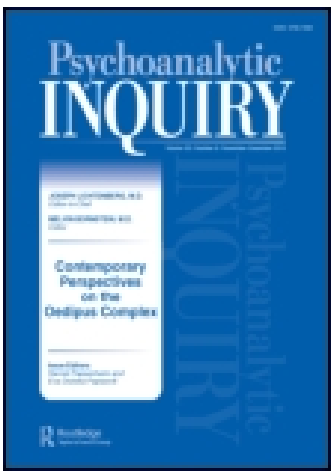

Psychoanalytic Inquiry: A Topical Journal for Mental Health Professionals
Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/hpsi20

Symptoms and symbols: A multiple code theory of Somatization

Wilma Bucci Ph.D. [a] [b]
[a] Professor and Director of Research at Derner Institute , Adelphi University , Garden City, NY, 11530
[b] Vice-President and Scientific Co-Director of the Glass Institute of Basic Psychoanalytic Research
Published online: 20 Oct 2009.

Symptoms and Symbols:
A Multiple Code Theory of Somatization

WILMA BUCCI, Ph.D.

THE INTERACTION OF PSYCHIC AND SOMATIC PROCESSES has been a central concern of psychoanalysis from its initial formulations (Freud, 1895, 1900) to the present day. In contrast to Freud's time, the interaction of emotion and somatic illness is now also recognized in the medical field. It is not only the special disorders identified as hysterias, nor even the medical entities traditionally classified as psychosomatic that are affected by such interaction; the field of psychoneuroimmunology supports the view that

> *All* disease is multifactoral and biopsychosocial in onset and course—the result of interrelationships among specific etiologic (e.g., bacteria, viruses, carcinogens), genetic, endocrine, nervous, immune, emotional, and behavioral factors [Solomon, 1987, p. 1].

The potential scope of psychoanalytic treatment is enormously expanded by these developments; the need for a coherent psychoanalytic theory is intensified as well, to bring psychological understanding of the interactions among cognition, emotion, and somatic functions in line with advances in the medical field.

Freud's metapsychology has failed as a basis for a modern scientific theory. The postulates of the energy theory have been tested only

Dr. Bucci is Professor and Director of Research at the Derner Institute of Adelphi University; Vice-President and Scientific Co-Director of the Glass Institute of Basic Psychoanalytic Research.

minimally; where they have been tested, they have generally been disconfirmed (Eagle, 1984). The metapsychology has been renounced by the scholars who devoted much of their professional lives to its reconstruction and has been rejected by many clinicians as well (Holt, 1985). Nevertheless, in the absence of an alternate model, energic metaphors remain in use, with the power to distort theory and practice in pervasive, often unrecognized ways (Thomae and Kaechele, 1987; Bucci, 1993, in press).

Psychoanalysis is in need of a new explanatory theory, which will account for the major concepts with which clinicians are concerned, including the interface of emotion and somatic functions, and will provide a coherent framework for empirical research. This must be a psychological, not a neurological, model. Psychological theories constitute a distinct level of explanation that will not be dispensed with no matter how much we learn about the neurological level. The psychological and neurological levels have different constructs, different concepts, different mathematical functions, and different practical applications, and they need to be studied separately, in their own terms. We need a psychological theory to define concepts such as depression, anxiety, feelings of abandonment and loss, and the interaction of action, somatization, and verbalization on the behavioral or representational level; we need a neurological or physiological model to define the corresponding concepts in the biological domain.

While psychological constructs cannot be *reduced* to neurophysiological ones, the two levels are nevertheless, ultimately, necessarily *translatable* to one another. This is obvious but may need to be stated. *If* our mental and neurophysiological models were sufficiently complete and accurate and *if* we had enough observable indicators for each theoretical proposition and *if* the mathematical correspondence rules within each system were all in place, the psychological and neurophysiological theories would be expected to correspond. In this and other senses, observations on the neurological or biological level exert a potential constraint on theory building in the psychological domain.

The psychological model that I will outline in this paper is based on concepts that are derived from current work in cognitive science and that meet the constraints imposed by current knowledge in the neuro-

sciences. The development of a systematic psychological model for psychoanalytic concepts was not possible in the scientific context of Freud's time nor in the context of the behaviorist position that dominated American psychology during much of this century, but is potentially within the purview of the cognitive psychology of today (Bucci, 1985, 1989, 1993, in press). The new multiple code theory is derived from them but also expands current cognitive models in emphasizing the role of emotion in human cognition and the complex issues involved in translating emotional experience to verbal form.

Freud's "Dual Code" Theory

Throughout his writings, Freud recognized unresolved questions and problems in his theoretical model of the psychical apparatus, as put forth in the first topography (1895, 1900) and later revised in the structural theory (1923), as well as in his attempts to reconcile the two models (1940). He also recognized the lack of supporting data for his fundamental energy theory, although he did not repudiate or question this in any basic sense. Through all this, as he sums up his life's work, one piece of solid ground, one enduring "fact," remains clear:

> But behind all of these uncertainties there lies one new fact, the discovery of which we owe to psychoanalytic research. We have learned that processes in the unconscious or in the id obey different laws from those in the preconscious ego. We name these laws in their totality the *primary process,* in contrast to the *secondary process* which regulates events in the preconscious or ego. Thus the study of mental qualities has after all proved not unfruitful in the end [Freud, 1940, pp. 44–45].

The discovery that he saw as his first and major one remains the fact that he holds to most firmly at the end—the discovery of a mode of thought, characterizing the unconscious or the id, which differs from the processes of normal, rational, waking life.

The "dual/multiple code" theory of emotional information processing builds on this fundamental psychoanalytic solid ground. What we need to recognize—and what is really not so difficult to recognize

—is that Freud's fundamental observations of two distinct modes of thought, their dynamic interaction, and their interaction with somatic events do not entail the assumptions of the energy model or the special assumptions of either the first or second topographies and can be disembedded from these. The model and evidence supporting it have been discussed in detail elsewhere (Bucci, 1985, 1989, 1993) and will be outlined briefly here, focusing on issues that are relevant to a new theory of somatization.

The Multiple Code Theory and the Referential Process

According to the multiple code theory, as in the previous dual code formulation, information is represented in the mind both in verbal form and in the multiple channels of the nonverbal system. In addition to the basic verbal/nonverbal distinction, the multiple code theory also postulates an additional distinction between symbolic and subsymbolic processing forms. The notion of the symbol and the process of symbolizing are defined here in their general information processing sense (Fodor and Pylyshyn, 1988). Thus, symbols are defined as discrete entities that refer to or represent other entities and may be combined following systematic processing rules. Symbols in the psychoanalytic sense constitute a subset of these.

The verbal system

Language is primarily a symbolic format. From a limited set of phonemes in each language, a virtually unlimited array of words are generated and meanings expressed. Language is the code of communication and reflection, in which private, subjective experience, including emotional experience, may be shared and through which the knowledge of the culture and the constraints of logic may be brought to bear on the contents of individual thought. It is also the code that we call upon to direct and regulate ourselves, to activate imagery and emotion, to stimulate action, and to control it. The verbal code is primarily a single channel, sequential processor; we generate or understand only one verbal message at a time. Language is dominant primarily, although not uniquely, in the conscious state.

The nonverbal system

The multiple channels of the nonverbal system incorporate representations and processes in all sensory modalities as well as motoric and somatic forms. Nonverbal processing is modality-specific; representations and processes in each modality occupy the same processing channels as perceptual experience itself; this activation is primarily in trace form.

The nonverbal system includes both symbolic and subsymbolic forms. Models of information processing based on symbolic formats, applied to imagery as well as to language, have been dominant in cognitive science for the last several decades (Simon and Kaplan, 1989; Fodor and Pylyshyn, 1988). What is new in the cognitive science field, and of great importance for a model of the psychoanalytic process, is the increasing recognition of subsymbolic forms of information processing and the development of systematic models to account for these (Rumelhart, McClelland, and the PDP Research Group, 1986). In such subsymbolic processing, we perform rapid and complex computations on implicit continuous metrics, without formation of discrete categories, following computational principles that may never have been explicitly identified or formulated and cannot be intentionally invoked or applied, but that are systematic nonetheless. This type of continuous, intuitive, modality-specific and content-sensitive processing is the focus of the new Parallel Distributed Processing (PDP) models, also referred to as "connectionist" or subsymbolic models (Smolensky, 1988).

Subsymbolic "computations" of this nature underlie the capacity to anticipate the trajectory of a moving object, navigate a ship through a narrow channel, ski a slalom course, hit a tennis ball effectively, or distinguish the taste and aroma of burgundies from different hillsides or from different years. Such computations also serve to distinguish subtle shifts in facial expression, to identify changes in body movement or vocal qualities, and to recognize changes in one's own visceral state. The cat uses implicit computation of this sort to select a landing-place on a table crowded with objects, the football player to direct a ball to the position where he expects someone will be, or to be in the right place to receive the ball that is about to be thrown, and the

analyst to recognize his patient's subjective state and to decide when and how to intervene.

Obviously, I will not attempt to introduce the technical structures of either the symbolic or subsymbolic connectionist models here. The major purpose of introducing these two basic cognitive science approaches is to point out, in a general and conceptual way, that two distinct formats of information processing—*both within the nonverbal system*—are now being identified by cognitive scientists at a far more sophisticated model-building level than ever before and that in the subsymbolic formats, complex constructs are being developed, really for the first time, which account systematically for the types of intuitive and implicit processing, involving visceral, somatic, and motoric, as well as sensory modalities, which are central to a psychoanalytic model.

These subsymbolic processes have their limitations as well. While such processing is systematic, it is also highly specialized for specific functions. The PDP models do not account for integration of subsystems in relation to the overall goals or values of the organism in which they are implemented. The symbolic processes of the nonverbal system fill this integrative and organizing function (Norman, 1986).

The new multiple code theory thus expands Freud's fundamental solid ground to incorporate three—at least—rather than two basic systems of thought: verbal versus nonverbal, and within nonverbal, symbolic versus subsymbolic. By implication, the new model also emphasizes the crucial role of connections among all these disparate systems and the corresponding implications of failure of such connections.

Emotion schemas in the multiple code theory

Within the multiple code theory, emotions are characterized as image-action schemata, operating within or outside of consciousness, which differ from other, more "cognitive" schemata in their relative domination by motoric and visceral processing systems, rather than by symbolic imagery and words. In the most general terms, the emotion schemas constitute the desires, expectations, and beliefs one has about other people, which develop through interactions with others from the

beginning of life. These schemas include representations of objects, parts of objects, and relations between them in all sensory modalities, as well as patterns of activation associated with motoric actions, and visceral and somatic states. Thus, they include images of the object of the emotion, the person we desire or hate or fear; central nervous system representations of specific actions associated with emotional arousal, for example, approach, attack, or flight; and patterns of visceral or somatic experience associated with such arousal—what we feel, or expect to feel, viscerally, when we are angry or afraid or in love. The emotion schemas begin to be formed within the nonverbal system, prior to the acquisition of language; eventually, their contents may be connected to language as well.

This model of the emotions is based on minimal limiting assumptions and is generally compatible with the area of consensus among emotion theorists today (Scherer, 1984), as well as with current views of the neurophysiological basis of emotion (LeDoux, 1989). The multiple code formulation is also compatible, in part, with the definition of affects by Kernberg (1990) as incorporating symbolic representational, motoric, and visceral components but diverges from Kernberg's inclusion of discharge phenomena within the definition of affects and his corollary conception of affects as the "building blocks" of drives (p. 117). According to the multiple code theory, motivation is conceptualized in terms of the representational and directive properties of the emotion structures, independent of the particular source—internal or external—of this activation and independent of energic notions based on physiological need states.

Emotion structures may be activated by memory images or evoked by language. Such activation—states of terror, loss or helplessness, pleasure or desire—may then have physiological effects similar to the experiences themselves. Any component of an emotion schema may be activated by any other; images of persons, places, or objects may evoke somatic, as well as behavioral, components of the schema or, conversely, be evoked by them. In some cases, external stimulation may occur without consequent activation of emotion schemas; in some cases the emotion schema may occur in the absence of apparent external cause or internal need. Any component of an emotion schema, like any mental representation or process, may occur within or outside of the focus of awareness. The dynamic unconscious,

incorporating representations that are "warded off," involves additional explanatory factors, as will be discussed below.

The Referential Process: Linking Emotional Experience and Words

The verbal and nonverbal systems, with different contents and different organizing principles, are connected by the referential links. The referential process connects the massively parallel, analogic contents of the nonverbal system to the single channel, symbolic format of the verbal code. This is a complex process that can be accomplished only partially, even where factors of resistance and defense do not interfere.

The referential connections are most active and direct for concrete and specific entities and words referring to them—"the brown chair," "John," "the *Mona Lisa*" and less direct for entities where direct labeling terms are not available, for example, in describing a subtle or complex color, John's facial expression, or that of the Mona Lisa. The referential connections are most distant, least direct for subsymbolic representations and processes, including the holistic sensory experiences of taste and smell, and the patterns of visceral and autonomic arousal that figure in the emotion schemas. These derive their capacity to connect to language by being connected first to specific images within the nonverbal domain; the power of poetic metaphor to evoke emotion arises from such connections.

Conversely, the referential connections from the verbal to the nonverbal system are most indirect and partial for abstract and general terms—"truth," "beauty," "justice," "postmodernism," "epistemology." Such abstract and categorical words derive their meaning largely from connections to other words within the logical hierarchies of language and may be connected to nonverbal representations only indirectly—if at all—through connections within the verbal hierarchies to concrete and specific words. That is why it is useful to give examples when presenting abstract material; that is why intellectualization by patients—or analysts—leaves the nonverbal, emotional representations untouched.

Cognitive models have generally failed to consider the complexity and difficulty of the referential process. Standard views of cognitive development (Piaget, 1950; Bruner, 1966) have also failed to recog-

nize the continuing role of nonverbal processing, including emotional information processing throughout life. In both of these developmental theories, it is assumed that earlier stages of concrete sensory and motoric processing drop out when levels of formal, logical processing are attained. These standard approaches to cognition must fail as the basis for a psychoanalytic theory, as Noy (1979) has also pointed out:

> Almost all of the contemporary theories of cognitive development approach cognition as a one-track system, and its development as a linear process proceeding along a single developmental line. The fact is that although psychoanalysis has repeatedly attempted to assimilate part of several of these theories . . . it has never been able to adopt any of them in toto. The dual concept of primary and secondary processes is so deeply rooted in psychoanalytic conceptualization, that any developmental theory which does not view cognition as being composed of two systems, forms, modes, levels—or at least, as a continuum stretched between two organizational centers—can never be integrated in psychoanalytic metapsychology [p. 170].

Evidence for dual or multiple coding and the referential process has been developed in experimental cognitive psychology, in neuropsychology, and in our own experimental, clinical, and psychotherapy research, as summarized elsewhere (Paivio, 1986; Bucci, 1984, 1985, 1988, 1989, 1993, in press; Bucci and Miller). Recent research on cerebral lateralization and modularity of function by Gazzaniga (1985), Kosslyn (1987), and Farah (1984) supports the new multicomponent formulation; the new work takes us well beyond a simple bicameral left-brain/right-brain dichotomy. Thus the underlying neurophysiological substrate for emotional information processing and the referential process would include activation of analogic and global nonverbal representations, which are dominant in the right hemisphere; connections across the corpus collosum to the more discrete, "nameable" images that we now find to be associated with the left hemisphere, the primary site of symbolic processing; mediating processes carried out by the image generating component within the left hemisphere; and connections within the left hemisphere between discrete images and words.

Multiple Coding in the Psychoanalytic Process

According to the multiple code theory formulation, the development of emotional meaning in free association occurs in a three-stage process that has been termed the "referential cycle" (Bucci, 1993, in press). The same process may be traced in dreams. The process has its roots in emotional development; in somatization we see the impairment of this process and its attempted repair. In the first stage of the cycle, the patient may experience diverse nonverbal components of the emotion schemas, including specific subsymbolic elements—feelings, smells, bodily experience, action patterns—which he has difficulty expressing directly in words. In the second phase, the patient may retrieve a specific memory or fantasy derived from past experience, events of the day, or events in the treatment relationship; here the connection of the subsymbolic contents to images and then to words is made. Optimally, in the third phase, the patient reflects upon the images and stories that have been told, and further connections within the verbal system and in the shared discourse may be made. Ultimately, the process of verbalizing the contents of the emotion schemas lays the foundation for labeling the emotion itself: "I feel rage"; "I am afraid." The new connections within the verbal and nonverbal system then may feed back to open the emotion schemas further, thus continuing the cycle on a deeper level.

A progression of this nature may also be traced in the construction and interpretation of dreams. The latent contents, primarily in subsymbolic format, are connected to the discrete specific images of the manifest contents, which are then verbalized in the dream narrative (Bucci, 1993; Bucci, Severino, and Creelman, 1991). In the interpretation of the dream, the latent contents, including wishes and other emotion structures that have been warded off, may eventually themselves be acknowledged and verbalized.

The development of emotional meaning in free association and dreams has its roots in the basic processes of emotional development itself. Normal emotional development depends on the integration of somatic, sensory, and motoric processes in the emotion schemas; emotional disorders are caused by failure of this integration. The origins of the emotion schemas are found in earliest infancy. The infant "knows" the mother through all sensory modalities—taste, touch,

sound, and smell, as well as sight. All of these separate perceptual functions—subsymbolic and symbolic—converge in the infant's developing image of the caretaker—ears, mouth, and nose in a consistent spatial relation to one another, whether one looks at or touches them; breasts where one expects them to be, whether one looks for them with the eyes or reaches out with hand or mouth; a particular scent; a particular sound of voice; and a particular soft and warm place to be. These sensory experiences occur in consonance with somatic and visceral experience of pleasure and pain, as well as organized motor actions involving the mouth, hands, and whole body—kicking, crying, sucking, rooting, and shaping one's body to another's. Enduring prototypic images are built as these images and episodes repeat. The infant can form a wish for mother or an expectation of how mother will appear or act in terms of such schemas; these direct and integrate emotional life long before language is acquired.

From the earliest stages of their formation, the emotion schemas vary, reflecting the specific nature of the interactions in each individual's life. One schema of need or desire might include the visceral experience of discomfort—the feel of crying, kicking, becoming tense—followed by the sound of mother's voice with a particular soft quality; the sight of mother's face and body; the sight, smell and taste of the breast or bottle; feelings of warmth and softness; the actions of cuddling, caressing, and sucking; and the somatic experience of satisfaction and relaxation. Another schema begins with the same need but then incorporate mother's voice with a different, sharper quality; the continuing image only of sheets and the bars of a crib; or a feeling of being handled roughly. Discomfort and stress, crying and kicking increase. Finally, milk is available to be taken from a bottle, propped up on the side of the crib. In both of these situations, a specific need state is activated and satisfied. It is the interpersonal context in which the somatic activation occurs that determines its emotional meaning, not the physical arousal or need satisfaction alone.

This account of the formation of emotion schemas corresponds with Beebe and Lachmann's (1988) view of the organization of the infant's "representational world" as beginning in the first months of life, before the development of symbolic capacity, leading then to development of generalized protypic imagery, which becomes the basis for later symbolic forms of self and object representations. Bowlby's

notion of the infant's internal working models (1969) and Stern's (1985) concept of Representations of Interactions that have been Generalized (RIGs) reflect similar developmental models. What the multiple code theory adds to these views is the new formulation of the emotion schemas and the role of the caretaker within a consistent information processing framework. From this perspective, the emerging image of the caretaker is the crucial, enduring prototypic symbol about which the emotion schemata are organized from the beginning of life.

The capacity of an individual to tolerate intense affect depends on the organization of the emotion schemas. If the caretaker is able to recognize the child's rage or frustration and to acknowledge and soothe his distress, this facilitates her functioning as a symbol about which the separate and specialized perceptual, somatic and motoric functions may converge. The notion of a benign foreground figure as providing the organizing symbol for development of the emotional schemas is related to Krystal's characterization of love as the central or model affect, about which the affective system is organized (Krystal, 1988); the capacity to view one's self as a distinct entity, and to care for oneself, builds on this.

On the other hand, if the caretaker fails to soothe the child or is herself overwhelmed by the child's distress or, in the worst case, stimulates the child's anguish herself, integrated schemata are less likely to be formed, or schemas that have been formed may be split. The most unbearable state is flooding of high general arousal and distress activated by the caretaker herself, so that the "foreground figure" itself has negative valence, motivating avoidance. A wish to attack and a fear of being attacked by the caretaker constitute a catastrophic and intolerable state (McDougall, 1989). Krystal (1988) has referred to the child's "timeless horror" in such states (p. 145). In terms of the multiple code theory, the threat may be seen as most dire; the caretaker against whom the developing infant rages, or whom he fears, is not only the person on whom he is dependent for physical needs, but also the person whose presence organizes the infant's emerging symbolic life.

Repression and the defenses may now be understood as forms of disconnection and dissociation, both between the nonverbal and verbal systems and, more crucially, among the multiple channels of

the nonverbal modalities. The construct of repression takes on an extended range of meaning within this formulation. Repression may involve breaking or blocking of referential links between contents of the emotion schemas and words or, in a deeper sense, may involve destruction of connections *within* the emotion schemas, between subsymbolic somatic or motoric patterns of activation and the prototypic images that are necessary to organize these schemas. The deepest level of the dissociation would involve initial failure of these connections to have been formed. Conflicts may lead to blocking of connections within the nonverbal schemata or between nonverbal representations and words. In these terms, a componential model of the defenses may be developed, reflecting different levels of dissociation of systems and different processes of attempted compensation and repair.

Levels of Symbolization in Somatic Disorders

In the terms of this model, all forms of somatization involve dissociations of varying degrees of severity among somatic and motoric patterns of activation and symbolic representations of objects, within the emotion schemas. A gradation of somatization disorders can potentially be identified, based on the degree of dissociation of visceral symptoms from symbolic representation. At this point, we can only speculate as to the interaction of factors of psychosocial development and physiological vulnerability in the etiology of these disorders. Changing visions of these classifications are likely to emerge as the implications of the model and knowledge of the interacting determinants are elaborated more fully.

Hypochondriasis and hysterical conversion: A symbolic focus

Syndromes that have been traditionally classified as hypochondriasis and hysterical conversion involve focus on particular body organs as damaged or causing pain. Here, we may say that the particular bodily part or process functions as a symbol that organizes the emotion schema, when the primary object of the schema has been dissociated, in the service of defense. The individual may experience intense bodily feelings associated with rage or terror or some trace of the motoric

image of the consummatory act, while the image of the object of the emotion is dissociated or warded off. The body or parts of the body, rather than the interpersonal object, become the focus of the symbolic consummatory act, the object that is being attacked or from which attack is feared. The focus on specific bodily symptoms preserves some organization of the emotion system, while defending against emergence of dreaded expectations or desires directed towards an object.

These two types of symptomatic states are similar in that in both a potential link to symbol systems is available; that is, the choice of organ that is affected may have meaning in symbolic terms. They differ in that hypochondriasis involves fantasy images or, in some instances, delusions concerning the somatic entity and thus is closer to the symbolic domain. In contrast, hysterical symptoms such as paralysis or blindness may involve more extensive subsymbolic activation of visceral, motoric, and sensory representations on trace levels.

Traditional psychosomatic conditions

Medical entities that have traditionally been classified as psychosomatic, including forms of asthma, ulcers, colitis, hypertension, and arthritis, may now be seen as on a continuum with conversion symptoms. Such somatic illnesses might reflect more severe dissociations within the nonverbal schemas, with higher levels of physiological activation of the emotion schemata, occupying the same modality-specific processing channels as are activated by the physical event. Although the activation occurs without apparent symbolic connection, the contents of the schema may nevertheless influence the particular form of the disability that results.

Emotional effects on immune function

In recent years, evidence has been growing that psychosocial factors directly affect immune function and thus have the potential to influence a very wide range of disorders, including allergies, autoimmune diseases, infectious diseases, and malignancies, affecting the onset of illness and also its course. In these terms as well, the traditional classification of specific medical entities as psychosomatic no longer

appears viable, and emotional factors need to be considered in relation to all illness, on a continuum with the effects outlined above.

The formulation proposed here is compatible with the construct of alexithymia as defined by Nemiah and Sifneos (1970) and others but provides a new psychological understanding of this. The dissociation here is far more complex than being without *words* for *emotions;* in some emotional-somatic disorders, the patient is without *symbols* for *somatic* states. It is necessary first to build connections within the nonverbal system between subsymbolic somatic activation and images of objects before meaningful verbal communication can occur. This formulation is also compatible with recent findings of alexithymic characteristics among patients with a wide range of psychiatric and somatic disorders, beyond those generally classified as psychosomatic (Taylor, 1992). To the extent that physiological activation associated with strong emotion occurs without corresponding activation of cognitive contents in either initial or displaced form, thus without symbolic focus and regulation, the activation is likely to be prolonged and repetitive, and the ultimate effects on physiological systems to be more severe.

New Clinical Implications of the Multiple Code Theory

Psychoanalytic theorists have consistently assumed an inverse relationship between somatization and the ability to verbalize feelings, as between acting out and verbalizing. This is a relatively unquestioned tenet of the theory, derived initially from the basic principle of conservation of energy within a closed system and retained in terms of compensatory or substitute discharge, even where the connection to energic concepts may not be acknowledged. Thus, Kernberg (1984) has stressed the inverse relationship between aggressive action and verbalization and has developed his influential inpatient milieu treatment on this basis. Similarly, McDougall (1989) refers to somatization, as well as action, as substitutes for thought: "through which one disperses emotion rather than thinking about the precipitating event and the feelings connected to it" (p. 15).

The multiple code theory leads to a new delineation of the relationships between acting out, somatization and verbalization, including conditions under which a complementary relationship between soma-

tization and verbalization might be expected, and leads to different implications for treatment as well. In neurosis, the repair of emotional dissociation in treatment may be expected to follow the path of initial emotional development. The caretaker is the primary object-symbol organizing the emotion schemas in normal development; in treatment, the analyst functions as a new object in the reconstruction of schemas that have been dissociated. However, the problem in treating cases of severe dissociation, involving early avoidance of primary objects, as in disorders of somatization, is that the avoidance is played out again in the ongoing treatment relationship and in reexperiencing of the early relationships in memory. Cases of this nature, as in post-traumatic stress disorder or in somatization, have often been seen as not amenable to dynamic psychotherapy. As Krystal (1988) has pointed out: "Alexithymia is the single most common cause of poor outcome or outright failure of psychoanalysis and psychoanalytic psychotherapy" (p. xi).

According to the multiple code theory, the treatment of somatizing patients may be facilitated by focusing on whatever discrete and specific entities are available to function as organizing symbols within the nonverbal system. Here specific somatic symptoms or actions may play a transitional symbolizing role, facilitating symbol formation and integration of schemas within the nonverbal system itself, before other objects, images, or words can be accepted. If a person has a particular physical disability or severe pain, this may constitute the first available discrete entity permitting entry of the schema into the symbolic domain. The symbolizing process might include acceptance of the particular body part or the physical pain as an "object," and associations to contexts and schemas in which this figures, long before the role of any interpersonal objects in the emotional schema can be acknowledged. Eventually, through focus on symptoms, in the context of the shared discourse, some further aspects of old emotion schemas may be retrieved, new objects may be entered as symbols in the dissociated emotion schemas, and schemas in which the analyst figures may ultimately be formed.

The formulation proposed here is compatible with Freud's characterization of specific symptoms as carrying meaning, similar to the manifest content of dreams, but postulates a specific facilitative role of somatic symptoms or actions, rather than viewing them as alternate

discharge modes. If this is indeed so, symptoms and actions may be seen as adaptive and progressive under certain circumstances, rather than regressive, as the discharge model implies and as has generally been assumed. The patient's concern with a particular somatic symptom may function as a *transitional connection* between the implicit subsymbolic computation of the viscerosensory processing system and the interpersonal contents of an emotion schema, rather than a means of resistance.

From the same perspective, even the specificity of language associated with alexithymia may, in some cases, function as an attempt to reconstitute a symbolic focus for a dissociated emotion schema, rather than as avoidant per se. The specific details of the psychosomatic narratives, like the displaced irrelevant details of the manifest content of a dream or the specific symptoms in hysteria, may themselves carry emotional meaning. The patient's focus on episodic details of time and place may be an attempt to orient himself on a piece of solid symbolic ground in emotional memory, rather than a means of warding off memory (Dodd and Bucci, 1987). The basis for the fundamental rule of free association—that the apparently irrelevant or trivial notions that may come into focus are actually outliers of the warded off schema that have escaped repression—may apply to such specific external details, as to verbalization of viscerosensory experience. The therapist may then make use of these small opportunities to open the symbolic and interpersonal domains.

Symptoms as Symbols: Some Empirical Support

The implications of the model concerning defensive dissociation in emotional schemata and initial repair of these by focus on somatic symptoms are supported by clinical work and by empirical research. Rainer Schors in Munich (personal communication) has based his uniquely successful treatment of pain patients on acceptance of pain as an objective entity to which the patient relates. James Hull (personal communication) has described the treatment of a patient with borderline personality disorder, who experienced her tongue as being continually cut by the edges of her teeth. Only when Hull began actively asking her about the minute details of this, how it happens,

which part of her mouth is affected, did the treatment begin to progress and an alliance begin to emerge.

The same principle has been addressed experimentally in several studies by Leventhal and his colleagues (reported by Leventhal, 1984), in which subjects were exposed to ischemic pain and distress produced by cold water or blocking of blood circulation. Subjects who were explicitly instructed to attend to their painful sensations reported significant reduction in pain experience, compared to control subjects who were given instructions intended to distract them from the noxious stimulus. The findings imply that focus on pain may be therapeutic, even though the experience may seem to be intensified by this means. The results emerged from statistical comparisons of reported pain levels in the two groups; the subjects themselves were not aware of these effects. People know they feel a stressor when they attend to it and consciously wish not to know; they are not aware of the beneficial effect of focusing attention in this way. According to Leventhal, focus on the painful stimulus facilitates its being experienced as an objective event and leads to buildup of coping processes. In multiple coding terms, this corresponds to facilitation of the symbolizing process and its regulatory effects.

The effect of focus on somatic symptoms as facilitating symbolization, rather than diverting it, has also been supported in recent research using measures of Referential Activity (RA), developed by Bucci (1984, 1993; Bucci and Miller, 1993). The RA measures assess activity of the referential connections between nonverbal, particularly emotional experience, and words, that is, the degree to which nonverbal experience may be translated into verbal form.

The RA measures were applied in a study of the relationship between somatization, acting out, and verbalization in a sample of 50 female borderline inpatients (Okie, 1991). Based on the substitute discharge premise of the metapsychology, Okie initially predicted a negative correlation between verbalization of emotional experience as measured by the RA scales and measures of somatization, injuries to the self, and acting out based on coding of daily nursing reports. Contrary to her predictions, Okie found significant *positive*; rather than negative, correlations between RA and symptoms. Patients who had more physical complaints; who incurred more injuries, either accidental or intentional; and who showed more acting out behaviors also

made greater use of the type of language associated with access to emotional experience, rather than turning away from such linguistic expression. Okie's results offer counterevidence to the general psychoanalytic assumption of substitute discharge and provide empirical support for a complementary relationship between symptoms and symbol formation. The borderline inpatients in her study may be understood as located emotionally or cognitively at a phase where some intrapsychic nonverbal symbolic organization focused on symptoms and actions may be needed, before connections to other people or to words can be achieved.

Research by Hull, Ellenhorn, and Bucci (1990) further supports this formulation and its stage-specific implications. Hull found a positive correlation between measures of referential activity and symptom levels (measured by weekly administration of the SCL90-R) early in the treatment of a borderline inpatient with hysterical paralysis. This patient produced high RA language early in treatment, when her symptom levels were high. We suggest that the florid, vivid, sometimes psychotic speech that she produced in this phase operated to enhance focus on symptoms as symbols, in the sense outlined above. This may be understood as the first step in symbol construction, reflecting the early stages in reparation of dissociation. However, at this early phase, Hull also found low levels of the type of patterning of RA scores that indicates the occurrence of a referential cycle (Bucci, 1993), in which vivid speech leads to reflection and shared communication.

Later in the treatment, as the patient improved (and symptom levels were generally lower), the expected negative correlation between symptoms and RA was found, and levels of patterning reflecting occurrence of a systematic referential cycle increased. Here the patient used the passages of high RA speech, not only to construct symbolic connections within her own emotion schemas, but also for reflection within the communicative discourse and for connection to the therapist, the object now available in the interpersonal field.

Conclusions: Symptoms and Meanings

The fields of psychosomatic medicine and psychoneuroimmunology now recognize pervasive interactions, on the biological level, among

central nervous system, autonomic nervous system, endocrine and lymphatic systems, which potentially figure to varying degrees in all physical illness. Advances on the biomedical level do not substitute for a psychoanalytic approach, but point to its central and increasing importance. However somatization remains to a large extent beyond the reach of psychoanalytic treatments. As researchers on the *biological* level provide stronger evidence for the bidirectional interaction of emotional factors with physical health, it becomes correspondingly more crucial to develop a *psychological* model that will account for this interaction.

The multiple code formulation returns, by a new conceptual path, to the notion of symptoms as carrying systematic emotional meaning that had been initially claimed by Freud. As he argued in 1900:

> In view of the complete identity between the characteristic features of the dream-work and those of the psychical activity which issues in psychoneurotic symptoms, we feel justified in carrying over to dreams the conclusions we have been led to by hysteria [p. 636].

The concepts of somatic symptoms as meaningful modes of expression and as transitional symbols have pervasive implications that Freud did not pursue and that are incompatible with traditional drive-based theories. From the new perspective of multiple coding, we may convert and amplify Freud's proposition; we feel justified in carrying over to somatization the conclusions concerning the symbolizing process derived from emotional development, free association, and dreams.

REFERENCES

Beebe, B. & Lachmann, F. (1988), The contribution of mother–infant mutual influence to the origins of self and object representations. *Psychoanal. Psychol.*, 5:305–337.

Bowlby, (1969), *Attachment and Loss, Vol. I.* New York: Basic Books.

Bruner, J. S. (1966), On cognitive growth. In: *Studies in Cognitive Growth*, ed. J. S. Bruner. New York: Wiley, pp. 1–67.

Bucci, W. (1984), Linking words and things: Basic processes and individual variation. *Cognition*, 17:137–153.

——— (1985), Dual coding: A cognitive model for psychoanalytic research. *J. Amer. Psychoanal. Assn.*, 33:571–607.

——— (1988), Converging evidence for emotion structures: Theory and method. In: *Psychoanalytic Process Research Strategies*, ed. H. Dahl, H. Kaechele & H. Thomae. New York: Springer-Verlag, pp. 29–50.

——— (1989), A reconstruction of Freud's tally argument: A program for psychoanalytic research. *Psychoanal. Inq.*, 9:249–281.

——— (1993), The development of emotional meaning in free association. In: *Hierarchical Conceptions in Psychoanalysis*, ed. J. Gedo & A. Wilson. New York: Guilford, pp. 3–47.

——— (in press), *Psychoanalysis and Cognitive Science*. New York: Guilford.

——— & Miller, N. (1993), Primary process: A new formulation and an analogue measure. In: *Handbook of Dynamic Psychotherapy Research and Practice*, ed. N. Miller, L. Luborsky, J. Barber & J. Docherty. New York: Basic Books, pp. 387–406.

——— Severino, S. K. & Creelman, M. L. (1991), The effects of menstrual cycle hormones on dreams. *Dreaming*, 1:263–275.

Dodd, M. & Bucci, W. (1987), The relation of cognition and affect in the orientation process. *Cognition*, 27:53–71.

Eagle, M. N. (1984), *Recent Developments in Psychoanalysis: A Critical Evaluation*. New York: McGraw-Hill Book Co.

Farah, M. J. (1984), The neurological basis of mental imagery: A componential analysis. *Cognition*, 18:245–272.

Fodor, J. A. & Pylyshyn, Z. W. (1988), Connectionism and cognitive architecture: A critical analysis. *Cognition*, 28:3–71.

Freud, S. (1895), Project for a scientific psychology. *Standard Edition*, 1:295–391. London: Hogarth Press, 1953.

——— (1900), The interpretation of dreams. *Standard Edition*, 4 & 5. London: Hogarth Press, 1953.

——— (1923), The ego and the id. *Standard Edition*, 18:12–66. London: Hogarth Press, 1961.

——— (1940), *An Outline of Psycho-analysis*. New York: Norton.

Gazzaniga, M. S. (1985), *The Social Brain*. New York: Basic Books.

Holt, R. R. (1985), The current status of psychoanalytic theory. *Psychoanal. Psychol.*, 2:289–315.

Hull, J., Ellenhorn, T. & Bucci, W. (1990), Attunement and the rhythm of dialogue in psychotherapy: I Empirical findings. Annual conference, Society for Psychotherapy Research, Wintergreen, WV.

Kernberg, O. F. (1984), *Severe Personality Disorders*. New Haven, CT: Yale University Press.

——— (1990), *New Perspectives in Psychoanalytic Affect Theory*. New York: The Academic Press, pp. 115–131.

Kosslyn, S. M. (1987), Seeing and imagining in the cerebral hemispheres: A computational approach. *Psychol. Rev.*, 94:148–175.

Krystal, H. (1988), *Integration and Self-Healing: Affect—Trauma—Alexithymia*. Hillsdale, NJ: The Analytic Press.

LeDoux, J. E. (1989), Cognitive-emotional interactions in the brain. *Cognition & Emotion*, 3:267–289.

Leventhal, H. (1984), A perceptual-motor theory of emotion. In: *Approaches to Emotion*, ed. K. R. Scherer & P. Ekman. Hillsdale, NJ: Lawrence Erlbaum Associates, pp. 271–291.

McDougall, J. (1989), *Theaters of the Body*. New York: Norton.

Nemiah, J. C. & Sifneos, P. E. (1970), Affect and fantasy in patients with psychosomatic disorders. In: *Modern Trends in Psychosomatic Medicine, 2*, ed. O. W. Hill. London: Butterworths, pp. 430–439.

Norman, D. A. (1986), Reflections on cognition and parallel distributed processing. In: *Parallel Distributed Processing*, D. E. Rumelhart, J. L. McClelland & the PDP Research Group. Cambridge, MA: MIT Press, pp. 531–546.

Noy, P. (1979), The psychoanalytic theory of cognitive development. *The Psychoanalytic Study of the Child*, 34:169–215. New Haven, CT: Yale University Press.

Okie, J. E. (1991), Action, somatization and language in borderline inpatients. Doctoral dissertation, Adelphi University. *Dissertation Abstracts International* No. 9211084.

Paivio, A. (1986), *Mental Representations*. New York: Oxford University Press.

Piaget, J. (1950), *The Psychology of Intelligence*. London: Routledge & Kegan-Paul.

Rumelhart, D. E., McClelland, J. L. & the PDP Research Group (1986), *Parallel Distributed Processing*. Cambridge, MA: MIT Press.

Scherer, K. R. (1984), On the nature and function of emotion: A component process approach. In: *Approaches to Emotion*, ed. K. R. Scherer & P. Ekman. Hillsdale, NJ: Lawrence Erlbaum Associates, pp. 293–317.

Simon, H. A. & Kaplan, C. A. (1989), Foundations of cognitive science. In: *Foundations of Cognitive Science*, ed. M. I. Posner. Cambridge, MA: MIT Press, pp. 1–47.

Smolensky, P. (1988), On the proper treatment of connectionism. *Behav. & Brain Sci.*, 11:1–22, 59–74.

Solomon, G. F. (1987), Psychoneuroimmunology: Interactions between central nervous system and immune system. *J. Neurosci. Res.*, 18:1–9.

Stern, D. N. (1985), *The Interpersonal World of the Infant*. New York: Basic Books.

Taylor, G. J. (1992), Psychosomatics and self-regulation. In: *Interface of Psychoanalysis and Psychology*. ed. J. W. Barron, M. N. Eagle & D. L. Wolitzky. Washington, DC: American Psychological Association, pp. 464–488.

Thomae, H. & Kaechele, H. (1987), *Psychoanalytic Practice 1: Principles*. Berlin: Springer-Verlag.

Derner Institute
Adelphi University
Garden City, NY 11530