



# *Adaptive and Maladaptive Dissociation: An Epidemiological and Anthropological Comparison and Proposition for an Expanded Dissociation Model*

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## ABSTRACT

*Dissociation is the psychological aspect of stress response. It is an adaptive reaction to a stressor on a short-term basis but can be maladaptive if under- or over-utilized and comprises the partitioning of consciousness, ranging from barely to rigidly partitioned. Current means of measuring dissociation focus primarily on DSM-IV-TR Dissociative Disorders and do not sufficiently account for adaptive sub-clinical forms or maladaptive under-dissociating. These measures of pathology are not useful for determining how well-adapted a population is to stress—i.e., how well dissociation is generally put to use. The purpose of this paper is: (1) to analyze the general population and university student studies that have been conducted using current epidemiological methods of assessing dissociation in sub-clinical populations; and (2) to compare and contrast anthropological and epidemiological models of dissociation. An alternative method for assessing dissociation that synthesizes these two views is proposed.*

KEYWORDS: adaptation, dissociation, dissociative disorders, stress response, well-being



## INTRODUCTION

Dissociation in the forms of shamanic and possession trance have long been of interest to anthropologists. There has also been a resurgence of psychiatric interest with respect to disorders like Dissociative Identity Disorder (DID, formerly

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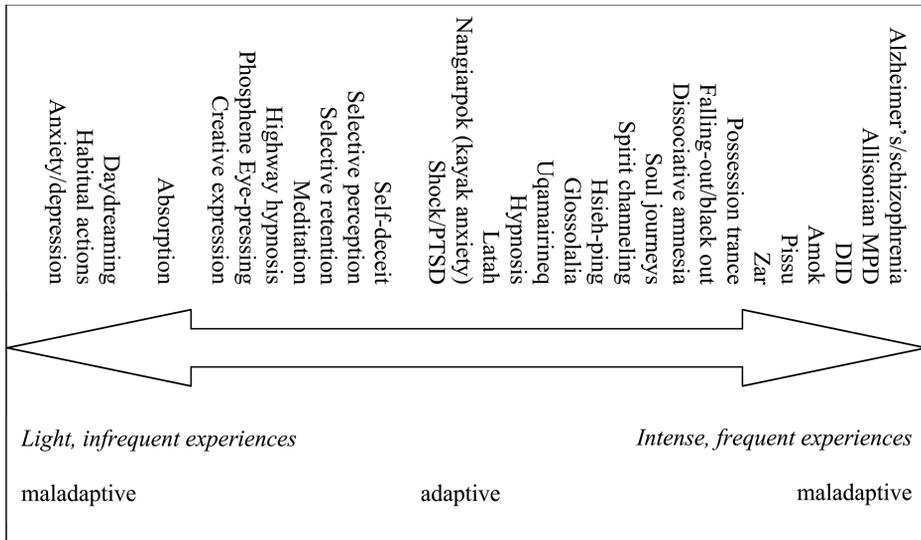


FIGURE 1. THE DISSOCIATION CONTINUUM<sup>1</sup>

Multiple Personality Disorder [MPD]) over the past 35 years. Dissociation is posited to be a psychological mechanism for coping with internal and external stress. It is conceptualized as a compartmentalization of consciousness that varies in strictness of compartmental isolation and interaction. Compartments serve to keep stressful internal knowledge out of one's consciousness and prevent conscious awareness of stressful external stimuli. Anthropologists and psychiatrists generally believe dissociation to comprise a continuum of experiences (see Figure 1) found cross-culturally and, with some types, universally (Bernstein and Putnam 1986; Bourguignon 1976; Goodman 1988; Ray 1996; Ross 1996, 1997; Walker 1972).

The current continuum model extends from normal dissociation experiences to those deemed pathological. I am proposing a revision that extends from a maladaptive lack of dissociation through an adaptive mean of type and quantity (i.e., normal) to a maladaptive extreme in intensity and quantity (i.e., pathology). This revision subsumes the current continuum and proposes to include anxiety and depression disorders, which I hypothesize result in some cases from a lack of dissociative capacity or the inability to dissociate from unpleasant personal knowledge or reality. Yet the focus of this model, and the revised methodology to examine it, is to enable measurement of dissociation in terms of well-being—what is conceived of as normal—rather than disorder and pathology.

■  
PURPOSE

This paper surveys the epidemiological studies of dissociation that have been made among general populations (GPs) and university student populations (USPs). I critique these studies in relation to epidemiological and anthropological

models of dissociation and suggest an alternative model. Finally, I suggest practical applications for better understanding of the continuum of dissociation as an adaptation in general populations.

### *Epidemiological Model of Dissociation*

*Dissociation* is a term most commonly used by psychiatrists to clinically describe the non-integration of personality or consciousness. Their concern is to detect Dissociative Disorders as defined by the *Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (Text Revision)* (DSM-IV-TR—American Psychiatric Association 2000), the U.S. gold-standard for the diagnosis of psychiatric pathology. The DSM-IV-TR states that “the essential feature of the Dissociative Disorders is a disruption in the usually integrated functions of consciousness, memory, identity, or perception. The disturbance may be sudden or gradual, transient or chronic” (American Psychiatric Association 2000:519). There are five DSM-IV-TR Dissociative Disorders: Dissociative Amnesia, Dissociative Fugue, DID, Depersonalization Disorder, and Dissociative Disorder Not Otherwise Specified. Yet it cautions that dissociation is not inherently pathological, and a cross-cultural perspective should be employed in the evaluation of Dissociative Disorders because of the ubiquity and variety of dissociative elements in cultural practices throughout the world.

The approximately 100-year history of this conceptualization of dissociation has been well documented (e.g., Ross 1996, 1997; Wright 1997) yet not thoroughly tested (Ray 1996). Following Pierre Janet (1889), psychiatrists consider dissociation an adaptive coping mechanism employed to deal with stress. In the cases of DSM-IV-TR Dissociative Disorders, it is a psychological pattern of unconscious behavior developed at a very young age in the face of severe trauma.

The definitions commonly used by psychiatrists are deficit-oriented by default yet also imply an ideal integration, while simultaneously acknowledging that there is nothing inherently pathological about normal dissociative behavior (Waller et al. 1996). Anthropologist Morton Klass (2003) points out that this is not necessarily a contradiction, as it is the role of medical experts to define and treat illness, not wellness. Psychiatrists define mental phenomena with diagnosis and treatment of mental health problems as ultimate goals. One must, nevertheless, be aware of the inconsistency sometimes found in the use of the term dissociation, as it is often defined and used in a way that is synonymous only with pathology, and explicitly or implicitly excludes normal dissociative experiences. For example, Eve Bernstein and Frank Putnam, among the foremost psychiatric experts on dissociation, define dissociation as “a lack of the normal integration of thoughts, feelings, and experiences into the stream of consciousness and memory” (Bernstein and Putnam 1986:727).

Methods of screening for and diagnosing dissociation in clinical and non-clinical populations are based on such definitions. Several of these methods

have also been employed epidemiologically to measure the prevalence of Dissociative Disorders and test etiological associations with variables such as trauma (Bernstein and Putnam 1986; Riley 1988; Sanders 1986; Vanderlinden 1993). These are the Dissociative Experiences Scales I and II (DES—Bernstein and Putnam 1986; DES-II—Carlson and Putnam 1993 [the DES and DES-II only differ insofar as the scoring was revised to be more discrete for the 2nd version; both versions henceforth will be generically referred to as DES]), the Dissociation Questionnaire (DIS-Q—Vanderlinden 1993), the Structured Clinical Interview for *DSM-IV* Dissociative Disorders (SCID-D—Steinberg 1994), the Dissociative Disorders Interview Schedule (DDIS—Ross et al. 1989), and the Questionnaire of Experiences of Dissociation (QED—Riley 1988). Of these, the DES has been most widely used, studied, and judged reliable and valid for determining the prevalence of dissociation in non-clinical populations cross-culturally (Kluft 1993; Ross 1997).

#### *Anthropological Model of Dissociation*

Anthropology views dissociation as an adaptation that is only psychopathological under extreme and often culturally-relative circumstances (Bourguignon 1976; Goodman 1988; Walker 1972). It does not presume the psychiatric ideal of integration is the norm. But, like psychiatrists, although for different reasons, anthropologists do tend to focus on the exotic, or extreme, forms of dissociation. To paraphrase from the work of Erika Bourguignon (1976), a psychological anthropologist who has studied the possession trance of Haitian *Vodou* extensively, when severe dissociation occurs in an individual due to a history of traumatic experiences, a fine line between being personally adaptive and socially maladaptive exists. That line may be crossed when an individual's dissociation is so severe as not to be confined to culturally-condoned parameters and leads to social marginalization or institutionalization. It is therefore hypothetically possible, though not verified, that a community that ceremonially practices a form of dissociation, such as spirit possession, may provide a supportive, complementary environment for someone prone to trauma-induced, severe dissociation. The opposite could be true in European and U.S. communities, where such people find themselves marked as outsiders or mentally ill. And it is true that even in communities that practice dissociation ceremonially, those who cannot contain their dissociation to ceremonial contexts are similarly marked (Bourguignon 1976).

Stanley Krippner, a psychiatrist who has published extensively on dissociation, consciousness, and transpersonal phenomena, provides the most culturally- and anthropologically-oriented definition:

*“Dissociative” is an English-language adjective that attempts to describe reported experiences and observed behaviors that seem to exist apart from, or*

*appear to have been disconnected from, the mainstream, or flow of one's conscious awareness, behavioral repertoire, and/or self-identity. "Dissociation" is a noun used to describe a person's involvement in these reported dissociative experiences or observed dissociative behaviors.*

[Krippner 1997:8]

This is a sound assessment based on cross-cultural comparisons, yet a bio-cultural perspective suggests a slight revision. Richard Castillo (1995) indicates that institutionalized forms of trance, such as those of yoga, create alternative neural pathways of long-term potentiation through repeated use. In this sense, dissociation is less an altered state of consciousness than an alternative state of consciousness and not necessarily "disconnected from the mainstream." The dissociation phenomenon encompasses forms that are both culturally normal and abnormal (Walker 1972) and that can be short-term, infrequent aberrations or reinforced through long-term potentiation. Sometimes information is rigidly separated and results in amnesia; sometimes it is only partially separated. Haitian Vodou and DID offer striking examples of the former, whereas hypnosis and meditation are good examples of the latter. A definition of such a generalized phenomenon must also be broad and avoid stipulating what is normal or mainstream.

I would like to revise Krippner's definition to read as follows: "The word *dissociative* attempts to describe reported experiences and observed behaviors that seem to have been *partitioned* from conscious awareness, behavioral repertoire, and/or self-identity; the word *dissociation* is an etic used to describe a person's involvement in these reported dissociative experiences or observed dissociative behaviors, which encompass a variety of emics." Think of an office space comprising cubicles separated by partitions that can be moved around in a variety of configurations, interspersed with several dedicated offices that have more permanent walls. Information flows over, around, and through these separators, with various degrees of ease. The partitions can be unconsciously moved to divert or block streams of information. Such unconscious cognitive processes may have been selected for to manipulate personal awareness for purposes of Darwinian fitness.

Healthy people dissociate every day of their lives. In fact, I hypothesize that not only can excessive, unsupported dissociation be maladaptive, so can an inability to dissociate. Intermediate between these extremes is a range beginning with few, very mild dissociative experiences and progressing through many, severely dissociative experiences. Mild experiences are those of focused attention (e.g., daydreaming) from which a person may easily be distracted. Severe dissociation involves amnesia as a person passes from one dissociative state to another. A population mean of type and quantity should therefore equate positive well-being—i.e., good mental health.



## METHOD

*General Population and University Student Studies*

My initial source for the studies I chose was a review by Kim Tousignant (2002) of the prevalence studies that have been conducted cross-culturally. Of those reviewed, I chose to examine the GP and USP studies because they are the closest approximation of randomly selected non-clinical populations. Most other studies reviewed focused on groups selected because of exposure to trauma. The studies I examined (N=22) used two primary methods of screening for dissociation: the DES and DIS-Q.

The DES (Bernstein and Putnam 1986; Carlson and Putnam 1993) is a self-report consisting of 28 questions designed to measure the dissociation continuum. An individual responds by marking a slash (on the original DES, or circling a number on the DES-II) on a line that extends from 0–100 percent for each statement, indicating how frequently they have the experience mentioned. The DES has proven statistically reliable in a range of studies in both clinical and non-clinical environments (Carlson 1994). A meta-analysis conducted with more than 11,000 DES protocols confirmed its reliability and validity for assessing psychiatrically-defined dissociation (van IJzendoorn and Schuengel 1996). It has been translated into several languages, including Spanish (Martínez-Taboas 1995) and Turkish (Yargıç et al. 1995; Sar et al. 1997) for some of the studies I examined, and tested for reliability and validity in those languages. The cut-off score for screening a DSM-IV Dissociative Disorder with the DES is generally 30. In some of the studies, those with scores above 30 were followed up using diagnostic interviews.

The DIS-Q was developed by Belgian psychologist Johan Vanderlinden as an expanded European counterpart to the DES, as he believed socio-cultural factors might play an important role in the experience of dissociative phenomena (Vanderlinden 1993). Additionally, it draws on the Perceptual Alteration Scale (PAS—Sanders 1986) and the QED (Riley 1988). The DIS-Q is a 63-item self-report that is scored using a 5-point Likert-type scale. It has also proven reliable and valid in statistical studies (Vanderlinden 1993). In addition, its English has been revised for use in North America and found to correlate highly with the DES and perform as it does in Europe (Sainton et al. 1993; Ross 1997). The cut-off generally used with the DIS-Q is 2.5.

Table 1 displays the significant statistics available from the GP studies. Table 2 displays those from the USP studies. All studies conducted in Table 2 used the DES.

*Prevalence Studies*

The prevalence of Dissociative Disorders refers to the number of diagnosable cases of these diseases in a specified population at a specified time. Of the studies

TABLE 1: EPIDEMIOLOGICAL STUDIES OF DISSOCIATIVE DISORDER  
IN GENERAL POPULATIONS

Screening Method	Country	N	Prevalence	Mean±SD	Median	Range	Authors
DES	Canada	1055	5.0	10.8±10.2	7.0		Ross et al. 1990, 1991
	Turkey	994	1.0	6.7±6.1	5.0	0–53.2	Akyüz et al. 1999
	U.S.	34 <sup>†</sup>			4.4		Bernstein and Putnam 1986
DIS-Q	Belgium	139	2.9	1.61±0.4		1.08–2.41	Vanderlinden, et al.1991
	Hungary	198	10.6				Vanderlinden, et al.1995
	Netherlands	235	2.1				Vanderlinden, et al.1991
		378	2.1	1.5±0.35		1–3.6	Vanderlinden, et al.1993

I examined, only a few have been conducted in clearly outlined GPs specifically to measure the prevalence of Dissociative Disorders (Akyüz et al.1999; Ross et al. 1990, 1991; Vanderlinden 1993). Several more have been conducted in USPs to determine prevalence (Ross et al.1991; Murphy 1994), as well as to test screening methods (Bernstein and Putnam 1986; Frischholz et al. 1990; Ray et al.1992; Ray and Faith 1995; Gleaves et al. 1995) and theoretical associations between Dissociative Disorders and childhood abuse (Sanders et al.1989; Sandberg and Lynn 1992; Martínez-Taboas and Bernal 2000), other personality variables (DeSilva and Ward 1993; Bauer and Power 1995), and eating disorders (Rosen and Petty 1994).

Several problems arise when trying to compare these various prevalence studies and draw general conclusions. In comparing USPs, scoring procedures for the same dissociation screening method have sometimes been altered such that scores obtained by one study cannot be directly correlated with others (e.g., Ray and Faith 1995). Among GP studies, those by Turkish psychiatrist Gamze Akyüz et al.(1999), Canadian psychiatrist Colin Ross et al. (1990, 1991), and Vanderlinden et al. (1991, 1993) are the only ones to feature random samples of the general population; but Ross, among the foremost clinical experts on Dissociative Disorders, believes these results included many false positives and are therefore problematic (Ross 1997). Additionally, cut-off scores for screening pathological from non-pathological dissociation vary. While most studies followed those set by the author of the method employed (i.e., Bernstein and Putnam [1986] for the DES or Vanderlinden [1993] for the DIS-Q), others lowered the cut-off to account for false negatives and conducted follow-up case-control studies with diagnostic methods (e.g., Ross et al. 1990; Ross, Ryan et al. 1991). Such follow-up

TABLE 2: DES MEASUREMENTS OF DISSOCIATIVE DISORDERS  
IN UNIVERSITY STUDENT POPULATIONS

Country	N	Ages	Prevalence	Mean±SD	Median	Range	Authors
Britain	97 <sup>3</sup>	27.0±7.9	5.1	11.3±8.68	8.9	1.4–35.4	DeSilva and Ward 1993
Canada	345		11.0				Ross, Joshi et al. 1991
	46			17.4	13.5		Martínez-Taboas 1995
Puerto Rico	198		13.0	14.8	12.0		Martínez-Taboas and Bernal 2000
Scotland	98	23.3±6.0, 18–52	12.2	17.7±11.87	13.9		Bauer and Power 1995
	31	18–22			14.1		Bernstein and Putnam 1986
	309	17–22	≥8	14.6±11.0	11.2	~0–~57	Sanders et al. 1989
	337			14.9±11.7	11.6	4–62.3	
	259	19.8±3.6		23.8±14.1	22.9		Frischholz et al. 1990
	650			12.1±8.8			Sandberg and Lynn 1992
U.S.	415	23.7±6.7	8.9	14.7±10.8	12.3		Murphy 1994
	140	18.5±0.9		14.3	10.8		Rosen and Petty 1994
							Ray et al. 1992 <sup>4</sup>
	170 <sup>5</sup>	21.3±3.9		16.3			Gleaves et al. 1995
	1090			67.97±1.03	63±1.2	216	Ray and Faith 1995 <sup>6</sup>

studies did not attempt to measure sub-clinical dissociation, so they have not been included in Table 1. It is important to note, nevertheless, that some of the other prevalence figures in the literature are derived from these follow-ups. This is significant, as Ross (1997) admits, because though close to the figures reached by Vanderlinden et al. (1991) and Akyüz et al. (1999) in Europe, his follow-up study was conducted with a much smaller sample than intended or desired, based on the data from his initial study. Of those subjects scoring above the established cut-off for pathology, a large number could not be found to participate in the follow-up.

As indicated in Table 1, GP studies produced prevalence rates for Dissociative Disorders of 1–5 percent. Table 2 shows that USP studies resulted in rates of 5–13 percent. Combined estimates (Ross et al. 1991a; Ross et al. 1990; Murphy 1994) place the lifetime prevalence (as opposed to the limited demographic age range of the USP figures) of Dissociative Disorders in the GP at 5–11 percent. Yet the

largest study (Ross et al. 1990), barring the follow-up mentioned above, was later reassessed based on a taxonomic reevaluation of its use of the DES. To create a more discrete epidemiological methodology, the DES was revised (Waller et al. 1996) as an eight-item scale to dichotomously measure pathology/non-pathology instead of a continuum. Reevaluation of the Canadian study (Ross et al. 1990) produced a lowered prevalence for pathological dissociation of approximately 3.3 percent for the GP (Waller and Ross 1997). Ross's (1997) final, conservative estimate based on this revised epidemiological model sets the figure at around 3 percent, which, he points out, means that about ten million cases exist in North America alone.

### *Relative Risk Studies*

Although dissociation is believed to be a normal response to stress, there is extensive documentation in the psychiatric literature citing that extreme, traumatic stress is the cause of Dissociative Disorders (e.g., Michelson and Ray 1996; Putnam 1989; Ross 1997). The most statistically significant etiological factor of Dissociative Disorders inferred through case reports and surveys is childhood abuse (Goodwin and Sachs 1996). Childhood neglect, factitious (faked), and iatrogenic (clinically triggered) are also significant (Ross 1997). Etiological data gathered through cohort studies of childhood abuse and dissociative pathology indicate that self-reported victims of frequent childhood abuse (physical or sexual) were two times more likely to score in the taxon of dissociative pathology (Sanders et al. 1989; Sandberg and Lynn 1992; Martínez-Taboas and Bernal 2000). A study of patients meeting *DSM-III-R* criteria for Dissociative Disorders found that 89 percent had histories of childhood abuse or neglect, while 50 percent had suffered adult trauma such as rape (Coons et al. 1989). There is no data per se on the relative risk of neglect relative to abuse, nor did I find studies that calculated the statistics of factitious or iatrogenic Dissociative Disorders.



## DISCUSSION

### *Dissociation as a Stress Response*

As described throughout the literature, dissociation is a stress response consistent with the Walter Cannon (1929) model of fight-or-flight. Dissociating possible repercussions or culpability can enable one to fight better just as dissociating stressful information or stimuli can be conceived of as mental flight. Consistent with Hans Selye's (1974) revised general adaptation syndrome, dissociation is part of a three-stage immune response. Stage one is alarm reaction, wherein the stressor is encountered and there is a diminished resistance. During stage two, resistance rallies and rises above normal. Stage three is exhaustion when continued exposure has outlasted the adaptive resistance.

In this manner, dissociation becomes adaptive following the acute onset of stress, but if prolonged can become overwhelming, maladaptive, and result in psychological deterioration. This progression aptly outlines the differences between adaptive and pathological dissociation. Everyday forms of mild dissociation and more extreme ceremonial forms tend to be of specific, finite durations that facilitate functioning and in some cases are purported to enhance well-being. The prolonged, unchecked dissociation of pathology, on the other hand, may protect individuals from traumatic memories yet be psychologically debilitating in the long run. Based on the documented importance of this pattern of response to stress, an inability to employ dissociation as an effective stress response should also be considered maladaptive, though I am unaware of any studies pertaining to this.

The argument can be made that this is too general a picture of dissociation, as the variety of forms I will discuss will show. Some people who undergo traumatic experiences do not develop pathological dissociation while others do, for instance. Current theory regarding stress response is more specific, indicating that very specific effector systems control stress responses through “homeostats,” or psychological regulators, which are compensatory mechanisms that maintain an appropriate homeostasis for a body and its environment (Goldstein 1995). Therefore, there is an array of variables that will be different in any individual’s response to stress.

Hypothetically, this model of dissociation as a stress response should be measurable in the same manner anthropologists normally measure stress, through surrogate measures of stress and excitement, such as salivary cortisol (McElroy and Townsend 2004). By correlating such measures with a comprehensive dissociation scale, it may be possible to create a more complete model of the dissociation phenomenon. Such modeling begs further exploration in all the areas I will hereafter be discussing.

### *Dissociative Disorders*

At the far end of the dissociation continuum are the forms that are most extreme and are considered culturally aberrant. These have been the primary focus of psychiatrists and have produced the sole statistics in epidemiological studies. The rates of dissociation throughout the studies are generally consistent. Anomalies such as found in the Hungarian study (Vanderlinden et al. 1995) may owe to constraints of the study or cultural factors. Furthermore, the sample was not random. Hungarian psychology students were instructed to collect DIS-Q data from 400 subjects with the only restriction that subjects were not currently, or within the past five years, under hospital care. Most subjects were family members or friends of the students. These data are therefore not generalizable.

Yet Vanderlinden et al. (1995) believe that the cut-off measure for determining pathology may be culturally relative; there are cultural factors that produce the

higher prevalence of non-pathological dissociation. The authors propose establishing different cut-offs for different cultures based on scores of local psychiatric patients. Nevertheless, they speculate that a high level of dissociation might still exist within Hungary, the psychological residue of oppression suffered under the former Communist regime. Similar findings in other former Communist contexts could validate this hypothesis.

If valid, this assessment of the disparity is consistent, though inconclusive, with a model of dissociation triggered by psychosocial stress. Higher levels of culturally-defined stress should result in higher levels of dissociation. This means that, to properly conduct GP studies, it is not only useful to have psychometric values of local psychiatric populations, but what the culture defines as psychological stressors.

On the other hand, the Turkish study conducted by Akyüz et al. (1999), which utilized the DES to screen for subjects scoring above 17, then followed up with clinical interviews using the DDIS, calculated a prevalence figure of 1.7 percent for Dissociative Disorders in the GP. Given that only 51.6 percent of those scoring above 17 could be located for the follow-up study, the prevalence could conceivably be higher. What makes this study significant in relation to the other studies is that it was conducted in Sivas, a non-industrialized part of Turkey marked by traditional attitudes. According to the study authors, “there is no public interest in dissociative identity disorder among the city population, and no information available about it. There are no psychotherapists or psychiatrists in the city specialized in dissociative identity disorder” (Akyüz et al. 1999:152).

There has been much contention as to whether Dissociative Disorders, particularly DID, are real or faked syndromes and whether they can be found cross-culturally or are culture-bound aberrations of science-oriented, industrialized, secularized societies. Likewise, there has been a suspicious correlation between the increased incidence of diagnoses and pop cultural depictions of DID cases over the past thirty years. It has, for all practical purposes, become the *deus ex machina* of secularized, cinematic thrillers (e.g., *Identity* or *Fight Club*). Yet Ross (1996) points out that the upturn of psychiatric interest in DID is fourfold in cause. The most significant is the reports of childhood physical and sexual abuse that are now acknowledged in the wake of the women’s movement and the etiological correlation between such abuse and DID. The second factor is the Vietnam War, which generated different sociological ramifications than previous U.S. wars, leading to more attention being given to the long-term consequences of post-traumatic stress disorder on veterans and the public when these veterans are forced to reintegrate into society. The third factor, the popularization of DID/MPD in the books and films *The Three Faces of Eve* (Thigpen and Cleckley 1957) and *Sybil* (Schreiber 1973), was not the trigger for the attention and increased incidence, but rather were likely repercussions of the first factor. Finally, the publication of the *DSM-III* in 1980 (American Psychiatric Association 1980)

formally recognized MPD as a diagnosis and created a section devoted to Dissociative Disorders. This led to an increase in diagnosis, and consequently, an increased statistical incidence and prevalence of Dissociative Disorders.

These data do provide preliminary indications that Dissociative Disorders exist cross-culturally and that they do not vary in distribution based on socioeconomic status, gender, or marital status (Ross 1997). There is an inverse correlation between dissociation experiences and age (Ross et al. 1989). These factors contribute to a higher prevalence (twice as high, generally) among USP samples than GPs. This is consistent with studies that have demonstrated higher prevalence of dissociation and derealization among college student populations (Dixon 1963; Harper 1969; Myers and Grant 1970; Roberts 1960; Sedman 1966). Evolutionarily speaking, this relationship makes sense given a perhaps overly generous assumption that greater experience leads to greater self-insight and therefore less need for self-deceit or the dissociation of unpleasant personal information. I speculate that there may be increasingly less need for increasingly older adults to employ social strategies requiring dissociation, as their lives are generally stable and reproduction no longer an issue.

Despite the fact that none of the USP samples were random, the consistency of scores across the studies seems to indicate validity and reliability of the measures. While much of the comparative data desired for the present analysis are missing, since not all the studies were seeking to verify the same hypothesis, data from a large sample of such studies adjusted for age might correlate positively with GP studies. The fact that similar results were obtained in USP studies conducted in a number of cultures, though primarily Western cultures, lends credence to the assertion that Dissociative Disorders are not culture-bound syndromes.

### *Shamanism and Possession Trance*

Anthropologists believe self-induced stress is used cross-culturally as a form of healing. "In rituals and with medicinal plants, people push past normal limits in order to experience power, energy, and transformation" (McElroy and Townsend 2004:274). They do so through exposure to excessive or extremely low levels of stimulation. This can include many things, from the hyperkinetics of prolonged dancing and music to drug use to chanting or silent meditation to the localized, induced pain of acupuncture. Such self-induced stress is thought to release endorphins, which are biochemically similar to opium or morphine and known to reduce pain and relieve depression (McElroy and Townsend 2004). These rituals and stress-induction methods are part and parcel of cross-cultural shamanic and possession practices.

Ross (1996:4) believes that the psychobiological basis of DID is the same as "trance and possession states found in most cultures throughout history." Indeed, a variety of such cultural rituals and behaviors are characterized by the dissociation etc. Foremost among them are shamanic trances, often soul

journeys, and ceremonial possession trance. “Soul journey” describes an emic wherein the soul of the individual has left the body to commune with the spirits, generally about matters related to the health of clients or community issues. “Possession trance” involves the displacement of one’s soul by an invading spirit that has come for similar purposes. These are among the more extreme forms of dissociation but are nonetheless non-pathological due to very structured cultural mediation.

Culturally-mediated use of dissociation is believed to have occurred at least as far back as Paleolithic times. The prehistoric paintings depicting half-human, half-animal figures that populate caves around the world are believed to represent shamans in religious frenzies like those of modern shamanic trance cultures and may be a part of the symbolic enactment of religious ceremony (Clottes and Lewis-Williams 1996; Vitebsky 1995; Winkelman 2002).

Furthermore, cultures differ in their manifestations of shamanic dissociation. In the Himalayas, shamans make soul journeys, whereas in Korea they utilize trances but not soul journeys per se. Hindu shamans achieve trance states by driving metal hooks into their bodies or walking on red-hot coals. Among the Sora of Orissa, India, the shaman’s soul leaves her body while it is inhabited by a succession of dead ancestor “helper” spirits who speak to the living. Certain native peoples of North America are known for their dissociative “vision quests,” where they may go into the wilderness for a number of days to fast and seek the guidance of spirits who often take the form of animals. Similarly, the Mandan sweat-lodge may have served a similar purpose. South American shamans are renowned for their use of entheogenic plants such as *ayahuasca*, San Pedro, and tobacco to induce dissociation and visions, while peyote has been used in the U.S. Southwest. The Bushmen of the Kalahari were able to induce a trance and “climb to the sky,” a practice reminiscent of the Sambia of the New Guinea Highlands (Vitebsky 1995). Most of these descriptions imply a dissociation induction method—i.e., pain, exhaustion, hypoglycemia, psychoactive drugs—that can readily be defined as stressors.

Much has been written about the mental health of those who practice shamanic trance and possession. In the past, shamans have been viewed as “mentally deranged” persons exploiting a cultural niche (Czaplicka 1914; Devereux 1956; Vitebsky 1995). Similarly, as indicated by anthropologists Bourguignon and Sheila Walker, both experts in Afro-Caribbean possession practices, possession cults have been labeled as refuges for the mentally ill (Bourguignon 1976; Walker 1972). These assessments are inherently biased, defining mental health in antiquated Western ethnomedical terms. Culturally-mediated dissociation is now acknowledged in the current Western ethnomedical system, as reflected by the *DSM-IV-TR* (American Psychiatric Association 2000). The same behavior outside of ritualized or culturally-appropriate contexts would earn these same practitioners diagnoses of Dissociative Disorder Not Otherwise Specified, the

miscellaneous diagnosis for maladaptive dissociation that does not fit the other four Dissociative Disorder categories (more on this in the following subsection).

This extreme behavior, viewed as mental illness if unsupported by the community at large, is by contrast viewed as adaptive in supportive environments (Bourguignon 1976; Goodman 1988; Walker 1972). Despite this apparent social construction of mental health, DID can be compared particularly to possession trance on a psychological level. It is, in the face of severe trauma, an adaptive coping strategy for an individual. For example, comparing DID to cross-cultural possession trance in respect to childhood trauma, Ross states:

*In our culture, the traumatized girl creates a tough secular adolescent male protector personality, while in another culture the protector would be a deity, spirit guide, or mythological figure. There is variation at the level of content, but the structure is probably universal. In many cultures, extreme forms of dissociation are normal and even prized and sought after through study, fasting, self-immolation, peyote, solitude in the wilderness, or other techniques.*

[Ross 1996:4]

The ritual possession of Vodou closely resembles the dissociative experiences of DID in affect, though again, cultural emics differentiate them radically (e.g., Bourguignon 1976; Brown 1991; Freeman 1987; Pittillo and Sizemore 1977; Schreiber 1973; Thigpen and Cleckley 1957). But it is significant that what equates them most closely is the rigid amnesia experienced. As characterizes DID, a possessed person has impaired or no memory of the actions of his or her spirit-possessed corpus upon resumption of everyday consciousness. Even more striking are the different physiological capacities (e.g., allergies or tolerance to alcohol) and complete transformations of affect that mark possession. These same traits also identify the alternating personalities of DID. Additionally, both the idiosyncratic alters of DID victims and nationally renowned spirits of Vodou have distinctive personalities and roles befitting them. They appear in syntagmatic correspondence to social and psychological stressors that demand their expertise.

Within shamanic cultures, dissociation is employed in the service of client and communal healing. It is an ethnomedical tool of the shaman, akin to the hypnosis (another adaptive form of dissociation) of the psychotherapist. In fact, the famous anthropological structuralist Claude Lévi-Strauss (1963) likened the shamanic healing process to psychoanalysis. In possession trance cultures in which spiritual leaders and initiates are taken over by spirits, the individual is absolved from responsibility for behavior exhibited while possessed. This functionalist interpretation conceptualizes dissociation as a ritualized valve for venting personal and social pressure in an acceptable context. Dissent toward authority figures otherwise considered inappropriate for an individual to express

is acceptable and even expected from a spirit. In this way, social problems can be voiced and changes implemented without individuals bearing the brunt of social disapproval (Bourguignon 1976). This interpretation admittedly ignores the discourse on malevolent shamans and *bokors* (Vodou priests that practice black sorcery) that use the same dissociative behavior to exact personal or purchased revenge (e.g., Davis 1986; Taussig 1987). Yet this model of dissociation does not posit a closed and coherent system; rather it proposes that dissociation is a biological adaptation to self-awareness and mental state attribution (i.e., consciousness) that is culturally and psychologically malleable. To clarify this position, one can also point out that sexual intercourse and eating are biological adaptations far more fundamental than dissociation, yet promiscuous intercourse can be used to selfishly or ignorantly hurt others and spread diseases. Likewise, overeating or poor nutrition can lead to poor health and social dysfunction.

Possession experiences outside of ritual context of Vodou occur but are not condoned and result in immediate initiation into the Vodou cult. Continued non-ritualized possession is viewed as aberrant, and may be seen within the culture as mental illness. Spirits appear in ceremonial context to reinforce and maintain community needs, offering criticism with impunity directed toward social problems, government officials, or individuals. DID alters perform similar functions but have no ritual component or widespread acceptance. Possession trance is believed to provide power to the powerless. As such, it is more typical of developing than developed countries (Bourguignon 1976; Sharp 1993, 1999). Possession trance practices take place throughout the Caribbean, Africa, and in the United States among immigrants from Caribbean and African cultures (e.g., Boddy 2001; Burton 1997; Colleyn 1999; Goodman 1988; Kim 2005; Krings 1999; Masquelier 1999; Murphy 1988; Olmos and Paravisini-Gebert 1997; Sharp 1993, 1999; Walker 1972; Wendl 1999).

### *Culture-Bound Syndromes*

Besides culturally condoned forms of dissociation, there are dissociation-related disorders that are particular to certain cultures. DID was believed to be specific to the West, but cross-cultural studies now indicate its occurrence worldwide (Tousignant 2002). Throughout the world, there are countless other disorders manifesting dissociative characteristics that one cannot find in the *DSM-IV-TR*'s pages per se. Rather, there is a miscellaneous category called Dissociative Disorders Not Otherwise Specified, a subcategory of dissociative trance disorder, which describes culture-bound syndromes and lists a few as examples but does not comprehensively elucidate this dissociative phenomenon. These are disorders that only appear in particular cultures and are generally unseen by most *DSM* users. This section of the *DSM-IV-TR* delimits its anthropological usefulness as a U.S.-centric document, as it states that "possession trance" or "the dissociative or trance disorder is not a normal part of a broadly accepted collective

cultural or religious practice” yet “is perhaps the most common Dissociative Disorder in Asia” (American Psychiatric Association 2000:532–533). Furthermore, it mentions relatively few actual disorders by name—”*amok* (Indonesia), *latah* (Malaysia), *pibloktoq* (Arctic), *ataque de nervios* (Latin America), and possession (India)” (American Psychiatric Association 2000:533)—and is restricted to mentioning only those disorders that grossly manifest as a state of trance or possession. It leaves out disorders that may not be characterized primarily by dissociation but are nevertheless culturally-relative pathologies that manifest dissociative characteristics.

There is a wide variety of such disorders, which ultimately have no unifying principle save this foreignness as a culture-bound syndrome (Hughes 1985a). Yet, they fit within the dissociation continuum. This reinforces the assertion that culture can mediate between adaptation and maladaptation.

A short list of culture-bound syndromes marked by dissociation (Hughes 1985b) includes Guatemalan *colera*, Peruvian *colerina*, Southern Black (U.S.) “falling-out,” Bahamian “black out,” New Guinean *guria*, Taiwanese *hsieh-ping*, Shonan (southern Africa) *kupenga kwechitsiko*, Malaysian/Indonesian *latah*, Greenlandic Eskimoan *nangiarnek* (kayak angst), New Guinean/Papuan *negi-negi*, Ceylonian *pissu*, Central Eskimoan *quajimaillitup*, Korean *shin-byung/sin-byung*, Inuit/Yuit *uqamairineq*, and Ethiopian/Egyptian/Sudanese/Iranian *zar*. These disorders cover a variety of dissociative behavior. Some, such as *pissu*, *shin-byung/sin-byung*, and *zar*, are forms of possession behavior that are not socially acceptable and ritualized. Most are described as exhibiting dissociative symptoms or dissociative- or trance-like behavior without clarifying what that entails, though presumably amnesia, depersonalization, and derealization are those primarily involved. Others, such as *hsieh-ping*, *pibloktoq*, and *quajimaillitup*, are implicated as exhibiting glossalalia, which entails a de facto trance state (Goodman 1972).

### *Social Intelligence and Dissociation*

Whereas Dissociative Disorders, shamanic and possession trances, and culture-bound syndromes exhibit dissociative behaviors that fall primarily toward the extreme end of the dissociation continuum model, those forms generally used by all of us on a daily basis exist closer to the other end (see Figure 1) and are inextricably linked to social intelligence. Social intelligence is the ability to grasp and respond appropriately to the essentials of a situation, whether the same circumstances have been encountered before or are a novel conjunction of events (Humphrey 1976). It has been credited with stimulating the exponential hominid encephalization that ultimately enabled humans to produce culture (Goody 1995:4). More specifically, self-awareness, inferentially present only in higher primates (excluding gorillas) based on mirror self-recognition, is the key adaptation that enables mental-state attribution (also known as first-order belief

attribution [Wimmer and Perner 1983], second-order intentionality [Dennett 1983], theory of mind [Premack 1988], mindreading [Whiten and Perner 1991], anticipatory interactive planning [Goody 1995], and social mapping [Brereton 2000]). Self-awareness enables one to attribute to others comparable mental states and use this imagined information as the basis for logical action (Gallup 1998). These two primary aspects of social intelligence enable humans to contend with events and formulate action in a psychosocial context that is constantly changing due to the fluidity of culture.

This fluidity is the result of omnipresent conflicts of interest. Any action is connected to a series of social ramifications that must be weighed (Humphrey 1976). There can be unfortunate social ramifications of beliefs and actions, and deceptions are sometimes necessary to achieve or maintain psychological stability or social status. Deception of others is usually frowned upon, and countermeasures have evolved to detect it (Alexander 1989; Trivers 2000). For example, we assess honesty by reading body language and looking and listening for signs of nervousness. But these are dependent on the deception being conscious. A counter-countermeasure to this deception-detection is the ability to deceive oneself, such that a person is not conscious of being deceitful. Hence, no physiological signs of deception are produced. The ability to “block out” guilt, remorse, anxiety, and other emotionally affective modes of social intelligence also reduces or prevents psychological debilitation that may result from these emotions, which can impair social functioning.

### *Self-Deceit for Inclusive Fitness*

The sociobiological perspective on dissociation is generally confined to self-deceit, often termed “denial” by Westerners (Trivers 2000). It is a common, highly adaptive, and therefore very significant form of mid-spectrum dissociation. As evolutionary biologist Robert Trivers states:

*Processes of self-deception—active misrepresentation of reality to the conscious mind—are an everyday human occurrence . . . struggling with one’s own tendencies toward self-deception is usually a life-long enterprise, and . . . at the level of societies (as well as individuals) such tendencies can help reduce major disasters (e.g., the U.S. war on Viet Nam).*

[Trivers 2000:1]

Trivers (2000) further claims that, with the high potential costs that are associated with deception (i.e., physical or social retaliation or degradation of reputation), there must be strong evolutionary forces that have favored mechanisms of self-deception. These forces, he points out, are relatively simple and straightforward. For example, natural selection favors high inclusive fitness. This is equivalent to an individual or gene’s reproductive success combined with the ability to affect the reproductive success of relatives, which devalue as the degree

of relatedness diminishes. Deception between imperfectly related individuals is favored when it gives a reproductive advantage to the deceiver.

Yet deception between individual conspecifics is relatively easy to detect, so selection for self-deception is extremely useful in gregarious species. As Trivers (2000:2) puts it, “the conscious mind is, in part, a social front, maintained to deceive others—who more readily attend to its manifestations than to those of the actor’s unconscious mind.” The human mind, he states, is a system of biased information flow that relegates true information to the unconscious and false information to the conscious. The mind continually processes information to promote a positive social image while concealing selfish ulterior motives from others by concealing them from oneself. Yet, it is not merely a binary opposition of conscious–unconscious; a deep view is that this system operates in “differing degrees of consciousness” (Trivers 2000:5). Self-deceit allies with several other strategies as well, projection foremost among them. By deceiving oneself while simultaneously casting attribution onto another, responsibility is not only denied but redirected, compounding the deception (Trivers 2000).

Psychiatrist Charles Ford (2004) supports this model. The neocortex of the pre-frontal cerebral lobes coordinates social interactions but needs substantial time to develop and mature. The prolonged period of infant-dependency necessitates familial protection. Effective protection relies on group cohesion, which is established through trust. This, he posits, precludes deceit within the group. On the other hand, deceit between groups may enhance intra-group cohesion and effectively extend a group’s social power.

*Research by DePaulo and Kashy (1998) . . . found that “normal” persons lied frequently, but more often to persons with whom they did not have a close relationship (56–77% of all social interactions!) than to persons with whom they had very close relationships such as a spouse or lover (10% of social interactions). Moreover, lies to a close acquaintance were more likely to be altruistic (e.g. to protect the other’s self-esteem) than lies to strangers, which were likely to serve self-enhancement. Subjects also reported more distress about lying to persons close to them.*

[Ford 2004:14]

Deceit and self-deceit have probably been favored for millions of years (Trivers 2000). Two animals facing off either aggressively or in courtship will have been selected for senses to detect self-esteem or confidence as an indicator of strength or reproductive fitness to avoid costly mistakes through conflict. Successful boastful posturing to avoid physical conflict or convey reproductive fitness would be enhanced by instinctual belief in the veracity of such boasting or, conversely, the forgetting of the falseness of the boast. With the development of language, such capacities have reached their highest level of evolutionary sophistication in humans (Trivers 2000; Ford 2004).

### *Self-Deception as Protection against Mental Illness*

Dissociation is, as I have indicated, not adaptive solely for navigating the social sphere, but facilitates the day-to-day well-being of individuals in a psychological one as well. We humans frequently portray things about ourselves as more positive than reality merits. We may do so to avoid embarrassment or criticism or to preserve optimism. We also often perceive ourselves as in many ways better than others. Yet considering the documented consistency of this trait, not all of us can possibly be correct. Inflated or not, self-esteem is integral to well-being, especially as relates to our ability to weather adversity, including physical disease (Ford 2004).

It has been postulated that self-deception helps protect us from mental illness (Sackheim and Gur 1979; Sackheim and Wegner 1986; Lane et al. 1990). Evidence for this is the fact that depressed persons have more realistic views of themselves than normal people (Alloy and Abramson 1979, 1982; Lewinsohn et al. 1980). It has also been found that people who undergo surgery for coronary heart disease, but maintain denial about the severity of their condition, spend less time in intensive care, have fewer signs of cardiac dysfunction during hospitalization, and adjust better psychologically for the first few months after surgery than do low-deniers (Levine et al. 1987; Folks et al. 1988). But extreme denial of a negative state of health, avoidance of treatment, and continuation of risky behavior can result in degradation of well-being and is in such cases maladaptive (Ford 2004).

### *Self-Deceit and Relativism*

Compared to studies of the extreme dissociation of shamanic and possession trance practices, much less anthropological investigation has been conducted cross-culturally on such quotidian forms as self-deceit. Yet examination of indigenous world views will elucidate its adaptive presence.

“Denial” is the culturally relative emic of the self-deceit etic in the West. In Amazonia, anthropologist Carlos David Londoño Sulkin (2005) has described the very same etic among the Muinane People<sup>7</sup>. The emic belief, according to fellow Amazonian scholar Eduardo Vivieros de Castro (1998), is that all plants and animals are human. Based on morphology, we see ourselves as human and other creatures as animals. Animals see themselves as human and other creatures, including us, as animals. Among the Muinane, this view is hierarchical, with humans as the wholly good and moral creatures and animals as bad. Therefore, when a human does something deemed bad, that person is said to have been invaded by a particular animal essence, thereby absolving the person of a certain amount of responsibility and guilt (Londoño Sulkin 2005). This pattern combines both the self-deceit–projection axis and possession phenomenon, wherein an invading essence is wholly or partially responsible for actions in the eyes of both the individual and the culture (though it does not involve a trance,

as distinguishes possession trance practices [Bourguignon 1976]). The Muinane believe that this is what is occurring; they are not utilizing the belief system as a ploy to avoid personal responsibility. Yet this is essentially the end result.

Another example is that of witchcraft among the Azande as documented by anthropologist E. E. Evans-Pritchard (1976). Reluctance to accept personal responsibility or bad luck for misfortune and attribution to witchcraft is also a functional form of self-deceit and projection. In both cases, rather than projecting blame onto another person who could deny, or worse, return the accusation, the culprit is an animal or an unknown person.

Of course such systems are not perfectly functional, homeostatic systems. Breakdowns regularly occur when a specific person becomes the object of blame and revenge is enacted. This is also true among Amazonian shamans, as when sorcery is returned with sorcery and results in a cycle of continual terror of unseen but malevolent envy (Taussig 1987).

### *Mechanism for Dissociation*

If dissociation, as I have suggested, is a species-wide adaptation and a mechanism triggered autonomically, like increased blood pressure and alertness, by stressors, then there must be a physiological basis for it. I posit that it is a biogenetic structure that exists widely in the animal kingdom for contending with an abundance of external stimuli too complex for cognitive processing. Brains simplify information by filtering to render it consistent with preexisting information and thereby maintain psychological equilibrium (Laughlin et al. 1979). With self-awareness and language, the role of dissociation expanded in higher primates and especially humans. It is now also used to filter an overabundance of internal information for use in contending with social situations in the same manner. The fundamental and adaptive nature of dissociation is best implicated by its integral role as a facility of sleep and dreaming (Schumaker 1991).

While psychologist Ernest Hilgard (1986) posited a partial mechanism for dissociation, constituting alternative neural pathways to those of normal consciousness, localization of other social intelligence mechanisms enable completion of the model. Studies have linked self-related operations, including self-awareness and mental-state attribution, to the brain's right prefrontal cortex (e.g., Breen et al. 2001; Gallup 1998; Gallup et al. 2003; Keenen et al. 1999, 2001; Kircher et al. 2000; Meador et al. 2000). I suspect that dissociation's mechanism constitutes a *bypass* of these operations.

Dissociation is the third primary aspect of social intelligence along with self-awareness and mental-state attribution, and I believe it is directly correlated to the same cognitive mechanisms as other self-related traits. Demonstrations of contra-lateral self-face recognition (quicker recognition and identification of photos of oneself with the left hand than the right) have confirmed the localization of these in the right prefrontal cortex, as have studies of the loss of self-recognition,

self-awareness, and mental-state attribution in Alzheimer's patients. Similarly, degree of self-face recognition correlates inversely to one's score on the Schizotypal Personality Questionnaire (Raine 1991), a method of measuring schizotypal traits (schizoid-type traits not sufficiently severe to merit schizophrenia diagnosis) in the GP (Gallup et al. 2003).

I believe dissociation involves mechanisms that bypass these self-related operations in a way similar to Alzheimer's and schizotypal traits, but temporarily instead of permanently. Instead of constituting a breakdown of cognitive processes, dissociation utilizes alternative neural pathways (Hilgard 1986) that become more efficient with use (Castillo 1995). These are in essence detours around those areas dedicated to self-awareness and mental state attribution. By avoiding knowing information about oneself, self-deceit occurs. By avoiding imagining the psychological states and motivations of others, one can act in one's own best interests more decisively.

■

#### IMPLICATIONS

Dissociation constitutes an adaptation spectrum. The inability to dissociate, though not currently documented, would preclude self-deceit and therefore certainly result in a relative lack of well-being. I speculate that anxiety disorders are related to a lack of dissociation. The inability to partition stress in one's consciousness may result in mental chaos and feelings of being perpetually overwhelmed, leading to a reclusive social existence or mental breakdown. This hypothesis still requires investigation and testing, but it is not dissimilar from the association between depression and a lack of self-deceit. The ability to not know that one is not as important, smart, beautiful, well-liked, and skilled as one would like to think actually prevents low self-esteem and promotes well-being. Perhaps the adage, "ignorance is bliss," is reinforced through genetic selection.

Over-dissociation can be adaptive or maladaptive. Dissociative Disorders are psychologically adaptive to trauma victims in part, generally enabling them to cope with their trauma and continue to live, unless alters or spirits harm or threaten to harm<sup>8</sup>. Yet long-term dissociation results in psychological deterioration instead of adaptation. In such cases, individuals may end up in psychiatric facilities and become the sensational cases that make fodder for bestselling novels and hit movies. This contributes to an unbalanced perception of Dissociative Disorders and what the typical sufferer is like. In culturally-structured forms like those of shamanism and possession trance, extreme dissociation is structured, finite, and functionally utilized in the service of healing, both expressly and implicitly.

The intermediate form is self-deceit or denial, which is universally adaptive and promotes well-being if used moderately. It is used to hide one's narcissistic motivations from oneself, that they may be more easily hidden from others.

A moderate degree of narcissism is necessary, but it is generally not socially acceptable to admit one's self interests, especially if they conflict with the self-interests of others. Instead, the mind goes through complex machinations to avoid self-insight. Classic among such maneuvers is denial–projection. By accusing adversaries of that which we are guilty and believing both our own innocence and our adversaries' guilt, we are competing for esteem in a social environment where good reputations are seductive and can result in reproductive success. Holding ourselves in such high esteem also contributes to a temperament of invincibility, which does contribute to a certain degree to actually being less vincible.

The inconsistencies in the epidemiological data indicate that further steps need to be taken to understand the employment of dissociation cross-culturally. If the Hungarian data (Vanderlinden et al. 1995) are accurate, it validates the hypothesis that the relativity of cultural definitions of stress and the amount of such stress present will modulate measurable frequencies of dissociation. Though the psychiatric solution to this problem is to establish psychometric standards among each population based on local psychiatric patients, this still does not account for the model of dissociation that I have proposed. The model currently in use enables one to infer cultural interaction by the presence of anomalous data. I propose that ethnographic data combined with a reliable and validated method for measuring the entire continuum of dissociation can accomplish at least as much in a more direct manner. Although the DES and DIS-Q were designed to measure a continuum of dissociation, my analysis leads me to conclude that they measure the incomplete, pathology-focused psychiatric model of dissociation. Anthropology is interested in the entire system, including adaptation and maladaptation, and so requires a more comprehensive model and means of measurement.

There are currently no DES or DIS-Q questions relating to self-deceit, health, or anxiety–depression. Since the DES is the best acknowledged method currently available for measuring dissociation cross-culturally, an expansion of it for anthropological objectives might suffice. I have devised such a tool, which I am tentatively calling the Anthro-DES and will soon pilot in a USP. It subsumes the DES-II (Carlson and Putnam 1993) almost verbatim and contains an additional forty-six questions intended to more precisely measure sub-clinical dissociation than the DES alone.

Such a tool could be used in conjunction with surveys that also measure social well-being and self-reports of current stress, with factor analyses conducted to determine correlations with adaptive types, extremes, and amounts of dissociation. Additionally, cortisol measures as surrogates of excitement and stress are easily obtained through saliva samples and can also be correlated with these surveys. Finally, the anthropologist's best means of assessing cultural behavior and population well-being is through close, participant-observational study of specific populations that make use of dissociation behavior ceremonially. Comparison of

measures of such populations with those that do not make regular, ritual use can be used to assess the degree to which dissociation affects general well-being. Furthermore, these methods can be employed cross-culturally to assess general human capacities to adapt to the different types and intensities of stress experienced, used to gauge the mental adjustment of populations to major stressful events (e.g., war, natural disasters), and provide substantiation for commensurate resource allotment in the service of mental health during and in the wake of such crises. Tools to determine when mental stress is excessive before exhaustion and consequential psychological breakdowns can begin to occur would be more efficient than merely measuring those already present and would constitute very practical applications of anthropological knowledge regarding dissociation.



#### CONCLUSION

There are many culturally-mediated forms of dissociation that I have not discussed here, which most of us take for granted. Meditation and hypnosis are two more obvious examples. Yet dissociation is also the intense focusing one experiences when engaged in creative expression, such as the visual or performing arts, crafts, or writing, among many others. Similarly, athletes dissociate by focusing on their respective activities at hand. We may refer to it as “tuning out” distractions or being “caught up in the moment,” but the affect is the same. We are filtering out irrelevant or distracting stimuli to focus on matters at hand. Interesting stories abound of people who experience new ideas as epiphanies that occur when doing something unrelated to the idea, such as driving or sleeping (Jaynes 1976). Not coincidentally, dreaming is the ultimate form of dissociation. It may be that when concentrating consciously on a problem or issue, we dissociate relevant material inadvertently, and it is only when we allow the cognitive partitions of our minds to reorient themselves, or alternative neural pathways to be taken, that the desired solution or idea is able to be found and made conscious.

Current models of dissociation fall short of the commonly held conceptualization of a dissociation continuum. The psychiatric–epidemiological model currently favored is that constructed by the American Psychiatric Association. This model acknowledges that dissociation is a normal condition but is necessarily focused on diagnosis and treatment of pathology. It has been used to measure dissociation in the general population, but these studies suffer from limitations of the model. They do not account for the complete range of normal dissociation, nor do they account for what may be suffered by those who lack the capacity to dissociate properly. Similarly, it is constrained by cultural relativity and becomes a questionable way to account for dissociation in a non-Western population without sufficient ethnographic knowledge of local pathologies or stressors. Despite the contention that 3 percent of a general population suffers some form of *DSM-IV-TR*-defined Dissociative Disorder, there is neither verified

proof of this measure of general malingering pathology nor accounting for the other 97 percent, which, by inference, makes fair to good, or perhaps no use of dissociation as a psychosocial adaptation. The anthropological model currently used is similarly, if not more, incomplete. No attempts have been made to measure general dissociation by anthropologists, who have tended to focus on the rituals and social parameters within which dissociation is used. Functional explanations for the religious use of dissociation have been posited, but little attempt has been made to correlate this manipulation of a biological capacity to a more fundamental substrate.

Through examination of the work in this field by psychiatrists, anthropologists, and evolutionary biologists, a clearer picture of dissociation is possible. It appears to be a basic aspect of consciousness. When external stimuli or internal memories are too stressful, mechanisms are triggered that serve to filter this information and render it cognitively palatable. Dissociation operates in tandem with self-awareness and mental state attribution to enable humans (and perhaps other species) to function psychologically in a Machiavellian social environment. A comprehensive model of dissociation must look at when and why dissociation fails to filter enough information, when and why some trauma triggers activation sufficiently intense or of a duration as to be problematic, and everything in between. The take-home message here is that, like most things good, it would seem dissociation operates best if used in moderation.

#### ENDNOTES

1. The continuum of dissociation is very indiscrete. This representation is purely to provide visual reinforcement to the idea of a continuum but is grossly oversimplified. There are many problems with such a model: all forms of dissociative behavior vary in intensity and frequency from person to person and therefore vary in their position on this continuum; there is much overlap among dissociative behaviors which is not represented here; and the order here is subjectively determined. I have little to no expertise with any of these behaviors personally and have positioned them based on impressions from the literature cited.

*Alzheimer's disease* and *schizophrenia* involve an organic disintegration of self-awareness (Gallup et al. 2003) that may involve the same or related mechanisms in the right prefrontal cortex as dissociation. These are, however, irrevocable changes in neural pathways, as opposed to all other forms of dissociation. *Allisonian MPD* involves such severe trauma and marked dissociation that the victim cannot function. Allison (1996, 2005) does not recognize the *DSM-IV-TR* (American Psychiatric Association 2000) definition of DID. He recognizes truly multiple personalities, rather than mere dissociated identities, but only in circumstances of severe developmental trauma before the age of seven. The trauma was such that the victim had a real, immediate, and terrifying fear of being killed in the course of physical and/or sexual abuse. *DID* can be as severe as *Allisonian MPD* but can also be diagnosed in functional people who suffered trauma though not necessarily abuse. *Amok*, *Pissu*, *Zar*, falling-out/black out, *Hsieh-ping*, *Uqamairineq*, *Latah*, and *Nangiarpok* (kayak anxiety) are just a few examples of culture-bound syndromes involving dissociation

(Hughes 1985b). *Soul journeys* is a generic term for shamanic trances, which vary cross-culturally and in intensity. *Glossalalia* is the “speaking in tongues” of Pentecostalism (e.g., Goodman 1972, 1988). *Hypnosis*, *shock/post-traumatic stress disorder*, *self-deceit*, and *meditation* vary in their forms and intensity. *Phosphene Eye-Pressing* is the technique utilized in the Central Highlands of Irian Jaya (now Papua), Indonesia to achieve a meditative state during shamanic activities (Hampton 2005, personal communication). *Creative expression* is another generic term to describe meditative, trance, or absorption experiences encountered through dance, music, painting, and other creative or artistic pursuits. *Selective attention* and *retention* is unconsciously filtering information so only acceptable information consciously received and recalled. *Absorption* is focused attention, as when engrossed with television, music, a book, driving, etc. to the exclusion of other stimuli. *Daydreaming* is essentially the opposite of absorption; it is attention focused inward instead of outward based not on interest in one external stimulus but disinterest or excess of external stimuli. *Anxiety* and *depression* are an inability to partition internal information or detrimentally thorough and accurate self-awareness.

2. Sample was of “normal adults,” not a true GP.
3. Sample consisted of USP and nurses.
4. Used research version of the DES (RDES) (Ray et al. 1992).
5. Sample consisted of university undergraduates only.
6. Ray and Faith (1995) altered DES to 10-point Likert scale, so its rates are not comparable for this analysis.
7. Londoño Sulkin (personal communication 2005) does not “buy” this sociobiological explanation for the Muinane ethos. I believe, as he does not, that perspectivism and all forms of dissociation are culturally relative yet fulfill the same fundamental biological imperative.
8. Psychiatrist and MPD/DID expert Ralph Allison (2005, personal communication) contends that in true multiple personality cases, it is impossible for the person to be harmed or do serious harm because of the intercession of a fundamental alternate personality he calls the Inner Self Helper. The current *DSM-IV* definition of DID, he asserts, allows for the relatively easy generation of factitious and iatrogenic DID, obscuring true MPD. It has muddied the waters of a phenomenon that is more unique than current prevalence rates indicate. MPD does exist and is different than DID, says Allison (1996, 2005), but U.S. culture, as institutionalized by the *DSM-IV*, does not accept the concept of personality as something that can be multiple within a person. What is implied by the *DSM-IV* definition is unconscious identity confusion.

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