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Endogenous, and Exogenous Boundaries of

Mindamic, Their Interfaces and Coping with Action

Space

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Abstract

The research is sequel to ransacking for mindamicscape. The objective of the research was to organize the cumulated knowledge with modeling and to attempt to 'guess' the train of a mindamic. The data composed of videotaped behavior. Structured observation was applied to the data. The number of subjects was 63; 22 were women and 41 men. Reliability and validity of observation were assessed. The reliability coefficient was 0.96 and the validity coefficient was 0.80. The proper analysis consisted of the stochastic chain analysis. The results indicated the hypothesis falsified. What was obtained, was a pattern. In the submindamices the persons increase the inert behavior and decrease the tracking behavior and decrease their coping behavior, first. Second, the persons decrease their inert behavior and convert inertia into the tracking behavior and delete the coping behavior. Third, the persons decrease the inert behavior and increase the tracking behavior, and increase their coping behavior somewhat. The coping behavior with the action space remains incomplete, in the majority of the persons.

Key words: action space,inert behavior, coping behavior, mindamic

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The objective of the research is to test a
three-part hypothesis that was derived from a model
for mind dynamic or mindamic. It was necessary to
model cumulated information until now to continue
the series of the researches that began seven years
ago. The model is the second one. The presentation
of the model is in Figure 1. Behavior begins from
the upper left corner when environmental information
flows through senses and is decoded into an
arrangement of the minditions and the mindices, in an
action space (Kolb and Whishaw, 1985, p.567). So in
the action space they form a mindamic that inputs
into the transformer. The mindamic converts into the
transmuted output with the help of the converting
feedback. The transmutation of the mindamic wheels
until the probabilistic behavior matches with
environment. The exogenous and endogenous boundaries
set constraints to behavior. The model compresses
the main results until now. The transmuter is the
crucial process system having capacity to conversions
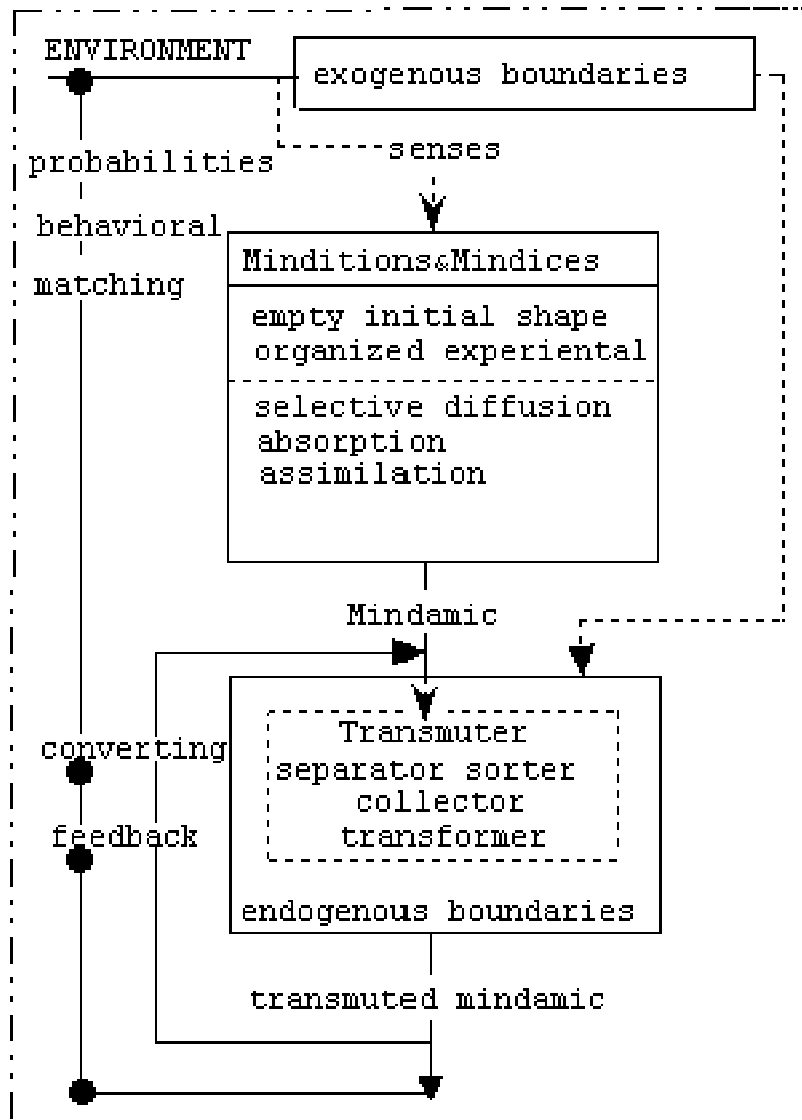between other processes.

Figure 1. Start model.

There are loops of feedback in the process system that makes it regulative. The regulator is the transmuter that can modify the mindamic from elastic states into plastic ones and again into new elastic states. The transmuter, however, has its masters the exogenous and endogenous boundaries. An exogenous boundary is for example a social status that sets certain limits to behavior. An endogenous boundary is for example a personal not to do behavior. The transmuter also has auto-loops and they probably are so called inner loops of the mind where actual modification of information takes place. An essential factor in the endogenous boundary is inner discriminations between the discrete processes. The model produced the hypothesis: 1) In an action space interface or surface of contacts between the exogenous and the endogenous boundaries causes inert behavior 2) the increases of the exogenous boundaries track behavior, and 3) the decreases of the endogenous boundaries cause more transmuted mindamic and easier to decide behavior that copes with conditions of the action space, in a more adaptive way.

In the interface the question is about confrontation of the repertoire of the experiences

and the influence of other persons at present, among other things. It is general knowledge that other persons influence in us in variable ways, for example persuasion. So that when the experiences of a person confront with behavior of others in the action space then there emerges an interface that inhibits clear decision making. In other words, the outcome is indecision to behave in a certain way or one's own way because of conformity factors, for example pressure towards the typical behavior.

Second, if the exogenous boundary wins then a person follows up the traces of others or tracks. In other words, the mindamic channels into the conventional behavior, for example a hold back for the sake of a laugh of others.

Third, it is rather natural to infer; a certain amount of independence and slackening of the endogenous boundary releases the repertoire of the experiences. It makes easier and less energy demanding to reconstruct and reorganize the experiences transmutable. In one of the best cases, the empty mindition transmutes into the experiental one, directly. It is called creativity, maybe insight, too.

As with the present research there are not

variable, except gender, but processes under scrutiny. The ones including in the research are: the endogenous boundary, the exogenous boundary, decisions, transmutations, outcomes; inert, tracking, and coping behavior.

Method

Participants

Originally, there were 189 subjects but the number reduced to 63, (22 women, 41 men) because the subjects participated with all the tasks. So to have the mentioned processes to include in the data it was necessary to turn scrutiny to the winners.

The contests comprised of three tasks. The first task included in two items, the second one either two or three items, and the third task had one item. In the first task there were 16 screens and 11 were right answers. In the second one there were 12 screens from which 8 were right, and the subjects had to announce how many right answers they know, beforehand. The last task of choices demanded 6 answers right from 12 ones. The leader read the questions twice. The references on the screens included a common feature of reality such as persons over certain age and the names were on the screens. The last task presumed to find the common

feature that 6 screens contained. After the
first selection the subject had to check his or her
result. Thereafter, changes were possible during one
minute. The last result counted. To have prizes
presumed all the 6 answers right.

Furthermore, the subjects had an opportunity to
shift their turn to next subject when they considered
it suitable. The empirical correspondences with the
processes formed as next. The right answers
indicated substantial behavior because the questions
included a common feature of the states of reality.
The turn shifts showed the endogenous boundary
because it was voluntary to shift. The wrong answers
indicated the exogenous boundary because they resett
the situations to zero.

In the third task, the choices and their changes
showed decisions, the changes of the choices
indicated the transmutations, and the numbers of the
right answers were the outcomes in every round in one
minute. The action space was the area reserved for
the contest. The subjects pressed the screens with
their hand the 3rd task.

The subjects were in triplets in the contests
and to maintain observation as consistent every
screen

marked with alphabet. The turn shifts marked

with the number of 7, and the wrong answer had an
F(false) after every observation. The frequency of
the before answers were as such. Thus the
observation minutes had 6 rows (3,2,1). The answers
were frequencied and the items won were joined in
the tasks because the items were similar kinds.
Gender scored 1 for men and 2 for women.

<div align="center">Results</div>

Reliability and Validity of Observation

Now it was time to construct the data matrix 63
by 10 by form. The subjects were in the rows and the
gender, and the processes in the columns. After
that, it was necessary to normalize the data matrix
in the columns because the processes did not have a
scale. On the other hand, normalization makes the
calculations simpler.

Using the dot product gives correlations between
the processes, such as they are in Table 1.

The correlations are the basis for calculating
the reliability and validity of observation.
Validity was

Table 1

Correlation Matrix of Processes   (n=63)

	Task1			Task2			Task3			
1. Su	--	.93	.67	.85	.91	.47.	.86	.84	.88	.89
2. En		--	.63	.84	.88	.48	.85	.83	.85	.87
3. Ex			--	.65	.72	.46	.74	.71	.82	.78
4. Su				--	.92	.55	.81	.80	.83	.84
5. En					--	.53	.88	.87	.89	.91
6. Ex						--	.51	.49	.51	.52
7. De							--	.93	.88	.97
8. Tr								--	.84	.97
9. Ou									--	.93
10.Co										--

Note. Abbreviations of processes mean: Su=substantial, En=endogenous, Ex=exogenous; de= decisions, Tm=transmutations, Ou=outcomes, Co= coping behavior with the action space.

somewhat problematic but a solution was found to it. One of the convenient ways to assess reliability is in Nunnally (1967, pp. 194-198). The way was usable in this context. In a short form the entire calculation is: first, dot products $[1_{9.}] \cdot r_{ij} [1_{9.}]'$, then calculating $9/8*(63.22-9)/63.22$. The result is 0.96 for the coefficient of the observation reliability.

Validity was somewhat more complex to assess. The coping behavior (decisons+transmutations+outcomes) was as the standard because it was not derivable from its components. The mutual dependencies between the decisions, the transmutations, and the outcomes were partialized out. The obtained first-order partial correlations replaced the last three coefficients in Table 1 down right and they were (decisions) -0.18, (transmutations) 0.75, and (outcomes) 0.75. The obtained correlations were subtracted from ones that did not include error. The deviations were squared, added, and divided by the maximum deviation (9). The procedure resulted in the value 0.20 that was subtracted from 1.00 to hold the coefficient in the right direction. So validity proved to be 0.80 with this method. Table 2 includes the frequencies.

Analysis of Mindamic

There are two ways of examination of the data: the observations in the process space ex–or the processes in the observation space. A fact that makes it somewhat difficult to answer the question: Who did what, when, and why? So the spaces were joined in the following way.

The frequencies of the data matrix converted into statistical probabilities both in the columns and in the rows. The obtained probabilities were added and the column sums of the resulted matrix were calculated. Furthermore, the data matrix was sorted according to gender to scrutinize the processes of the women and the men in a similar fashion as with the entire mindamic. The column sums are in Table 2.

The state probabilities were obtained applying the outer product task by task and using simple reasoning from the diagonals. The diagonal values indicated staying in the states. Simply put, if $c_{ij} > c_{ii}$ then the

Table 2

Start Values for Analysis of Mindamic

Task1

	ra	ts	wa
Mindamic	12.16	6.67	3.98
Women	4.84	2.99	2.02
Men	8.32	4.67	2.95

Task2

	ra	nra	wa
Mindamic	8.89	14.06	1.53
Women	3.60	5.09	1.24
Men	6.28	9.96	1.28

Task3

	de	tm	out
Mindamic	6.45	10.49	7.73
Women	3.17	4.59	3.41
Men	4.28	6.89	5.32

Note. Abbreviations in the column heads mean:
ra=right answers, ts=turn shifts, wa=wrong answers,
nra=notified right answers; de=decisions,
tm=transmutations, out=outcomes.

value included in for the probabilities; otherwise the value was zero. The calculations presumed not to use zeroes. That is why the zeroes were replaced with one millionth that did not affect the results with two decimal places and mathematical roundings.

As with the state vector, it included in the probabilities of the inert, tracking, and coping behavior. The inert behavior by definition is action that tries to continue in the same way. The tracking behavior means action following up with a mental course. The coping behavior shows action that adapts to the prevailing circumstances in the action space, optimally. Any of the behaviors did not have priority with each other and that is why the state vector formed into [.33,.33,.33].

Division of the 3 by 3 matrices by their row sums resulted in the causal state matrices. The matrices were chained and pre-multiplied by the state vector in an output as input way. The results of the mindamic are in Table 3.

What is important, is H_0 verifies as falsely that

Table 3

Entire Mindamic

Process1

	sv^0		su	en	ex	sv^1
Inertia	.33	su	1.00	.00	.00	.72
Tracking	.33	en	.65	.35	.00	.21
Coping	.33	ex	.53	.29	.17	.06

Process2

		su	en	ex	sv^2
Inertia	su	.39	.61	.00	.30
Tracking	en	.00	1.00	.00	.69
Coping	ex	.36	.57	.06	.00

Process3

		de	tm	out	sv^3
Inertia	de	.26	.42	.31	.08
Tracking	tm	.00	1.00	.00	.82
Coping	out	.00	.58	.42	.09

Table 4

Mindamic of Women

Process1

	sv^0		su	en	ex	sv^1
Inertia	.33	su	1.00	.00	.00	.70
Tracking	.33	en	.62	.38	.00	.23
Coping	.33	ex	.49	.30	.21	.07

Process2

			su	en	ex	sv^2
Inertia		su	.41	.59	.00	.31
Tracking		en	.00	1.00	.00	.67
Coping		ex	.36	.51	.13	.00

Process3

			de	tm	out	sv^3
Inertia		de	.28	.41	.31	.09
Tracking		tm	.00	1.00	.00	.80
Coping		out	.00	.57	.43	.10

Note. Abbreviations mean: su=substantial behavior, en=endogenous boundary, ex=exogenous boundary; de=decisions, tm=transmutations, out=outcomes.

Table 5

Mindamic of Men

Process1

	sv^0		su	en	ex	sv^1
Inertia	.33	su	1.00	.00	.00	.71
Tracking	.33	en	.64	.36	.00	.22
Coping	.33	ex	.52	.29	.19	.06

Process2

		su	en	ex	sv^2
Inertia	su	.39	.61	.00	.30
Tracking	en	.00	1.00	.00	.69
Coping	ex	.36	.57	.07	.00

Process3

		de	tm	out	sv^3
Inertia	de	.26	.42	.32	.08
Tracking	tm	.00	1.00	.00	.81
Coping	out	.00	.56	.44	.10

Note. Abbreviations mean: su=substantial behavior, en=endogenous boundary, ex=exogenous boundary; de=decisions, tm=transmutations, out=outcomes.

implies H_1 under scrutiny. Gender was the only variable in the research. Thus it is appropriate to have a keener examination with the processes of the women and of the men. The women's results are in table 4. Comparison between Tables 3 and 4 reveals the same pattern although there is minor variation between the causal state probabilities. The pattern repeats itself with the men in Table 5.

Discussion

The three-step hypothesis falsified. Accordingly, next question is: How does the processing of the processes occur?

The mindamices in Tables 3, 4, and 5 do not include in powerful differences. An exception is the women and the men in the 2nd process. In Tables 4 and 5 the last rows in the 2nd processes show major differences. The women stay more in the exogenous boundary than the men. In addition, the women are less likely to transfer from the exogenous boundary to the endogenous boundary. The exogenous boundary makes the women more prone to suspend the substantial states in the advancement towards the endogenous boundary. The difference is not to be exaggerated because the pattern is the same in each mindamic. That warrants the

examination of the entire mindamic as the basis for further scrutiny in Table 3. Movement takes place from left to right and downwards in table 3. In this context, I notice the concepts used are not something exact or dynamic because psychological terms are as-if scientific. The thing comes in sight, for example in Danziger (1997).

As with the processual behavior, the results allow next inferences. The exogenous boundary modifies the endogenous boundary of the persons and recommences their substantial behavior. The endogenous boundary of the persons progresses their substantial behavior. The persons intend to maintain the substantial behavior.

The persons during the 1st submindamic increase the inert behavior and decrease the tracking behavior and decrease their coping behavior, too.

The exogenous boundary interrupts the orientation

of the persons towards the endogenous boundary and suspends their substantial behavior. The persons advance the substantial behavior during the approach to the endogenous boundary. The persons attempt to maintain the orientation towards the endogenous boundary. During the 2nd submindamic, the persons decrease their inert behavior and convert inertia into the

        tracking behavior and delete the coping
behavior.

        The persons implement the redecisions with the
transmutations and tests the outcomes. The persons
alter the transmutations according to the outcomes.
The persons stay in the transmutations without
attaining the optimal outcomes, mostly.

        In the 3rd submindamic the persons decrease the
inert behavior and increase the tracking behavior and
increase their coping behavior a little.

        The return to the model and taking a more
theoretic standpoint indicates; the probabilistic
behavioral matches (Figure 1) with the environment
(the action space) are not adequate for the
attainment of the goals. An organisismic subsystem
in the process system that repeats time after time is
the transmuter. It appears, the emergence of the
transmuter is independent from the way it is measured
empirically. That has come in sight in the series
of the former researches. So there is no reason to
give up the transmuter that is responsible for the
partial attainment of the optimal solutions.
Seventeen persons out of 63 achieved the optimal
solutions. Separation, sort, collection, and
transformation of substance from the environmental
information are crucial for the successful
probabilistic, behavioral matches. Thus

knowledge about the states of reality, however, is not enough because the exogenous and endogenous boundaries produce constraints on the transmuter. The varying exogenous boundary is the most labile and it regulates both the transmuter and the endogenous boundary. Furthermore, the decisions based on information bring forth incomplete transmutations. Accordingly, the optimal solutions are complete. What is needful is knowledge about the things, matters, persons, and their interaction. Shortly put, substance is necessary for coping with environment, successfully.

On the other hand, no reason occurs to indicate adoption of the form and contents of substance to take place at different times. Probably, the most favorable alternative in adoption of information is to store it up in pieces of contour. Retention along with the same reasoning is the capacity of the transmuter to reconstruct knowledge and information from the pieces of contour. That is why selective diffusion, absorption, and assimilation are needful before the transmutations. The same thing concerns the mind processes: the empty process, the initial form, the mental shape, the mindy, and the organized, experiental process. The mind processes have the number of the degrees of the freedom much greater than expected at

first. It may be, behavior includes adaptive tendencies but persons confront with their used-to mindamices with environmental fluctuation and the best possible solutions are not found. The reason may be. The lack of the knowledge is filled-in with habitual information which causes certain rigidity and narrowness in the process system. So the revision of the model is to take into account of the previous aspects. The changes of the model are in Figure 2.

Comparison between Figures 1 and 2 show some of the changes in the conceptualizations. The purpose of the changes is to move the model more towards the real process system. Knowledge and information flow into the mind through the senses. The mindamices are bursting in nature, for example the firing of an individual nerve cell is a burst process. The process has been photographed recently. The transmuter of a person associates the minditions with the mindices and starts to filter knowledge from information. The filter means the separation, sort, collection, and transformation. After the filtering the person makes a decision(s) to act or not. He or she utilizes the already existing mindamices to produce or repeat behavior.
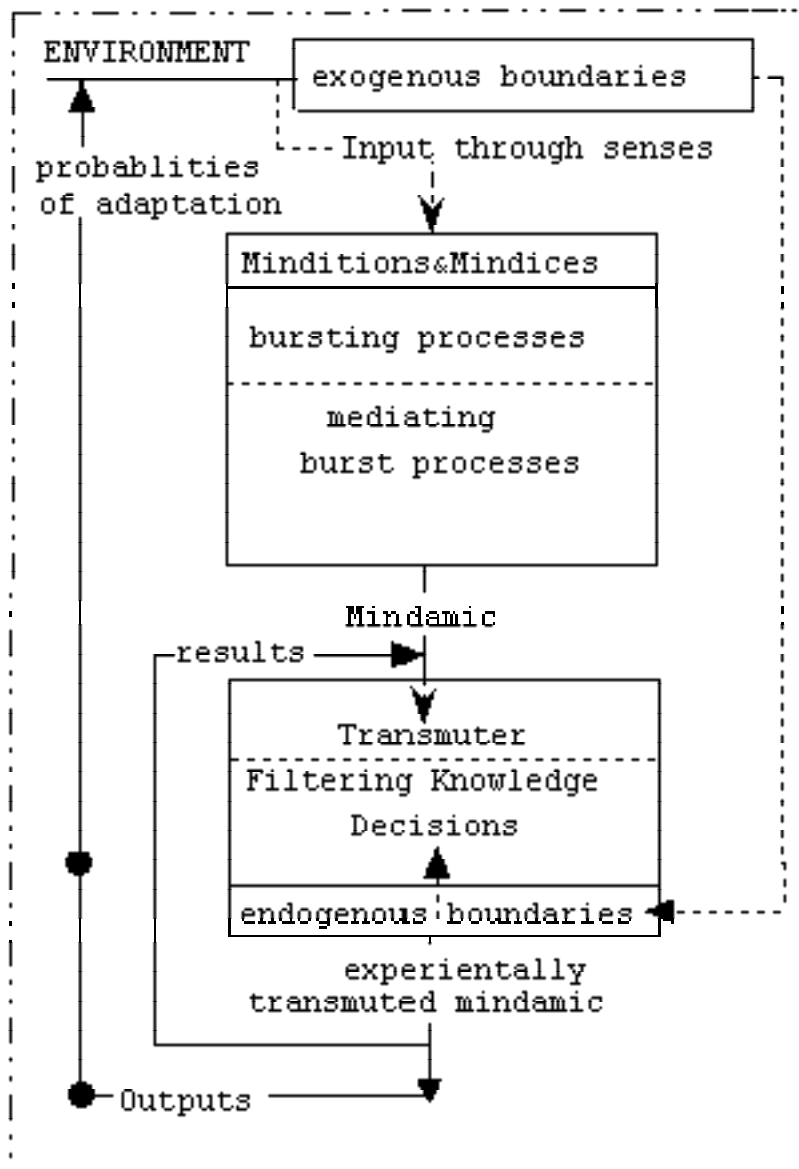
Figure 2. Goal model

The results of behavior feed back into the
transmuter that continues to transform behavioral
iteration. The iteration continues until the outputs
approximate well enough the conditions. After it
the person makes a decision(s) to cope with the
environment and behaves overtly.

There is a but; the exogenous boundaries induce
how the endogenous boundaries evolve and constrain on
the transmuter. At least, the influences can be
facilitating or inhibiting with the adaptive
probabilities. If there is match enough, behavior is
successful; otherwise behavior is less successful.
In the 1st case the question is about the cope with
the environment; in the 2nd case the question is
about the former experience is leading astray or
braking the find-out of the optimal solutions in the
very circumstances. It is natural that the person
behaves regulatively, when distance with the optimal
solutions grows.

After the revision of the model no hypotheses
derive from the model whereas it may rational to
expect a certain kind of behavior. The expectation
is: persons who are guided from the inside out have
greater

amount of the coping behavior than persons who
are guided from the outside in. The expectation
bases on greater knowledge of reality in the former
case; in the latter case the reason is having plain
information which makes persons more conformable to
the outside influences and dependent on different
environments, especially the social environment.

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