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The Couple's Therapist as Coaching Double in a Model Encounter

RICHARD H. LEE

ABSTRACT: The author describes a model interview in which the participants perform the steps of a successful encounter aloud. A soliloquy about some internal awareness in one member of the couple develops a warm-up to intentional communication. His or her interpersonal repertoire is reviewed and selected in service of this intention. He or she delivers an experimental communication face-to-face. The other member of the couple then goes through the same sequence. The therapist acts throughout as a coaching double.

Key words: coaching double in couple's therapy, couple's therapist, model encounter in couple's therapy

POSITIVE INTERPERSONAL INFLUENCE MAY BE INFERRED from noting a move that one person makes that is followed by some behavior that is desired from another person, some strengthening of the relationship between the two people (enhanced affinity), and, at a later time, an expanded range or repertoire displayed by both people (enhanced spontaneity). Two classes or forms of behavior appear to exert such positive interpersonal influence. We call these two classes or forms "celebration" and "invitation."

Two Forms of Interpersonal Influence

Celebration occurs when one person notices and comments on something that someone else is doing because he or she wants to see more of that behavior. For example, I could say, "I appreciated it when Julia asked a question because she helped me to clarify what I was trying to talk about. I hope that her asking the first question will encourage others in the group to express

curiosity.” Celebration usually, but not always, results in encouraging others to do more of what is celebrated. It also encourages them to try out other actions, because the first spontaneous offering was well received, acknowledged, and appreciated. Some relationship is established or expanded between people by this process, as one person experiences the other’s influence as positive and becomes open to further encouragement. The general form of celebration is, “When you do X, I feel Y.” Examples include the following:

When you volunteer, I feel joined.

When you hugged me this morning when we met, I felt affirmed.

When a speaker makes a statement about an action by another person and the positive feeling experienced by the speaker, that is termed a *celebration*.

The second form of positive interpersonal influence is the *invitation*. In this form, one person is about to engage in an activity that can be enhanced by the participation of another person. For example, if one person says, “I’d like to go outside and buy some ice cream. And it will be more fun for me if you do it with me,” that person has named an activity that he or she wants to do and a role for the other person to play. The first person hopes that the role is valuable to the second and indicates that it is valuable to him or her. An invitation always begins with an activity that a person wants to do and includes a role the person wants another to play.

An invitation is different from mind-reading, from thinking first what another person probably wants to do and then pretending that one, too, wants to go for a walk. Most people at one time or another have probably tried to issue an invitation of that type. The invitation usually fails because the other person thinks that the inviter wants to do the activity, and then both discover that in fact, neither does.

The invitation begins this way: “I’m wanting to do something, and it would be better for me, enhanced in some fashion and more rewarding, if you play a certain, valued role in the activity.” An abbreviated form is, “Let’s go to the movies.” That is fine if the speaker really wants to go to the movies and imagines that he or she will enjoy it more if the other person comes along. Invitations frequently exert substantial positive influence even when they are declined because it feels good to be invited to do something even if one is unable or unready to accept. An invitation such as, “Will you come to my party?” enhances a relationship even if another commitment precludes acceptance.

Sociometry

An activity that one person wants to do and a valued role in that activity for another person is the basis of sociometry (Moreno, 1951). The activity is called the *criterion*, and the invitation indicates the preference of each person

in the form, "With whom do I want to . . . (criterion)?" It is desirable to organize group activities in this way, with attention devoted to expanding the variety of tasks so that each person is chosen by others to participate in valued roles. Moreno (1953) described this function of leadership as increasing group productivity and enhancing the self-esteem of all group members. The strength of a group may be seen in its ability to include its *isolates*, those members who have hitherto been rejected or marginalized. The "inclusion of the least" is what extends his philosophy beyond office practice to a "truly therapeutic procedure [that] cannot have less an objective than the whole of mankind" (Moreno, 1953, p. 3). Other strategies for interpersonal influence that are positive exist and are variations on these two. These two are positive in the sense that they encourage more of what is sought, enhance a sense of connectedness and relationship, and stimulate the display of more repertoire that is appropriate to the situation (spontaneity).

Competent Couples

After observing couples who are moderately competent in low-stress situations and seeing highly competent couples in high-stress situations, I noted a series of steps in their developing celebrations and invitations. Many of the steps are ordinarily done silently, but in a therapeutic situation, I encourage people to do them aloud in the form of a soliloquy.

Soliloquy

To begin, one looks inside oneself, beginning with a meditation about, "What am I aware of? What do I feel? What's going on inside of me?" That activity calls on each member of the couple to experience a slightly altered state of consciousness (Rossi, 1986). Almost every successful encounter is preceded by some, usually silent, meditative inward look—"What's going on inside of me? What do I notice? What am I aware of?" Frequently, there is also an association to earlier experiences. "I'm feeling warm and safe, just like when I've been with friends in a comfortable situation." Next comes the "warm up," that strange—for some people tingling, for some people anxious, somewhat uncomfortable—sense of a growing edge; noticing one is almost ready to do something—to speak or to act. After one notices what he or she is almost ready to do, the person thinks about the desired effect. With couples, each is hoping to have some positive effect on the other or on the relationship. Then each does some kind of internal wondering about how each plans to recognize that he or she is having the desired effect. "Am I looking for a smile? Or, am I looking for a nod? Am I looking for a certain kind of playback of what I'm saying from the other person? I will infer that I'm having the effect

that I seek by noticing certain signs. What are those signs?" Then each wonders, "What's the repertoire that I have available? What do I know how to do that might be constructive? Do I make eye contact? Do I hold the other person's hand and I talk quietly? I notice that I know how to do some things that might be used in service of the effect I hope to have." Soon, one or both people notice that they are ready to try the action; they are ready to celebrate or invite. Ordinarily, all this deliberating is undertaken silently.

Therapists may have different observations about the steps that particularly competent couples undertake in stressful situations or that most couples undertake in everyday situations that are not particularly stressful. They may also observe that when the stress level rises beyond the competence level of a couple, individuals tend to skip particular steps. Different individuals skip different steps. Some people notice the warm up and they notice how they can express it, but they skip what effect it is going to have on the other person. They might say to themselves, "The way to relieve this horrible tension inside of me is to throw something at you." And so they throw something. There are people who are skillful at thinking about the effects they want to have, but who seldom notice their own warm up. Only if encouraged to slow down and notice, "What am I getting ready to do?" will they do that. There are some people who are almost allergic to a kind of meditative stance. It might be that they fear they will be flooded and disabled by their own inner voices if they tune in at all. Other people forget about the repertoire they have. They think, "This is how I'm feeling and this is the effect I want to have, but I don't remind myself that I know how to make eye contact, or to break it, or that I know how to make physical contact." So it is helpful, when working with couples in increasingly stressful situations, for the therapist to coach them to enact each step and to notice, while the couple does this, which steps each individual needs encouragement to explore more fully. Frequently, people know how to meditate sitting alone in a room quietly, but as soon as they are in the presence of another person, as soon as there is the possibility of being observed, or of making eye contact, or feeling as if there is something that is supposed to happen, they forget how to tune in to their own inner lives. Useful couples therapy can be accomplished in a face-to-face encounter by slowing people down so that they fully enact each of the steps.

The Encounter

Following the soliloquy, the encounter occurs, which is the part usually done aloud, in which one person speaks directly to the other, usually offering celebration or invitation. The introduction of these ideas in a couple's therapy is often appropriate after a few preliminary meetings have occurred. In a first meeting, it is desirable to propose some ground rules and to conduct an interview, with or without role playing, in which the strengths and resources of

each individual and his or her wishes and fears are explored (Lee, 1986; Chasin & Roth, 1990).

Ground rules

Generally, couples are pleased to have the therapist talk in the first few minutes of the first meeting about how he or she likes to do things. In many instances, the couple does not know what is an appropriate set of expectations in this novel situation. Therefore, after the therapist finds out what names people want to be called in this setting, including new or fanciful ones, and a personal introduction, it is useful to suggest some general bounds or ground rules.

Pass Until Fully Ready to Answer

The first rule concerns participation. The therapist and the couple can ask any question or propose any activity, but the individual decides for herself or himself whether to participate. Each ponders the question: "Am I fully ready to do what has been proposed, fully ready to answer what has been asked?" If the person concludes negatively, he or she responds, "I'll just pass; I'm not ready to do that right now. Maybe later." The person can indicate a response with a nod of the head or a wave of the hand. It is useful to include a nod or a wave as an acceptable indication of passing, particularly when working with adolescents, because a person's silence can be understood as cooperation and as that person's willingness not to act before he or she is ready. The belief is that people are most fruitful in what they are most ready to do; it is better to delay action until a full warm up is achieved. In general, it is more productive to hold people back rather than to push them ahead. A therapist can get most people to act ahead of their readiness, but they do not learn much from it. They do what the therapist asks as if in response to a dare, going through the motions. If, however, the therapist holds somebody back until he or she is fully warmed up, then the action that is taken is an expression of a full sense of readiness. It is useful to explain that the rule works most effectively only after everybody has passed on a question at least once. When the first person passes, it is wise for the therapist to thank him or her. James M. Sacks, director of the Psychodrama Center of New York City, proposed this ground rule in his training program in the 1970s. He devoted a great deal of attention to siding with resistance, holding people back until a full sense of readiness was developed.

Recording

Another helpful ground rule concerns video or audio recording (Hollander & Moore, 1972; Berger, 1978; Lee, 1981). It is desirable to suggest that the most

conservative wish prevails. Therefore, if anyone in the room does not want a recording to be made, it will not be made. If anybody wants it turned off at a certain point, it will be. If one wants some part erased, it will be. After the tape is made, the same rules apply so that if anybody does not want it used, it will be erased. All need to agree before it can be shown to an absent family member or to a consultant. Whatever use is proposed, unanimity needs to prevail. It is unwise, before everyone knows what is on the tape, to seek permission for it to be shown to unseen audiences or to other people. This is likely to result either in the withholding of permission or in excessive caution and inhibition in the session.

Confidentiality

Confidentiality is a very serious matter in families and should always be addressed at the beginning. A group can make any decision it wants about confidentiality, but it is the therapist's responsibility to address the question rather than to assume that everybody makes the same assumptions. In general, people may be encouraged to share their own experiences with anybody they choose—with a partner, a friend, or a stranger on a bus. The therapist needs to ask the participants to agree that they not talk about what anybody else said or did or what anybody else experienced. Even withholding names is not enough in some settings because if people know anything about each other, they can deduce from a description what has been going on.

Other Bounds

Other possible bounds include obtaining an agreement that no physical violence be acted out against participants. It is safer to encourage the exploration of violent feelings in a setting where the group agrees to help direct those feelings toward inanimate targets. At the beginning, it is prudent to obtain an agreement that later ground rules might be proposed by any group member and negotiated with the group.

The Double

It is necessary to establish in some way the convention of the "double" (Moreno & Moreno, 1975). The double begins by assuming the posture, the position, the point of view of another person—sitting beside or slightly behind that person and trying to see the world through her/his eyes. When the double speaks, it is in the first person, imagining what the protagonist, the person in front, may be thinking. That is a hypothesis offered for two purposes: one, to correct or expand the double's understanding and two, to encourage the protagonist

to be more expressive and exploratory (Selvini Palazzo, Bascule, Cochin, & Prate, 1980; Tomm, 1984). After the double speaks, the protagonist restates the theme in his or her own words, correcting and expanding as appropriate. The protagonist always has the definitive last word in response to a double's hypotheses. A double is successful when the protagonist says more than the double says. When the double says twenty words and the protagonist says three, or one, such as "yup," or "right on," then the double knows that he or she is doing all right. However, if the double is not helping the protagonist to produce more that will then correct or enhance the double's understanding, then the double is not meeting the other objective, which is to encourage the protagonist to be more expressive and more exploratory. Here, a metaphor from sailing may be helpful: if the double says twenty words and the protagonist says one, the double is "in irons." That is, the double is headed into the wind and has no power. A solution in sailing is to tilt the rudder so that the wind is at an angle to the boat, providing the most power. The tilt for the double is to understate or overstate something, or say something absurd to get a correction from the protagonist, and then begin to get some forward momentum.

It is also important to establish that the double can be dismissed as a double. The double might step out of role, become himself or herself again, and might say to the couple, "If I'm not being helpful or am being annoying or distracting, I'd like you either to tell me to stop and be normal or you could say, 'I'm having double trouble,' or you could in some fashion indicate to me that this is not working."

Subsequent Meetings

At the end of the initial meeting, ideally of 90 to 120 min duration, the therapist proposes that the couple go home and discuss the meeting and agree about whether the setting is promising enough to schedule three more meetings. The first two meetings are with each individual alone for 1 hr, to map the areas that one individual may find somewhat more difficult to discuss in the presence of the other. The areas may include secrets, but more usually, they include subjects about which one feels the need to choose one's words carefully, lest the statement provoke an unwanted reaction. The individual sessions give the therapist a map of ways each member of the couple is inhibited in the presence of the other, and the therapist realizes what it is like to meet each person in the absence of those constraints. The two individual meetings give the therapist more authority when making the recommendations presented in the subsequent 90- to 120-min meeting with the couple. If it appears to the therapist that it might be useful to experiment with the soliloquy/coaching double format, he or she introduces that idea in the second joint meeting, usually the fourth meeting of the series.

The Model Encounter

As the opening instruction for the exercise, the therapist directs the couple to sit quietly, face to face, and to remain silent until each person has noticed something that is going on inside that she or he might be aware of, perhaps a feeling or imagining. The therapist speaks to the couple, saying, "As soon as one of you speaks, I'll sit beside you, and I will try to describe aloud from time to time what you might be feeling or thinking. Then I would like you to say it again in your own words if what I have said is right or to change it if it is wrong." That is their introduction to the doubling strategy of psychodrama.

The Coaching Double

Doubling is an improvisational theater form, adapted for psychological use by J. L. Moreno and Z. T. Moreno (1975). What is different here from traditional doubling is that the therapist is leading and restraining rather than following. When someone is skipping steps in the soliloquy, the therapist as double might say, "Before I speak to my partner, I might want to talk to myself." After establishing those ground rules and conventions, the therapist might begin by saying, "I'd like to begin by asking each of you to sit quietly and comfortably for a few minutes and to notice something interesting, of which you are becoming increasingly aware. When one of you is ready to wonder aloud about this perception, just begin to speak and I'll move to you as double." Then guide the couple through the steps of the soliloquy described earlier. The invitation from the therapist is essentially an Ericksonian instruction (Haley, 1967). It is permissive, and it makes certain assumptions presented as presuppositions. It is an open instruction to the couple to sit quietly and notice what is going on inside and to notice that process is not static and that people's awareness is a constantly growing process, both in intensity and in range. As soon as the soliloquist has reached the end of the soliloquy and is ready to speak to the other, she or he addresses the other directly, and the therapist will get up and sit beside the person on the receiving end of the transaction. Thus the therapist, moving to double the other member of the couple, experiences the transaction coming at him or her in the role of the other person in the encounter. Then, the therapist as double takes the second person through the same steps. The therapist as double might say, "Before I respond, I might talk to myself about what I'm aware of, what I notice, what I'm reminded of, what I'm warming up to do, what it feels like to warm up." The therapist is continuously reversing roles, flipping back and forth between sitting next to one and then next to the other. As soon as the one whom the director is sitting beside talks directly to the other and the therapist thinks that he or she has addressed each step in the soliloquy, the therapist moves to sit next to the person who is listening.

Indications for Use of the Coaching Double

This format is most appropriate when the interviewer has noticed some subjects about which the members of a couple seem to be having difficulty discussing with each other. The initial "coaching double" sessions will be successful if they are not too exciting, if they focus on matters that are not too difficult and challenging, so the couple has a chance to test the form and see whether it feels comfortable. Then it is likely that the couple will move to subjects that are more explosive, more difficult, or more challenging after the couple has settled into the form. It is useful to think of this form as the scaffolding to hold up construction that is incomplete or as a cast on a broken leg, which a person does not wear throughout his or her life. Couples come to therapy because they recognize that some aspect of their relationship has a broken leg or its equivalent. The therapist is initially constraining something so that it heals into a shape that will be more functional. Young children who throw tantrums need to be hugged and assured that they will not be allowed to hurt themselves or will not be allowed to hurt adults who hold them. Thus they can become relaxed and calm within a few seconds. Some couples behave in an analogous fashion. They also need similar assurances. The coaching double offers a form of hugging. The double's constraint is slowly and progressively loosened as the couple functions better.

Contraindications for the Double

Most couples respond positively to the doubles method. A small number of people, however, seem to have a kind of allergy to doubling or, perhaps, to a particular double. Some members of a small number of couples find it too explosive, even in a highly structured situation, resist encouragement to look inside themselves. Some additional face-to-face meetings with each member alone, or some other conjoint format, may be necessary in such instances (see, for examples, Umbarger, 1983; Paul & Paul, 1975; Papp, 1976; Duhl, Duhl, & Kantor, 1973). After leading a couple through the steps described earlier, the therapist must always provide an adequate opportunity for sharing (10 to 15 min is usually adequate). That can be done while rewinding the videotape. The interviewer might say, "I wonder if each of you might be willing to say a few words about what you're experiencing right now, as today's meeting approaches its end?"

Video Playback

If nothing positive occurs during the taping, it is wise to erase the tape. If, however, the interviewer believes that something positive has occurred, it is

generally advisable to play the tape back in the session or send it home with the couple. A videotape is a very intriguing amplifier of successful repertoire. Without videotape, each person has only half the important data. Each knows what he or she felt and intended and how the other looked and sounded, but not how she or he looked and sounded or what the other person felt or intended. If the two discuss what has gone on between them, the data that each brings have no overlap at all. Some couples imagine that they should agree about what went on in a discussion that they had at home. They might be experiencing some level of convergence in their descriptions and might have a similar inner experience, but the data they are trying to compare cannot be expected to agree.

For example, if something good happens, if I say something and I get a good response from you, then I know how I felt and know what I intended. I, however, have no clear idea what I did. Similarly, you know what you felt when I did it, but you do not know what behavior I saw. Having an opportunity to play back the tape of a successful interaction gives the people involved the other half of the data they did not have. That anchors behavior that has been effective in their memories. They can each say, "I've seen myself do something positive and influential in the relationship, and I know how I looked and sounded." I do not know of any more successful or powerful amplifier.

Videotaping has a nasty dark side, however. If people see an interaction in which the outcome is bad or they feel embarrassed, they are likely to hate videotaping and refuse to have it used again. More important, the videotaping experience can result in participants' developing striking inhibitions and dramatically lessened spontaneity and may block access to range of repertoire in the near future. Sometimes people become robotic for at least a brief period after they see a videotape of themselves behaving in a way that has a bad outcome. Nevertheless, the viewing does not extinguish the undesired behavior. The participants generally withdraw from each other in some way, not because they hate the other, but because they do not trust themselves to be able to be constructive. Therefore, it is more desirable that the therapist shows only the positive moments, particularly when something good has happened and people do not understand it. After a couple has practiced these steps in the office, the therapist may recommend that they do some of the procedures at home, perhaps with a tape recorder running. If they get stuck, they might bring in the tape and ask the therapist to offer some consultation on the point at which they got stuck. The therapist can then coach them to do it better and to shape an interaction that they like better. Some couples have found this format so productive that they have chosen to use it throughout the subsequent meetings. Sometimes, after a few minutes of greetings and "checking in," they sit in the appropriate chairs and show that they are ready. The therapist may then begin by saying, "You might want to be quiet for a moment, and take

some time to notice what may be going on inside." The therapist never dictates what the subject is going to be—what it is they want to say to each other. That develops from the soliloquy or meditation and the warm-up.

Modifications of this general form have evolved in work with each of the couples who have chosen to use it beyond its first presentation to them. I urge readers of this article who have used such customizing refinements to share their techniques with me.

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ERRATA

Changes to Selected Material in the Spring 2005 Issue

In the second paragraph of the book review on page 43 of the Spring 2005 issue, the reviewer prefers to characterize Philip Carter as a skillful interviewer.

Readers may purchase a copy of the Clayton and Carter book, *The Living Spirit of the Psychodrama Method*, through secure online payment from <http://www.resourcebooks.co.nz>.

On page 40, at the end of the second paragraph of the brief report, the section should read as follows:

The director gives each participant a copy of the taped positive music with a reminder that he or she can play the magical music anytime he or she wishes to hear it. The music becomes a private resource for each individual. The therapist gives each participant a tape of his or her recorded music as a reminder of the place to which the therapist hopes the person has no wish to return.

The Spontaneity Assessment Inventory: The Relationship Between Spontaneity and Nonspontaneity

DAVID A. KIPPER
JASDEEP HUNDAL

ABSTRACT. The authors explored the theory that spontaneity and nonspontaneity represent two separate continua rather than opposite states of mind by means of a newly designed Spontaneity Assessment Inventory (SAI) and Spontaneity Deficit Inventory (SDI). The authors administered the SAI, the SDI, the Friedman Well-Being Scale (FWBS), and the Marlowe-Crowne Social Desirability Scale (MCSDS) to a group of 103 male and female students. The results confirmed the overall notion that spontaneity and nonspontaneity cannot coexist at the same time. However, they can exist within the same person. The two-continua hypothesis was supported. The SAI and SDI showed a satisfactory split-half reliability, correlated in the expected direction with the FWBS scores, and correlated positively with the MCSDS. The authors also discuss the possible implications of the findings.

Key words: assessment of spontaneity, deficit of spontaneity, living in the moment

SPONTANEITY IS A KEY CONCEPT in the theory of classical psychodrama, representing a general philosophical outlook as well as a specific therapeutic agent (Del Nuovo, Spielber, & Gillis, 1978; Hollander, 1981; Horwitz, 1945; Moreno, 1923; Wyatt, 1988). As a philosophy, the idea of the spontaneous person reflected a way of living and a general outlook on life that valued taking advantage of living "in the moment." As a therapeutic agent, spontaneity was said to be a specific curative factor believed to increase openness, reduce inhibitions, and enhance one's psychological well-being (Moreno, 1946). This duality contributed to the considerable degree of confusion regarding the meaning of spontaneity and the way(s) it expressed itself (e.g., Kipper, 1967, 1986,

2000). Moreno (1923, 1941) initially proposed that theatrical role enactment was the most expeditious way for triggering spontaneity. In the ensuing years, this belief was misinterpreted by many to mean that spontaneity became evident only when a person was in action. Later, Moreno (1946, p. 112) clarified this issue and pointed out that "Spontaneity can be present in a person when he is thinking just as well as when he is feeling, when he is at rest just as well as when in action." The realization that spontaneity may also operate covertly did not make the task of understanding the ways it manifests itself any easier.

Defining spontaneity was a challenge in the early days of psychodrama as it is now. Part of the difficulty was that spontaneity was described as energy that could not be conserved and could not be observed by the naked eye (Kipper, 1967; Moreno, 1953). The notion that spontaneity is a mental disposition was clearly articulated in Moreno's writings. For example, citing Moreno, Fox (1987, p. 42) stated that "Spontaneity is a readiness of the subject to respond as required." Moreno wrote, "Spontaneity propels a variable degree of satisfactory response which an individual manifests in a situation of variable degree of novelty." (p. 42). In the light of such a characterization, it became quite clear, that to be seen, spontaneity required a tangible carrier. In other words, the presence of spontaneity had to be inferred from certain manifestations of one's behavior, expression of feelings, and verbal utterances. It was not surprising, therefore, that subsequent attempts to define spontaneity shifted from focusing on its quality as a state of readiness (energy) to describing the characteristics of the way it is reflected in behavior that subsumed the presence of an underlying spontaneity (a response). This explains the commonly accepted definition of spontaneity as "an appropriate response to a situation or a new response to an old situation." Whether such a definition captures the essence of spontaneity may be debatable, but it makes the task of devising a measure for spontaneity one step easier.

For a long time, the absence of a scientifically reliable measure of spontaneity made it impossible to investigate empirically the various theoretical hypotheses about its effects on well-being. It has been a glaring impediment to the prospect of demonstrating the validity of the theoretical underpinnings of psychodrama. It was not until recently that there has been a serious attempt to provide a statistically reliable and valid inventory that purports to measure spontaneity (Collins, Kumar, Treadwell, & Leach, 1997; Kellar, Treadwell, Kumar, & Leach, 2002).

Collins, et al. (1997) reported the first study of constructing a measure of spontaneity. They devised a 58-item inventory entitled the Personal Attitude Scale (PAS). The method of creating the items for this measure was as follows: The authors surveyed the published literature on spontaneity and collected the various characteristics and descriptions ascribed to them. They then phrased the descriptions into brief statements constituting the items on the inventory. The responses to the items were arranged on a 5-point Likert-type scale, ranging

from 1 = *strongly disagree* to 5 = *strongly agree*. Initially, the PAS contained a 70-item inventory that was administered to 168 introductory psychology students, half of them men and half women. The result of an item analysis reduced the number of items to 58. The authors reported a good reliability—a Cronbach's alpha of .86 for the PAS. Exploring the concurrent validity of the inventory, the researchers concluded from the results of the study that there was a statistically significant negative correlation with a measure of depression (for women only) and significant correlation coefficients, in the expected direction, with a self-monitoring scale and sensation seeking scale.

In a second study, Kellar et al. (2002) revised the original PAS, now titled the Personal Attitude Scale-II (PAS-II), by deleting weak items and replacing, adding, and modifying others. They arranged the responses to the new scale, now comprising 88 items, on a 5-point Likert-type scale ranging from 1 = *strongly disagree* to 5 = *strongly agree*, similar to the format designed for the original PAS. They subjected the responses of 544 students to the inventory to an item analysis, leaving the inventory with 66 items. Internal consistency reliability for the new inventory yielded a Cronbach's alpha of .92 and a 4-weeks test/retest reliability of .86. They measured external validity by correlating the PAS-II with a number of inventories, for example, the Beck Depression Inventory-II, the Marlowe-Crowne Social Desirability Scale (MCSD), the Creative Styles Questionnaire-R, and Eysenck's Personality Inventory. For the most part, the obtained correlation coefficients showed statistically significant results in the expected direction. In this study, gender differences accounted for only 2% of the variance and were deemed unimportant.

At the same period that the study of the PAS-II was conducted, our own study concerning a different measure of spontaneity was in progress. For that study, we conducted an investigation with an original inventory, titled Spontaneity Assessment Inventory (SAI), and reported the outcome. The purpose of our study was two-fold: first, to offer a reliable measure of spontaneity and second, to investigate the relationship between one's ability to display spontaneity and one's being in a nonspontaneous state. The second purpose concerns a theoretical issue that we explain in greater detail later. To facilitate such an investigation, we constructed an additional inventory, namely, the Spontaneity Deficit Inventory (SDI). The methods for the SAI and the SDI were different from the one used in constructing the PAS-II.

Method

Participants

The participants were 106 psychology students from Roosevelt University and other schools in the Chicago area. These include 5 high school seniors, 55 college students, and 46 graduate students. Their ages ranged from 18 to 60

years. All participants consented to participate in the study and understood that the participation was voluntarily and that they were free to withdraw from the study at any time without penalty.

The Instruments

The study employed the following four psychological measures: an original inventory for the assessment of spontaneity (SAI), an original inventory for the assessment of spontaneity deficit (SDI), Marlowe-Crowne Social Desirability Scale (MCSD; Marlowe & Crowne, 1960), and the Friedman Well-Being Scale (FWBS; Friedman, 1994).

The SAI and the SDI. The SAI was designed as a measure of spontaneity, and the SDI was designed as a measure for assessing the lack of spontaneity.

The rationale for the inventories. The rationale for developing separate measures for spontaneity and the lack of it grew out of confusion about the meaning of being nonspontaneous. For instance, the psychodrama literature treats the lack of spontaneity as undesirable and desirable states: It is undesirable because it is the opposite of spontaneity and desirable because many routine, nonspontaneous behaviors are vital for daily survival. They serve an indispensable role in maintaining consistency and stability in life. Furthermore, Moreno (1946) introduced the concept of pathological spontaneity to explain the development of psychological disorders. This leaves open the question whether pathological spontaneity is the opposite of spontaneity or an extreme case of nonspontaneity. He also said that the opposite of spontaneity is anxiety. In other words, it is not entirely clear whether spontaneity and the lack of it represent two ends of the same continuum, with one end representing a positive psychological state and the other end representing a negative one. Spontaneity and nonspontaneity alternatively could constitute independent psychological states representing separate continua. We determined that developing one measure for assessing spontaneity and one for the lack of it and treating them as separate inventories would offer an opportunity to shed further light on the issue.

Constructing the SAI and SDI. The process of constructing the inventories was as follows: We contacted 20 senior psychodramatists from the United States and Europe. They all were known for their professional expertise in psychodrama in their own countries and internationally and had a minimum of 25 years of experience. We asked them to write five adjectives (or two-three-word characteristics) that describe "the feeling of being in a spontaneous state" and five adjectives that describe "the feeling of being in a nonspontaneous state." We

incorporated their descriptions into one list that, after deleting redundancies and long descriptions, consisted of 125 adjectives or items. At that point, there were 79 items in the spontaneous category and 46 in the nonspontaneous one.

For the next step, we made two sets of identical forms of the inventory. Each contained the list of 125 items, with the spontaneous and nonspontaneous items mixed randomly. In one of the two forms, we asked participants to write a sentence describing an activity or a situation when they felt spontaneous. Then they were to rate each of the 125 items to the extent that it reflected their feelings in that situation. In the second form, we asked the participants to write a sentence describing an activity or a situation in which they did not feel spontaneous. Then they were to rate each of the 125 items to the extent that it reflected their feelings in that situation. The instructions for responding to both forms were identical, except that one form pertained to a situation when the respondent felt spontaneous and the other for when the respondent felt not spontaneous.

The responses to the items were arranged on a 4-point Likert-type scale ranging from 1 = *not at all* to 4 = *very much*. The two inventories were given to 78 participants ranging in age from 18 to 65. With the responses in hand, we separated each list of the 125 items into two categories, one composed of the items that describe a state of spontaneity and one addressing the state of being not spontaneous. After an item analysis of each category, we eliminated a number of items, leaving 35 items on the spontaneous list and 23 on the nonspontaneous list. A split-half reliability test for each condensed inventory yielded a Cronbach's alpha of .94 for the spontaneity list (SAI) and of .93 for the nonspontaneity (SDI) one.

The present version of the inventories. We then refined the SAI and SDI inventories in the following manner: Two items from the early SAI version were dropped because their descriptions were too long, leaving the inventory with 33 items. The SDI retained the 23 items that remained following the item analysis. We made two more minor but necessary changes. We phrased a few items in the negative to avoid response set and rephrased some items to maintain stylistic unanimity across all items. At the top of the latest SAI and SDI forms was the same question, "How strongly do you have these feelings or thoughts in the course of a typical day?" We arranged the responses to the items on the two inventories on a 6-point Likert-type scale ranging from 1 = *none* to 6 = *very strong*. In the final refinement of the two inventories, we conducted an additional item analysis, based on the results of the responses of the 106 participants in the study. The results of the analysis left the SAI with 20 items and the SDI with 17 items.

The MCSD. The MCSD (Marlowe & Crowne, 1960) consists of 33 statements to which respondents answer either true or false. The scale has been

widely used to measure the extent that a person tends to seek approval in a culturally appropriate fashion. There is also evidence, however, that a high score on the scale indicates avoiding disapproval, rather than seeking approval, as indicated by the original label. In any event, the scale continues to sustain a dual existence as a measure of social desirability and a measure of an approval-dependent personality.

The FWBS. The FWBS (Friedman, 1994) consists of a series of 20 bipolar adjectives (e.g., angry–calm) designed to measure an adult's level of well-being. Respondents rate themselves by indicating to what extent each adjective applied to them, using a 10-point semantic differential-type scale ranging from 1 = *very* (e.g., very angry) to 10 = *very* (e.g., calm). The scale includes five subscales: (ES) emotional stability (10 items), (SE) self-esteem/self-confidence (3 items), (JO) joviality (3 items), (SO) sociability (3 items), and (HA) happiness (1 item). The scale allows for a total score reflecting the Friedman Well-Being Composite (FWBC) and separate scores for each subscale. The internal consistency reliability estimates of the composite scores ranged from .92 to .98. The result of a split-half reliability with college students for the subscales, except for the happiness subscale, which contains only one item, ranged from .69 to .96. Test–retest reliability of the composite scores (with intervals of 3–13 weeks) ranged from .73 for the students to .85 for the patient sample.

The FWBS manual reports over 100 correlations with clinical, personality, attitudinal, stress, relational, marital, and interpersonal scale and subscales. It is highly correlated with measures of emotional stability, so much so that it appears to be measuring that construct.

Results

The average score of the participants on the SAI was $M = 76.93$ ($SD = 14.54$). Given that the possible range of the scores on this inventory varied from 20 to 120, the obtained average reflects a slight skew toward the higher scores. For the SDI, the average score for the participants was $M = 51.17$ ($SD = 12.66$). The possible range of scores on the SDI varied from 17 to 102, so the obtained group average is close to the middle of the range.

Two previous studies concerning the Personal Attitudes Scale (PAS), the first conducted by Collins et al. (1997) and its later revision, the PAS-II, by Kellar et al. (2002), showed a gender difference in which men scored significantly higher than women. In our study, we observed the same phenomenon. The average SAI scores for the male participants ($n = 37$) was $M = 85.05$ ($SD = 14.37$) and was $M = 78.54$ ($SD = 15.05$) for the 69 female participants. The difference between the scores of the men and the women was statistically significant, $t(104) = 2.18$, $p > .03$, with the men scoring higher than the women.

However, there was no statistically significant difference between the scores of the men and the women on the SDI. On that inventory, the average score for the 37 male participants was $M = 53.03$ ($SD = 14.35$) and was $M = 50.17$ ($SD = 11.64$) for the 69 participating females with $t(104) = 1.11$, $p = .27$.

The overall results for the relationship between spontaneity and non-spontaneity appeared to be consistent with the theoretical hypothesis, namely, that being highly spontaneous is the opposite of being nonspontaneous. The Pearson's product-moment correlation coefficient between the SAI and the SDI was negative and statistically significant, $r(105) = -.25$, $p = .005$. Indeed, the content of the items comprising the SAI and the SDI represent concepts that, on the surface, look like two opposites. However, when the participants were separated into two groups on the basis of their SAI scores, above and below the median (a score of 77), a different picture emerged. The Pearson product-moment correlation coefficient between those who scored above the SAI median and their SDI scores was $r(54) = -.26$, $p < .05$, consistent with the previously mentioned negative relations between spontaneity and nonspontaneity. But there was no correlation between the scores of those whose SAI score was below the median and their SDI scores, $r(51) = .02$, *ns*. It appears that the theoretically assumed negative relationship between spontaneity score and nonspontaneity only holds true for high SAI scorers. It is not true for those who appear to be in the medium to low range of spontaneity scores.

To further investigate the difference in the relations between SAI and SDI scores for high and low SAI scorers, we divided the participants' responses on the SAI into three subgroups of top, middle, and bottom scores. The results of correlating those SAI scores with their SDI scores showed Pearson product-moment coefficients of $r(52) = -.21$, *ns*. for the top 33% SAI scorers, $r(52) = .11$, *ns*. for the middle third, and $r(52) = .10$, *ns*. for the bottom 33%. It appears that none of the SAI results of those subgroups correlated significantly with their SDI scores, although there was a tendency for the high scorers on the SAI to score low on the nonspontaneity inventory. We discuss the possible meaning of that finding later in this article.

The results showed a statistically significant relationship between the scores obtained on each of the SAI and the SDI inventories and the MCDS; $r(96) = .36$, $p < .01$ for the SAI and $r(96) = -.38$, $p < .01$ for the SDI.

Reliability

The results of a split-half reliability computation for the two inventories yielded Cronbach's alpha reliability coefficients of .88 for the SAI and .80 for the SDI. Those outcomes indicated a satisfactory level of reliability for both measures.

Validity

We investigated the construct validity of the two new inventories by correlating the SAI and SDI scores with the scores obtained on the FWBS. The SAI was expected to correlate positively with the FWBS, whereas the SDI was expected to show a negative correlation. The results confirmed those expectations. The calculation revealed $r(97) = .36, p < .01$ for the SAI and $r(97) = -.45, p < .01$ for the SDI. The pattern of relationship for the correlation of the SAI and SDI with each of the five FWBS subscales was the same (see Table 1).

In Table 1, all the correlations between the SAI and the FWBS subscales measuring sociability, self-esteem, joviality, emotional stability, and happiness are positive, ranging from .30 to .60, and highly significant ($p < .01$). All correlations between the SDI and the same subscales, however, are negative, ranging from $-.24$ to $-.47$, and highly significant ($p < .01$).

Discussion

With the present study, we explored the relationship between the psychological characteristics referred to by psychodramatists as spontaneity and those described as nonspontaneity. There is a long tradition that psychodramatists regarding the one as being the opposite of the other (e.g., Blatner, 2000; Moreno, 1946) and considered spontaneity a desirable phenomenon and nonspontaneity an undesirable one. There are also findings (Kipper, 2000) that point to the likelihood that the two are not mutually exclusive, in

TABLE 1. Product-Moment Correlations Between SAI Scores and FWBS Scores and Between SDI Scores and FWBS Scores

FWBS	SAI	SDI
Subscales		
FSOC (sociability)	.38	-.37
FSES (self-esteem)	.52	-.34
FJOV (joviality)	.56	-.24
FES (emotional stability)	.52	-.47
FHPP (happiness)	.60	-.36
FWBSC (total scores)	.36	-.45

Note. $N = 106$; SAI = Spontaneity Assessment Inventory; SDI = Spontaneity Deficit Inventory; FWBS = Friedman Well-Being Scale.

* $p < .01$ for all correlations

the sense that both fulfill vital functions in life and, therefore, coexist within the healthy person. The present outcomes appear to clarify that apparent conflict. We propose that spontaneity and nonspontaneity represent two separate continua, rather than the traditionally held notion that the two represent the two extreme ends of one continuum. Our position is that the spontaneity continuum addresses various degrees of a state of mind associated with the readiness to act in a novel way, whereas the nonspontaneity continuum addresses a separate issue and represents various degrees of characteristics associated with routine behavior.

According to our proposition, one would still expect an overall negative relationship between spontaneity and nonspontaneity because, by definition, the two cannot coexist simultaneously in a given moment. However, considering the two separate continua hypotheses, we make a different prediction. We believe that the ability of a person to be spontaneous in one situation does not necessarily predict his or her being nonspontaneous in another situation and vice versa. The present findings lend credence to this view. Thus, the phrase the spontaneous man or woman does not describe a personality dimension of an individual who is always spontaneous. Rather, it characterizes a person who is able to become spontaneous often, whenever appropriate, but who, in many situations, may act nonspontaneously.

The ability to test these predictions depended on the availability of appropriate measures to carry such an investigation. At the time the present investigation was conceived, such measures were unavailable (Moreno, 1968). Our first task was, therefore, to construct such measures in the form of the SAI and the SDI. The former provided scores for assessing various degrees of spontaneity, whereas the latter provided scores for portraying various degrees of nonspontaneity.

The results showed that when the participants were divided into three equal subgroups—the high, medium, and low SAI scorers, it was impossible to predict their SDI scores from their SAI scores. It is possible that the small sample ($n = 3+5$) in each of the three categories affected the size of the correlation coefficient. The sample size, however, also allows one to entertain the notion that the result might lend credence to the two separate continua proposition. The consequence of this is twofold. First, as implied in Moreno's definition, spontaneity is a state of mind attached to the situation. In other words, being spontaneous in some situations does not preclude being nonspontaneous in others. Second, it challenges the commonly held view that, by definition, nonspontaneity is an undesirable state of mind. A caveat to the last point in the hypothesis in keeping with the separate continua proposition is that pathology may depend on one's degree of nonspontaneity, not always as a function of the lack of spontaneity. Future studies might explore this issue in greater detail.

Throughout the discussion, we have been referring to spontaneity and non-spontaneity as states of mind. That followed from Moreno's early writing describing spontaneity as unseen energy (Kipper, 1967), the "readiness to respond" (Fox, 1987, p. 42), and a force that "propels" a variable degree [of response] (Moreno, 1953, p. 42). Such a concept is akin to the concept of flow (Csikszentmihalyi, 1990). The flow experience refers to the ability to be immersed totally in an enjoyable and satisfying activity. One may speculate that perhaps spontaneity can appear together with nonspontaneity, creating the favorable conditions to enter into a flow experience. If true, it may be more fitting to refer to spontaneity as the spontaneity experience.

In the present study, we also report initial psychometric data regarding the two original inventories, the SAI and SDI. The SAI and the PAC-II (Collins et al., 1997; Kellar et al., 2002) are available now and offer researchers tools to test some of the hitherto untested theoretical postulations of classical psychodrama. The SAI and the SDI correlated in the expected direction with the FWBS and all its subscales, thus demonstrating initial satisfactory validity. Further research will provide more information about the psychometric characteristics of these two inventories.

The SAI and SDI described in the present study are new and require further validation from subsequent studies. It should be noted that the two inventories yielded statistically significant correlation with social desirability. This aspect makes both inventories susceptible to manipulation by some respondents, a feature that needs to be taken in consideration in interpreting the scores.

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An Introduction to Chaos Theory for Psychodramatists

RORY REMER

ABSTRACT. Individuals and groups are dynamic systems that generate patterns of behavior, thoughts, feelings, and interactions. Chaos Theory (ChT), based on a mathematical approach to nonlinear, nonindependent modeling, addresses these patterns. ChT has important insights to offer psychodramatists, both conceptually and practically. Psychodramatists need a basic, working knowledge of ChT and its impact and implications. In this article, the author presents a mathematical and conceptual overview of ChT and briefly relates it to the basic subsystems of Morenean thought. These insights are bases for future practice, theory, research, and training implications to be explored in other manuscripts.

Keywords: chaos theory, dynamic systems, patterns, psychodrama

PEOPLE, INDIVIDUALS, AND GROUPS ARE DYNAMIC SYSTEMS, and their actions and their interactions generate patterns. Chaos Theory (ChT) concerns the patterns generated by dynamic systems. It is based on a mathematical approach to the nonlinear, nonindependent modeling of patterns of behavior. ChT is not, per se, a philosophical system or paradigm. In fact, it is as nonbiased as any mathematical approach can be, which is not to say that it is without its assumptions. ChT has important insights to offer psychodramatists, and more important, implications for the conduct of social science as a whole. The Vatican is even interested in the ramifications of ChT for religious doctrine (Russell, Murphy, & Peacocke, 1995).

Psychodramatists, professional psychologists, other social and physical scientists, and even laypeople need a basic, working knowledge of ChT and its implications because that background is essential to understanding and functioning effectively in the world and to helping people. The effects of the theory are so far-reaching that they go to the core of how we approach science.

Many, if not all, concepts that constitute ChT are not new and have existed for some time in one form or another. In fact, one recognizes them in sayings and such adages as “for want of a nail the shoe was lost, . . .” Their juxtaposition and connection, the development of concise, scientific language to define their related constructs, and, most important, the application of concrete, systematic, logical mathematical procedures to substantiate them lend them new validity, credibility, and clout.

Mathematical approaches to modeling as applied in other disciplines focus on the modeling of patterns of behavior, with the subsequent goal of predicting, if not controlling, them. That description fits much of what we, as psychodramatists, do rather well. However, we are not limited to patterns of behavior. We also deal with patterns of feelings, thoughts, and interpersonal interactions. Those phenomena are more challenging to address because the data available to do so are usually, if not always, difficult to produce and of a less than optimal, solid, ratio-scale type. That leads to questioning whether ChT does and can apply, but that argument is grounded more in logic than in empirical evidence, at least for those latter three areas.

A Personal Vision Shared

In this article, I share my vision of the importance of ChT to psychodrama in particular and to the social sciences in general. Although this account may seem to be a translation of psychodrama concepts into ChT terms, I believe its relevance goes far beyond that kind of impact. ChT conveys the underlying process and characteristics of dynamic systems—perhaps even as universals—that unify phenomena at different levels from social to biological to chemical to physical. That understanding helps explain what the psychodrama process does and how it does it. For example, noting that self-organization occurs during the process of integration allows a director to step back to observe the interaction of components (roles), knowing that some order will emerge, although not necessarily or likely what might have been anticipated or planned. The same applies to life in general.

Even if the outcome is only a type of translation, the process is worthwhile, as those who struggle with comparing and integrating different theoretical perspectives learn. Psychodrama is role-playing behavior. The process, especially of translation, suggests that concepts, terms, and words are not isomorphic. The process itself demands an extension of “making meaning” (Remer, 2001a). Beyond the translation, ChT, being mathematical, not only presents another mode of thinking but also offers approaches to exploration not available at present to psychodramatists committed to supporting the usefulness of Morenean conceptualization—nonlinear mathematical modeling. Is that fit demonstrable, especially empirically? Hon-

estly, I do not know. But thinking “chaotically” has had such a significant impact on my approach to science, my understanding and use of psychodramatic techniques, and my personal worldview, that I hope to convey and share those effects and get help in developing them further.

To start, we need to look at what ChT is mathematically. We also need to look at the assumptions about patterns of behavior, thoughts, feelings, and interactions on which our science is founded. Then we must look at the match to psychodrama.

Some Basic Assumptions of Science

Although numerous assumptions undergird what we call science (from the logical positivist perspective), I focus on seven: (a) predictability, (b) cause–effect, (c) linearity, (d) exclusivity, (e) simplicity, (f) reductionism, and (g) objectivity. Others, although important, are not germane because they either are variations—bifurcations—of these seven or are shared by ChT and not relevant to understanding its ramifications.

Probably the most important basic assumption we make as social scientists is that the phenomena we study—the patterns of behavior, thoughts, feelings, and interactions generated by human beings—are not entirely random, if random at all. They are to some degree describable and predictable—theoretically entirely so. If we do not posit this assumption, we have nothing to study. But what “nonrandom” means and implies is a bone of contention, both practically and theoretically, and even philosophically.

In particular, the issue of predictability and randomness is essential to the implications of ChT for social science because predictability is seen differently through the ChT lens. The goal of social science, as of all science as defined at present, is the discovery and application of universal laws pertaining to our foci, the patterns we address. I say “at present” because most, if not all, social science approaches assume cause and effect relationships, based on the Logical Positivist paradigm. The system producing the phenomena is deterministic. Randomness is viewed as an aberration, many times to do more with measurement than reality, which clouds the path to the establishment of the universal laws.

The view applied in science is linear, in large part because of the cause–effect assumption. The majority of research is analyzed assuming both linearity and independence of observations; even more to the point, things that happen later in time or at the same time do not cause things that precede them or occur simultaneously. ChT, as opposed to linear modeling on which most, if not all, social science is based, has a great deal to say about the efficacy and applicability of our chosen approach.

The logic applied to the study of social science is that of exclusivity—competing explanations being judged against each other. Either one or the other is

supported (i.e., an either/or situation). Because they are competing, both cannot be tenable in a given situation. If laws are to be universal, the inconsistencies and contradictions inherent in both being possible—a “both/and” perspective—must be resolved.

“Occam’s Razor” is also assumed to apply. Simpler explanations are held tenable when compared with more complex ones, given equal or near equal support.

A reductionistic approach relates both to linearity and simplicity. The assumption is that a phenomenon can be studied, understood, predicted, and controlled by breaking it down, focusing on the constituent parts, and reassembling and summing the resultant information.

A final assumption is objectivity. Phenomena can be viewed dispassionately, without bias. A distance exists between the observer and the object observed, the subject. That removed stance provides for not only a clear view but also an uninfluenced one, meaning that the viewing is impartial and does not change the phenomenon observed. These assumptions then are the structure from which and in which we are trained culturally from an early age. As social scientists and psychodrama practitioners, we have been taught to rely on them, but how tenable are they? If not tenable, what others do we follow? And what consequences befall us if we entertain those others?

The Mathematical Basis of ChT

To understand the essence of ChT, some familiarity with and understanding of mathematics is required. A brief introduction is first, and then I provide the essential constructs of ChT. Then we can make the application to social science, specifically psychodrama.

The equation or model, $x_{n+1} = k x_n (1 - x_n)$, is called a logistical map. It is a nonlinear, second-order difference equation. Although seemingly simple enough, its behavior (i.e., the patterns it generates) illustrates the essential characteristics of a chaotic, dynamic system. This simple quadratic equation is often used to explain the meaning of chaos in scientific presentations because of its simplicity relative to other more generalizable, multidimensional, or nondiscrete examples. It serves the same purpose here.

The usual situations to which the logistical map is applied are in the physical and biological sciences (e.g., moth populations [Wildman & Russell, 1995], hunter/prey simulations), seem cyclical but are actually more complex. Although a practical example of the application of the logistic map to social science would help, it is not possible to offer one that is readily supportable by empirical data. The interaction patterns in therapy, or any dialogue situation, have a similar kind of cyclical ebb and flow. However, other than counting words generated, which is certainly a possibility, much data of real interest are not solid. Later, however,

I argue, on a logical basis, that many phenomena of relevance to social scientists are chaotic and could benefit from the application of nonlinear, nonindependent modeling akin to the logistical map. First, however, we need to consider its mathematical underpinning to grasp the essence of ChT.

To start, I present an explanation of equation symbols. The symbols x_{n+1} represent the observation of the state of the system at time $n+1$, the successive time after observing the state of the system at time x_n and at time n . Thus, the system is iterative or recursive, its current state depending on the previous state. It is second order, meaning that its state depends only on the previous one. For example, if one has the fifth time point and wants the sixth, one obtains it by entering the fifth time point in the equation: $x_6 = k x_5 (1 - x_5)$. Similarly, if one wants the 10th value in the sequence, one enters the 9th to get $x_{10} = k x_9 (1 - x_9)$.

The logistical map behaves differently, depending on the values of the constant k , called the tuning constant or sensitivity parameter. If $0 < k \leq 1$ (i.e., the sequence of values generated monotonically) decreases, eventually going to 0, extinction results, regardless of the initial value of x_n . If $1 < k \leq 3$, the sequence increases, converging to a single periodic point and limits value to greater than zero (> 0), which is again not dependent on the initial x_n . Both conditions lead to fixed-point solutions, ones that, once reached, do not change under further iteration. For values $3.0 < k < k_{\text{crit}}$, which equals approximately 3.57, the sequence fluctuates bifurcating with multiple attracting periodic points, the number of which depends on the value of k with some minor dependence on the initial x_n . When $k_{\text{crit}} \leq k \leq 4$ patterns are chaotic, with bifurcation regions containing infinitely many bifurcation cascades, what one usually sees in pictures of chaos, and maximal dependence on initial conditions.

Finally, for $k > 4$, a particularly complex type of chaos occurs. Wildman and Russell (1995) describe the pattern of chaotic behavior in this region and its implications as follows:

[This region] is particularly complex and can only be described in technical terms (p. 69). . . . Early in the investigation of chaos, it was discovered that the constant breaking up of chaotic dynamics by other sorts of dynamics is a quirk of the *one-dimensional* [emphasis added] case. In higher dimensions (even in the complex plane, in fact) chaos frequently occurs in entire regions and for intervals of "tuning" constants. The virtue of chaos in higher dimensions is that it is more conducive to research using mathematical modeling. . . . Attractors could never be found for chaos in natural systems modeled with one-dimensional maps. . . . The stability of chaos in higher dimensional systems is the key to this type of analysis. (pp. 70–71)

Implicit in that statement is the notion that much more is involved in understanding ChT more fully, both mathematically and otherwise. These further excursions, as Wildman and Russell label them, require definitions of such terms as forward and backward orbits and discussions about mappings of

Cantor sets onto the unit interval, Lebegues measures, and other mathematical. As noted earlier, these fine points—remember the Wildman and Russell exposition—are brief and relatively noncomplicated but beyond the scope of this article. The points do suggest, however, two other important aspects of mathematical chaos that are useful to understand.

The first is “banding,” the tendency for bifurcations to cluster more frequently in certain areas than in others. Banding allows the rather accurate identification of these regions. The bandings occur because the mapping of values is contracting, focusing more values in these areas than in others. The second point relates to the contracting. Each bifurcation sequence resembles the others in shape or pattern but on a smaller scale. This “scaling factor,” called the Feigenbaum constant, appears not only in the mathematics but also in naturally occurring phenomena. “It appears, therefore, that this number is more than an important mathematical constant. It also seems to be a kind of natural constant; the sense in which this is so is a pressing question for many scientists” (Wildman & Russell, 1995, p. 62).

But what exactly does a pattern being chaotic mean? Wildman and Russell (1985) explain as follows:

There is as yet no generally accepted definition covering all instances of what mathematicians would like to call chaos. . . . However three properties are jointly sufficient to characterize chaos. These properties—mixing, density or periodic points, and sensitivity—are defined as follows. . . . *Mixing* a property characterizing the *disorderliness* of the dynamic system . . . [like] a pinch of spices will spread throughout a lump of dough if the stretch-and-fold operation of kneading is executed properly. . . . *Density of periodic points* a property characterizing the *orderliness* of a dynamic system [like] the way sour cream curdles in hot coffee: the cream moves in all directions throughout the coffee cup, which are like densely distributed repelling periodic points, in order to clump at certain other points, which are akin to points in a chaotic attractor. . . . *Sensitive dependence on initial conditions*, a property characterizing the *topological entropy* of the dynamic system . . . which describes the way an intricately connected system allows tiny influences to have large effects. (p. 73)

Chaotic systems are both predictable and unpredictable. Because we have a formula into which we can enter values, in theory, we can easily calculate any value desired. So, from that perspective, chaotic sequences are completely determined; however, the values entered for x_0 and k , in most cases cannot be precisely specified. Thus, some kind of rounding errors occur. In chaotic regions, eventually the values generated are unpredictable. Thus, as Wildman and Russell (1995) term them, *eventual unpredictability* entails *temporary predictability*—even to the point of being able to know when a prediction will likely fail, based on the precision of the initial values.

The story of how Lorenz (1993) rediscovered ChT is informative in a number of ways. He was trying to simulate weather dynamics. In running his sim-

ulation program on his computer a second time to check results he had from a first run—a process that took thousands of iterations to generate the phase space at which he wanted to look—he was interrupted. When he went back to restart his computer, instead of starting over, he entered the last data point he had on his printout into his program. Instead of getting the same results from the previous run, as he had up to the interruption, he got extremely different values. He figured out that the difference was the result of the rounding error—the differences in the 3rd or 4th or 20th decimal place—between the computer-stored values and those that he had on the printout. He had not been able to enter the values that the computer would have used, had it continued to run rather than being interrupted, because he did not have those exact values, only very close approximations. Those very slight differences had severe effects.

That chaos in modeling has to do with rounding error provides further insight into the mathematical inconsistencies between what social scientists do at present and the pattern production of dynamic systems. Rounding errors—little slippages that cannot be foreseen or controlled—are like many influences in dynamic systems and subsystems. If we take a linear perspective, we develop a model using the mean or some variation, in which the “errors” and other fluctuations are eliminated from consideration through averaging effects. However, the situation in most instances is not linear. What happens with nonlinear models, such as the logistical map, is that more and more of those “little differences” accumulate. We cannot see them, let alone foresee them. And, if we could, we could not control for them because their influence is unpredictable, likely one way as much as another. This circumstance makes linear modeling a poor approach. More accurate modeling (i.e., simulation) is better but harder to do.

Chaos is highly sensitive, disorderly orderliness, and that statement or definition leads to how one talks about chaos and its implications.

The Foundation: A Brief Overview of ChT

ChT is about patterns, and about how they develop and change. In the case of psychodrama and the rest of social science, the patterns of interest are usually those of human thoughts, feelings, behaviors, and interactions. The phenomena for which ChT has implications and the manner with which they are dealt are not entirely unique to ChT (e. g., the concept of phase spaces). However, the “philosophical” perspective that ChT and other related or similar mathematical findings suggest is at times at odds with the seven assumptions of social science mentioned previously. I address the 10 most basic constructs: (a) phase space, (b) strange attractors and their basins of attraction, (c) fractals, (d) self-affinity or self-similarity, (e) bifurcation and bifurcation cascade, (f) unpredictability, (g) recursivity, (h) equilibrium, (i) resonance, and (j) self-

organization. For more detailed explanations, refer to some of the articles and books listed in the references (e.g., Briggs & Peat, 1989; Butz, 1993, 1997; Butz, Chamberlain, & McCown, 1997; Crutchfield, Farmer, Packard, & Shaw, 1995; Gleick, 1987; Goerner, 1994; Prigogine, 1997; Remer, 2002a; Wildman & Russell, 1995).

For those who are conversant with ChT or its variations and related theories, the literature related to ChT is burgeoning—in physics, biology, ecology, and family systems. I do not discuss all the constructs, concepts, and terms from the myriad valuable expositions and include only those that help me make sense of and use ChT and with which I am familiar. For example, I do not include synchronicity (Strogatz, 2003). I hope that this account will provide an adequate basis and attract others to contribute their perspectives on, enrich our understanding of, and increase the usefulness of ChT.

Phase Space

The *phase space* is the conceptualization, often pictorial or geometric, of the possible states a system might take. Designating the variables that constitute it, usually holding a number of variables constant to simplify the “picture,” produces projections or mappings of the phase space or some embedded phase space. By specifying different values of the variables, a mapping of the phase space (i.e., the pattern produced) is obtained. In a sense, though not in the same way mentioned earlier, phase spaces are reductionistic, but necessarily so, because all of reality cannot be considered or modeled at once. More important, the concept conveys that, at best, we see only a portion of “reality” at one time—that part on which we choose to focus. Different theoretical perspectives define different phase spaces or different maps of aspects of reality. No knowledge of the entirety of reality is possible, because Goedel’s Theorem states that all that can be known about a system cannot be known from within it. Psychodramatically, a scene can be considered a phase space.

Strange Attractors and Basins of Attraction

Strange attractors are focal points for many, and the most challenging patterns are generated by dynamic, chaotic systems. They are collections or sets of attracting and repelling points making up and generating patterns. Their basins of attraction are the areas containing those patterns within their boundaries. Other types of attractors—point, cyclical, torus—can also occur and can be modeled using ChT mathematics.

Strange attractors and their basins are similar to homeostatic points in General Systems Theory. An example of a strange attractor and its basin is an open bathtub drain when the water is being run fast enough to fill the tub.

Should an object such as a Ping-Pong ball, which is buoyant but too big to be sucked down a drain, be dropped in the tub, it will continue to circulate in a quasi-predictable manner, mapping a phase space. The pattern is predictable in the sense that the ball cannot escape the tub and so its general location is well established (at least until the tub is filled to overflowing); the pattern is *quasi* in the sense that how near to or how far from the drain hole (the attractor) it will be at any time cannot be readily foreseen, particularly for far future times. Strange attractors and basins of attraction, capture the actuality—the consistencies and vagaries of related human patterns. The protagonist, and other auxiliaries for that matter, function as strange attractors.

Fractal Boundaries and Dimensions

Fractal boundaries, or simply fractals, are mathematical representations of the irregular “lines” of demarcation between separate units. Fractal-ness, as I term it, indicates diversity, difference, and complexity of patterns. Fractals and their measure, dimensions, can convey in a systematic, and possibly quantitative, way that reality is rarely as clear and clean-cut as we picture it. Unlike the dimensionalities with which we usually deal, fractals can have fractional dimensions. Shorelines are good examples. From a far distance (e.g., outer space), shorelines appear as continuous, curved lines constituted of long, relatively smooth segments. Walking the shoreline gives one a different impression, as does examining it under a magnifying glass. At each level, what becomes apparent is that all the seemingly long, smooth segments are actually made up of many shorter convoluted pieces. The word “fractal” can convey the concept of convolutions within convolutions as the scale of measurement changes. The measurement of the overall length of the shoreline varies, depending on the accuracy and applicability of the measuring instrument. A yardstick and a micrometer often produce grossly disparate outcomes because measuring the distance around the indentation of every rock and pebble is not done accurately, if doing so is even possible, with a yardstick. Fractals convey two very important concepts. First, what one sees depends largely on one’s perspective (see Remer, 1983). Second, accuracy of measurement often depends on the definition of the process—even though results may be internally consistently employing the same method of assessment, they can vary greatly, even by an order of magnitude, using different approaches. Fractals can help capture the fuzziness, the gray areas, and the complexities that are often attendant on human patterns. In doing so, they also emphasize the impossibility of separate systems ever meshing perfectly. Although these types of observations may be made from other perspectives, they are more often seen as nuisances to be

overcome. They are, however, central to ChT (see Lorenz, 1993). In psychodrama, the interactions between roles are fractal in nature.

Self-affinity and Self-similarity

Self-similarity and self-affinity, the more general and inclusive term, are constructs that can denote the tendency for iterative, recursive processes and other phenomena to evidence recurring patterns. The constructs of self-similarity and self-affinity capture the sense that motifs seem to be part of nature. Patterns tend to repeat themselves, although not exactly and not perfectly but still enough to be recognizable even on different scales. Similarities, not only of boundaries but also of patterns in general, have proved fascinating, valuable, and enlightening (Hofstadter, 1979). Parenting, both on a reproductive and behavioral level, offers a good example. We tend to resemble our parents genetically, physically, and behaviorally. Nonetheless, in every situation, as many points of nonsimilarity as points of similarity can be found. Behavior patterns tend to repeat themselves, although not exactly. Over time, situations, generations, and so forth, consistencies can be found, as can inconsistencies and fractal-ness—all qualities that are central to ChT. Self-affinity also applies to spontaneous actions.

Bifurcation and Bifurcation Cascade

Bifurcation means splitting in two. When a process or pattern bifurcates, complexity is added to the pattern produced by a system, which means possibly producing or altering strange attractors and their patterns. Bifurcation cascade is when bifurcations happen at such a rate that no discernable patterns seem evident. After a period of time, many natural processes tend to bifurcate as they change. Then, after another period of stability, another bifurcation takes place. As long as the bifurcations stay within limits or happen after long enough intervals so the system's resources can accommodate the new conditions, stability can be maintained (evolution). If either of these conditions is violated, bifurcation cascade may occur (revolution or chaos). The system can go out of control (i.e., become chaotic). Although such a state may seem catastrophic, it need not be. At that crisis point (critical moment or critical point), the system must reorganize into a different, though perhaps very similar, pattern—essentially creating a new strange attractor pattern. Thus, these “confused” states can serve as opportunities for creative, functional change. (Complexity theorists suggest that this state at the edge of chaos is optimal for change. However, given the “butterfly effect,” the theory that a butterfly beating its wings in China might cause a hurricane in the Bahamas, how predictably “skating the edge of chaos” is possible seems paradoxical.) Organi-

zational growth can serve as a good example. If the tasks demanded of an organization exceed the capacity of it to adjust, overload (bifurcation cascade) leads to the system becoming chaotic (Pascale, Millemann, & Gioja, 2000). Possible solutions to restabilize the system are different forms of reorganization—new units established to handle new tasks, shifting of tasks to different units within the organization, or farming tasks out to other organizations and in effect producing a metaorganization. Bifurcation and bifurcation cascade encompass some of the notions that General Systems Theory addresses through positive and negative feedback loops (movement to or from homeostasis). Conceptualizing these processes in discrete stages, however, provides a somewhat better grasp of the contributing factors and their interaction (i.e., how a new strange attractor might be the result of a system severely disorganized by the interplay of numerous conflicting forces). This conceptualization also indicates that change need not occur linearly, but rather, can be discontinuous, (i.e., a “quantum leap;” Pascale et al.). Every reenactment is a bifurcation of a previous one.

Unpredictability

Unpredictability is the inability to state with certainty the next state or, for that matter, the previous state, of a system, given knowledge of its present state. A somewhat commonly known aspect of ChT unpredictability has been called “the butterfly effect” (Gleick, 1987; Lorenz, 1993). Small differences in the initial conditions (sensitivity to initial conditions) of a process can produce large differences in outcomes. Conversely, large initial differences can have very little impact because of damping or averaging effects. This second aspect subsumes the concepts of equi-potentiality and equi-finality from General Systems Theory. Other types of unpredictability, consistent with a ChT perspective—the senses conveyed by Heisenberg’s Uncertainty Principle (Price & Chissick, 1997) or Bell’s Theorem (Kafatos, 1989), Goedel’s Theorem (Penrose, 1989, 1994), and the Quantum Mechanics of Schroedinger’s Cat (Marshall & Zohar, 1997)—indicate that everything about a system cannot be known to absolute certainty (the construct of phase space) and that any attempt to assess a situation will affect it. I mention these aspects of unpredictability, what I call quasipredictability, because they further affect and reinforce the importance of the ChT perspective. Where ChT unpredictability goes beyond these ideas and can differ drastically is in conveying the humbling, daunting, and realistic perspective of how little control or predictability we actually have, methods and attempts at mathematical modeling are to the contrary. Changing the seating pattern to influence the sociometry of a group is evidence of unpredictability.

Recursivity

Recursivity is self-reflexiveness and self-reflectiveness, which involves feeding information from one's patterns back into the process of producing them. In mathematical language, it is nonlinearity and nonindependence. For an illustration, see the human dynamic system diagram in Figure 1.

Recall the equation for the logistical map, $x_{n+1} = k x_n (1 - x_n)$, and the accompanying discussion. This means that when one keeps feeding information about a pattern back into the process of producing it, little differences can tend to become magnified and can blow up to be big differences. Thus, this characteristic of chaotic systems can produce the butterfly effect or a bifurcation cascade, which gives one the sense of being overwhelmed by the chaos one encounters. The same characteristic, however, can lead one to self-correction under the right conditions, which is what one learns from the "tuning constant."

Equilibrium

Equilibrium is the tendency of a system, or its inertia, not to change its patterns but to stay near or return to points of attraction (homeostasis). Patterns change significantly and most unpredictably in systems that are far from equilibrium or chaotic. Those are systems whose sensitivity (tuning constant) has exceeded a threshold of stability. The tuning constant is key. It determines the sensitivity of a dynamic system to the impact of numerous external and internal influences that are buffeting it at all times. In other words, the tuning constant determines whether and how one's patterns change.

Because of recursivity, change depends on the tuning constant, k . What determines k ? If by "determine," one means dictate or control, the answer cannot be found, because the sensitivity of the system is too complicated to predict or control. If one means describe (i.e., know what k is at a particular point in time, for a particular phase space), then some enlightenment is possible.

For example, the limbic system is designed to trigger a chaotic reaction producing fight or flight responses. Those responses are noncortical, based on intuitive pattern recognition. In a general sense, one can, and already does, know what influences might sensitize the system, but still one does not know completely because individual, across-time, and situation variations occur. Is triggering a system the same as control? It is, but only to a point and in a very general sense. One may be able to start something, but can one stop it or direct it? Is triggering the same as increasing k ?

With k in a certain range, one has the equivalent of a negative feedback loop, in which any influence is dampened and eventually disregarded. If k is

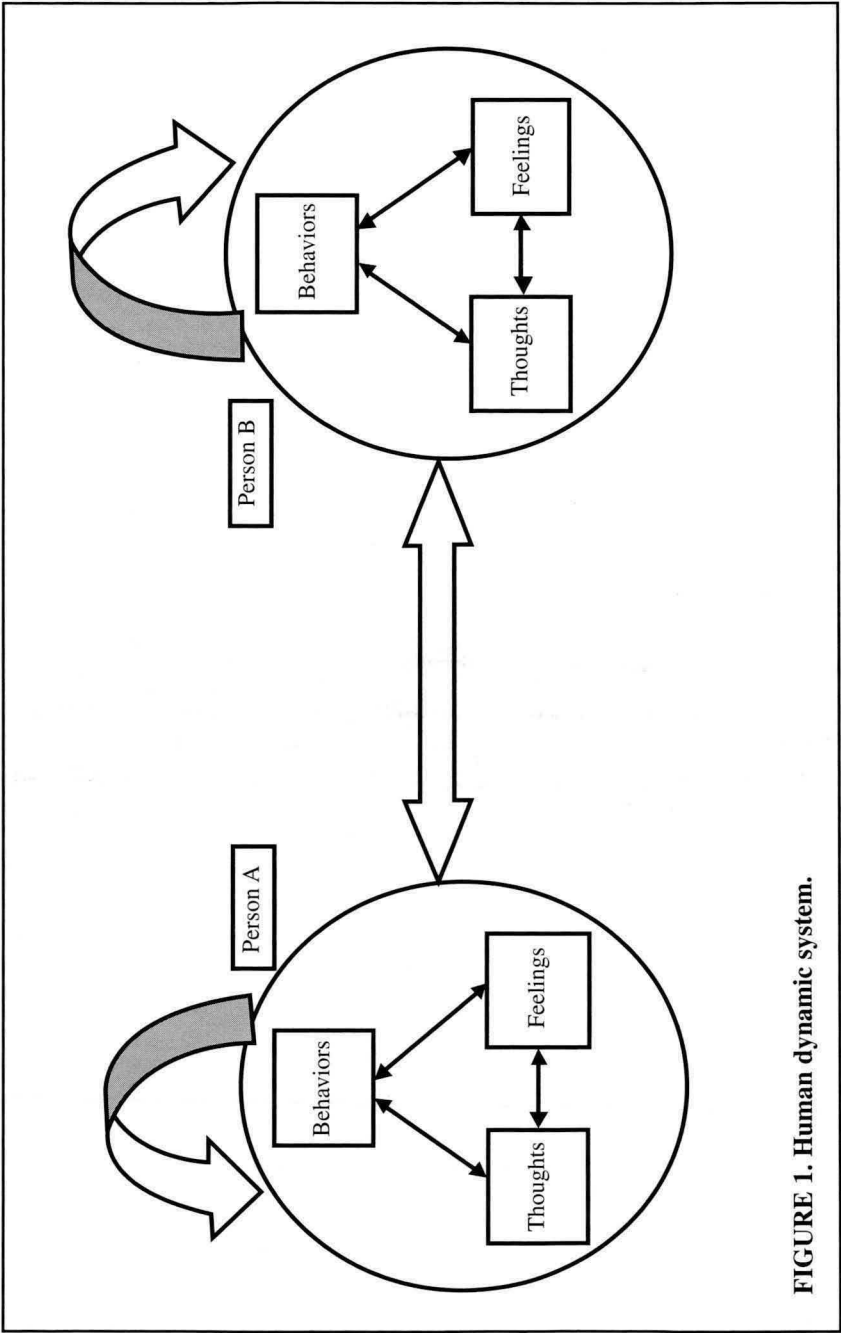


FIGURE 1. Human dynamic system.

increased beyond the critical value, a positive feedback loop is produced, engaging one in rampant and rapid pattern expansion. In the former situation, change is impossible; in the latter, it is inescapable. If one desires change, even seemingly orderly change, one must accept chaos, or at least the potential for chaos. A small band does exist in which bifurcation occurs in a more or less orderly manner, although whether the values to which the system bifurcates are predictable is moot. What may make the change seem orderly is that the attendant chaos is not consciously disconcerting. However, chaos is present. If one desires drastic, significant change, then the system is required to be sensitive, open, and even primed. Those quantum leaps require conscious tolerance of chaos and possibly initiation of it. Some strategies are available for doing the triggering and tolerating, but they do not always work exactly as one likes.

Can k be influenced enough to produce the desired result? The Complexity theorists believe so; I think not. The “edge of chaos” strategy is exactly the wrong one for two reasons: (a) it cannot be done because one does not have that degree of predictability or control, and (b) it does not produce change predictably, if at all. The Strategic theorists have a much more workable approach and capitalize on crisis or chaos when it is occurring to influence change in patterns. They attempt to use sensitivity when it is present and when they recognize that k is large enough.

What this situation amounts to is the recognition that the change in any pattern has more to do with the system being sensitive and ready to change, than with anything else. Moreover, there are the times when changes in patterns are foisted on people by a shift in the patterns of the circumstances that make up a larger system in which the people are imbedded. For example, a psychodramatist’s use of the mirror technique relies on its recursivity to have an impact on the client.

Resonance

Resonance occurs when two or more separate entities find their patterns in synch and that synchronicity reappears or continues over time and changes. In other words, there is a type of “connection,” at least from time to time and from situation to situation, between or among components of systems that otherwise are distinct.

From a ChT perspective, resonance is important because it engenders the fluctuations in the patterns produced by dynamic, chaotic systems. What is important to grasp and remember is that resonance is **not** the same as cause or influence. It is like a violin’s strings that produce resonance because some movement by one string at the right frequency produces a resonance in other strings and a common vibration. As other instances of resonance,

consider that some women who know each other well and spend time together frequently have their menstrual cycles in synch, certain subatomic particles shift their spins in relation to each other over vast distances, termites suddenly organize their actions to swarm, or a chemical can change color from red to blue and back without any color mixing—producing a purple hue—or seeming transition.

Explaining the exact working of resonance, not to be confused with its effects, would be useful, but more than offering examples seems difficult, if not impossible. As Prigogine (1997), a noted Nobel laureate in physics, observes, the constituents of dynamic systems possess this resonant quality, and certainly dynamic, human systems possess it. Resonance produces other interesting patterns of phenomena. In such chaotic systems resonance may well be what makes the chaos (the ability to change) and self-organization (the ability to redevelop a coherent pattern) possible.

What does resonance mean to human patterns? It can mean panic, riots, or mob mentality; it can mean apathy or inertia; it can mean serenity, empathy, or community; it can mean mirth, merriment, and exhilaration. Psychodramatic tele depends on resonance.

Self-organization

Self-organization is the inherent tendency for systems in a chaotic state to form a new coherent pattern, which is sometimes termed an emergent pattern. An important characteristic of chaotic systems is their innate ability to reorganize based only on the interactions of their components. Self-organization establishes new patterns; particularly after chaos has been reached, accommodating the new demands on the system. An organization that has undergone bifurcation cascade evidences this attribute. How the self-organization manifests itself, however, usually is not possible to predict exactly. Catharsis of integration is evidence of the self-organizing properties of psychodrama.

What ChT Says About the Tenets of Present (Social) Science

Specifically, ChT differs in its views from the assumptions on which social science is based in at least seven ways, corresponding to the seven assumptions outlined in Table 1. The concepts of phase space and unpredictability of the Heisenberg type contradict objectivity. One chooses the concept on which to focus, and such focusing does not leave the phenomenon unaffected. How influenced and changed one might become is unpredictable.

Reducing a phenomenon to constituent parts is neither desirable nor functional. By doing that, one loses the ability to study the nonlinear, nonindependent interactions of the system as a whole. One also may miss the essen-

TABLE 1. Attributes of Chaos Theory (ChT)

ChT attribute	Contrast (belief in . . . vs. in . . .)
Reciprocally influential	Ability to attribute causation vs. Mutual influence
Dynamic	Enduring explanation vs. Changing perspectives
Inclusive (both/and)	Competing explanation vs. Inclusion of possible alternatives
Possible	Ruling out by stringent criteria vs. Entertaining or combining alternatives
Nonlinear	Linear flow of action vs. Nonpredictable pattern flow
Subjective	Separation of observer and object vs. Influence of observer or perspective on observation
Organismic	Objective truth vs. Intersubjective consensus Humans as machines vs. Humans as adaptive organisms
Holistic	Examination of components vs. Examination of an entire entity
Open	Admissibility only of objective information vs. Inclusion and consideration of all types of information
Present-oriented	Control and prediction vs. Description and acceptance of limitations on predictability and influence
Complex	Ability to reduce explanation to universals vs. Changing and adapting to circumstances
Interactive (synergistic)	Whole equals the sum of the parts vs. Whole can be different from or greater than the sum of the parts
Cooperative/harmonious	Controlling and determining outcomes vs. Influencing and adapting as required
Irreversible	Ability to fix and return to previous states vs. Change being impossible to erase
Deterministic (irreversible)	Ability to choose or reverse outcomes vs. Theoretically able to but practically not able to
Balanced (adequacy-oriented)	Ability to find a truth vs. Acceptance of an adequate explanation for moment

tial elements of complex interactions, which are stabilizing. The whole is most definitely not the sum of the parts. Moreover, simplicity (e.g., the one-dimensional case) may not be a virtue.

Strange attractor patterns and their characteristic inclusion of self-affinity and fractal-ness strongly suggest that phenomena are rarely, if ever, either-or propositions. One may be able to define the basin of attraction at one level, but that does not necessarily mean that the pattern is similar enough at another level to allow generalizing. Sometimes a seemingly same stimulus will engender a dissimilar response. One must entertain the possibility of seemingly contradictory ideas being functional and consistent with different aspects of the pattern. Thus, attention to both the nomothetic and the idiographic are balanced (e.g., using such constructs as self-affinity and fractal-ness). The combination provides an impetus to look not only for consistencies but also for the subtle and not-so-subtle variations.

Linearity is the exception, not the rule. Change can happen both smoothly and disjunctively, by way of bifurcation. Once a change has occurred, it cannot be undone, because the effect stays in the pattern, although it is not necessarily easily recognizable. Cause and effect are at best short-term, if such can be inferred at all, given the recursive and iterative nature of interactions. Moreover, where and how one chooses to enter the system influences the drawing of all inferences.

First, last, and foremost, the ChT view of control and predictability is much more consonant with the view met in reality. Because of the complexity of the chaotic dynamic system's behavior, the interaction and mutuality of the effect of variables on control and predictability are viewed as limited and ephemeral (e.g., Brack, Brack, & Zucker, 1995).

More and more often, change, as exemplified by chaos, has been shown to be the normal, healthy state of a system, more so than a stable, inflexible, non-adaptive status (Butz et al., 1997; Pascale et al., 2000). That is a conclusion also reached in medicine (e.g., the brain [Basar, 1990], the heart [Zbilut, Webber, Sobotka, & Loeb, 1993], psychiatry [Boldrini, Placidi, & Marazziti, 1998]). Overall, the ChT fluid perspective—attention to patterns and their process of change (self-organization) is more consistent with the traditional heritage of psychodrama.

ChT and the Morenean Perspectives and Subtheories

Some connections and their implications have already been explored (Carlson-Sabelli, Sabelli, Patel, & Holm, 1992; Remer, 1996, 1998, 2001a, b). Here I briefly indicate the relevance of ChT to psychodramatic theory and offer a broad brush of its main implications. Both need further explication and exploration.

ChT and Psychodramatic Theory Connections

Psychodrama and ChT are both dynamic systems perspectives. I hope that link is apparent by now, so that more extensive ties can be expected. Although a discussion of the translation of each Morenean subtheory (e.g., Moreno, 1951, 1953/1993) might be offered, I mention only the tie between each of the nine constructs and one choice of the psychodramatic subtheories—enactment, role, social atom, sociometry, and spontaneity (e.g., Remer, 1996, 1998, 2000, 2001a, 2001b, 2002b). In each case, I supply an example for the connection.

Phase space and enactment. In each scene, the significant others included and portrayed affect how the situation is viewed and the patterns of interaction produced.

Strange attractors with their basins of attraction and role. Roles are patterns of thought, feeling, behavior, and interaction that fluctuate within certain boundaries chaotically.

Fractals and sociometry. Groups, from dyads to societies and cultures, evidence repetitious patterns of interaction (e.g., members, stars, isolates, rejectees) from level to level; yet, no two patterns are exactly alike.

Self-affinity or self-similarity and role. Role structures (Biddle, 1979) evidence pattern similarities (e.g., positions, role, functions, norms, or expectations) and self-affine patterns of development within and across individuals.

Bifurcation or bifurcation cascade and spontaneity. Each situation offers branchings or variations on old themes; courses of action may proliferate to the point of feeling overwhelming.

Unpredictability and spontaneity. Each situation, novel or otherwise, has unexpected demands.

Recursivity and enactment. Scenes, especially when reenacted, are influenced by previous enactments and reflection on them.

Equilibrium and encounter. Relationships tend to retain certain patterns of interaction unless something happens to upset those patterns at a high enough energy level to demand their change.

Resonance and social atom. Tele influences and is influenced by our responses to others around us, and at times, it is seemingly unrelated to conscious responses.

Self-organization and sociometry. Any group of individuals will develop patterns of organization; additions, losses, changes, and other types of disruptions will produce new patterns that are not entirely planned or anticipated.

Implications of ChT for Psychodramatists

I mention some of the implications of ChT as a motivator for psychodramatists to familiarize themselves with the theory. The fit between the two, because both are dynamic systems, suggests that the approach to human interactions that psychodrama offers may be more consistent with actual reality than other theories (e.g., strict behavioral perspectives). For example, the tolerance of ambiguity and nonpredictability inherent in psychodramatic enactments promotes open exploration with the acceptance of whatever outcomes.

The strong implication that group-oriented interventions may capitalize on chaotic patterns and dynamics better than individual approaches bodes well for psychodramatists. This implication has significant ramifications for a managed-care environment, but it would, no doubt, engender much resistance from establishment perspectives.

Emphasis on spontaneity, as a coping mechanism for dealing with chaotic patterns and as a positive slant on chaos, is extremely important. With more and more stress on positive approaches to human interactions (e.g., well-being and resiliency), psychodrama spontaneity training has much to offer.

ChT has much to say about the view we take of science and specifically of substantiation. Psychodramatic theory has been assailed for its looseness through such empirically substantiated and validated approaches as Dialectical Behavior Therapy. Psychodramatists seem to have a difficult time adapting to the rigorous demands for scientific proof, perhaps because engagement in psychodrama encourages a less restrictive worldview, which some see as less disciplined. Perhaps the difficulty is not entirely with psychodramatists as social scientists, but rather with the scientific paradigm employed. ChT implies that research might be effectively conducted in a way similar to the way Moreno suggested that it be conducted—more inclusively and subjectively. Instead of searching for the impossible to achieve through a limiting approach—universal, immutable laws for human patterns—psychodramatists should be seeking possibilities, flexibility, and variability by using the tools that they know best. Psychodramatists should be using a group, cocreative, spontaneous approach, much like that conceived by Moreno (1951) in his Sociometric Method.

Conclusion

In this article, I have merely scratched the surface, but I hope I have laid a sufficient foundation to support the importance of ChT to psychodrama and

the importance of psychodrama to ChT-oriented interventions. The marriage may have been made in heaven—at least as much as any marriage is. Significantly more is left to be said about this joining of ChT and psychodrama. Still more is left to be done, explored, contemplated, and conceptualized.

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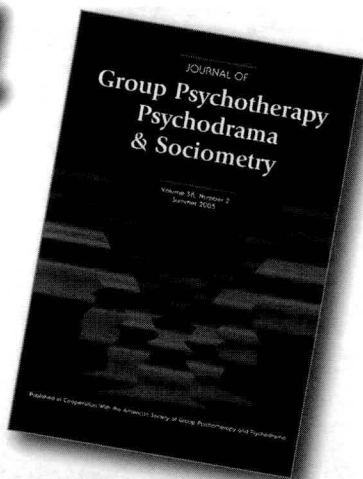
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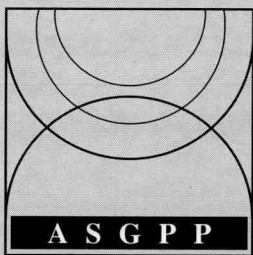
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