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SET AND STRESS

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ABSTRACT: THE PURPOSE OF THE ARTICLE IS TO PRESENT A ENTROPY MODEL OF THE SET OF A SYSTEM AND A PRACTICAL ANALYTICAL METHOD FOR DETERMINING THE MAIN CONTROL FACTORS OF THE SET OF A SYSTEM AFTER THE OCCURRENCE OF STRESS. THE EXAMPLES ARE PRESENTED FOR CALCULATING THE ENTROPY OF SET. THE APPLICATION OF THE METHOD IS QUICKLY AND EASY TO IMPLEMENT.

KEYWORDS: PSYCHOLOGY, SET, REGULATION, THEORETICAL MODEL.

Introduction

The set of a system is made up of a fixed, neutral and variable sets.

The control factors of the fixed set form adaptive behavior to the backstory of the system.

The control factors of the variable set form adaptive behavior to the external environment of the system.

The control factors of the neutral set form adaptive behavior between the present and the backstory of the system.

In order to safeguard a system it is necessary to adapt the information from its past to the present. This process is realized through complementarity of the fixed, neutral and variable set of the system:

(1) $$\mathbf{Z = Zf \,.\, Zo.\ Zv\ ,}$$
$$\mathbf{1 \le Z < e\ ,\ 1 \le Zf < e\ ,\ 1 \le Z\ o < e\ ,\ 1 \le Zv < e,\ e \approx 2{,}72\ ,}$$

where **Z** - set of the system,
Zf , Zo, Zv - fixed (f), neutral (o) and variable (v) set Z of the system.

If there is a stress for the system, its neutral set hasn't the needed technological time to adapt the information from the fixed set to the changes in the variable set. At this point the neutral set is prepared for transformations and its value is in the start position Zo = 1. Accordingly (1) is transformed as:

(2) $$\mathbf{Z = Zf \,.\, Zv\ .}$$

The ratio between the Zv and Zf at a certain point in the individual development of the system can be represented as:

(3) $$\mathbf{Zv = b.\ Zf\ ,}$$

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where **Zv, Zf -** variable (v**)** and fixed (f**)** set Z of the system,
b - variable ratio and fixed set at a certain point in the individual development of the system.

Entropy model

If you are taking logarithms both sides of the equality (2), it is obtained:

(4) $$\mathbf{H = Hv + Hf ,}$$

where **Hv -** entropy of the variable set of the system,
Hf - entropy of the fixed set of the system,
H - entropy of the system.

If you are taking logarithms both sides of the equality (3), it is obtained:

(5) $$\mathbf{Hv = h + Hf ,}$$

(6) $$\mathbf{h = \ln b ,}$$

where **h -** natural logarithm of the factor **b** .

The factor **h** has the sense of an entropy of a ratio. Therefore $\mathbf{0 \le h < 1}$.
Accordingly $\mathbf{1 \le b < e}$.
The entropy **h** has the level of organization of the discussed system.
From (4) and (5), it follows that:

(7) $$\mathbf{Hv = 0.5 (h + H) .}$$

We found that the variable set represents the ratio between condition and relation:

(8) $$\mathbf{Zv = Zv_1 . Zv_2^{-1} ,}$$
$$\mathbf{1 \le Zv_1 < e , 1 \le Zv_2 < e , e \approx 2{,}72 ,}$$

where $\mathbf{Zv_1}$ **–** condition of the system,
$\mathbf{Zv_2}$ **–** relation of the system.

If you are taking logarithms both sides of the equality (8), it is obtained:

(9) $$\mathbf{Hv = Hv_1 - Hv_2 ,}$$
$$\mathbf{0 \le Hv < 1, 0 \le Hv_1 < 1, 0 \le Hv_2 < 1 ,}$$

where $\mathbf{Hv_1}$ **-** entropy of the condition of the system,
$\mathbf{Hv_2}$ **-** entropy of the relation of the system.

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From (7) and (9), it follows that:

(10) $$\mathbf{Hv_2 = Hv_1 - 0.5\ (h + H).}$$

From equality (10), it follows that:

(11) $$\mathbf{Hv_1 > Hv_2.}$$

Therefore the individual development of the system is accomplished through an increase in the value of the condition. The relation is manifested as a regulator of stabilization of the set.

The condition includes fewer control factors than the relation. The condition has a higher degree of concreteness, compared to the relation. Accordingly the level of organization of the condition is higher than the level of organization of the relation.

As regards the main control factors (10) is transformed in the form:

(12) $$\mathbf{H(\zeta v_2) = H\ (\zeta v_1) - 0.5\ [\ h + H(\zeta\ )],}$$

where **H** (ζv_2) - entropy of the main control factor ζ of the relation,
H (ζv_1) - entropy of the main control factor ζ of the condition,
H (ζ) - entropy of the main control factor ζ of the system.

If you exclude external attachment of a system, it gives rise to internal attachment and vice versa. The internal and external relation complement each other:

(13) $$\mathbf{Zv_2 = \underset{\wedge}{Zv_2} . \underset{\vee}{Zv_2}\ ,}$$

where $\underset{\wedge}{Zv_2}$, $\underset{\vee}{Zv_2}$ – internal (∧) and external (∨) relation Zv_2.

The external relation forms the way of interaction of the system with the environment.

This interaction changes (adapts) the system to that environment. The external variable set of the system, which communicates directly with the environment, changes first. Therefore the range of the variations to the external set of the system is greater than the range of variation of the internal set:

(14) $$\mathbf{D\underset{\wedge}{Zv_2} < D\underset{\vee}{Zv_2}\ ,}$$

where $D\underset{\wedge}{Zv_2}$, $D\underset{\vee}{Zv_2}$ – range of variation of the value of internal (∧) and external (∨) relation of a system.

If you are taking logarithms both sides of the equality (14), it is obtained:

(15) $$\mathbf{Hv_2 = \underset{\wedge}{Hv_2} + \underset{\vee}{Hv_2}\ ,}$$

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where $\underset{\wedge}{\mathbf{Hv_2}}$, $\underset{\vee}{\mathbf{Hv_2}}$ - entropy of internal (∧) and external (∨) relation.

From (12) and (15), it follows that:

(16)
$$\underset{\vee}{\mathbf{H}}(\zeta \mathbf{v_2}) = \mathbf{H}(\zeta \mathbf{v_1}) - 0.5\,[\,h + \mathbf{H}(\zeta)] - \underset{\wedge}{\mathbf{H}}(\zeta \mathbf{v_2}),$$

where $\underset{\vee}{\mathbf{H}}(\zeta \mathbf{v_2})$ - entropy of the main control factor ζ of the external (∨) relation (v_2),

$\underset{\wedge}{\mathbf{H}}(\zeta \mathbf{v_2})$ - entropy of the main control factor ζ of the internal (∧) relation (v_2).

From (16) it follows that the external relation of the system adapts to the changes in the set of the system. Accordingly the entropy of the external relation is amended in the range from 0 to 1. The phases of this relation (table 1) are defined by (6).

The degree of external relation can be determined physically through crystallization of water. For this purpose a man headed to court with water his typical relation to a particular object or to the surrounding environment. The degree of a symmetric crystallization of the water from this court, determined by the method of Prof. Masaru Emoto, determines the degree of positive relation.

The degree of harmonical crystal forms of water corresponds to the extent of the positive relation of the man to the water sample.

Table 1.

Indicative allocation of entropy of a control factor and ratio between variable and fixed set

Entropy of a control factor	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	<1.0
b - ratio between variable and fixed set	1	1.11	1.22	1.35	1.49	1.65	1.82	2.01	2.23	2.46	<2.72
Type of relation	admiration	appreciation	kindness	courage	peace of mind	presence of the spirit	voltage	anxiety	fear	anger	hatred

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The analytical determination of the entropy of the main control factor of external relation can be illustrated by seeking for a solution of the problem (table 2).

Table 2.

Search for a solution for adjustment of a system

Symptom; *Entropy*	**Factor**	**Standardization and synchronization**
Feeling afraid to sleep.	$H(\zeta)$	From table 1, it follows that for fear: $H(\zeta) \approx 0.8$.
My job is very stressful and I can't handle it	h	From table 1 it follows that for concern **:** h ≈ 0,7.
	$Hv(\zeta)$	From (7) it is appropriate that the variabil set entropy is $Hv(\zeta) = 0,5. (h+ H) = 0.5. (0,7+0,8) = 0,75$.
I have health problems	$H(\zeta v_1)$	From table 1, it follows that for anxiety: $H(\zeta v_1) \approx 0.7$.
I have a feeling I'm falling	$H(\zeta v_2)$ ∧	From table 1, it follows that for fear: $H(\zeta v_2) \approx 0.8$. ∧
Entropy of external relation	$H(\zeta v_2)$ ∨	From (9), it follows that: $H(\zeta v_2) = H(\zeta v_1)-Hv(\zeta) =$ $= 0.7 - 0.75 = - 0.05$. From (15) it follows that: $H(\zeta v_2) = H(\zeta v_2) - H(\zeta v_2) =$ ∨ ∧ $= - 0.05 - 0.8 = - 0.85$. $H(\zeta v_2) = - 0,85$ expresses a significant deficiency of ∨ external relation.

It follows from table 2 that the system has a substantial deficit of relation and above all of external relation. Therefore the system can recover most quickly if you improve its external relation.

The example illustrates the importance of the external relation to restore the equilibrium of a system. An example of equilibrium system for comparison in table. 3 is referred.

Table 3.

Harmonisation of the balanced system

Symptom; *Entropy*	**Factor**	**Standardization and synchronization**
I feel good.	$H(\zeta)$	From table 1 it follows that for goodness: $H(\zeta) \approx 0.2$.
My job is very stressful, but I can handle it	h	From table 1, it follows that for peace of mind: h ≈ 0,4.
Variable entropy	$Hv(\zeta)$	From (7) it is appropriate that the variabil set entropy is $Hv(\zeta) = 0,5. (h+ h) = 0.5. (0,4+0,2) = 0,3$.
I have no health problems.	$H(\zeta v_1)$	From table 1, it follows that for kindness: $H(\zeta v_1) \approx 0.2$.
I succeed in everything gradually.	$H(\zeta v_2)$ ∧	From table 1, it follows that in presence of the spirit: $H(\zeta v_2) \approx 0.5$. ∧

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Entropy of external relation	$H(\zeta v_2)$ ∨	From (9), it follows that: $H(\zeta v_2) = H(\zeta v_1) - Hv(\zeta) = 0{,}2 - 0{,}3 = -0{,}1$. From (15), it follows that: $H(\zeta v_2) = H(\zeta v_2) - H(\zeta v_2) = -0.1 - 0.5 = -0.6$. ∨ ∧ $H(\zeta v_2) = 0.6$ - expresses the normal deficit of external ∨ relation

It follows from table 3 that even clinically healthy person, who deals good with his problems, has a deficit of external relation.

The religious setting forms a positive relation towards the environment of the man (table 4).

Tables 2, 3, 4 show that one always needs a personal external positive relation to ensure his own stability. This deficiency cannot be replaced with anything else.

Table 4.

System in a religious trance

Symptom; *Entropy*	**Factor**	**Standardization and synchronization**
I feel very well, thanks to God.	$H(\zeta)$	From table 1, it follows that for appreciation: $H(\zeta) \approx 0.1$.
My job is very stressful, but with God's help I can always deal with it.	h	From table 1, it follows that for appreciation: $h \approx 0{,}1$.
Variable entropy	$Hv(\zeta)$	From (7) it is appropriate that the variable set entropy is $Hv(\zeta) = 0{,}5. (h+ H) = 0.5. (0{,}1+0{,}1) = 0{,}1$.
I have no health problems.	$H(\zeta v_1)$	From table 1, it follows that for kindness : $H(\zeta v_1) \approx 0.2$.
I succeed in everything gradually with gratitude to God.	$H(\zeta v_2)$ ∧	From table 1, it follows that appreciation: $H(\zeta v_2) \approx 0{,}1$. ∧
Entropy of external relation	$H(\zeta v_2)$ ∨	From (9), it follows that: $H(\zeta v_2) = H(\zeta v_1) - Hv(\zeta) = 0{,}2 - 0{,}1 = 0{,}1$. From (15), it follows that: $H(\zeta v_2) = H(\zeta v_2) - H(\zeta v_2) = 0.1 - 0.1 = 0$ ∨ ∧ $H(\zeta v_2) = 0$ enough positive external relation. ∨

Conclusions

1. **The main control factors of the set of a system can be calculated by entropy.**
2. **The external positive relation is an indispensable factor for stabilisation of the set of a system.**