

Main Section

TWO ROUTES TO EMOTION: SOME IMPLICATIONS OF MULTI-LEVEL THEORIES OF EMOTION FOR THERAPEUTIC PRACTICE

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Abstract. Traditional models of the relationship between cognition and emotion have typically presented the relationship between cognition and emotion as a single level of sequential processes. However, a number of more recent models have argued to the contrary that the relationship is complex and has to be modelled by multi-level processing systems. One such model, the SPAARS approach (Power & Dalgleish, 1997), is summarized, in particular, in relation to clinical theory and practice in the cognitive behaviour therapies. For example, the proposal in SPAARS that there are two parallel routes to the production of emotion has a number of interesting clinical consequences. Highlights are presented of what some of these consequences might be, and a number of recommendations are made for clinical practice.

Keywords: Emotion, cognition, psychopathology, therapy.

Introduction

Once upon a time there were single level theories of emotion. In the days of Schachter and Singer (1962) theories of emotion were simple and straightforward and you knew where you were with emotion theory. Schachter and Singer showed us how to create arousal by injecting subjects with adrenaline and then fooling them into thinking they were either happy or angry or anything else according to how they labelled that arousal. To quote:

Precisely the same state of physiological arousal could be labelled “joy” or “fury” or “jealousy” or any of a great diversity of emotional labels depending on the cognitive aspects of the situation. (p. 398).

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These ideas found their way into clinical practice and clinicians remember how in those days they used to try and persuade their anxious, panicking patients that all they had to do was rename their panic as something positive, like excitement or pleasure, and life would become one episode of “excitement” after another! Of course, at the time our patients knew better than we did, because they did not have the problem of having their therapist’s wrong theories of cognition and emotion to mislead them – they had their own instead!

And then there was that other influential single level theory of emotion, cognitive therapy. Beck told us that cognition caused depression (Beck, 1976), cognition caused anxiety (Beck & Emery, 1985), and cognition caused personality disorder (Beck & Freeman, 1990). Again life was simple and all we had to do was persuade our patients to think positive, healthy thoughts and they would live happily ever after.

So what went wrong with the idea of emotion equalling “arousal + label”, or the idea of thoughts causing emotion? The problems with these single level theories of emotion arose for a variety of conceptual, empirical, and clinical reasons. Why can emotions be distinguished physiologically if they all share the same physiological substrate (Ekman, Levenson, & Friesen, 1983)? How can emotions arise when there have been no prior thoughts, an experience that patients often report? Or how can we experience two or more emotions simultaneously, such as when we cry with happiness or tremble with anger? The purpose of the present paper is not to offer a detailed post-mortem on single level theories of emotion (we have done this elsewhere, see Power & Dalgleish, 1997), but rather to examine one recent multi-level theory and consider what clinical implications might arise from this class of theories. The theory that will be examined briefly is, perhaps not surprisingly, our own, though it seems likely that the majority of the therapeutic implications that we consider would also be consistent with other multi-level theories.

The theory

On the basis of more recent philosophical and psychological models (Power & Dalgleish, 1997), the following components of emotion can be identified: an initiating event (external or internal), an interpretation, an appraisal of the interpretation especially in relation to goal relevance, physiological reaction, an action potential, conscious awareness, and overt behaviour. Probably all of these components are present in emotion, with the possible exceptions of conscious awareness and overt behaviour. We have suggested that the concept of “emotion” is a holistic one that typically includes all of these components, but that it is not identifiable with any one component. This approach is contrary to prior theories that have equated emotion, for example, with the conscious “feeling” (as in the so-called “feeling theories”), or with the physiology and overt behaviour.

The SPAARS cognitive model of emotion is summarized in Figure 1 (the letters are merely a mnemonic for the different types of representation systems – the Schematic Model, the Propositional, the Associative and the Analogical). The model is multi-level and includes four different levels of representation. It would, of course, be possible for these representation systems to be ordered in sequence, thereby forming a single level along the lines of the original cognitive therapy model (Beck, 1976) in which, for

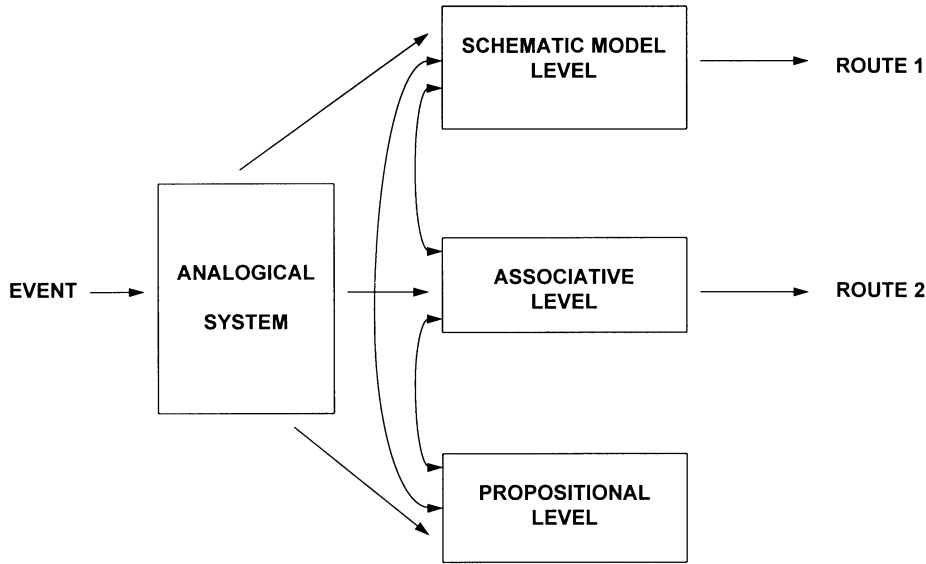


Figure 1. Overview of the SPAARS model showing two routes to emotion

example, schemas may produce negative automatic thoughts (propositional representations) which then cause the emotion. However, in SPAARS the processing of the schematic, propositional, and associative levels may occur in parallel in a manner comparable to Leventhal's (1980) early multi-level theory. The initial processing of stimuli occurs through a number of mode-specific or sensory-specific systems such as the visual, the auditory, the tactile, the proprioceptive, and the olfactory, which we have grouped together as the "analogical" representation system but which in practice constitutes a set of parallel processing modules. The importance of such systems in emotions and emotional disorders is clearly evident, for example, in post traumatic stress disorder in which certain sights, sounds or other bodily sensations may become inherent parts of the memory of the traumatic event. The output from analogical processing then feeds into the three representation systems that operate in parallel. At the lower level there is an associative system which, in terms of current possible architectures, could take the form of a number of modularized connectionist networks (see e.g., Power & Dalgleish, 1997; or Williams, Watts, MacLeod, & Mathews, 1997, for further discussion of "cognitive architectures").

The intermediate level of semantic representation within SPAARS is the "propositional" level. This is the most language-like level of representation. Although such propositional representations have played a key role in the generation of emotion in a number of theories, such as the role of propositional level automatic thoughts in Beck's (e.g., 1976) cognitive therapy, we propose that there is no direct route from propositions to emotion (in agreement with Teasdale & Barnard, 1993), but instead argue that they feed either through appraisals at the schematic model level or directly through the associative route. For example, particular words or phrases may become directly linked to emotion for certain individuals; thus, swear words come in a whole range of

culture-specific forms. These words and phrases are normally designed to elicit an emotional reaction in the recipient, which is typically through the direct access associative route. Indeed, the fact that such words seem to be retained longest even in the lexical access problems seen with extreme alcoholic Korsakoff's conditions (e.g., Lezak, 1995) suggests that they may be stored separately to non-emotion laden words and phrases. In addition, each individual will collect a set of unique words and phrases that may also directly access emotion through the associative route: significant names and significant places provide two such examples (cf. the classic "cocktail party phenomenon", Cherry, 1953), the emotion-laden nature of which may become acutely apparent to the individual following, for example, bereavement when names and places associated with the loved one can trigger overwhelming feelings of sadness, anger, and other emotions.

In order to highlight one of the differences between cognitive therapy, Teasdale and Barnard's (1993) Interacting Cognitive Subsystems (ICS) approach, and SPAARS, Figure 2 illustrates the different role of negative automatic thoughts (propositional representations) within the three approaches. In cognitive therapy negative automatic thoughts lead directly to the generation of emotion; in ICS negative automatic thoughts only lead to emotion through their input into schematic models (in combination, of course, with the input from other ICS subsystems); in SPAARS negative automatic thoughts can lead to emotion either through schematic models or through the associative processing route. The three models therefore make substantially different predictions about the role of propositional representations in emotion, some of the clinical implications of which we will return to later.

The highest level of semantic representation, illustrated earlier in Figure 1, is labelled the "schematic model" level. The term is taken from Teasdale and Barnard (1993); it is designed to capture the advantages of a mental models level of representation (Johnson-Laird, 1983), a level that is designed to integrate information in a flexible and dynamic fashion in combination with the advantages of the more traditional schema approach, which provides a good account of repetitive and invariant relationships between concepts but which is weakest therefore where more flexible representations are needed (Kahneman & Miller, 1986). In relation to emotion, the schematic model level is extremely important because it is at this level that the generation of emotion occurs through the process of appraisal (shown as Route 1 in Figure 1). The key processes through this route include therefore the interpretation and appraisal of any relevant input, whether of external or internal origin, according to the basic appraisal processes considered elsewhere (Oatley & Johnson-Laird, 1987; Power & Dalgleish, 1997).

An important feature of the emotional disorders follows from the proposal in SPAARS that some of the disorders may be derived from the coupling of two or more basic emotions, or may involve the coupling of different semantic levels within an emotion module. Basic emotions are considered to be the building blocks from which more complex emotions are derived; they are typically considered to be innate, universal in their expression, and to appear early during the infant's development (e.g., Ekman, 1992). SPAARS follows the proposal made by Oatley and Johnson-Laird (1987) that there are five basic emotions of sadness, happiness, anger, fear and disgust and that all other emotions can be derived from this basic set. The proposal in relation

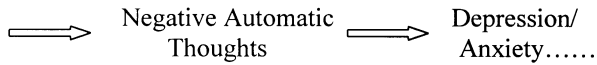
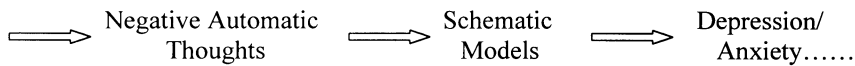
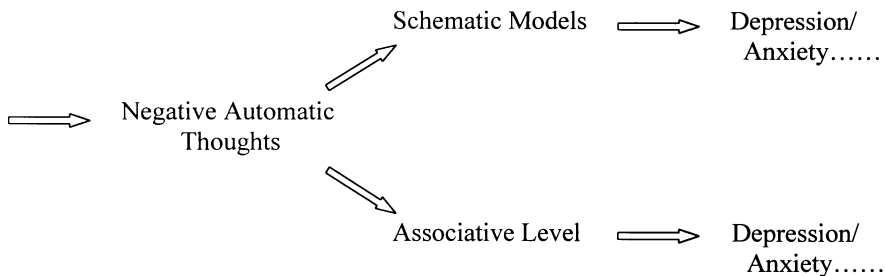
(a) **BECK'S COGNITIVE THERAPY**(b) **TEASDALE & BARNARD'S ICS**(c) **POWER & DALGLEISH SPAARS**

Figure 2. The different roles for negative automatic thoughts in cognitive therapy, Teasdale and Barnard's ICS, and the SPAARS approach

to a number of emotional disorders is that in many cases the coupling of two or more of these basic emotions provides the basis of the disorder. Some forms of depression seem to occur from the coupling of sadness and disgust in which the individual feels both sad because of some actual or imagined loss, but, in addition, turns disgust against the self because of perceived inadequacy or culpability. Although previous theorists have derived depression from other combinations, for example, Freud derived melancholia from sadness and anger, and more recent theorists have proposed that the comorbidity of depression and anxiety has theoretical implications (Watson & Clark, 1992), we believe that disgust has been swept under the carpet for too long and that its crucial role, especially in the form of self-disgust, has gone largely unrecognized in relation to both the emotional disorders and a number of other drive-related disorders (see Chapter 9, Power & Dalglish, 1997).

Two routes to emotion

One of the distinctive characteristics of the SPAARS model is the fact that emotion can occur through either of two possible routes (see Figure 1). The first route is one that is shared with other appraisal theories of emotion and has been sketched in the previous section. The second route, however, requires further comment, both in terms of its operation, and in terms of its relationship to the interpretative-appraisal route.

The need for two routes to emotion is based on the fact that the basic emotions have an innate component and on the proposal that certain emotions may come to be elicited automatically. For example, Seligman's (1971) proposal that certain stimuli may be "prepared", stated that people are more likely to develop phobias towards snakes, rats, and spiders than they are to cars, public transport, and kitchen-sinks (despite frequent unpleasant experiences with the latter group). Seligman argued that such biological preparedness made sense on evolutionary grounds, even if individuals had little or no direct experience of stimuli such as snakes in modern society. Although Seligman's proposal has had a somewhat chequered history (e.g., Rachman, 1990), it forms part of a more general recognition that genetics provides us with a psychological starting point and a set of maturational tasks, albeit that these paths may ultimately take different courses because of the interaction of cultural, familial and personal factors. The evidence now amassed on the universal expression and recognition of basic emotions, their physiological distinctiveness, and their developmental sequence provides persuasive evidence of an innate component that underlies emotion (Ekman, 1992).

An additional way in which emotion may come to be generated through the direct route is from the repeated pairing of certain event-emotion sequences, which could eventually lead to the automatization of the sequence. That is, in a manner akin to the learning of a skill such as swimming or cycling which eventually becomes automatic, it is possible that certain repeated event-emotion experiences could come to be automated. In other words, the repetition eventually bypasses the need for an interpretative appraisal that the event has important implications for one's plans or goals, and so the event becomes directly associated with the emotion. There is clear evidence, for example, that learning can be implicit as well as explicit and that the subsequent implicit memories can have a wide variety of effects on other processes (e.g., Power, 1997; Tobias, Kihlstrom, & Schacter, 1992). It might also be speculated that prewired or prepared innate emotion reactions reflect repeated event-emotion sequences important in the survival of the species that have come to be coded genetically.

Examples of the direct route to emotion seem to be particularly evident in the emotional disorders, such as in the phobic individual's automatic processing of an object or event as anxiety provoking, even though the object or event is processed as non-threatening via the appraisal route. Such automatic reactions are, of course, very likely to be developed in childhood, for example, in the teaching of disgust responses to young children towards a range of objects, foodstuffs, ideas and beliefs. These automatic disgust reactions can be harmless if they merely prevent the individual from eating oysters or escargots, but they can become life-threatening in cases, for example, when individuals experience disgust towards their own bodies to the extent that they view themselves as fat even in extreme anorexic states, or cases when an emotion is experienced as so painful that individuals will physically harm or even kill themselves in order to remove the emotional state.

One of the extreme forms of the possible automatizations of emotion that we have considered is that, under certain circumstances, the development of one or more basic emotion module could become particularly rigid or autonomous. A module is defined here, as in cognitive science more generally, as an encapsulated set of specific operations that continue to completion once started and that can therefore operate in parallel to each other like many automated cognitive skills. If modularized cognition-emotion sequences were formed during development, in such cases the module would become difficult to alter because the positive feedback between the different levels would cause the module to lock in place. That is, if early in emotional development there is a consistent set of instructions about, for example, the unacceptability of one or more of the basic emotions, then the development of that basic emotion module may become separated from the rest of development. As we have argued elsewhere (Power & Brewin, 1991), one of the important functional properties of the developing nervous system is its potential for modular organization, whether in the area of motor skills development, cognitive skills such as reading and writing, or, we suggest, in the consistent experience of the basic emotions.

Some of the strongest evidence for the possibility of modularization of emotion comes from the clinical data in relation to emotional disorders. For example, an individual typically experiences a dissociated basic emotion module as a dystonic state in which the sense of self may be lost, because the emotional experience is excluded from the definition of the self. This loss of sense of self can occur, for example, during panic attacks in which some individuals depersonalize and experience themselves as going mad, because, we suggest, anxiety may be rejected as a self-defining emotion (for whatever developmental and socialization reasons) which the person attempts to eliminate from the self. Indeed, the individual may engage in desperate attempts to rid the self of this state but, paradoxically, the lack of integration of the state into the self means that it is harder to change the state once it occurs. Of course, even in normal healthy adults, a traumatic experience may initially be held in a quasi-dissociative state (cf. the initial reaction of disbelief or denial in bereavement) because of its pervasive implications for the self and important roles and goals; eventually, however, the healthy though traumatized individual is able to work through the experience and integrate it into the self, altering or developing key goals and plans in the process (e.g., Janoff-Bulman & Frantz, 1997). In contrast, the young child or the vulnerable adult may hold the traumatic experience in a form that is dissociated or separate from the self and may attempt to maintain the experience permanently in this dissociated state in order to protect the self and important goals and plans from the unwanted implications of the traumatic experience. From the point of view of the experience of emotion in individuals with emotional disorders, the problem is not simply that some individuals fail to experience emotion, but rather that many individuals are overwhelmed by emotional states that feel alien to them because they lead to a loss of the sense of self.

One further comment that must be reiterated about the existence of two routes to emotion is that *conflicting* emotions may be generated via the two routes. It is clear from the work of Harter (e.g., 1977) onwards that both the experience and the acknowledgement of conflicting emotions is a developmentally sophisticated task and that the failure to achieve this ability is more often seen in children and adolescents with emotional disorders. It has also been reported that so-called “repressors” rarely report

experiencing mixed emotions (Sincoff, 1992). The upshot of these and other studies is that two conflicting emotions may be expressed simultaneously; for example, the individual may appraise a situation in a “happy” way while a different emotion is generated through the direct associative route. The fact that a conflicting emotion occurs via the direct route may be obvious to others (even though denied by the individual) through, for example, fleeting facial expressions, and observable changes in physiology and body posture. The existence of a conflict between verbal report and non-verbal responses provides important clues in therapy about problems that the client may be denying or inhibiting.

Fast versus slow change processes in therapy

The evidence clearly shows that emotion responses can be learned and activated without benefit of neocortex and thought processes . . . This makes them difficult to access and treat through interventions that are strictly cognitive in nature. Emotions acquired through subcortical pathways are difficult to extinguish by any technique. (Izard, 1994, p. 151)

In Izard’s advice to himself and other would-be therapists, he points to the danger of assuming both that there is only one route to emotion and that emotion is necessarily modifiable by cognitive psychotherapeutic techniques. Although we may differ about the details of the routes to emotions, we fully concur with Izard that not only must therapists be aware of the potential modular organization of emotions, but they must also be aware of the fact that there are two different routes to emotion and, therefore, that the therapeutic techniques for working successfully with emotional disorders may vary according to the primary route involved.

As a powerful example of the role of the two routes, we can consider David Clark’s (1986) model of panic. In this model, the person with panic disorder is seen to misinterpret catastrophically certain physiological changes such as a faster beating heart, dizziness, or shortness of breath, as indicative of impending death or madness. That is, the individual appraises one or more internal signs in a threat-related manner and the catastrophic misinterpretation produces extreme fear or panic in the individual. As Teasdale and Barnard (1993) have suggested, the successful cognitive treatment developed by David Clark in essence provides the individual with an alternative schematic model for the internal signs. Once the more appropriate model has been both accepted and applied, then recovery can occur quickly. Such changes provide an example of the “fast change processes” that can occur in therapy, in which, for example, it is the appraisal of an internal or external event that provides the primary problem in the disorder. Clark and his colleagues (e.g., Clark, 1996) have argued that the new realistic interpretation will quickly lead to a reduction in the low-level bodily sensations through the breaking of the vicious circle that maintains them. However, the SPAARS model predicts that panic disorder patients may still continue to experience the previously threatening internal signs in the same situations. This proposal is supported by Lang’s (e.g., 1979) influential work on the “three systems theory” of anxiety in which studies have shown that the different verbal, behavioural, and physiological components are often desynchronized, such that change in one system as a consequence for example of

therapy is not necessarily accompanied by change in another. In the SPAARS model these signs are likely to represent the direct activation of threat and will change much more slowly and gradually; that is, they reflect “slow change processes” in therapy. The two routes to emotion therefore can be linked with a number of features of automatic versus controlled processes (Dagleish, 1994; Power & Brewin, 1991), one of which relates to associative learning versus rule-learning processes (e.g., Holyoak, Koh, & Nisbett, 1989) and the fact that associative learning is typically slow, but conscious rule-learning is typically fast.

An additional point that must be made is that cognitive therapy techniques that address schematic models will be successful to the extent that the schematic models are the primary source of the emotional disorder. However, as has been pointed out (Power & Champion, 1986), if cognitive therapy merely focuses on propositional level representations as in the technique of challenging negative automatic thoughts, it may fail to address the higher order schematic models and, indeed, in some unfortunate circumstances, may serve to confirm them. Examples of such problems can occur, for example, if the therapist robustly challenges a statement such as “I am a failure”; this may serve to reinforce the schematic model, because the patient now believes that he or she is incapable of carrying out such a task and is inferior to the therapist. The first conclusion therefore is that cognitive therapy needs to address high level schematic models rather than focus on lower level propositional representations. The second conclusion, however, is that this focus will not work if the source of the problem is via the direct route to emotion.

How therefore should one work with emotional disorders in which the direct route to emotion is primarily indicated? In these cases, we suggest, the process of therapeutic change is likely to be slower, because the problems are based on associative-type learning mechanisms. This proposition suggests that there are some individuals who, for example, should be more likely to benefit from behavioural exposure techniques and the use of “behavioural experiments” commonly incorporated into CBT than they are likely to benefit from purely cognitive techniques. For example, in the case of post traumatic stress disorder, we noted that it was important to distinguish different types of individuals including, first, those individuals with extreme beliefs in invulnerability whose schematic models may be “shattered” by the traumatic experience (Janoff-Bulman & Frantz, 1997) and, second, those individuals who present with a more typical PTSD pattern, involving in particular low-level intrusions about the trauma and avoidance. The prediction is that individuals with shattered schematic models (for example, someone who used to believe that the world was safe and that he or she was invulnerable but following the traumatic event now believes the opposite) should benefit more from a cognitive therapy approach and might actually be made worse by behavioural exposure. In contrast, those individuals whose primary problem is the avoidance of automatically generated aversive emotions should do better with exposure techniques and behavioural experiments. This division is, of course, somewhat crude and there are many cases in which a combination of cognitive and exposure-based approaches is indicated. Nevertheless, the different challenges in PTSD, in particular, shattered high-level models versus unpleasant low-level intrusions, provide dramatic examples of the different effects of the two routes to emotion in the emotional disorders.

The examples of therapy that we have provided so far have contrasted cognitive versus exposure-based techniques, but we do not in any way mean to imply that slow change processes only occur in the exposure-based treatments. The complexity of therapeutic relationships and the many routes to effective change demonstrate that slow change processes may be set in motion in any form of therapy, though the person may need to develop a schematic model that the therapeutic relationship is “safe” before low-level change can be embarked on. For example, the adoption of a new and more appropriate schematic model for panic (a fast change process) should eventually lead to slow change processes, as noted above. A problem is more likely to arise when the therapist aims for schematic model change but the patient wants only lower level change, for example, change in symptoms that reflect low-level activity. Part of the assessment for therapy should consist therefore of the degree to which the patient is satisfied or dissatisfied with self-related schematic models; short-term therapies will have little hope of altering schematic models that patients are completely satisfied with and even long-term therapies are well aware of the limited amount of change possible for ego-syntonic aspects of the self.

We should also note that the existence of two routes for emotion generation provides an account for a number of puzzles that arise in therapy. The first of these is the issue of “intellectual” versus “emotional” change. The SPAARS model would suggest that an “intellectual belief” is likely to be represented at the propositional and/or schematic model levels, and that change may follow an alteration of one’s appraisal of a particular event or situation and no longer lead to the generation of emotion or a particular propositional belief. In contrast, if the direct route still leads to the generation of emotion, the individual will be left with an awareness of a dissociation between the “intellectual” and the “emotional”: the two systems are operating in conflict with each other and the individual is aware of the difference between their outputs. The existence of the two routes also provides an explanation for a related problem that people report; namely, that they experience their emotional reactions as “irrational” (as in many phobic and obsessional disorders) but, nevertheless, the reactions continue to happen out of the individual’s control. Again, the SPAARS explanation would be that in such cases no emotion is generated via the appraisal route, only via the direct route; for example, the individual appraises the butterfly to be non-threatening, yet still experiences “irrational” anxiety, that is, anxiety generated by the direct route and, most likely, acquired through an associative learning mechanism.

In relation to recommendations for therapeutic practice, we suggest that the presentation of information booklets to patients with emotional disorders might in the future include an amended model of the relation between cognition and emotion that flags up the consequences of the two routes to emotion proposal. One of the strengths of the cognitive approach has been the educational component that provides the patient with, in Jerome Frank’s (e.g., 1982) terms, a strong rationale for the therapeutic approach. However, an amendment of that model would seem warranted, even as presented in handouts to patients. A common feature of both the SPAARS and the Teasdale and Barnard (1993) ICS approach is to reduce the importance of negative automatic thoughts in relation to mood and emotion shifts; both handouts and structured diary sheets prioritize the role of automatic thoughts. Although the widely-used three- and five-column structured diaries need not only represent the standard cognitive therapy

model, they nevertheless bias both client and therapist in that direction. We therefore also make occasional use of more detailed emotion diaries adapted from Oatley and Duncan (1992) in addition to the normal diary sheets. Other aspects of therapeutic practice have been flagged up throughout this article and are summarized below:

1. Fast change processes can occur in therapy and are likely to reflect changes in more flexible effortful processes connected with some schematic models.
2. Lower level associative processes are less flexible and more automatic in their operation and, therefore, change more slowly in therapy.
3. Propositional level processes have been over-emphasized in traditional cognitive therapy at the expense of the schematic model and associative levels.
4. The existence of two routes to emotion means that conflicting emotions or other conflicting outcomes can sometimes result; thus, the reported or the experienced emotion need not be the same as the automatic emotion which is also present and observable in other channels (e.g., facial expression, physiological indicators, behavioural activity).
5. Chronic emotional disorders may result from the “coupling” of two or more emotions, for example, sadness and anger in grief, sadness and self-disgust (shame) in depression, and so on.
6. The apparent “absence” of emotion in some people may result from a long-standing schematic model that, for example, denies the possible experience of a particular emotion (e.g., in our culture sadness and fear are traditionally not permitted in men nor anger in women: Darwin, 1872/1998 went one step further and denied any relevance for emotion at all in *Victorian gentlemen*, though women and children were not considered to be so evolutionarily sophisticated).
7. Some individuals may experience one or more unacceptable emotions as ego-dystonic and lose their sense-of-self if such an emotion occurs; in extreme, these individuals may dissociate.
8. A number of therapies, including Eye Movement Desensitization and Reprocessing, Attentional Control Training, and Dialectical Behaviour Therapy, seem to have developed a similar technique of training a cognitive skill in which a painful overwhelming emotion (or associated traumatic event) is held in consciousness while the experiencer becomes aware of the self-as-experiencer of the emotion; the development of this capacity allows the individual to develop a new schematic model of what may have previously been overwhelming. In the new model, the emotion is experienced as painful but contained within the self.

In conclusion, therefore, the view that there are multiple levels of representation and at least two routes to the generation of emotion leads to a number of significant consequences for the practice of cognitive, behavioural, and other types of therapies. Although many of these issues have of necessity been presented very briefly, our hope is that at least some of them will provoke further discussion and debate.

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