (Hayes et al. 1999, 2012b; Torneke 2010). Further, behaving to please and conform is perpetuated and extended when augmented by abstract, verbal consequences. For example, when feeling good is dependent on others' approval and feeling good is established as a necessary state to do other things in life (Luciano et al. 2011; Luciano et al. 2012).

Ineffective Tracking

Tracking becomes problematic when applied in contexts where tracking cannot work and when the rule itself is inaccurate (Hayes et al. 1999, 2012b). As suggested

metaphorically, you can't give an unwanted thought or emotion back as you can with an unwanted glass of water in the market place. Unwanted thoughts, feelings and emotions cannot be controlled or avoided in the same literal and causal way that unwanted events in the phenomenal world can be risk managed. Consider the rule "If things do not work as specified, replace them." This track may be useful when trying to scoop water with a bucket containing a hole. However, following this track with private events will not work. Imagine specifying certain thoughts and feelings as obstacles to achieving desired outcomes. For example, believing being fully informed and having no anxiety are necessary requirements for giving a public talk or being interviewed. You might decide, "I will not be able to make this presentation unless I have all the facts and can relax." Trying to follow this rule by attempting to have no holes in your thinking and replacing anxiety with calm will likely be futile. Ironically, continuing to follow this rule will possibly/often result in pretending you know when you don't, feeling a "fraud" and becoming more anxious, which in turn will reinforce the rule "I really do need to figure out how to know everything and deal with anxiety in order to present with confidence", which is contrary to what is effective in the long run.

Tracking will also lead to problems when the rule is inaccurate (Luciano et al. 2011; Luciano et al. 2012). Consider the rule, "In order to know everything, deal with anxiety and be prepared for presentations I will continue reading all relevant material until I feel confident." Following this rule will be reinforced by the short-term consequence of feeling less anxious when doing a lot of reading and the implied consequence specified relationally in the rule; that reading to know everything and feeling confident is literally and causally necessary to deal with anxiety and be calm in presentations. Rules directing behaviour in the service of "Being well read and confident" are functioning to maintain an apparent coherent relational network, which is about "being right". Such rules function in opposition to long-term self-efficacy as contact with contingencies oriented toward positive reinforcement as part of a meaningful life are blocked. As with pliance, augmenting plays a critical role in the maintenance of such ineffective patterns of tracking by perpetuating the mistaken belief (rule) that the behaviour is in the service of valued ends.

Ineffective Augmenting

When ineffective pliance and tracking are augmented in pursuit of abstract verbal consequences the resulting perpetuation and extension of ineffective behaviour is known as destructive experiential avoidance (Hayes et al. 1999, 2012b; Torneke 2010). Experiential avoidance is a type of rule-following in which you behave to either avoid discomforting unwanted private events or retain pleasant ones. The resulting pattern of behaviour is destructive because, despite the short-term reduction of discomfort and increased sense that you are doing the right thing, over the long-term the unwanted private events increase and strengthen and life becomes more restricted and problematic. This context serves an establishing operation for more ineffective self-rules to emerge (Cipani & Schock 2011; Laraway et al. 2003). Just as feeling thirsty establishes water-seeking behaviour, an increased sense that life is restricted and problematic establishes avoidance behaviour. This becomes a reinforcing loop, as rules that further specify contingencies for avoidance will automatically lead to an increase in restricted behaviour regulation and a failure to contact important psychological events.

Following a generalised ply that is functionally equivalent to "I ought to comply with what they think so they are happy with me, so I belong," as a core life-rule, results in an inflexible repertoire of behaviour: a repertoire where you keep seeking acknowledgement from others, a consequence only 'they' can mediate, that is highly uncontrollable and unpredictable in order to feel good about yourself. This repertoire becomes particularly problematic when feeling good is established as necessary in order to achieve other life goals, such as, "being a good citizen." Thoughts and feelings associated with "I want to be a good citizen" are framed in coordination with feeling good, and "feeling good" is framed in coordination with what you value in life (Hayes 1989; Hayes et al. 2001a; Luciano et al. 2011; Torneke 2010). This relational network is then defended as if a 'good life' depended on it. Maintaining a coherent sense of self in these terms becomes a verbal trap of destructive self-regulation where feeling good is literally and causally necessary for living a valued life, and feeling good depends on others' behaviours.

A similar pattern of destructive self-regulation occurs when ineffective tracking is augmented. For example, when you ruminate and worry. Consider again the track "I really do need to figure out how to know everything and deal with anxiety in order to present with confidence." Behaviours associated with "being well informed" and "giving presentations" are functionally augmented in the service of avoiding anxiety and feeling confident as a valued life goal. Circular thinking about avoiding yesterday's bad experiences tomorrow become a preoccupation. Ongoing deliberate effort to avoid unwanted thoughts and feelings by "thinking things over" is maintained by rules such as "Feeling calm and being well informed is necessary in order to live a valued life," "When I think things over I feel better" therefore "It is important I continue to think things over." This destructive pattern of experiential avoidance is ultimately ineffective as the short-term sense of relief gives way to long-term increases of unwanted private experience and a restricted life. The preoccupation with "solving life" in another time and place results in poor contact with direct contingencies for tracking what is important for valued living here and now. This paradoxical effect is a central process in many personal and social problems (Hayes et al. 2012b; Luciano et al. 2011; Luciano et al. 2012).

Ineffective tracking may also happen at the group level as ineffective rules become generalised as group norms. This is apparent when a community is unable to interrupt default responses in challenging situations. By degree, in challenging situations the absence of flexibility in responding or perspective taking gives rise to a tendency for inflexible rule-governed behaviour. In effect, inflexible rule-governed behaviour means shared notions (rules) about how things ought to be or ought not to be can get in the way of effective learning and action. Groups continue to do things that do not work believing (following rules) that they should (Fantino & Stolarz-Fantino 2013). They argue for certain positions based on underlying philosophies, rationalistic traditions and beliefs (the rules) even though they do not take them in the direction intended (Bennett & Howlett 1992; Colebatch 2002; Dolowitz & Marsh 2000). They struggle with the resulting aversive experience and yet continue to justify and use the same strategies that yield this limiting and ineffective experience (Fantino & Stolarz-Fantino 2013; Hayes et al. 2001a; Ostrom 2003; Thacher & Rein 2004). By this analysis, we suggest that entrenched and intractable social,

environmental and economic problems are maintained as governments, organisations and communities adhere literally and rigidly to what is believed.

Patterns of destructive experiential avoidance are maintained for two reasons. Firstly, individuals and groups do not relate hierarchically to their verbal inner experience (self-as-story, self-as-process). That is, they do not understand they are the context of their experience (self-as-context) and that their experience is a part of them. A lack of perspective on the content of experience leads to the treatment of the content as a 'literal' readout on reality (Luciano et al. 2011; Luciano et al. 2012). What is thought is held as the 'truth'. Secondly, a lack of contact with personal and collective values as a reinforcer for valued behaviour leads to derived rules in response to an (un)satisfactory evaluation of life (Hayes et al. 2013). Patterns of problematic self-regulation are sustained because people cannot readily identify that their self-rules are being derived and are not 'the truth'. Nor can they take perspective on the temporal short- long-term effect of actions being taken. Without the fluency in perspective taking needed to be able to choose directions controlled by abstract consequences (i.e., values), people tend to automatically avoid unwanted experience and perpetuate behaviour fused with self-rules that trap them in suffering. Fluency in deictic framing is required to engage positively reinforced behaviours as part of a meaningful life.

What Makes Self-Rules Functional?

With an understanding of relational framing and the function of self-rules, we are in a position to consider what makes self-rules functional. We will consider processes for individual and social change and why change would be successful based on the transformation of stimulus functions involved. This will be considered in terms of: *perspective-taking*, which has been shown to change the context of inner experience and transform avoidance behaviours (Hayes et al. 2001a; Hayes et al. 1999, 2012b; Luciano et al. 2011); *value directed rule-following* which has been shown to transform action as satisfactory and necessary for valued living (Hayes et al. 2001a; Hayes et al. 1999, 2012b); and, *pragmatic verbal analysis* which has been shown to be an effective

approach to acting on the world verbally by specifying lengthy behavioural sequences (Hayes et al. 2001a).

Perspective-Taking

Developing the personal ability to take perspective on experience allows you to distinguish yourself and your experience along two important dimensions. First, perspective-taking involves discriminating your 'self' as distinct from the content of experience; second, it involves identifying your 'self' as the container of experience.

Discriminating your 'self' from the content of experience involves discriminating between your 'self' as the locus of experience HERE and NOW as distinct from the content of experience THERE and THEN. Rather than believing as a matter of fact, "I really do need to figure out how to know everything and deal with anxiety in order to present with confidence", you identify this statement as a thought and let go of your struggle to "know everything" in order to "deal with anxiety". Discriminating the 'self' as a consistent locus I-HERE-NOW provides the basis for *perspective-taking* (self-as-context). With this distinction you are able to discriminate the difference between yourself, your inner experience and your actions, both present and historically based. Exercises that develop this distinction involve contacting moments in time in order to realise the consequences of behaviours and to discriminate private events as different from yourself and your behaviours (Hayes et al. 2001a; Hayes et al. 2012b; Torneke 2010). This is the state of having shifted relations from "I + my thoughts and emotions – HERE & NOW" to "I – HERE & NOW *while* my thoughts and emotions are – THERE & THEN"

Identifying your 'self' as the container of experience involves deriving an explicit relation of INCLUSION between yourself and all your thoughts, feelings and emotions; an experience of the 'self' as the consistent locus *and* container of all private events. On the way to giving your presentation you might notice, "There's that thought again, 'I'm not informed, this is not worth the angst (noticing the butterflies)'" as part of your experience and choosing "I'll take them (thoughts & feelings) along for the ride". Exercises that develop this distinction involve deriving "I am more than all my

thoughts," "without me, no thoughts," "I am always here no matter what my thoughts, feelings, memories are" (Hayes et al. 2001a; Hayes et al. 2012b; Luciano et al. 2011; Torneke 2010). This is the state of having shifted relations to "I – HERE and all my thoughts, emotions and sensations – THERE *and also* PART of ME".

Value Directed Rule-Following

Knowing yourself as the context of experience and being able to take perspective provides a different context for decision-making. Thoughts and emotions located THERE and THEN can then be viewed (taken perspective on) with no necessary "truth value" beyond their utility. (Hayes et al. 2001a; Hayes et al. 2012b; Luciano et al. 2011; Torneke 2010). This perspective allows you to choose in accordance with self-rules that specify what is important in life. You freely choose as you take 'those' thoughts and feelings along for the ride, "Here is my presentation, as this is important in the long run". Experiencing what is important becomes the context for effective augmenting, as valued actions become transformed as satisfactory, even when aversive functions are present in the form of pain or discomfort. In this way, the control and avoidance function that occurs when fused with self-as-story will be altered, and behaviour change will occur as alternative sources of stimulus control are present and connected with what is important in life. Such a predisposition is termed *psychological flexibility* and is defined as a mindful orientation, in which people "contact the present moment as a conscious human being, fully and without needless defence – as it is and not as what it says it is – and persisting with or changing behaviour in the service of chosen values" (Hayes et al. 2012b, p.96). This is the process of shifting to "I – HERE with all my thoughts, emotions and sensations (+ve or -ve) – THERE and a PART of ME *and choosing* to *ACT* in a direction that is valued."

The distinction between personal "choice" rather than "decision-making" is important. For individuals and groups to have vitality it is important they experience autonomy rather than being forced by others or by circumstances (Deci & Ryan 2002b). Autonomy involves making choices in the *presence of reasons* for and against a particular action, rather than *based on* those reasons (Hayes et al. 2012b). It is being

able to say, "My friend, I will love you just the same", while having thoughts and feelings that discourage you from doing so. Decisions originating in the problem-solving mode of mind are derived from 'factual' information, which forms the truth criterion for logic and reasoning. Decisions made in this mode can gain or lose resolve as reasons apparently change. Freely chosen values, on the other hand, have been shown to play out in a healthier sense as they are contacted directly in the present moment and translate into *committed action* (Hayes et al. 2013). Freely chosen values, while personal, can also be socially established and social in their focus. The important distinction is they are not socially forced. It is not about independence, it is about the psychological quality of ownership of actions.

Choosing and living a vital life is established through multiple exemplars that set conditions for effective augmenting with long-term tracking. This requires establishing patterns of rule-following in which private experiences are no longer something to fight against if aversive, or cling to if appetitive, but simply become a part of the process to effective long-term tracking with abstract reinforcing consequences (Hayes et al. 1999; Torneke 2010).

Pragmatic Verbal Analysis

Effective long-term tracking, from an RFT perspective, involves taking ourselves as the object of our attention, and from this vantage point verbally analysing our own behaviour over extended periods. This process of verbal analysis of our own behaviour is one form of *pragmatic verbal analysis* which Hayes et al describe as "acting upon the [nonarbitrary] world verbally, and having the world serve verbal functions as a result" (2001a, p.90). *Analysis* because the process involves evaluating the likely success or failure of a behavioural effort; *verbal* because the objects of analysis are symbolic/verbal representations of those contextually situated behaviours participating in highly complex relational networks; and, *pragmatic* because the exercise is in the service of achieving practical and valued ends.

The value of analysing one's own behaviour and developing such self-knowledge is considerable. Self-awareness and self-monitoring will permit greater self-control as

we engage in analytic activities related to our ongoing behavioural streams. Responding to our own responses in an evaluative sense enhances our capacity to predict the success or failure of our behavioural efforts. As we have discussed, from a contextual behavioural perspective, the most important adaptive function of pragmatic verbal analysis is the construction of verbal rules that allow for lengthy behavioural sequences to be performed with regard to possible valued consequences (Hayes et al. 2001a). We will consider two forms of *pragmatic verbal analysis* that implicate us: *strategic analysis* and *valuative analysis*.

A *strategic analysis* is undertaken when we know a solution or purpose but there is an absence of effective action to achieve that solution or purpose. Having discriminated the desired end state, the problem is achieving that end state. To solve the problem involves placing the desired goal or purpose in a relational network that specifies the current situation and delineates possible steps that, if undertaken, will likely lead us to achieve the verbally constructed goal or purpose. This activity is inherently metaphorical and requires that we relate entire sets of verbally derived stimulus relations to one another based on the properties and dimensions of the events in the network and their transformation. This activity often proceeds in a linear, step-like fashion and includes common sense steps such as: define problem; gather information; compare possible solutions; select plan; carry out plan; test outcomes; change plan. Each of these steps comprise domains in which verbal activity occurs, each with reference to the verbally constructed outcome being sought. If there is one known solution, a convergent approach is likely to be employed. If there are a number of possible solutions available, divergent approaches tend to be used. In any instance the prescribed steps are defined by successful working criteria.

In contrast to a strategic analysis, a *valuative analysis* is undertaken in the absence of a goal or purpose and involves using relational frames to contrast, and select from, possible outcomes. We often face major life decisions to do with, for example, our career, marriage, or spiritual orientation and grapple with questions like "What do I want my life to be about?" or "What's really important to me?" The problem is more about deciding and choosing possible consequences rather than a means of reaching

the selected consequences. Valuative analyses are at the core or "values clarification" and functions to provide an overall direction in the absence of one. Looking at pros and cons is an iterative verbal process that amplifies the behavioural effects of a verbally constructed future. For example, considering possible career options you might ask, "On my 85th birthday, what would I like people to say about my life's work?" Such metaphors function to bring nonverbal effects of the situation as verbally constructed into the verbal network and serve to clarify the choice.

Evaluating How Language Functions to Predict Wellbeing

Colloquial questions such as "What do I want my life to mean?" and "How do I get there?" provided the motivation for the development of the FSDM-FSDI method. As discussed, the *Contextual Behavioural Science* (CBS) perspective on 'self' and the function of language provides some insight into how we may be able to regulate our own behaviour to enhance our wellbeing (Hayes et al. 2001a; Hayes et al. 1999). With this understanding we have designed and applied the FSDM-FSDI method to show it is possible to analyse language for statements that predict the success or failure of behavioural efforts in pursuit of a vital life (Atkins & Styles 2016; Styles 2015; Styles & Atkins 2018). We consider the methods employed for this work to be a *functional assessment* of the verbal responses made by a speaker in an interview when invited to discuss such questions. The claim that this work *is* in fact a functional assessment is new work in the field of CBS. Such an approach may well be considered a topographical assessment of language rather than functional, a question we now address.

Basic Method

The distinction between topographical and functional in an analysis of verbal behaviour is critical. When conducting a topographical assessment of verbal material the assessment normally involves the identification of classes of verbal behaviour in the transcribed or textual material (Gee 2014b; Saldana 2013). Attempts at an assessment of the controlling variables is part of the interpretation process, which involves the identification of the variables and their apparent function with respect to

the verbal material itself (Leigland 1996). In a topographical approach the classes of verbal behaviour are defined in terms of their effects upon the *reader/researcher*. The general process has much in common with the practices of contemporary applied interpretive qualitative research such as hermeneutic perspectives, which lend themselves to the *description* and *prediction* of behaviour (Heracleous 2004; Thorne 2014). Distinct from such topographical approaches the FSDM-FSDI method has been derived from the contextual behavioural epistemology outlined in this chapter, which we believe, allows for the functional assessment language and related variables with respect to the future behaviour of the speaker. The classes of verbal behaviour and their function are defined in terms of their effect on the *speaker*, which allows for both the *prediction* and potential *influence* of the behaviour of the speaker in the service of valued ends. In the remainder of this section we make the case that this method of analysis is in fact a *functional assessment* and new in the field of CBS.

The basic aims we set out to achieve in the development of the Functional Self-Discrimination Measure (FSDM) and Interview (FSDI) from the standpoint of CBS, were: Can the relevant contingencies be analysed? Is the analysis effective – does it lead to the prediction and influence of the behaviour of the individual? And, can the analysis be applied to and address human problems?

As discussed above, verbal behaviour is under the control of variables in three contexts: our external context, which comprises direct environmental contingencies; our social context, which mediates verbal contingencies; and, our inner psychological context that delimits degrees of literality of verbal content. A functional assessment of the variables controlling overt behaviour that is rule-governed requires that the controlling variables in one or several of these contexts be identified in order to predict and influence behaviour (Hayes et al. 2001c; Hayes & Brownstein 1986). A manipulable variable is considered 'external' if it is outside of the behaviour in question. Outside the behaviour does not necessarily mean outside the skin, though this is often the case. Thus we are dealing with contexts outside and inside the skin. These different contexts require different methods of analysis.

An analysis of variables outside of the skin involves environmental and socially mediated contingencies that are contacted directly by the person. This is the realm of traditional functional analysis where normal operant contexts provide conditional discriminations that are experienced directly (Skinner 1974). When dealing with our inner context we find an internal analogue of external contingencies.

First, we respond to the contingencies we have experienced directly in our own history and the meaning we attach to those events as they are reconstructed verbally (Hayes et al. 2001a; Villatte et al. 2016). For example, when one thinks of the loss of a loved one, the stimulus functions of that event will become present to some extent. While this is a symbolic construct of events situated in verbal time, the process of reconstruction in an interview situation allows for the identification of verbal operant response forms. One implication of such a view is that the "meaning" of the terms used to describe such events are not entirely a property of the terms themselves, but rather are associated with the conditions under which the terms are characteristically emitted in the behavior of the speaker. While these sets of discriminations may be controlled by different kinds of observed contingencies in the interview situation, they are presumably also controlled by the observation and framing of the cognitively reconstructed events in the interviewee's history. Patterns of such framing are assumed to be characteristic of the interviewee when in the presence of similar environmental contingencies. Identifying characteristic framing or operant response forms involves recognising statements that look like self-rules and confirming speculations about the history and function of the related historically situated stimuli as they are made available in the current context (Leigland 1989).

Second, our inner context is the psychological arena from which we take insight on the events that constitute our psychological content. Evaluating this environment as a controlling context requires an assessment of the speaker's deictic framing of inner experience (Hayes 1984; Villatte et al. 2016). This involves identifying statements that indicate the speaker is taking perspective on inner experience. When statements are framed in such a way, the stimulus functions of the related verbal events alter to function figuratively rather than literally (Wilson et al. 2001). Self-rules uttered in this psychologically flexible context are more freely chosen and acted on for their

utility. This is contrasted with verbal behaviour that fails to track direct contingencies as it is under the control of an inner psychological context functioning literally and causally.

To perform a functional assessment that assists in the prediction and influence of behaviour – both overt behaviour and covert verbal behaviour – the FSDM-FSDI method has been designed to track manipulable events within these contexts. The process involves taking a descriptive contextual analysis of reconstructed events in order to identify verbal operants, which reflects the speaker's typical framing of directly experienced events (Leigland 1987). Further, it involves assessing if such operant responding is applicable to future events. To do this, over the course of an interview with a given subject, a baseline of operant responses is identified, which becomes evident as recognisably consistent patterns of verbal behaviour across the session (Leigland 1989, 1996). From these patterns several classes of operants as self-rules are identified that function to either control or avoid unwanted experience, move toward wanted experience, derive a sense of esteem, or take perspective on experience. We have measured a positive relation between the frequency of these utterances and wellbeing measures taken 6 and 12 months later (Atkins & Styles 2016; Styles 2015; Styles & Atkins 2018). These correlations provide an excellent starting point (not a good ending point) for an ongoing experimental analyses of the contexts that lend themselves to the prediction and influence of behaviour. As these verbal events have been shown to produce the same consequence they are considered to be members of the same operant class, they are functioning the same way. A focus on the contexts that strengthen and weaken relations between thoughts, emotions, and actions is key to the clinical procedures in CBS, such as the emphasis on acceptance or defusion as contexts that foster response flexibility, and their instigation and modelling in the therapeutic relationship in ACT (Hayes et al. 2012a; Villatte et al. 2016). Adopting a functional analytic approach (combined with descriptive contextualism and quantitative methods) provides a measure of the future consequences of rule-following. We see this as a *functional assessment* (not a functional analysis) given the predictability of these operant responses.

A full *functional analysis,* would involve manipulating contingencies controlling the observation of the speaker, i.e. perspective-taking (self-as-context). The focus in the interview would be on helping interviewees to relate differently to events within the their psychological context. This would be achieved through instructions or questions that serve as supplementary stimulation for the available verbal behaviour of the interviewee to be brought "to strength." Such instructions or questions to the interviewee (delivered prior to and during the interview) would be designed to probe for different functional verbal classes "within" the interviewee's verbal repertoire. This becomes a matter of directing the interviewee's attention and facilitating insight related to particular incidents of interest where change is desired. This would be achieved by setting topics, asking questions that probe for contextual relations and functions, cultivating perspective-taking (a mindful disposition), and eliciting value oriented self-rules. Essentially this would be manipulating the inner context so verbal events no longer function literally to direct behaviour in habitual and unhealthy ways. Instead a context would be developed in which verbal events function figuratively and are chosen to direct behaviour based on their utility in bringing about valued living.

In this way, the FSDM has been designed to identify a baseline of operant responses (code-able statements) as recognisably consistent patterns of verbal behaviour across an interview session which can then be analysed for frequencies and relations in order to predict, and possibly influence, valued living (Atkins & Styles 2016; Styles & Atkins 2018). The FSDI has been designed as an interviewing method to yield code-able transcript for the FSDM and probe to elicit behaviour change in the direction of a vital life (Styles 2015). Together these constitute a method that allows for the prediction and influence of behaviour applicable to improving the human condition.

The following four chapters provide details of the FSDM-FSDI method and supporting evidence. In the concluding chapter we discuss implications for this method as an approach to developing prosocial and moral behaviour based on a consideration of how values function to predict wellbeing.