Process-Based Behavior Therapy (PBBT®):

Where Relational Frame Theory Meets Clinical Practice

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Abstract

Process-based Behavior Therapy (PBBT®) is a recently developed therapeutic approach based almost entirely on the core behavioral process of arbitrarily applicable relational responding (AARR), as postulated by Relational Frame Theory (RFT), and in particular on advances in the theory made in recent years. Specifically, PBBT® directs its attention towards the hyper-dimensional, multi-level (HDML) framework for conceptualizing relational responding and the basic behavioral unit that emerged from that framework, called the ROE unit (i.e., the ongoing dynamic interaction of Relating, Orienting and Evoking in conceptualizing human psychological events). The current article seeks to outline and provide an introduction to PBBT® as a contemporary behavioral therapeutic approach to psychological suffering and mental well-being. Toward this aim, the ROE unit and related RFT concepts will first be summarized followed by presentation of three key components of PBBT®. Clinical examples are provided throughout to help illustrate the tight links between updated RFT and its clinical application in PBBT®.

Keywords: Relational Frame Theory; Process-based Behavior Therapy; PBBT®; HDML; ROE

The field of clinical psychology has been undergoing a transition for some years. One key aspect of this transition is the shift in attention toward identifying the putative processes that underpin psychological events (e.g., Hayes & Hofmann, 2020). This is part of a broad move from a largely syndromal approach to psychological suffering and its treatment to a process-based approach. For example, there have been proposals to incorporate empirically supported processes in treatment validation systems (e.g., Tolin et al., 2015), and calls for a greater emphasis on idiographic, rather than nomothetic, research (e.g., Vlaeyen et al., 2020). This process-based focus, for us, is a hugely welcome phase shift. But this transition is not without its challenges, given the deep philosophical, methodological, and conceptual divides that permeate mainstream psychological science and its applications. In particular, these render agreements on the definition of processes difficult to achieve.

Clinical behavior analysis, which we define as clinical work strongly rooted in behavioral principles, is changing too. For example, traditional behavior therapy approaches, such as functional-analytic psychotherapy (FAP) are currently debating whether or not to update their original operant conceptualizations (Callaghan & Follette, 2020; Muñoz-Martnez & Follette, 2019). More broadly, other authors have called for agreed criteria to be applied to conceptual research and developments and their clinical application. For example, Ferreira et al. (2021) have emphasized the importance of ensuring that there is a high level of coherence between conceptual research and clinical work, a move we fully support.

Notwithstanding these important debates and developments, a process-based approach to psychological events has long been the hallmark of behavior analysis, where there is significant unity regarding the field's foundations in philosophy and methodology. Nonetheless, behavior analysis has experienced its own conceptual divisions, most notably in recent years between Skinner's approach to verbal behavior (e.g., Skinner, 1957) and that

advocated by Relational Frame Theory (RFT, e.g., Hayes et al., 2001; see also Barnes-Holmes et al., 2000; Gross & Fox, 2009, for relevant commentaries). These divisions have naturally fostered differences in clinical applications, especially in the field of behavior therapy. It is not our intention to debate this issue in the current paper, but we do hope to show how RFT's approach to verbal behavior has given us a pathway to understanding psychological suffering, and to creating a treatment regime for changing the complex verbal repertoires this comprises. We have called this treatment Process-based Behavior Therapy and refer to it as PBBT®. The current paper is the first that has been written on this behavior therapy regime.

Process-based Behavior Therapy (PBBT®) is almost entirely based on the core behavioral process of arbitrarily applicable relational responding (referred to as AARRing) as postulated by RFT (see Hayes et al., 2001), especially on advances in the theory made in recent years (e.g., Barnes-Holmes et al., 2020). The analyses and interventions of PBBT® are based on RFT's fundamental premise that AARRing is *the core* process of complex human behavior, and as such we see it in both psychological suffering and mental well-being. In addition, PBBT® directs its attention towards updated RFT's basic behavioral unit of the process of AARRing called the ROE unit (pronounced as "row"). This acronym stands for the dynamic interactions among the three components of AARRing; namely relating (the R); orienting functions (the O); and evoking functions (the E, see Barnes-Holmes et al., 2020). Part 1 of the current paper summarizes the ROE unit and related RFT concepts before Part 2 presents three key components of PBBT®, by way of a basic introduction to the therapy. Throughout, we use clinical examples to help illustrate the tight links between updated RFT and its clinical application in PBBT®.

Part 1

Updated RFT's Hyper-Dimensional Multi-Level (HDML) Framework

The ROE unit emerged from the framework that captured the most recent conceptual advances in RFT, known as the Hyper-Dimensional Multi-Level (HDML) framework (Barnes-Holmes et al., 2020, 2021). In essence, the framework offered a new way of organizing what several decades of basic research on RFT had already told us about relating and its functions. These developments emerged largely from the empirical work that was part of the Ghent Odysseus Research Program (see Barnes-Holmes & Harte, 2022, for a recent detailed explication of the experimental and conceptual work that emerged from this program). Specifically, the framework divided AARRing into five developmental levels and four behavioral dimensions, with the dimensions helping to determine the strength of relating, which is essential in clinical work. For the first time, the framework also articulated the basic unit of AARRing, the ROE unit. This framework is illustrated in Figure 1.

Insert Figure 1 Here

Levels of AARRing

Mutual entailing (the relating of only two stimuli) is at Level 1 of the HDML framework because it appears to emerge first developmentally (e.g., Luciano et al., 2007), and primarily facilitates the coordination of words and objects (i.e., naming). Consider the simple example of coordinating the word “teddy” with the actual toy (a word-object bidirectional relation). A similar relation might involve coordinating the word “teddy” with the picture of a teddy (a word-picture bidirectional relation). Relating more than two stimuli, known as relational framing or combinatorial entailment, is captured by Level 2. Using our two examples above of the mutually entailed relations between the word “teddy” and the toy, and between the toy and the picture, we would expect the emergence of the combinatorially entailed coordination relation between the actual teddy and the picture (an object-picture bidirectional relation). That is, the established relations at Level 1 facilitate the emergence of the more developmentally sophisticated relations at Level 2.

Relational networking is captured by Level 3 and can be seen in behavior such as following instructions, which is clearly more sophisticated than the relating observed at the two lower developmental levels. Imagine if you take your six-year old to the zoo and you begin to explain the concept of the animal kingdom, a classic example of a complex relational network. The ability to relate relations at Level 4, typified by the skills we call analogical reasoning and metaphor, appears to mark a significant increase in the sophistication in the development of AARRing. Imagine, for example, if we tell you that Yvonne's sister and her are "like chalk and cheese." Now consider the relational responses this simple analogy involves as follows: (1) chalk is opposite to cheese; (2) Yvonne is opposite to her sister; and (3) the oppositeness between Yvonne and her sister is coordinated with the oppositeness between chalk and cheese. In other words, the analogy here works through a coordination relation between two opposition relations.

The relating of relational networks that comprises highly complex behavior, such as story-telling and problem-solving, is captured by Level 5, which combines all of the relational capabilities of the four previous levels. Imagine, for example, if we try to explain to you why 'Heat' and 'The Devil's Advocate' are our two favorite films. We might give you examples of where they are different, as well as examples of where they are similar, and we would probably describe in detail our favorite characters and parts of each. In doing so, we are making many comparisons between two complex relational networks, each one representing all the stimuli that pertain for us to each film (see Gomes et al., 2023, for an initial experimental demonstration of this level of relating; see also Hughes & Barnes-Holmes, 2016a, 2016b, for more detailed descriptions of the five levels of relating and experimental evidence to support each).

In the analyses and interventions of PBBT®, we make the working assumption that the AARRing that is most problematic for our clients, and which we focus on in our clinical

work, concerns the relational networks of the self and others (i.e., self-relating and self-others relating, also referred to as deictic relational networks; e.g., D. Barnes-Holmes et al., 2020; Y. Barnes-Holmes et al., 2018). Hence, we are generally dealing with sophisticated relational responses in Levels 3-5 of the HDML framework. Imagine a client with an established pattern of self-relating which we might refer to simply as 'I am broken.' In our clinical dialog with clients, we deal in part with this key piece of self-relating as if it is a simple mutually entailed coordination relation between the stimuli 'me' and 'broken'. But, what we are dealing with in fact is likely to be Level 5 relating between the complex relational network of self and the complex relational network of well-being. In our clinical dialog, we are not ignoring this high developmental level of relating, we are simply maintaining a workable dialog with our clients by speaking about this self-relation as if it were simpler. Doing so also helps to reduce the strength[1] of this relation, by reducing its relational complexity if that is high and is deemed clinically problematic (see below).

Dimensions of AARRing

In the HDML framework, the strength of AARRing at each level is measured in terms of the four relational dimensions of coherence, complexity, derivation, and flexibility (see also Barnes-Holmes et al., 2017, for a detailed treatment of these concepts). *Relational coherence* refers to the consistency or overlap between a given pattern of relating and previously established patterns. For example, if you learned repeatedly that you make many errors at school (such as coordinating 'me' with 'failure'), hearing that you have excelled in an exam would be highly relationally incoherent with this learning history. The greater the overlap across time, the greater the coherence of the relational pattern; the lower the overlap,

[1] The term "strength" is used here to refer to relative resistance to change *and* the probability of the occurrence of specific patterns of behavior. That is, patterns of behavior considered high in strength would generally be considered relatively resistant to change and highly probable. In contrast, patterns low in strength would generally be considered less resistant to change and perhaps less probable.

the lower the coherence in a given pattern. In clinical work, higher coherence typically denotes a stronger pattern which will, in clinical terms, be harder to weaken.

Relational complexity denotes the amount of detail in a given pattern of relating. For example, imagine a client saying "I feel empty inside" (coordinating 'me' with 'empty'), a relational pattern that appears low in complexity. In contrast, imagine a client who says: "I am always anxious. Sometimes my head spins and I just panic. Other times, I'm frozen". This relational network coordinates 'me' with 'anxious', 'panicky', 'dizzy', and 'frozen', and seems to involve much greater relational complexity. Unlike coherence, a strong relational pattern may be either high or low in complexity, and as such either may be more or less difficult to weaken, but both are important clinically.

Relational derivation denotes how much practice a given relational pattern has had. The first instance of a derivation is novel, with derivation decreasing as practice increases. Imagine a client who has over many years and many exemplars derived 'I'm a fraud' (coordinating 'me' with 'fraud'). We would say derivation in that pattern is low and thus the pattern is strong and hard to change. Now imagine their therapist saying: "I am so moved by the honesty with which you just told me that story" (coordinating 'you' with 'honesty'), thus beginning to establish in the client a new pattern ('I'm honest') that is opposite to the old pattern. What the PBBT® therapist is trying to do here is to get the client to derive this new pattern for the first time, and thus we would say that derivation of this pattern would be high. As a result, the new pattern remains weak, and ultimately, we may want to strengthen it by trying to bring derivation down. For instance, we would create contexts where this new relational pattern is likely to be maintained (e.g., suggesting that they have an open and honest discussion with their partner at home). In general, the lower the derivation, the stronger the relational pattern, and the higher the derivation, the weaker the pattern. As such, in clinical work, clients typically present with strong, low derivation relations and the therapist will in

time begin to establish weak, high derivation relations. We hasten to add that PBBT® does not simply involve presenting clients with new relations that are opposite to existing ones, and this will become increasingly obvious as we progress here.

Relational flexibility denotes the malleability of a relational pattern to contextual variables, such as extinction. If we revert to the example of derivation above, the client's established pattern of 'I'm a fraud' is likely to be low in flexibility and resistant to change, thus high in strength. In contrast, the new high derivation pattern of 'I'm honest' proposed by the therapist will be high in flexibility, relatively easy to influence, and thus still low in strength.

The ROE Unit (Relating, Orienting, and Evoking)

It was in the context of the HDML framework that the ROE unit was first articulated as the basic unit of AARRing (Barnes-Holmes et al., 2020). It was no surprise that the ROE unit comprised relating and evoking functions, but it was novel that the functions of relating were now divided into orienting functions (O) and evoking functions (E), a distinction that had not been made before (at least not as explicitly). *Relating* refers to the many ways in which stimuli can be arbitrarily related; *orienting* refers to noticing or attending to a stimulus; and *evoking* refers to whether a noticed stimulus is appetitive (an S+ function), aversive (an S- function), or neutral (an S function). In its typical representation as a triangle (see Figure 2), the ROE unit also highlights more than before the inherently dynamic (and thus non-linear) interactions among its three elements. This supports the frequent use of the verb "ROEing". The dynamic and inseparable nature of the ROE unit has important clinical implications.

Insert Figure 2 Here

For illustrative purposes, let us consider a simple clinical example of a ROE unit. We will present this as if it is a Level 1 mutually entailed relation, but it should become easy to see that what we are actually dealing with is a highly complex relational network about the

self. Imagine a client with whom a therapist deems the current pattern of self-relating (R) to be 'I am ugly'. When a therapist has identified a dominant relational pattern such as this, clinical experience makes it easier to predict the functions that are likely attached to that pattern. Put another way, what evoking functions (E) are likely if the 'I am ugly' pattern of self-relating has existed for a long time? Typically, we would expect such an individual to engage in some or all of the following: checking their physical appearance (looking and touching); evaluating themselves negatively, such as thinking and stating "I am ugly" explicitly; hiding their appearance under loose clothing; exercising excessively to try to change their appearance; and praising the appearance of others. In PBBT®, all of these are defined as appetitive S+ functions because they all occur reliably in certain contexts and at observably high frequencies (see below). Equally, we might expect such a client to find intimate contact with others extremely painful and to avoid the disgust they may feel when they contemplate their own perceived lack of attractiveness. In PBBT®, these are defined as aversive S- functions and are considerably harder to see and determine (see below). It is important to note, therefore, that the analysis of any given ROE unit involves *both* S+ and S- functions, and both must be determined if a therapist is to fully understand the relevant ROE unit and to determine the most effective way to reduce its strength.

When a therapist has a good sense of the current relational pattern and its evoking functions, it becomes easier to determine the orienting functions of that ROE unit. Specifically, we would expect our client from the example above to orient strongly to their own physical features and the physical features of others, and to orient to any stimuli that might specify that others are observing or judging the client based on their attractiveness. These orienting stimuli would likely overshadow other stimuli, such as indicators that others were unhappy with their behavior, for example. Hypothesizing about the three interconnected elements of the current self-based ROE unit already provides a sense of the types of clinical

conversations we might wish to have with this client. For example, if a therapist chose to work on these functions, they might say something like: “I notice that you fix your hair a lot in-session. I’m just wondering if you even notice that you do that (orienting function)? Or, is there a brief second before that where you recognize an uncomfortable feeling somewhere in your body (orienting function)? And then, almost without realizing, you respond really quickly to that to fix something that feels out of place and bothers you (evoking function)?” Questions such as these will provide the therapist with greater insight into the orienting and evoking functions, as well as further determining the potential accuracy of their formulation regarding the current self-based relating pattern. We will explore similar examples in greater detail in Part 2.

The ROE-M Unit

In recent publications the ROE unit has been developed into the ROE-M (pronounced “roam” e.g., Barnes-Holmes & Harte, 2022; Harte & Barnes-Holmes, 2021; Harte et al., 2023). For us, the specific inclusion of motivational variables is entirely warranted and is not at all at odds with, or even surprising, for RFT, given the fact that the influence of motivational variables was always recognized as central to AARRing (e.g., Barnes-Holmes et al., 2001; Gomes et al., 2019). Indeed, the very fact that motivational influences are not at all new to us is why there has been no specific need as yet in PBBT® to treat the ROE-M clinically as different in any way from the ROE unit. However, we do appreciate the need for this specification for other purposes in the field of RFT and behavior analysis more generally, particularly for experimental work. Furthermore, if new data on the ROE-M or on the ROE units lead to conceptual developments that appear to have clinical implications, they will be explored in PBBT® in a comprehensive and on-going manner. Doing so will help to ensure that PBBT® remains driven by its scientific, experimental, and conceptual underpinnings in RFT.

Part 2

An Introduction to Process-based Behavior Therapy (PBBT®)

Having summarized the HDML framework and the ROE unit that emerged from recent empirical and conceptual advances in RFT in Part 1, we hope to have provided a short but solid introduction to the conceptual basis of PBBT®. Although relatively new, PBBT® has developed into a full treatment regime that contains a coherent organizing system for: analyzing self-based ROEs; targeting and weakening existing self-based ROEs; and establishing new self-based ROEs with our techniques and interventions. Given the breadth of this treatment regime, articulating all aspects of PBBT® is beyond the scope of this paper. Instead, we here describe three key components of PBBT® that offer a coherent sense of what the clinical work is focused on, and what it looks like in practice. The three aspects of PBBT® we describe are: 1. Identifying and weakening patterns of self-relating. 2. Identifying and weakening S+ evoking functions. 3. Identifying and converting S- evoking functions.

Before beginning the first of these three sections, we would like to add an important caveat about the necessary difference between the technical RFT language that is the basis of PBBT® and the language we use to train therapists. In our many years of experience in training RFT and clinical practice, we have learned that it is essential to adopt a more clinically workable set of terms for therapists to learn and use, rather than using the technical language directly (see Cihon et al., 2016; Lindsley, 1991). Of course, one has to be very careful in this type of translation to ensure that all clinical terms have a clear technical basis and this is of paramount importance in PBBT®. In the current paper, we use technical language as much as possible, but in the sections below it will be necessary in places to introduce the less technical language that is necessary for describing and understanding PBBT in a pragmatic fashion. In addition, we would like to emphasize that the emergence of PBBT is the ongoing result of significant conceptual developments in RFT and many years of

clinical experience applying RFT. As a result, PBBT includes clinical concepts which, although tightly linked to RFT, will be new to many of the readers of the current article. For example, the PBBT concept of the layer (see below) refers to the 'R' element of a ROE unit. We generated the concept of the layer to enable clinicians to organize their analyses of the ROE units that are most relevant to their clinical work (e.g., self-based relating). Furthermore, we deliberately separate the concept of the layer from its functions in PBBT analyses as a purely pragmatic move to train clinicians to engage in more precise analyses.

1. Identifying and Weakening Patterns of Self-relating

In opening the first clinical section, we would like to introduce a caveat about the relating in clinically significant ROE units. In all sections, we have focused on ROE units that contain self-relating, where the relating is between the self and various stimuli, such as what you feel, how you behave, etc. These units are the primary focus of the therapy, as they are with most therapies. However, another set of ROE units are also crucial to the work we do in PBBT® and these contain relating self to others, which we call self-other relating. These play an important part in the lives and distress of clients, and are highly influential in the therapeutic relationship. However, we have not focused on the work we do on those ROE units in the current manuscript because there would simply not be space to do so.

PBBT® organizes patterns of self-relating into "layers", which are a central tenet in this aspect of the therapy. We refer specifically to an organizing system of three layers, namely: the Manifest Layer; the Character Layer; and the Essence Layer. Each layer of self-relating (R) is part of a separate ROE unit, thus the therapist's job in PBBT® is to identify the ROEing (relating, orienting, and evoking functions, and their dynamic interactions) at each of the three layers. The formation of the layers forwards in time represents the historical evolution of the ROE units around self-relating.

The PBBT organizing system of three layers is directly based on the RFT view that ROEs emerge in an evolving stream across time. PBBT analyzes this stream according to three-time samples that are designed to identify the ROE units that comprise the most important elements of a client's verbal system. Once again for pragmatic purposes, we tie each time sample to an approximate epoch in a client's life. Specifically, the Essence Layer is tied to childhood, the Character Layer is tied to adolescence and early adulthood, and the Manifest Layer is tied to a client's current adult life. In the organizing structure of PBBT, these layers are always dealt with in sequence beginning with the current Manifest Layer, working through the Character Layer and returning to the Essence Layer that was established in childhood.

The Manifest Layer is typically the pattern of self-relating that is identified first in PBBT® and is thus part of the first ROE unit the therapist begins to observe and manipulate. As this work is being done, the Character Layer of self-relating begins to reveal itself, in the sense of showing the therapist the previous ROE (Character Layer) that historically generated the one above (Manifest Layer). Similarly, as work on the Character Layer is being done, the Essence Layer of self-relating begins to reveal itself, again showing the therapist the dominant historically-based ROE (Essence Layer) that gave rise to both above (Character and Manifest Layers). In trainings, we often use the metaphor of peeling an onion to describe the therapist's transition from the Manifest, through the Character, and into the Essence Layers of self-relating.

In PBBT®, it is very important that the therapist does not sweep quickly through the Manifest or Character Layers of self-relating, even though it may be obvious to them that there is a deeper relational pattern below. The Manifest Layer is a key part of the client's identity and distress, and provides space, time, and a clinical access route to the Character Layer of self-relating. Similarly, the Character Layer is key to the client's identity and

unhappiness, and provides access to the Essence of self-relating. These slow explorations also illuminate the functions attached to each ROE unit, which can be missed when therapists move too hastily through the relational layers. In PBBT®, we often focus on the concept of 'importance' and why the relating in each ROE has come to be as important as it is. That is, it has served an important purpose for the client. For example, why has being anxious become so important to a client's life? Working slowly and systematically through each layer provides an answer to this and similar fundamental questions.

Identifying the Manifest Layer of Self-relating

Clients typically come into therapy to work, for example, on their anxious or depressive feelings. In PBBT®, we think of these first-reported experiences as part of the Manifest Layer of self-relating. As such, we examine the ways in which these impact the client's life and sense of self, hence exploring the pattern of self-relating and not just the stimulus 'anxious'. It is important to emphasize that PBBT® does not view these feelings as things a client 'has', but as a central tenet to who they believe they are (i.e., what they have repeatedly derived about themselves).

Imagine a client who opens up in an initial session with: "My anxiety and panic are too much for me. I can no longer go to work and I'll never get my old life back." In simple terms, we might say that the Manifest Layer of self-relating with this client is 'I am anxious'. As the therapist determines the accuracy of this formulation in an iterative fashion, they explore the dimensions of this relating to determine its strength and thus resistance to change. In almost all cases (with the notable exception of recent brief-impact trauma, such as a car accident), the therapist will find that this Manifest Layer is strong, probably by being high in coherence and complexity, and low in derivation and flexibility. Given this strength, PBBT® typically opens with a high level of recognition and exploration for this Manifest Layer of self-relating, and many initial sessions are devoted to validating and then unpacking it.

Indeed, the concept of validation is central to PBBT® because of the extent to which being anxious, for example, has become genuinely important to the client for whatever reasons that occurred.

Weakening the Manifest Layer of Self-relating

Consider the 'I am anxious' relating observed in the client above and recall that they alluded to a sense of loss (i.e., losing the fullness of living because of anxiety). Working with the Manifest Layer of self-relating, PBBT® involves connecting that loss with the person who is experiencing it. For example, the therapist might say: "So a very painful part of this isn't just the fact that you can no longer enjoy doing the things you love, but having to live without them seems to have really taken something away from the person you were before. Is that true?" Exploring what loss means for the sense of self typically brings powerful emotional reactions to the fore, such as anger, and a sense of unfairness and injustice (e.g., why did this have to happen to me), about which the client might now talk with a more open sense of frustration and greater detail in the self-relating.

When a client provides lots of detail, this suggests high complexity in the 'I am anxious' relating, implying that the pattern is strong. Indeed, relational complexity plays an important role in the way in which PBBT® begins to weaken this relational pattern, which is often done by trying to reduce complexity. For example, the therapist might say: "When I listen carefully to all of the painful, anxious experiences you describe so often, I can see how the details just become as overwhelming as the feelings themselves. It's like watching you drown in details of the events, as well as drowning in the feelings these create in you. It all seems totally unbearable. But details always have a theme and that's the theme your experience seems to want to tell you most about. So, without reducing or ignoring any of the details, but without getting drawn into any either, what do you think is the feeling or experience that really stands out above the rest?" You can see from this that the therapist

avoids getting drawn into the many details of the client's experience and yet is careful not to invalidate them. At the same time, they are trying to reduce the complexity of the 'I am anxious' relating by focusing on the single most painful theme or experience contained within it (i.e., distilling all of the experiences into one). Reducing complexity in this way is a very effective means of weakening self-relating.

Identifying the Character Layer of Self-relating

It is often surprising how much therapeutic time and work it can take for a client to begin to talk about themselves in a way that is more revealing than what lies at the Manifest Layer of self-relating. Admittedly, some clients come to therapy already able to talk about themselves in this way. These clients have often been to therapy before and/or have engaged extensively in self-reflection and intimate sharing with significant others. With these clients, there will be less work done at the Manifest Layer and the Character Layer will already be accessible.

With more experience in PBBT®, it gets easier for the therapist to tell the difference between the Manifest and Character Layers of self-relating. As illustrated above, the Manifest Layer tends to be experience-focused (e.g., anxiety-based), but you will now see how the Character Layer tends to be more person-focused. Indeed, that was the transition the therapist above was aiming for when connecting the person with their experience. In identifying the Character Layer of self-relating, we typically hear more statements such as: "I make too many mistakes"; "I'm just too weak to leave;" "I'm out of control;" and "I'm too sensitive." You can see from these common examples that there are more explicit references to self (rather than references to emotional experiences) at this layer, and this is often accompanied by greater emotional distress in-session. As a result, the client's dialog also tends to become slower, more narrowly focused, and more painful.

Consider again the client above with anxiety and panic, with whom the Manifest Layer of self-relating was identified as ‘I am anxious’. Recall that in exploring that pattern, the therapist touched upon the loss of positive experiences caused by anxiety, and this raised a sense of anger and injustice for the client. In connecting anxiety with loss, and directing the dialog toward the person having these experiences, the Manifest Layer of self-relating (‘I am anxious’) begins to reveal a Character Layer about a person to whom bad experiences always seems to happen.

To explore this Character Layer further, the therapist might say: “What a lot of loss for just one person to have to bear. I guess you have to carry the full burden of that loss on just one pair of shoulders. I imagine you wouldn’t want to be burdening others with that weight. They probably wouldn’t understand anyway. They might even think you’re whining. I understand that, but it seems to me that would put you in a very lonely, isolated, and heavy place.” You might see that one aspect of the therapist’s probing here is exploring a sense of loneliness and separation from others, which is a key part of many clients’ distress. The client in this case might reply with: “It’s no-one’s fault but my own. It’s all in my head. I’ve done this to myself, so why should others have to suffer from it? I need to get a grip. Normal people wouldn’t do this.” As well as confirmation that this is a lonely place for this client to be, you may be beginning to see that what is unfolding slowly here is a pattern of self-relating that looks like ‘I am not normal’ or ‘I am not enough’.

You can see from the response above that the client is beginning to reveal more about what they think about themselves (i.e., how they identify themselves) at a deeper level (i.e., the Character Layer of self-relating). In PBBT®, the therapist would explore this further, possibly along the following lines: “I really hear what you’re saying here. It does seem like such a heavy weight you’re carrying around all by yourself. And I actually appreciate that you’re trying not to burden anyone else with it. But that sure does make it lonely. And now, I

hear something else too, another heavy part of this huge burden on you, the part that points the finger at you and says you are at fault here. It says in a harsh, pointed way that you are a big part of the problem. If I asked that harsh voice to be honest and open with us and just tell us what they really think about this situation, is that what the voice would say – this really is your fault?"

At this point, PBBT® typically involves an exercise about letting the harsh voice speak and in doing so we try to capture the many cruel, rigid judgements clients level at themselves so often. Exercises such as this can be very revealing (and painful to listen to) because they often highlight the theme that was beginning to emerge above that clients perceives themselves to be different, defective, abnormal, not enough, or broken in some way. Indeed, these are the most common patterns that we see at the Character Layer of self-relating. Hence, we often follow the harsh voice exercise with something like this: "As I listen carefully and respectfully to that angry, harsh, judgmental part of you, I imagine they have come up with their own answer about how you're the problem. Maybe they've concluded that because they really believe that this doesn't happen to everyone else, there must be something different or deficient about you?" For PBBT®, an important element of the work here is to give the client a safe place from which they can speak harshly about themselves (as they do in their own time anyway), without it overwhelming them, and where this can be fully received but not judged, praised, or invalidated by the therapist as the listener.

In PBBT®, we often work with the concept of 'deserving' in the Character Layer of self-relating, because it helps to link Manifest Layer experiences, such as anxiety, with Character Layer self-relating, such as 'I am not enough and as a result I deserve less than everyone else.' Now let's imagine the client in our example responds to the above with: "It's true. I must deserve at least some of this or it wouldn't be happening to me again and again. Deep down, I've always known this would happen. I just don't have what it takes to be

happy." To which the therapist might reply: "That seems like a very harsh thing to say about yourself. But, part of me thinks that you really believe that maybe at some level you do deserve at least some of what is happening to you. What might you have done wrong or feel that is wrong or deficient with you that has brought you to a place where you deserve to have all that bad stuff happening?" In response to this soft but directive probing, clients will begin to reveal a Character Layer of self-relating with statements such as: "I think it's obvious, isn't it? I wouldn't be here unless there was something wrong with me. I'm just not the same as everyone else. I can't measure up."

Weakening the Character Layer of Self-relating

In describing the weakening of self-relating at the Manifest Layer above, we used the example of reducing the dimension of complexity, by distilling down many of the details regarding anxiety into the most painful of these experiences or the theme shared by them. Again, the dimensions play a key role in weakening self-relating at the Character Layer. Consider the example of the client whose self-relating at this layer appears to be 'I am not normal', which is often observed as 'I am weird' or 'I am broken'. Because derivation on this pattern is likely low and clients have little awareness of their own relating, it is important in PBBT® to make this pattern an explicit and important part of the clinical dialog. Naturally, talking about themselves as broken, for example, is very painful and even shocking for clients, especially in front of a therapist who they assume to be in total control of their own lives. Ironically however, learning to talk openly and honestly about this Character Layer of self-relating brings clients a deep sense of relief that a 'shameful secret' is finally revealed. We often use metaphors such as 'letting the Genie out of the bottle'[2] when weakening self-relating at this layer.

[2] In PBBT, we often use the children's fairy tale of the genie in the bottle as the basis of a metaphor to help unpack the Character Layer with a client. In this metaphor, the genie is the self-relating in the Character Layer, and the emphasis is placed on releasing the genie and reducing the burden on the client to keep the genie a secret. The added benefit of using this well-established fairy tale in the metaphor is that the genie is typically

Another important feature of weakening Character Layer self-relating is to appeal to the concept of 'permission' which is designed to reduce coherence and increase flexibility. Consider the client who has derived 'I am weird' at this layer. In discussing this openly, the therapist will explore many of the possible advantages and limitations in 'being weird'. Key to this is the fact that high coherence and low flexibility in this derivation primarily give the client permission only to be weird and give little or no permission to be anything other than weird, or to be what the client might deem 'normal' in any way. For instance, the therapist might say the following: "So, if deep down you believe that you're weird, then I guess operating in that space only gives you permission to think, feel and do weird things, and everything that isn't weird would be off-limits? In that case, I can see the trap you're in. Because weirdness has to own all of you and anything it didn't own would be immediately questioned and inevitably it would end up being called weird too. Could you give me any examples of any other way you have permission to be that isn't weird in one form or another?" What we typically find is that clients can gives few or no such examples. The important clinical PBBT move being made here is not simply about having the client talk openly about weirdness, but is more about recognizing that this is a hidden, strong pattern of self-relating that gives clients no room to identify themselves any other way.

Identifying the Essence Layer of Self-relating

It can take many sessions to bring a client to the place where they can begin to talk about the Essence Layer of self-relating, and very few come into therapy revealing themselves in this way (even experienced therapists). Again, with more experience in PBBT®, it gets easier for the therapist to tell the difference between the Character and Essence Layers of self-relating. As in the example of 'I am weird' above, the Character Layer tends to be a rather generic pattern built around the perception that a client behaves in problematic ways and

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evaluated positively, but is being used here to refer to self-relating that the client has long evaluated negatively. Thus, the intended impact of this shift is to enable the client to talk about self-relating in a less burdensome way.

judges themselves accordingly. In contrast, the Essence Layer of self-relating typically appears more fixed, more profound, and less tied to specific behaviors. For instance, in exploring this layer of self-relating, we typically hear statements such as: “I’m just hateful”; “I can’t be loved”; and “What’s the point in me even existing?” You can see that these examples are profound statements about a deep sense of lack of worth and unlovability. Indeed, the patterns of self-relating we see in clients at this level include: “I’m unlovable;” “I don’t matter;” “I’m toxic;” and “I’m nothing.”

Consider again the client above, for whom the Manifest Layer of self-relating was ‘I’m anxious’ and the Character Layer was ‘I am weird’. After sessions on validating and weakening the Character Layer, the therapist might begin to explore the Essence Layer of self-relating as follows: “I have really listened hard to what you’ve been saying. And I especially heard that critical voice that’s a part of you who shouts these harsh, bitter statements about all the things you’ve done wrong, all the mistakes you made, and how they justify the pain you have to suffer. And inside that there seems to be a message about your very worth as a human being, as if that is tied in some fundamental way to everything that is happening on the ground above it. So, if it’s okay to do this, perhaps we could just give some space to that deep level of self-judgement, that profound statement somewhere inside you that wants to tell you something about your very value as a human being?” At this point most clients will respond with something like: “I just think it’s pretty pathetic. It’s what a pathetic human being would do. Part of me is just disgusted by this whole thing, the mess I’ve made of my life.” In PBBT®, the therapist here is listening carefully to try to give this essential pattern of self-relating a name and one common one that fits here is ‘I am worthless’.

Weakening the Essence Layer of Self-relating

It is an almost tangibly painful and profound experience to work with clients at the Essence Layer of self-relating. They typically speak slowly, quietly, and with their heads

bowed. Indeed, these exchanges are very painful for therapists to listen to and we are often truly grateful for clients' honesty, even if we are stunned and hurt at the depth of their self-hatred. As a result, we typically respond to statements that lie at the essence of self-relating as follows: "Thank-you so much for being so open. I can only imagine what it takes to dig deep inside yourself and come up with that. It's just so stark to see that it is such a fixed object, like one that can't be changed. It's as if for you it's an instinct about yourself, a deep knowing that is lodged in the past tense, with little hope of real or lasting change in the future?"

It is important to recognize that by the time the therapist is weakening the Essence Layer of self-relating, the Manifest and Character Layers have already been weakened, and thus in a sense clients know what to expect and are not surprised. Similarly, although they have almost never before explicitly recognized their self-relating as 'I am worthless' they recognize its strength, which is obvious in terms of the four dimensions of relating. The two dimensions that are manipulated most obviously in PBBT® in weakening self-relating at this layer are coherence and complexity.

Let us consider complexity first with the client above whose Essence Layer self-relating is 'I am worthless'. At this layer, perhaps even more so than the others, the PBBT® therapist maintains complexity at the lowest possible level, by bringing all self-meaning and almost all of its functions back to this single pattern of self-relating, I am worthless. Understanding that this is a large complex relational network that has both existed and evolved across time, the therapist illustrates how key features of the client's life, currently and historically, lead back to this pattern. Central to this work is the role of history in facilitating the derivation of this pattern at an early age and the links between this pattern and the self-relating at the Character and Manifest Layers above. In establishing this temporal continuity of self, clients come to see how 'I am worthless' became 'I am weird' which in turn became 'I am anxious'. The inevitability of the later patterns is heavily emphasized in a way that is

hugely validating for the client, removes much of the responsibility how their live has unfolded, and typically gives them a gentle but inspiring place from which they can 'begin again'. Weakening in this way relies heavily on the therapist's ability to keep the complexity of self-relating extremely low in the sense that 'I am worthless' explains everything in a simple way.

Now lest us consider how coherence is used to weaken self-relating at the Essence Layer, which typically begins once complexity has been maintained at a low level. Naturally, coherence in 'I am worthless' is deemed high such that no competing derivation is possible. However, emphasizing the inevitability of how the client's life has unfolded in an almost linear sense from 'worthless' to 'weird' to 'anxious' and how this inevitable trajectory sucked the client's life in without them knowing enables the client to ask themselves whether or not this was the life they would have chosen, if the essence self-relating of 'I am worthless' had not occurred. At this point in PBBT® we often refer to childhood experiences, such as what clients dreamed of as children (and how this is different from what transpired); what that client enjoyed as a child which was then lost as a result of self-relating 'I am worthless'; and what alternative life would they have chosen if they had been given alternative opportunities. What this work does is to gently weaken the coherence of the self-relating, and indeed increase its flexibility, by creating a context where alternative patterns of self-relating are possible. A simple tool commonly used in PBBT® is to emphasize some in-session notable features of the client's behavior such as humor, explore how this feature has been continuous across time (e.g., looking at examples of funny things the client did as a child) and note how humor has managed to exist in spite of the negative self-relating. The continuity of what we might call positive features of the self, noted by the therapist in an intimate way, always running in tandem with worthlessness should gradually weaken coherence in the self-relating.

In spite of the tenderness and positive elements that emerge when a therapist is weakening self-relating at the Essence Layer, it is important to recognize that these remain painful sessions for clients because even when self-relating has been weakened, one cannot ignore the carnage it has caused in a client's life to this point and there is nothing that can be done with this but to 'respect' the fact that those consequences resulted from that relating. While this can be overwhelming for clients and they can have no resolution for it, tying the negative consequences to the worthlessness 'message' and weakening the relating between this message and the client often enables them to bear the damage. A key feature involves the client knowing that ultimately it was not their fault and simply could not have been any other way when the first essential message about themselves they acquired from the world was 'I am worthless'.

Before concluding this section on self-relating, several key points are worth emphasizing. First, a coherent and precise clinical dialog that contains accurate descriptions of the self-relating is itself key to weakening this relating. For PBBT®, the dialog is the ROE analysis at work, and a good dialog will indirectly and slowly weaken the relating without the client being aware that this is happening. Second, in a similar vein, the dialog that facilitates the transition between layers is also systematic and driven by the analysis, and as such it too will weaken the relating. Thus, as well as specific strategies such as reducing complexity, PBBT® does its work, when successful, by carefully crafting an elegant, shared narrative with the client.

Third, we wish to emphasize at this point that we do not conceive of layers as structural or ontological in any way; they are merely an organizing system for handling ROE units and their evolution. For example, all adult clients are formulated in terms of the three layers described above, whereas younger clients may be formulated in terms of only two layers depending on whether a Manifest Layer has yet evolved

2. Identifying and Weakening S+ Functions

There have been many pivotal moments in the evolution of PBBT® that convinced us that what we were developing was very different from what we had done previously as therapists, at the level of treatment regime. Many other therapies are primarily focused on identifying clients' existing emotional S- functions, often referred to simply as avoidance. For example, acceptance-based therapies in particular focus heavily on the role of emotional avoidance in psychological suffering (e.g., Forman & Herbert, 2009). We are in total agreement that avoidance is problematic for most, if not all, clients, and that the solution, in one form or another, is exposure and the establishment of approach-based (S+) functions to replace aversive (S-) functions. This is as much a part of PBBT® as other therapeutic regimes (see section below).

However, as therapists we regularly found it difficult to identify precisely what these S- functions were, especially emotional ones, and which patterns of self-relating they were attached to. Even when we could identify the self-relating and the emotional functions, we found it still difficult to work with these functions in practice. For example, when we had apparently successfully identified and targeted a deep sense of hopelessness in a client's existing verbal system, hopelessness continued to be something apparently necessary to avoid, and creating a context for a client to reliably approach this stimulus was often very difficult.

Defining S+ Functions

Having struggled with this issue of working with and weakening S- functions for a number of years, we decided to look at the HDML framework and the experimental work emerging on the ROE unit at that time (see Barnes-Holmes & Harte, 2022, and Barnes-Holmes et al., 2020, for recent relevant summaries). What we concluded was that what we had seen clinically was the presence of established evoking S+ functions (e.g., control, safety

behaviors, etc.) which seemed to block our clinical access to the target S- functions. When we looked carefully at the ROE concept, it seemed clear that a ROE unit can have *both* S+ and S- functions. Thus, we began to explore the possibility that what we were seeing clinically was S+ functions that dominated the client's repertoire, and served to keep S- functions concealed. In other words, existing ROE units were maintained by the S+ functions which in turn served to maintain the S- functions. What we had also experienced clinically was that initially weakening the S+ functions made it easier for the therapist to identify and manipulate the S- functions.

The more we viewed our clients' evoking functions in this way, the more we realized how problematic clients' existing S+ functions are and how they serve to keep S- functions invisible to both therapist and client. In the development of PBBT® across time, the focus on existing problematic S+ evoking functions became increasingly pivotal, so much so that one might say that where other therapies are focused on S- functions, PBBT® is focused on S+ functions. In our experience of PBBT® to this point, we are convinced that the emphasis on S+ functions was a pivotal conceptual and clinical shift.

Identifying S+ Functions

In training PBBT®, we often revert to our behavioral roots and the decades of animal work that behavior analysis is so proud of, and which formed the bedrock of the work that came later with the complex behavior of humans. In simple terms, we might say that humans, by analogy with rats, are always pressing some sort of lever in a Skinner box. In other words, even if a ROE unit contains an S- function, the individual is *not* just engaging with their life in a totally avoidant way. They are not simply *not* doing things, they are actually doing *many* things at the same time.

Just as the empirical work had suggested that ROE units have simultaneous S+ and S- functions (see Barnes-Holmes et al., 2020), our clinical work had shown that what you see in

practice are S+ functions (the things clients do, feel, etc.), and what you have to work really hard to see are S- functions (the things clients don't do, feel, etc.). In addition, the conceptualization of the ROE unit meant that it was possible that the presence of S+ functions allowed the S- functions to reside undetected. Consider the following example. You may be a very supportive partner (S+ functions) because you are afraid that if you don't do this your partner will leave you and you will be all alone, and the pain of this would simply be too much to bear (S- functions). In this case, the relating that dominates the relationship between you and your partner may be denoted as 'I need them' (this would be self-other relating). Your S+ functions comprise the behaviors of being the best possible partner, and at least some of the emotional S- functions are the fear you avoid when you think they might leave you.

S+ functions come in many topographies. The aim in PBBT® is to identify the ones observed most frequently in a client, and then identify the 'theme' (or dominant S+) that connects these topographies together. Consider a client whose relating in their marriage is 'my partner is better than me'. This comparison relation makes the following S+ functions likely: doing a lot for your partner; proving your worth to your partner; reacting quickly to perceived examples of when your partner judges you; and feeling pressure to maintain your input to the relationship at a high level. In contrast, the likely S- functions would be: avoiding thinking of them leaving and the pain that would go with that; avoiding discussion of anything that could comprise a disagreement; and avoiding placing any demands upon them. If we grouped the S+ functions together, we might refer to them collectively as 'working for love'. When a client in this situation comes into therapy, you will hear many examples of their extensive input to the relationship; you will get a deep sense of the burden the relationship has placed on them; and you will detect the client's resentment; all of which are S+ functions. However, you are unlikely to hear that they are facilitating this burden by

avoiding the fear of rejection, the key S- function, which their history has convinced them is important to do.

Emotions as S+ Functions. Another key aspect of S+ functions, with which we struggled in the early days of PBBT®, was how to conceptualize the presence of strong and/or frequent emotions. Again, we reverted to our behavioral roots, and started to see these present emotional experiences as S+ functions – experiences that happen to the organism in real time. Hence, in PBBT® we see the presence of emotions (e.g., anger, frustration, loss), and their expression, as S+ functions that participate in the ROE unit we are dealing with at that time. While we are aware that conceptualizing emotions in this way may be unusual, it is consistent with the traditional behavior-analytic concept of the behavioral stream (e.g., Skinner, 1953). Furthermore, in ROE terms, emotional responses can only be categorized as either orienting responses or evoking responses, and they are most likely the latter.

S+ Functions Can Obstruct the Therapeutic Relationship. Although we have opted in the current manuscript not to focus on self-other relating, it is important to draw the reader's attention to the strong impact S+ functions often have on the building of a therapeutic relationship. Clients come to therapy with problematic patterns of self-other relating and troublesome S+ functions that are attached to these as ROE units. For example, a typical pattern we see is 'others are better than me' and it is very likely that the therapist is coordinated with others, and thus perceived as 'better than' the client. The likely S+ functions attached to these ROE units include: therapeutic compliance; agreeing; and validating the therapist, etc. In permitting these functions, the therapist is inadvertently strengthening those ROE units, rather than weakening them. It is a central focus for PBBT® in early sessions that problematic self-therapist relating and the S+ functions attached to it are weakened, even before we begin our work on self-relating and its functions.

Weakening S+ Functions

PBBT® is very explicit in its position that established S+ functions, especially a dominant S+ function, at any layer must be identified before we begin to weaken them.

In PBBT®, the first way to weaken an S+ function might seem ironic but involves, as before, ensuring that the clinical narrative heavily validates the need for, and client's investment in, this behavior. As well as having many benefits to the therapeutic relationship, this begins to allow the client to have some distance between themselves and the things they have to do. In short, S+ functions typically are not weakened by the therapist arguing against them; in contrast, making room for them actually works better.

Consider the following example of 'convincing' as a dominant S+ of self-relating labeled as 'I am bad'. Imagine the therapist saying: "I feel a lot of convincing in the room today, and I see how much energy you invest in that. It's sad to watch how much you have to do this, but it makes me realize how important it is, especially when the stakes are about you being a good person and not being a bad one". It's important to see in the example the focus on the person engaging in the behavior and a somewhat softer focus on the behavior itself. This is an important balance to strike if the client is to feel that they are not being judged or criticized for engaging in this behavior. Indeed, this validation is essential before the next PBBT® move which would then be more focused on the behavior itself. For example, the therapist might say: "When I really appreciate how much energy you have to put into convincing me or anybody else, and I see that it almost compels you to do this, then it makes me wonder what's really in this for you, and what do you as a human being really get for all that effort? In fact, in some ways, I'm not convinced, and maybe you're not too, that this is really worth it, or adds to your life, even though it's absolutely essential in the good-bad way".

The second way to weaken an S+ function is to slowly thereafter introduce elements of its cost. For instance, a therapist might say the following using the example further above:

"If keeping your partner is the most important thing in your world, then you're doing everything you can in that direction. All the things you have to do are hard and exhausting, but they're worth it to maintain such a valuable prize. If the sum total of who you are as a person was being a partner, then having that relationship would be everything, it would be enough, and there would be no reason for you to feel uneasy. So, the prize on that front seems clear to me. And yet, you and I both feel uneasy about this. It's as if when the relationship balloon goes up in the air, another one comes down? It's not that the relationship doesn't matter to you. It's that something else also seems to matter and something seems to happen to that thing when everything you have is invested in the relationship?"

At the beginning of the piece above, there is a high level of validation of the S+ functions. The piece then uses a simple metaphor to begin to introduce possible negative consequences for investing heavily in the relationship as S+ functions. We might think of the latter as the therapist beginning to weaken the S+ function (because engaging in the behavior now begins to appear costly). In this example, the client will often say "What about me? What about who I am?" This space and permission to think about themselves, opened up by validation of the S+ functions and the introduction of their costs, allows the therapist to establish a distinction relation between the relationship and the self, in the sense that investing in the former reduces permission for the latter. In other words, the way the client is managing this relationship prioritizes the relationship at the detriment of the self, hence the negative consequences of maintaining the relationship that way. The simple balloon metaphor is a very powerful but palatable way to present this.

Again, it is common in numerous therapies to talk explicitly about the cost of engaging in what PBBT® denotes as S+ functions, but PBBT® is typically softer in this respect so as to avoid any sense for the client that they should not be doing this. Hence, you will not often see the word "cost" actually being used, even though, the technical aim in

manipulating an S+ is to punish it. One of the ways that PBBT® navigates this tight space is to focus on the fact that the behavior doesn't add anything to the life of the human being but only adds to the game of the self-relating. This shows the behavior to be costly in the sense that nothing is being gained, not in the sense that things are being lost.

Weakening S+ Functions Influences Relating. It is important to remember that PBBT® is more than functional analysis, it is ROE-based analysis, and that means that functions are never separated conceptually from relating. Clearly there is some overlap between the traditional concept of functional analysis/assessment and the analysis of functions as elements of ROE units conducted within PBBT. The difference is largely conceptual in that for RFT all functions are elements of ROE units and thus are not seen through the lens of the traditional contingency model. This conceptual difference fundamentally separates out a dynamical from a linear analysis. Furthermore, this has, in our view, substantial clinical implications because PBBT grapples with functions and relating as co-defining, dynamical elements of ROE units. The key point here is that the development of the ROE unit fundamentally transformed the way clinicians in PBBT analyze and manipulate functions. Hence, any manipulation of S+ functions will have an impact on the relating aspect of that ROE unit, and it is important in PBBT® to determine what is happening to the target relating when you are trying to influence its functions.

A key task in PBBT® in its work on weakening S+ functions is to ensure that the clinical dialogue as much as possible ties the S+ functions to the self-relating, rather than talking about the function as a separate thing. For example, the therapist might say, "I can really understand why you have to do this *when you see yourself as bad*". This combination is more likely to weaken the ROE unit itself rather than only weaken one part of it, and again it emphasizes to the client that the behavior only makes sense in terms of the self-relating. At this point, we might see some evidence that both the S+ and the strength of the self-relating

are weakening. For example, the client might say “I just don’t know what else to do in those situations when I feel bad, but I do know that’s not what I want for myself anymore”. We can see here that the client has started to question what the behavior is really doing for them and what this means to them as a human being.

Imagine a client whose S+ functions are predominantly about regulating their emotional experience (e.g., anxiety) and these functions are part of a ROE unit in which the self-relating might be called ‘I am broken’. We might say that the way this unit works is that regulating their emotional experiences seems necessary to the client because when they have these experiences it appears to be confirmation that they really are broken. If a therapist weakens the S+ functions around regulating emotions (i.e., the client stops regulating emotions), they must simultaneously explore what impact this has on the ‘I am broken’ relating. Paradoxically, increasing a client’s approach to intense emotional experiences might actually make them even more convinced that they are broken (because they now feel worse), and thus the self-relating might be strengthened rather than weakened. However, it is also possible that learning to approach these intense experiences can be viewed as a strong response which the client has never done before. Thus, if ‘I am strong’ relating was established by the therapist and this approach function was attached to it, then this would likely weaken the original ‘I am broken’ relating and ensure that the S+ functions of emotional regulation were extinguishing. The latter is precisely what we would do in PBBT®. The point here is to emphasize that PBBT® fully recognizes that where there are functions, there is relating, and these are dynamic and necessarily inseparable aspects of the same ROE unit.

Recall above the three layers of self-relating as conceptualized in PBBT® in terms of three dominant ROE units that evolved across time. When initially dealing with the Manifest Layer of self-relating, a key aspect of PBBT® is to identify the S+ functions, including the

dominant function, and to weaken them. Weakening the S+ functions at the Manifest Layer is necessary for the Character Layer of self-relating to begin to emerge. The same strategy applies to the Essence Layer of self-relating. In other words, it is important to emphasize that S+ functions are attached to each ROE at each layer of self-relating, and these must be weakened at each layer to ensure that those ROE units are weakened. However, what we see in clinical practice is that the S+ functions tend to exist most strongly at the Manifest and Character Layers of self-relating, and as we transition through the lower layers, more time is spent on identifying S- functions.

3. Defining, Identifying and Weakening S- Functions

In discussing S+ functions above, we covered some aspects of S- functions. Let us summarize the latter in terms of PBBT® as follows:

- S- functions are avoid or escape responses
- They typically involve painful negatively evaluated emotions
- They are very problematic for clients' lives
- They are hard to identify precisely
- They are supported by S+ functions and only come into view when these and the target relational pattern are weakened.

Earlier, the importance of distinguishing S- from S+ functions was made clear. Consider the following example which illustrates the difference further. Imagine a client who comes to therapy deflated and weary with sadness, and the therapist identifies the self-relating at the Manifest Layer as 'I am hopeless'. For PBBT®, sadness or despair are not S- functions here because the client feels a lot of each, and talks extensively about both. As such, sadness and despair are conceptualized as S+ and not S- functions, simply because they are present and not absent.

Identifying S- Functions

We often emphasize in trainings that S- functions are not sitting waiting to be discovered by the therapist. Metaphorically speaking, they exist in deep, dark places in the client's verbal system that are hard to reach. This simple metaphor also emphasizes the fact that the difficulties in exploring S- functions do not result from clients' lack of willingness or their stubbornness, indeed clients are often not fully aware that they are avoiding. To address this, PBBT® is acutely aware of the difficulties in observing and identifying the precise nature of S- functions, and uses various analyses and techniques to aid with this explicitly. In any case, it is important in PBBT® to specify as precisely as possible the stimulus that is being avoided and how best to describe what the avoidance function looks like (e.g., being silent). Simply saying that a client is avoiding feeling vulnerable is not adequate in PBBT®.

Just as the meanings of self-relating deepen from Manifest to Essence Layers, so do the emotions and other experiences that are avoided. That is, the stimuli that are avoided at the Manifest Layer tend to be simpler and less painful, relatively speaking. For example, a client might avoid feeling confused, uncomfortable, or being challenged by someone. They might avoid engaging in simple actions, such as leaving the house. At the Character Layer ROE units, we tend to see avoidance of different stimuli and experiences. We are likely to see avoiding social or intimate contact, avoiding touching 'contaminated' objects, etc. But of course, the discomfort attached to these stimuli is also an S- function at this layer. At the Essence Layer, we see a significant deepening of avoidance, especially of emotional experiences. The most common examples we see at this layer are shame and terror, such as those established by traumatic or neglectful childhood experiences. In summary, S- functions are attached to self-relating ROE units at all three layers and increase in depth as the layers themselves deepen.

For PBBT®, the threads that bind S- functions to self-relating and orienting functions (as a ROE unit) are critical to the therapist identifying, exploring, and ultimately weakening those functions. One of the key ways in which PBBT® identifies S- functions is to explore the orienting functions and orienting stimuli that interact dynamically with the S- evoking functions. Consider a client whose Character Layer of self-relating is 'I am a failure' and an S- function attached to that ROE unit is to avoid a tightness in the chest which can be evoked when the weight of being a failure really sets in. In this case, the tightness in the chest is an orienting stimulus that evokes an orienting response, and the orienting response in turn evokes the S- which involves any action that enables the client to pull away from or reduce the tight feeling and the heavy feeling that inevitably follows on from it. In drawing the client's attention to the interrelatedness of the orienting and evoking functions, the therapist might say the following: "Doesn't it seem like if there is any hint that you have done something wrong or missed something, a little panic switch is pressed and once on, the pain that ensues for you as the wrong-doer is just unbearable. It's overwhelming". This example illustrates that for PBBT® it is important to explore with the client what exactly must be avoided and why, rather than simply highlighting avoidance per se in a generic fashion.

Converting S- Functions to S+ Functions

Similar to the therapist tying S- functions to orienting functions as above, it is crucial in PBBT® for the clinical dialog to tie S- functions to self-relating. This helps the client to understand why avoidance has become important and necessary, and thus also serves as validation of those functions. But more importantly, this ensures that any weakening of the functions will also weaken the ROE unit itself. In simple terms, clinical weakening of S- functions should also serve to weaken orienting functions and self-relating.

It is important, especially here, to insert a caveat about clinical pace and timing because of the powerful hold S- functions have on a client's verbal system. As noted above,

clients are not aware of, or stubborn about, what they avoid; they avoid because they are terrified, sick with shame, or overwhelmed by grief. As a result, bringing S- functions to the surface, and encouraging clients to have and share these emotional experiences with a therapist, is extremely painful and frightening. Thus, it is more than understandable that certain clients at certain time points simply cannot do it. We have many times in supervision seen clients feeling unsafe and intruded upon when therapists push too hard for them to approach painful avoided places. For PBBT®, if a verbal system does not appear ready, it is not ready, and this may be a signal to the therapist that more work must be done on other parts of the ROE unit, such as self-relating and S+ functions.

This, however, does not mean that PBBT® simply lets clients avoid in-session, that would likely only serve to strengthen those functions and the ROE unit they participate in. The place we are describing here is the well-known clinical difficulty between not forcing clients to approach and not strengthening avoidance at the same time. PBBT® handles this narrow space through therapist self-expression. When a therapist has clearly identified an S- function, they gently express their ongoing experience of encountering this space, but not in a way that suggests that the client is doing anything intentional or wrong. Consider the following expression: “I see a real Achilles Heel for you right here in front of me. It seems as if when I touch that place where you don’t matter, the pain of the nothingness cuts right through you. And I want you to know that I’m not trying to drag you into that deep, dark, lonely nothing place. In fact, I want you to be free of that place forever, and I wish that you had never been put there in the first place. But you were. What I’m actually trying to do is to let you know that I can go there with you, so that you don’t have to be all alone, as you have always been. And I can see and feel right here and now that you’d do anything to not be in that place and that makes real sense to me. But sadly, what I see before my very eyes is that you are already there and at one level you have been there for a long time. What I see is not

something that should just be avoided in the future, what I see is the past tense, you are already there. And I see the present tense too, here you are again in this dreaded place, right here right now. So, what I'm simply asking is that you would consider letting me be there with you, so that you are not in there all alone." There is a strong validation move here that encourages approach where there has previously been escape, but with no sense of pressure to move or of judgement. The 'permission to be here piece' in the therapist's expression above is more than obvious and is clearly acceptance-based.

What is perhaps most striking about the therapist's expression illustrated above is the complete absence of a change agenda, a feature that is of critical importance to PBBT® in dealing with S- functions. Indeed, it is perhaps ironic that these functions are weakened by suggesting that nothing at all needs to be done with them. As noted above, the way this is delivered, and the way clients experience it, is simply that nothing needs to be done with this pain, it 'doesn't even have to be approached', it is where it is. In a way, the ongoing anchoring of the clinical dialog in the present continually evokes the emotional experience that has thus far been avoided and gives it permission to be there, with no added fear of what it will do or pressure to avoid that. In short, the dialog and all aspects of the clinical context ask for permission for things to just be as they are, and for both client and therapist to be okay with that as much as possible at that time. We often use the metaphor noted above of the Genie and the bottle, where the aim is to not stop the Genie from escaping the bottle (existing S- function), but instead the client might recognize that the Genie escaped the bottle a long time ago and is everywhere (new S+ function).

Understandably, it is extremely hard for clients to enter this space and let another human being inside it. However, we also wish to emphasize here the enormous challenge this places on therapists whose training insists on the need to make clients move, make progress, and change behavior. That is precisely what PBBT® does *not* do here. This is one of the most

striking features of PBBT® that trainees wrestle with, and yet mastering this therapeutic and experiential skill typically has a huge impact on the therapist's clinical work and even on their own lives.

Using Analogy and Metaphor to Weaken S- Functions. As is likely very evident at this point, PBBT® employs analogy and metaphor, especially in these narrow, painful places involving S- functions. More broadly, using analogy and metaphor is perhaps the PBBT® therapist's most valuable asset, which is hardly surprising given that the RFT account of these complex relational skills has been well established for so long (e.g., Foody et al., 2014; Stewart & Barnes-Holmes, 2004). As well as having a very targeted impact on self-relating and the functions of a ROE unit, the use of analogy and metaphor in therapy ensures that clients do not feel intruded upon or pressured, and do not get overly rational about the clinical dialog when it comes to S- functions.

The following example is a version of a PBBT® experiential metaphor frequently delivered as an eyes-closed exercise to help convert S- functions. "When I see the sense of nothingness creep in on you, it's like watching you slowly fall down a deep, dark well. I just watch you fall down and down, powerless to the feeling that overcomes you. And eventually you reach the bottom of the well, the farthest, deepest place where the falling stops and you are just there. When you look up, it's only long dark walls that you can see above you. And when you look down, there's only the dark floor of the well. And you can feel yourself sitting on the hard floor, with your bum and legs wet and cold from the bottom of the well. And now you know that you have finally reached the bottom, the place you dreaded all along but knew that you would always get to. It's as if you could feel this place coming for you for so long and now you're actually here. And it's wet and cold and dark and there is no way back up. The walls are high and you have fallen so far. So, could you just notice now that the falling is over? You are here where you were always going to be. Your bum and legs are already wet.

There is nothing you or anyone else can do in this place. There is no place to run from or to. You are here. And notice if you can that I am here too. My bum and legs are not wet, but my hand is in your hand. And for once, you are not alone in the well. You are far down, you are wet, you are frightened, but it has happened now and I am with you. What if we could just be here in this space for a moment together? Let's see what that is like".

Before finishing the current section on converting S- functions to S+ functions, we would like to emphasize the importance in the clinical dialog of consistently tying S- functions to self-relating at the relevant layer. It is crucial in PBBT® that the dialog does not become a pointed judgement on inappropriate or unhealthy behavioral functions, which has a tendency towards encouraging clients to switch from doing the 'wrong' things to doing the 'right' things. The focus in PBBT® is to show the client how the target functions are valid on the context of that self-meaning pattern.

Concluding Comments

In our view as the developers of PBBT®, this is an exciting time for behavior therapy, for RFT and for the integration of behavior analysis and psychotherapy. We remain as ambitious as ever about the ability of behavior analysis to reach new heights in understanding complex human behavior and we are truly humbled by our experiences in pushing this understanding to new limits in the treatment of psychological suffering. Developing PBBT® has allowed us to share behavior analysis with therapists from many disciplines who come to see the value and precision of behavioral concepts, and appreciate their parsimony and elegance. We regularly witness the excitement and awe therapists from outside our field experience when they see applied behavior analysis in action in PBBT® in the alleviation of complex psychological pain and functional emotional entrapment. We are honored to be

translators and developers of that long tradition and remain loyal to its goals and aspirations, and to helping many to continue to benefit from them.

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