

"Process patterns" drawn from theories of complexity as a means for tracing long-term change in psychoanalysis

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Abstract. In psychotherapy research, as well as in psychoanalysis, there is a striking lack of concepts allowing processes of change to be described as they unfold in time. In this paper, we consider possibilities for tracing long-term developments offered by theories of complexity. Typical ways in which change occurs in complex systems are represented as *process patterns* which can be used as heuristics for identifying courses of change in therapeutic material. The process pattern developed on the basis of the "epigenetic landscape" is presented, and a methodological procedure for investigating long-term change processes is sketched out. Our research approach is illustrated by tracing change in a nine-months segment taken from a psychoanalysis.

How should we investigate long-term processes of change in psychoanalysis? In this paper, we would like to outline our research approach, which is based on theories of self-organizing processes (e.g. Haken, 1992; Prigogine, 1996; Prigogine & Stengers, 1979, 1988), or theories of complexity as they are preferably called in the U.S. (Waldrop, 1992). Theories of self-organizing processes provide new concepts (such as instability, fluctuation, or attractor) relevant to the description of change processes. The importance of these theories for psychotherapy research is being increasingly recognized by leading researchers in the field (Elliott & Anderson, 1994; Stiles, Shapiro & Harper, 1994). In psychoanalytic literature, a lively interest in "nonlinear" concepts is indicated by a growing number of articles and book reviews (e.g. Galatzer-Levy, 1995; Hoffman, 1992; Moran, 1991; Quinodoz, 1997; Spruiell, 1993; Stolorow, 1997; Wurmser, 1989). The assumption underlying our approach is that the psychoanalytic process is not a linear development; rather, it is characterized by leaps, breaks and a variety of parallel and superimposed developmental lines and themes. Thus, with regard to the debate on case history in psychoanalysis (Meyer, 1994), our approach may add a new perspective to the way we describe change processes occurring in long-term therapy.

Our research approach owes much to the *Significant Event Paradigm* (Rice & Greenberg, 1984; Greenberg, 1991; Greenberg & Foerster, 1996). However, while the *Significant Event Paradigm* confines itself to making explicit the clinical knowledge of experienced psychotherapists, our approach takes an additional step by drawing upon the domain of research on complexity. Stengers (1987, 1991, 1992, 1996) comments on the methodological issues to be considered when dealing with complex phenomena. She points to the fact that hard sciences came into being where the definition of an experimental object (i.e. an object which can be isolated and purified) turned out to be possible. Such coincidences are rare compared to the large number of phenomena that escape experimental procedures. We are optimistic that our research approach will be considered an example of a "rational practice", as advocated by Chertok and Stengers (1992, p. xvii) when they write: "How can we turn what resists purification or what submits to it only in a deceptive manner into a positive problem [...]? [...] we believe that the answer to the question belongs to history and to the eventual creation of different rational practices, practices that will doubtless be even more exacting than those permitted by experimental reason."

Process patterns describe "typical ways" in which change occurs in complex systems and can be used as heuristics for identifying courses of change in therapeutic material. Up to now, two process patterns have been developed. In an earlier paper we proposed a process pattern based on the B,nard phenomenon (Schneider, Barwinski & Föh, 1995; Schneider, Föh & Barwinski, 1997). In this paper we shall present the process pattern based on the epigenetic landscape (see also Schneider, Föh & Barwinski, 1996).

The process pattern based on the epigenetic landscape

The "epigenetic landscape", visualizing the developmental system of an organism, has been

introduced into developmental biology by Waddington (1940, 1974). Later, this "conceptual aid" (Saunders & Kubal, 1989) has been taken up by Piaget (1967) to conceptualize cognitive development (see Schneider, 1983). The epigenetic landscape graphically depicts the development of attractors in the course of time (Waddington, 1974, p. 258). An *attractor* corresponds to a preferred behavioral mode sought by a complex dynamic system as a function of the interactions of its internal components and its sensitivity to external conditions (Thelen & Smith, 1994, S. 60). With respect to tracing change in psychotherapy, we distinguish between an *old* (i.e. "problematic") and a *new* attractor (i.e. a more progressive inner attitude, a different behavior towards a significant other, etc.).

Change is made possible by a *control parameter* assuming higher values. In the B,nard phenomenon, to which we refer in order to illustrate some of the theoretical concepts (Prigogine & Stengers, 1988, p. 52), it is the supply of heat - which results in a temperature difference between the lower and the upper surface of the liquid layer - that is the control parameter. At a certain value of this control parameter, a new kind of activity arises in the system: liquid currents start to form, developing from microscopic fluctuations into a regular arrangement of convection cells appearing at the macroscopic level. In psychoanalysis, the control parameter is not applied from the outside, but emerges from the psychoanalytic process itself. Thus, the term "control parameter" (cf. Schiepek, Strunk & Kowalik, 1995, S. 105) may be circumscribed as: the patient-therapist "system's" activity (i.e. what is happening here and now between patient and analyst), as experienced by the patient. The nearer the patient's experience of the therapeutic relationship is to the new attractor, the higher the value we assign to the control parameter. Whereas the patient initially experiences the therapist in terms of an old pattern (= low value of the control parameter), he or she gradually becomes able to experience the therapist as a new object (= increasingly higher value of the control parameter).

Fluctuations may be characterized by a patient's deviation from what he is used to and exploration of new possibilities, and may be recognized by his enactment of internal patterns in an increasingly active manner (with the analyst becoming increasingly aware of these patterns by way of his or her countertransference feelings).

When the control parameter assumes higher values, parameters may take on meaning which, at or close to equilibrium, are negligible. In the B,nard phenomenon, this is true for the gravitational force, which starts to exert an influence on the molecules as soon as liquid currents are forming, that is, as soon as there is some noticeable activity in the system. Thus, the meaning of this parameter depends on the system's activity! (See Prigogine & Stengers, 1988, p. 179.) When transferred to the psychoanalytic process, this means that, when something "gets under way" with respect to the transference relationship, a patient may become aware of *inner parameters* underlying the *separatrix* between the old and the new attractor. An inner parameter may thus be thought of as a negatively toned feeling which prevents the patient from getting into the new attractors. See [Fig. 1](#).

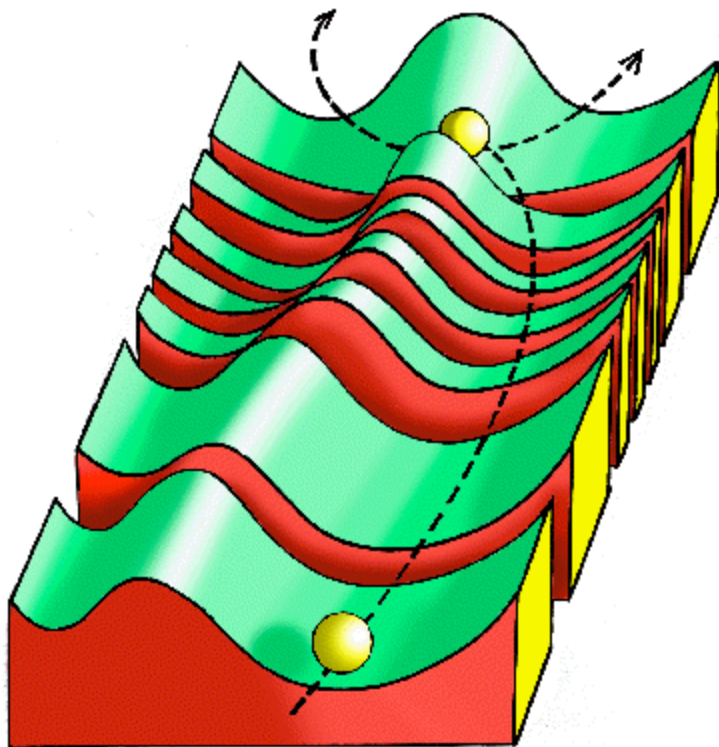


Figure 1: Graphic illustration visualizing the process pattern based on the epigenetic landscape.

In Fig. 1, the process pattern based on the epigenetic landscape is graphically visualized. The landscape is partitioned into "situations" of variable duration (i.e. from parts of sessions to a few sessions). The state of the patient is represented by a ball. The increase in control parameter values is rendered by the rise of the landscape. The valley which symbolizes the old attractor becomes flatter, so that stronger fluctuations may gradually arise. A second valley is indicated which represents the developing new attractor: at particular moments during a session (i.e. when the control parameter assumes the required value), the ball may jump into this new valley, meaning that the patient is able to experience the new state just for a short moment. Little by little, this new state becomes more distinctly recognizable to the patient, rendered by the new valley becoming as deep as the old one. Through flattening the old valley and deepening the new valley, the separatrix (i.e. the dividing line between the old and the new attractor) becomes surmountable. At the bifurcation point, the patient will be able to recognize the old and fully experience the new attractor.

Compared to the process pattern based on the B,nard phenomenon (Schneider, Barwinski & F"h, 1995), which captures the change processes taking place in a specific situation (i.e. at a bifurcation point), the process pattern based on the epigenetic landscape corresponds to a bird's-eye view, in that it visualizes the values of selected parameters as they gradually change in the course of time, thus allowing situations to be described (i.e. "still pictures" to be taken) at different moments. See [Table 1](#).

Methodological procedure: the "10-point program"

A segment selected from a psychoanalysis is analyzed using the guidelines schematically sketched out in Table 1 (cf. Schneider, F"h & Barwinski, 1993). This work is preferably carried out in a *research group*, consisting (in our case) of the analyst in charge, a second analyst, and a "researcher" whose task is to continually support the reference to the theoretical concepts (i.e. the process pattern).

The investigation of a segment selected from a psychoanalysis is based on the analyst's report to the research group. This means that we dispense with video or audio recordings of therapy sessions. (In

a sense, one might say that one of us, namely the analyst, has seen the video and summarizes the pertinent passages to the other members of the research group.) The analyst's report, however, is audiotaped and transcribed, and it may later be extended by detailed descriptions of the situations selected for further investigation based on his or her process notes. We are struck by the proximity of our procedure to the methodology developed by Stiles (1996) which, although being based on transcripts of audiotaped therapy sessions, analyzes the material in similar steps.

The process pattern based on the epigenetic landscape is summarized as a "frame" containing, as its "slots", catchwords for the specific aspects of the process pattern (see below: [Table 2](#)). By filling in the frame, increasingly precise and consistent references are established between the process pattern and the clinical material. As a result, the theoretical concepts and the description of the material are interrelated in a transparent way. This "frame procedure" (Schneider, Barwinski & F"h, 1992; Schneider & W*thrich, 1992) draws on *competitive argumentation* (VanLehn, Brown & Greeno, 1984), which has been developed in Cognitive Science for the discussion of "deep" theories (i.e. theories which, in their explanations, refer to many layers of unobservables).

Our aim was to develop a methodological procedure which would allow change to be traced over an extended period of time (meaning several months at 4 to 5 weekly sessions). Drawing on a passage from Hofstadter's latest book (1995, p. 488), we came to think of our 10-point program as an *imaging device*. To take one example: when using ultrasound, it is the computer which converts the scattered, high-frequency sounds reflected off a fetus into a vivid television image; in a similar manner, in our procedure, we make use of the psychoanalysts' ability - which may be supported by the discussion taking place in the research group - to convert the multiple aspects of their realizations about a patient into a meaningful picture. This will depend on their psychoanalytic knowledge and the theoretical concepts (i.e. in our case, the process pattern) used for generating ("computing", as it were) this picture (cf. Friedman, 1997, p. 35, for a similar use of the term "imaging technique for mind"). Thus, what we can demonstrate from our analysis of a segment taken from a psychoanalysis using our 10-point program, is a *picture of the changing internal structure of the patient as generated by the analyst and based on his or her psychoanalytic knowledge and the process pattern*. This picture will be described in the subsequent sections.

The psychoanalysis from which the nine-month segment was taken

Using the process pattern based on the epigenetic landscape, we shall sketch a particular aspect of change in the course of a nine-month segment of the analysis of a 37-year-old man. This patient came to see his analyst because of massive depressive disorders, psychosomatic complaints, relationship problems and a compulsive desire to present himself as better and bigger than he really is. The analysis of this patient posed a variety of problems, since the treatment of the neurotic conflicts was under constant jeopardy from the narcissistic disorder and related defense maneuvers.

The particular aspect of change to be described consisted of the patient being able to give up his controlling behavior in relation to persons with whom he was involved, which in turn created a sizable obstacle for satisfactory loving relationships. This change was expressed in his ability on the one hand to experience loving feelings and attitudes toward peers who were not under his control, and on the other to deal with the related feelings of worthlessness stemming from his history by being able to initially tolerate these feelings, to subsequently understand them and their roots, and eventually to largely overcome them.

The frame summarizing the process pattern

As a search heuristic, a process pattern suggests what we should look for in a passage under investigation: what might be the control parameter? Are there fluctuations? What kind of feeling may constitute an inner parameter underlying the separatrix, preventing the patient from getting into a new attractor? The frame shown in Table 2 establishes this link between the process pattern based on the epigenetic landscape and the section taken from a psychoanalysis. See [Table 2](#).

The *old attractor* (i.e. the patient's problematic attitude) can be described as follows. The patient can only have a loving attitude towards a love object when he controls the person he loves. For example, it was always the patient who decided on which evenings during a week he was "free" from other

obligations and could therefore meet his girlfriend. Financially, he was overwhelmingly generous to her, urging her to quit her job in order to have her dependent on him and be more in control of her. When his girlfriend showed signs of autonomy, stating that she didn't want his "gold" but his love, he reacted furiously and with cold anger, or retreated into depression. In the daydream of the first situation (i.e. the *Sarajevo Fantasy*; see below), he was expressing the same attitude towards the analyst. For the patient to be able to feel and express warm, tender and caring feelings towards him, the analyst had to be in a very unpleasant situation.

The initial value of the *control parameter* (i.e. the patient-therapist "system's" activity, as experienced by the patient) is indicated by a worthless, ridiculous self, libidinally attached to a devaluing, contemptuous and castrating love object. The final value of the control parameter is indicated by a positive, attractive self, worthy of love, in a relationship with a loving, caring, estimating and limit-setting good object.

The *fluctuations*, characterized by the patient's deviating from his usual patterns of feeling and relating to people, can be viewed as subtle "attempts" to experience new parts of his self. For example, in the fourth situation (i.e. the *Session Postponement Episode*; see below), he is able to risk expressing a wish to the analyst. These "major" fluctuations, which helped us to identify the six situations, are preceded by smaller ones pointing in this direction, namely showing warm feelings and love wishes towards the analyst more openly and without controlling the situation (see section on fluctuations below).

The *inner parameter*, which underlies the separatrix between the old and the new attractor, consists of the patient's feelings of shame and ridiculousness when feeling attached to a love object which is out of his control.

The *new attractor* can be recognized from the patient's feeling of being able to love the analyst, his girlfriend or other people, without having to control them. This change was connected with his insight into the determinants of the old attractor; in other words, his self-image of being worthless.

Six situations in a nine-month segment from a psychoanalysis

Following the "10-point program" (see [Table 1](#)) we identified six situations in the change process of the nine-month segment under investigation:

- (1) *The "Sarajevo Fantasy"* (July 20). The patient describes his fantasy that he is coming to save the analyst and his family, held captive by the Serbs in Sarajevo.
- (2) *The "Volcano Dream"* (September 12). The patient dreams of a volcanic eruption. He is crouching at the crater edge to avoid being hit by flying rocks.
- (3) *The "Amputation Dream"* (November 8). The patient dreams that he is asleep on the couch, wakes up, and turns around to see the analyst sitting in a hospital bed, amputated and urinating.
- (4) *The "Session Postponement Episode"* (December 14). The patient feels sadistically ridiculed by the analyst, since his request to postpone a session was not met. He thinks that the analyst doesn't "give a shit" about his injured feelings.
- (5) *The "Parking Lot Episode"* (January 10). The patient parks his car in front of the analyst's practice in a reserved parking spot, becomes afraid of punishment by the analyst, and experiences himself as absolutely ridiculous.
- (6) *The "Contract Episode"* (March 29). The patient would like the analyst to read a contract that is important to him and his business, and confirm that it is a good contract. When his wish is not fulfilled, he feels deep disappointment about the fact that the analyst cannot be, for him, the supporting father he is still seeking.

Tracing a change process unfolding in time

We shall now trace the process of change over a period of nine months, using the terms *control parameter*, *inner parameter* and *separatrix*. Fig. 2 shows a longitudinal section through the "old valley" of the epigenetic landscape, which has been turned 90 degrees with respect to Fig. 1. While the control parameter assumes higher values, the inner parameter underlying the separatrix takes on meaning. (Thus, the assumption is made that the *value* of the inner parameter remains constant whereas its *taking on meaning* depends on the value of the control parameter. This assumption is based on the analogy we draw between the inner parameter and the gravitational force in the B,nard phenomenon.) The picture may also be read as a diagram rendering estimated values of the control parameter for the situations one through six.

The value of the control parameter indicated for the first situation (i.e. the *Sarajevo Fantasy*) relates to the old attractor. This value can be estimated only indirectly on the basis of psychoanalytic considerations. There is a role reversal in that the analyst is helpless whereas the patient is a powerful rescuer. We take this as a fantasy of grandiosity which is used to ward off feelings of worthlessness. Therefore, we assign a low value to the control parameter. The inner parameter (i.e. feelings of shame) is not experienced by the patient, the separatrix thus remaining an insurmountable obstacles. See [Fig. 2](#).

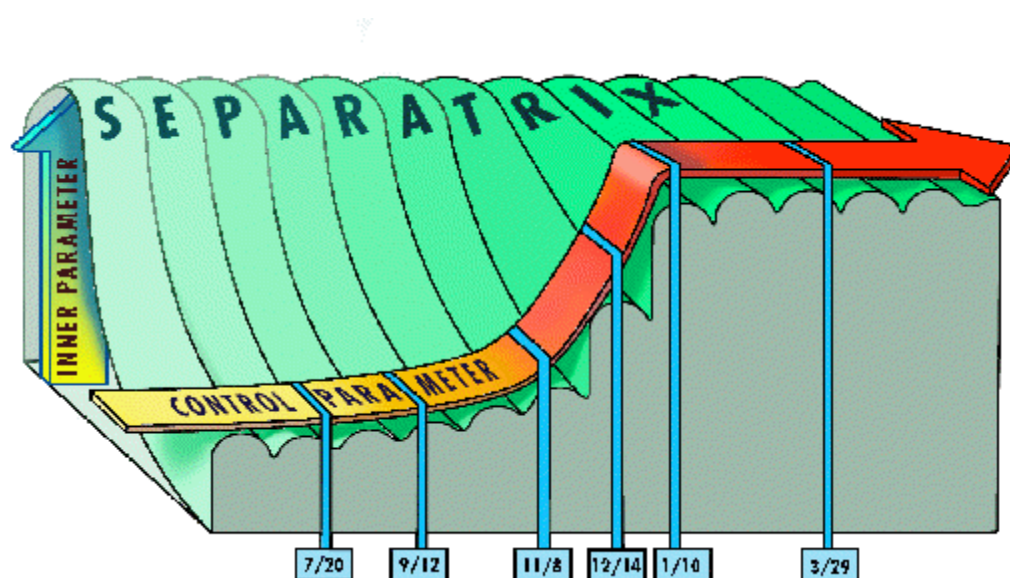


Figure 2: Longitudinal section through the "old valley" of the epigenetic landscape, turned 90 degrees with respect to Fig. 1. Estimated values for the control parameter at the time of situations one through six.

In the second situation (i.e. the *Volcano Dream*), the volcano is taken to stand for the power of the drive and the rocks for the patient's anxiety in the relationship with the analyst. This dream is an expression of a change in the control parameter. However, the wishful fantasies of the dream are not connected with the patient's feelings, since neither the desire for a loving relationship with the analyst nor the anxieties connected with this wish are experienced by the patient. This means that the control parameter has increased only by a small amount. The conditions have not essentially changed, therefore, neither with respect to the inner parameter.

In the third situation (i.e. the *Amputation Dream*), the analyst is a castrated and ridiculous object. The patient, however, is no longer an omnipotent rescuer as in the first situation. In this third situation, the control parameter can again be inferred from a role reversal as the feeling of worthlessness is projected onto the analyst. But this projection is a first step in the patient's acceptance of this feeling as his own. A slight increase in the control parameter's value may thus be inferred. In addition, the devaluation makes the analyst undesirable as an object. This means that, for the patient, there is no "danger" of feeling ridiculous when rejected. Due to this devaluation, the patient does not experience the inner parameter underlying the separatrix. (By the control parameter assuming higher values, the patient is induced to take an additional measure in order to avoid experiencing the dreaded shame and ridiculousness. Interpreting this defense further promotes the

analytic process.)

In the fourth situation (i.e. the *Session Postponement Episode*), the patient is asking for a rescheduling of a session. For the first time, he exposes himself with a wish, thus risking a rejection. That it was possible for the patient to ask for a session postponement is taken as an indication that the value of the control parameter has considerably increased. Up to now, the expression of a wish was connected with the fantasy that the object would reject him in an unloving way and make him feel ridiculous by not caring about his feeling of being hurt by this rejection. For the first time, this constellation, which had been warded off, is enacted in the transference. Because the analyst does not meet his request, the patient feels ridiculous. In other words, the inner parameter starts to take on meaning for him. Subsequently, it was possible to work through the feelings of ridiculousness and shame. That the patient is aware of a wish and is not compelled to experience the analyst as a sadistic and castrating object means that he is at this moment in the new attractor, having temporarily surmounted the separatrix. Even when he experiences a wish towards the analyst and the analyst does not grant this wish, he is able to feel that the analyst is not rejecting him in a cold and ridiculing manner.

In the fifth situation (i.e. the *Parking Lot Episode*), the patient parks his car in a reserved parking space which, he claims, is his to use if no other car is parked there. (In not occupying his parking space, the analyst is experienced as having given up his rights, like the father of the patient who was absent in his childhood and "didn't defend his rights".) At the same time, the patient is afraid of punishment and feels ridiculous when caught by the analyst returning from an errand. On the basis of the increasing stabilization of his self-esteem (i.e. the higher value of the control parameter), it is possible for him to feel oedipal wishes and to become aware of a new facet of the inner parameter: the feeling of being ridiculous not only when he shows loving feelings, but also when he is aware of anxiety based on oedipal rivalry.

In the sixth situation (i.e. the *Contract Episode*), the patient is able to accept his disappointment that the analyst does not praise his new business contract. He can tolerate feeling ridiculous when the wishes he directs onto the object are not granted by the object. The inner parameter is felt, the separatrix thus no longer constituting an insurmountable obstacle. This development has become possible because of the change of the control parameter. The patient has reached a new inner attitude; in other words, a new attractor.

What are the change processes that we tried to clarify? By estimating the value of the control parameter for the individual situations and working out the relationship between control parameter and inner parameter, we could delineate how:

- (1) a *control parameter* has to emerge and reach a certain threshold value before any development with respect to the inner parameter becomes possible. In other words, a specific characteristic of patient-therapist interaction which emerges from the psychoanalytic process is a necessary condition for intrapsychic change;
- (2) based on the control parameter assuming increasingly higher values, an *inner parameter* gradually takes on meaning. A negatively toned feeling underlying the *separatrix* which prevents the patient from getting into a new attractor gradually becomes accessible to the patient's experience.

Thus, in terms of the "epigenetic landscape", it is the development of the control parameter which fosters the awareness and change of the inner parameter.

Fluctuations preceding the Session Postponement Episode

As pointed out, in the fourth situation (i.e. the *Session Postponement Episode*) an important step in the patient's change process becomes evident. How was this development made possible? In this section, we pass to a more detailed level, and look for fluctuations in the sessions preceding the *Session Postponement Episode*.

We identified a *first* fluctuation in the fourth session preceding the *Session Postponement Episode*. The patient stated that the analyst's private life was on his mind, but that he withheld the many

questions because the analyst, being very strict, wouldn't give an answer to him anyway, and that he didn't want to feel ridiculous again, and ashamed by not getting an answer from the analyst. He ended up by asking a question, although in a somewhat intricate manner. In the subsequent session, the analyst had the impression that the patient was emotionally withdrawn, and he saw this as an indication that the patient felt hurt. The analyst ventured the possibility that the patient may nevertheless have felt rejected, in that he was expecting something, but didn't clearly say so, and now felt hurt. The patient reverted to this situation and told the analyst of the thoughts he had: if he asked the analyst about his private life and the analyst didn't answer, and if he then said that he felt hurt, the analyst would just say that he didn't care about the patient feeling hurt.

A *second* fluctuation caught our attention, which occurred in the session immediately preceding the *Session Postponement Episode*. The patient greeted the analyst in the waiting room as well as in the consulting room. In other words, they shook hands twice. However, the patient commented on this by saying: "I'm still in the ritual!"

Both sessions are characterized by an attempt by the patient to show to the analyst that he loves him. This thrust, however, is immediately wrapped up into a withdrawal. But by asking the analyst about rescheduling a session, the patient exposes himself without a safety net. Our assumption is that, in the preceding session, "something" (i.e. an aspect of the control parameter) has accumulated that prepared the way for the enactment in the *Session Postponement Episode*.

The concept of fluctuations helps identify such courses of change in the material. In a future project, a closer look could be taken at the way in which the analyst "excavated", as it were, the question that the patient hadn't really asked, and how both analyst and patient dealt with the patient's fantasies of the analyst not caring about his feeling of being hurt. At this level of detail it would then be possible to identify characteristics of productive versus non-productive courses of change. An initial question may be: what are the processes that facilitate the formation of an enactment such as the *Session Postponement Episode*?

Discussion

In the two preceding sections we described what can be "seen" when looking at change processes using the process pattern based on the epigenetic landscape. Certainly, this process pattern picks out a small number of "threads" from an intricately woven "texture". However, only by this kind of simplification may strands of change be identified in the material (see Stengers, 1987, 1996, for comments on using simple models in view of complexity). In this sense, process patterns constitute a restriction that we accept in order to be able to "tell a story" along pre-set lines, borrowing from Stengers (1991a) the term "narrative principle" as a characterization of a process pattern.

Using this process pattern, other research groups may describe courses of change which are similar with respect to the features of change processes highlighted by the process pattern. These descriptions may then be collected, and accounts of productive and non-productive segments may be compared (cf. Greenberg & Foerster, 1996). In this way, the process pattern based on the epigenetic landscape may contribute to the identification of additional starting points for change (such as fluctuations in the patients experience) in treatments with difficulties similar to the psychoanalysis described in this paper.

Process patterns may be considered as a source of inspiration with regard to conceptualizing change. Gradually, it will become clear which aspects of these process patterns will turn out to be pertinent for the description of long-term change processes in psychoanalysis. Our methodological procedure is geared to producing a picture of change processes that covers an extended period of time with a minimum of expenditure. Our hope is that this proposition will contribute to the discussion within psychotherapy research about how to investigate processes of change which are typical of long-term psychoanalysis.

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Table 1. Tracing long-term change in psychoanalysis by means of process patterns: guidelines for investigation.

(1st research session:)

(1) *Matching of a segment* (i.e. a part of a psychotherapy) *to a process pattern*: which segment from which psychoanalysis should be investigated by means of which process pattern? (The "epigenetic landscape" is here used as an example.)

(2) *Report* on the selected segment by the analyst in charge.

(3) *Questions* related to the understanding of the treatment process by other members of the research group:

- *from a psychoanalytic perspective*, and

- in terms of *the process pattern* being used.

(4) *Transcript* of the tape recording of the research session.

(Before and during the **2nd research session:**)

(5) Establishing a *provisional relationship* between *particular concepts* of the process pattern and the *material* (as reported by the analyst in charge). Extraction of a "*problematic*" *strand* and identification of *particular situations*.

(After the session:)

(6) The analyst in charge reviews his or her notes with the aim of getting a *more detailed description* of the particular situations in the selected segment.

(In the **3rd** and **subsequent research sessions**, the other members of the research group having read the detailed description:)

(7) Clarification of further aspects of the material.

(8) Analyzing the selected segment in terms of the process pattern by filling in a frame and carefully describing particular situations,

(9) thus establishing an *increasingly precise and consistent relationship* between process pattern and clinical material.

(10) Drawing *conclusions*, e.g. by comparing the investigated segment with "ideal" courses of

change (as compiled on the basis of the investigation of a large number of segments).

Table 2. Frame for the process pattern based on the "epigenetic landscape", establishing the link between the process pattern and the section from a psychoanalysis taken as an example. The passages printed in *italics* relate to the visualization of the epigenetic landscape (Fig. 1).

Old attractor

The patient can have a loving attitude only when he controls the person he loves

The **control parameter**...

(i.e. the patient-therapist "system's" activity, as experienced by the patient)

... assumes higher values. (*The landscape rises.*)

Initial value:

Negative self-image (worthless, ridiculous) and related image of an indifferent, devaluating and castrating object

Final value:

Changed self-image (worthy of love) in connection with the image of a loving and limit-setting good object

The **fluctuations** in the patient's experience are becoming more pronounced. (*The valley, representing the old attractor, becomes flatter.*)

... (see description of individual situations)

The **inner parameter** underlying the **separatrix** receives meaning. (*The separatrix, based on the inner parameter, becomes surmountable.*)

The patient feels ridiculous and ashamed when he expresses a wish towards a person he loves

A new attractor is showing:

- Experience of a (new) feeling: ability to have a loving attitude without having to control the object
- Insight into the determinants of the old attractor: the patient's self-image of being worthless