ABOUT NEW CONCEPTS OF PROCESS IDENTIFICATION IN THE SCIENCE OF SPORT TODAY

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Summary
The purpose of this paper is to discuss some new concepts of process identification related with modern and very new procedures in scientific researches. Design of research in methodological viewpoint provides a conceptual discussion of the issue of processes as it relates to scientific investigations. Findings suggests that the world around us and to which we belong is determined and universal, with phenomena being repeated and with its rules we find out and respect. The prime task in examining the rules and laws of transformations (that is, influence on environment) is to define the objects, entities which exist in some spaces for real. Analyzing the data from the stable models and their manifestations, we learn the patterns, in this particular study this refers to the patterns of identification of processes which exist in general. The most important pattern which is brought by this study is the experimental confirmation that: There does not exist any time series, but only and exclusively the comprehensive series. If the global taxon is completely immanent to the surveyed space, then it is already intuitively clear that the entities being positioned high on such a kind of taxon represent the ultimate range of development possibility, that is, cognition in that kind of space. In the defined conditions and with chosen variables which spread over the space, the processes (or sub processes) which generally exist for the chosen entities are identified in the described way. Sub processes are nothing else but the development of typical entities of the second-class being located in the previous phases of data processing. When we know everything previously said, we must inevitably conclude what it is like to program transformation procedures congruous with the previously stated conceptions. By application of methodology procedures and especially by taxonomization and identification of processes, it was confirmed that natural processes are completely invariant in regard to the defined space, the choice of an entity and the choice of variables. The general function of development of any kind of entities in any kind of defined space is in the end always a natural process which can be accurately identified by logarithm function.

Key words: *processes, identification, comprehensive series, universality*

Introduction

Examination of characteristics, skills and other human features is exceptionally complex and demanding task. The particular reason for this can be found in the fact that a human being is as phenomenon, and already by itself, an entity organized in an exceptionally complex way (Ismail, 1976; Jacob, 1978; Piaget, 1979). In no circumstances, exercising and all other things included should be approached laconically and without a sufficient insight into basic scientific analysis which are most widely at our disposal.The Technics methodology which is dominant in the world today assumes in an exceptionally wrong way that all the fundamental issues are final and resolved, and that in such a kind of situation we should devote ourselves to application of these various solutions.

This idea, is for sure, completely wrong. Although some rules can be recognized, for the gratest number of situations there does not exist a set of suficiently consistent rules that can be declared as permanent knowledge and referential cognitive points being scientifcally acceptable for further application or a concrete programming of operational work (Bonacin, 2004 a). This is especially true in the case of programming transformation processes, which is the most important feature of sport, that is, kinesiology science. In this connection, the idea of treatment is not only limited at the field of kinesiology generally but also at all the other possible fields (medicine, biology, economy, technology,...). In other words, there, in variously defined processes, always exist a primeval necessity of changes.

That c**hanges** provoked by some process are explained in an appropriate way in order to have an oppurtunity to have them corrected or realized on demand. It always can be related to some methodology for evaluation of the realized work in relation to what was desired, in other words it is dealt with an objective **valorization of treatment effects**. All the existing procedures accept a priori the attitude that some changes were provoked and that some segment parameters referring to the mentioned changes can be found there. But there are no procedures of reconstruction of the phases dominated by individual parts of the total composite of process.

Problem

The changes are usually analyzed with three basic models. According to one of the methods, quantity changes are analyzed, in other words, (multivariant) linear progress in relation to the origin of the starting centroid supposing that there were no changes referring to relations among variables. According to the second method, the changes in relations among variables were analyzed, which resulted in structural, that is, quantity changes. And finally according to the third method, that what was analyzed reffers to the changes in the taxon structure, that is typology after transformtional procedure was realized or in other words, to any type of treatment (Momirović and ass., 1987; Shepard and assr., 1994; Bonacin, 2004 b). However, all the mentioned problems deal with not so small problems which result from the nature of multivariant dimensions that are dificult to be controlled. Therefore, the basic problem of this research can be found in the way of defining such a kind of model for analysis of changes, which will firstly give a referential frame for the analysis of dominant phases of process composite. The particular problem is, of course, represented by the fact that the entities are analysed often in relatively unstable development phases (children), which is particullary unfavorable situation for identification of stable concepts and rules (Weiner and ass.., 1981; Eibenand ass.r., 1987; Malina i and ass.., 1991; Raczek, 1992; Ball and ass.., 1992; Bouffard and ass.r., 1993; Payne and ass.., 1991; Burton and ass.., 1998). Obviously, there exist a necessity for defining a new concept which would found some more precise parameters of the analyzed process(es) on some different foundations in a way, and it is treated as an additional problem of this research.

Methods

For the purpose of this research, a set of 249 entities of male sex, aged 7 (+/-2 months) were analysed at the beginning of this treatment. All of the entities were first grade primary school in Split pupils and their features were determined as the initial state in the form of 26 variables, among which 14 were morphological (height, arm length, leg length, biacromic and bicrystal arch, knee diameter, wrist diameter, weight, forearm, lower leg and chest circumference and skin fold of forearm, back and stomach), and 11 referring to motor ability (side steps, testing range backward, hand and foot tapping, sitting touch-.toe with legs apart, bench balance standing, standing long jump, distance throwing ball , running 20 m with standing start, lifting body from lying position, standing pull-up) and one simple function variable (running 3 minutes). The sample was divided into two subsamples that passed differnt treatments and they were measured every 9 months. The sample consisting of 131 pupils was treated by specially programmed procedure which was realized by the professors of kinesiology. A standard procedure was realized for the sample of 118 pupils in the first grade of primary school and it was realized by their teachers. (the detailed analysis of all the tests and treatments can be found in : Bonacin, 2004).

The data were, except standard multivariant procedures, analysed by Cumind's model (Bonacin and ass.r., 2002; Bonacin and ass.., 2003; Bonacin, 2004 b), which relocates, in the process way, the multivariant positions of entities in relation to dominat phases that manifest a distinct sub-segment of the total process composite.

Results and discussion

For illustration of the each particular treatment direction, the Ddiffg analysis was applied and it gives information, except referring to importance of changes, on precious data referring to the difference in direction progress of hyperellipsoide in two or more groups. That algoritam assumes with good reason that for example we cannot find two independent samples treated differently or with different population and in the case of posible treatment the acquired differences in transit states can be defined as Mahalanobi's arithmetic means vectors distances and they can be described by the differences in the moments on the first main component of difference matrix. The differences in the first components in the example become less and less visible, which means that the changes are slowly inclined to be realized in the direction of equally orientated hyperellipsoides. However, the differences exist and the treatments were oriented in different directions in the period of analysis.

Discriminative functions of changes become larger and according to that parameter, the groups became significantly distant and since the structure congruencies are pretty high, we can say that the treatment provoked changes mostly inside one group and it is, as it was expected, related to the experimental group.

Table 1. Orientation of quantity progress

	1-2	2-3	1-3
DISKR			
X1	57.46	135.93	99.89
X2	58.04	141.05	105.08
DF1	1	1	1
DF2	247	247	247
Fd	0.36	11.76	16.32
Pd	0.56	0.00	0.00
Qd	0.93	0.84	0.96
KOMP			
K1	27.5	141.59	34.39
K2	44.44	130.28	26.96
DF1	1	1	1
DF2	247	247	247
Fk	297.62	233.66	68.98
Pk	0.00	0.00	0.00
Qk	0.49	0.44	0.56

(D=discriminative function, K=the first component of differences, X1,2 = arit.mean of discr.function, Fd, Pd = f-test and hypothesis probability X1 = X2, Qd = congruencies of discriminative functions in the samples . K1,2 = arit.mean of the first main and component differences, Fk i Pk = f-test iand hypothesis probability K1 = K2, Qk = congruencies of the first and the main difference components in the samples, *Differences: 1 - 2 = first –second, 2 – 3 = second –third, 1 – 3 = first –third state.*)

Both of the examples had structural changes, too (Table 2).

Table 2. The results of LSDIF analysis of structural changes

	Experimental group		
Ysis	1-2	2-3	1-3
T	3.62	1.16	4.21
X^2	237.37	76.2	275.45
DF	26	26	26
P	0.00	0.00	0.00
	Control group		
	1-2	2-3	1-3
T	4.12	1.37	5.21
X^2	243.11	80.97	307.4
DF	26	26	26
P	0.00	0.00	0.00

(T=real trace of matrix square difference, X^2 = hi-square test for testing importance, DF = degrees of freedom, P = probability of hypothesis on non-existence of structural changes, that is, differences of correlation in two points of time, Differences: 1-2 = *first –second, 2 – 3 = second – third, 1 – 3 = first – third state.*)

This kind of changes resulted dominantly in the first part of treatment, and although their existance was confirmed in the second part, too – their intensity was much weaker. It simply means that the testees restructured their skills and features continuously, mostly with the burden falling on motoric and functional skills. So it can be concluded that, there, in groups, occured some changes whose character was not under control in all segments.

The procedure was that the experimental group suffered a stronger intensity whereas integration was less controlled. It is obvious that there occured different changes and thus they cannot be recognized by usual techniques.

For that reason, the taxonomy analysis (Bonacin, 2004 b) was applied followed by discriminative taxon analysis. It is a kind of procedure which can give information not available by some other analysis procedures application. The discriminative analysis of polar taxons of the pupils (table 3) showed us that it is not possible to claim, during the first measurement, that it is dealt with two groups, which is excellent in regard to the fact that different procedures have not been started yet.

Table 3. Taxonomic positions

Mj. 1			F	P	S1		C
R	Q	Tax1	0.13	0.72	/	E	/
0.20	0.10	Tax2	5.28	0.02	/	K	/
		Tax3	0.77	0.61	/		
Mj. 2			F	P	S1		C
R	Q	Tax1	8.42	0.00	0.60	E	0.15
0.30	0.00	Tax2	4.39	0.03	0.44	K	-0.15
		Tax3	11.13	0.00	0.68		
Mj. 3			F	P	S1		C
R	Q	Tax1	10.42	0.00	0.55	E	0.17
0.37	0.00	Tax2	7.29	0.01	0.46	K	-0.17
		Tax3	16.64	0.00	0.68		

(R=canonic discrimination, Q=significance of canonic discrimination, F=the test of variance analysis, S_x= The structure of discriminative function Standardized centroids of groups, E=Experimental, C= Control)

In the second measurement, it is noticed, contrary to this, that all of the three taxons took equal participation in discrimination, which tells us that the process of these groups hyperelipsoide movement away has already gone far, and the distance and centroid orientation tell us that the experimental group is superior according to its taxonomic indexes. The same situation can be found in the third measurement but with the discrimination expressed in a higher degree (0.37), whereas the group centroids are even more distant from each other (+/- 0.34). This all witness remarkably different processes. As it can be seen from the results in tables, some quantity changes have been acquired as well as structural ones but also the changes in typology of polar taxons.

Consequently, it is not possible to precisely define the real character of the changes occured. In other words, the procedures were mostly completely determined in simple technology processes and they do not show such big variations from situation to sitauation.

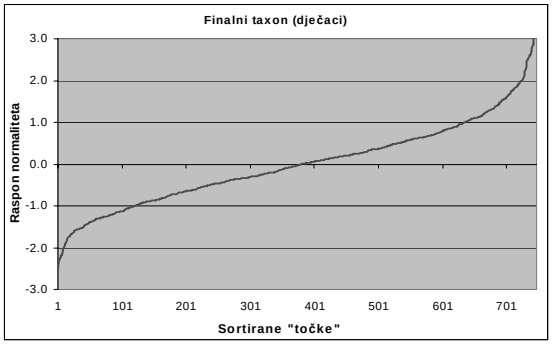
This is due to the fact that an entity is not changed significantly during the time of transformation performance but the story is different when it comes to people, especially with children. People are subject to some processes, that is the global system of constant events that cannot be ‘’controlled’’ under any circumstances or influenced by us without causing a damage on development or health conditions.

For that reason, our basic task is to firstly identify those **global processes** that are in their essence performed against our will and only after that all and in accordance with them to program transformation procedures for the desired change in skills or features. The process of identification of the important phases of development or actual perception of entity status we are interested in will be named **process identification.** The processes are complex phenomena that have not been completely defined even in some of their basic characteristics up to now. It is usually considered that it is dealt with the objective changes in the status of objects among consecutive time points followed by some standard control parameters, but due to its complexity it is very difficult to reduce it all to the lowest common denominator using the avilable methodology.

Just because of that reason and in order to bring all the entities to the same area, we will apply a special procedure in which all the entities are examined only as individual phases of the development of only one entity (Bonacin, 2004).The first thing which is extracted is the final polar taxon, because it represents the whole range of possibilities of all the entities in such a kind of surveyed area.Then all the entities' data are sorted in rising manner and a special Indifg algorithm together with the cummulative of the data is used.

The aproximation of the results from the first level will be realized by polinom of the 5th degree. In that way 393 states of objects in experimental group were realized and 354 states in the control group, that is 747 states in total. The basis of the absolute processes as they are considered by the project author, were presented in the figure 1. They are the processes which take development as an absolute constant. Even time is irrelevant for that model. The question mark hangs over the issue in which segment of absolute processes can those 747 development phases of our entity be brought. The final polar taxon, which was extracted by description of 747 entities in 26 variables, obviously defines an exceptionally interesting situation.

Figure 1. Final taxon



First of all, the thing to notice in the mentioned data was normality (by Kolmogorov-Smirnov test, the critical test value of hypothesis acceptance on normality amounts 0.06: The biggest individual deviation Dmax amounted only 0.025.) It happens in the situation when the mentioned taxon is watched as an occasional vector in which entities acquire some values. However, if the mentioned vector is sorted and presented, it results in the form shown on figure 1.

In that way all the entities were reduced to the same space – the space of cognition we have at disposal here, and it consists of 26 variables. We know very well that the mentioned space is not final, but from the methodological point of view, it is totally irrelevant. Since no other information are available, it is that very exact space and there does not exist any other.

Since it is the final and general taxon, and as such like it appears to be typical to that space, it is then beyond any dispute that entities positioned extremely left are extremely inferior but those positioned exstremely right are extremely superior in that kind of a space. The initial data of all 747 entities were structured in a way that they defined three clearly recognizable taxons: a) constitution dominantly determined by volume and mass in total, b) motoric efficacity and c) adiposity. On the next level of analysis, one taxon was extracted from these three taxons – global (g-zax) with the following projections: Mass (0.87), Moto (-0.18) and Mast (0.83). It is more than clear that motor efficacity has currently a smaller role in defining global type of entities, which is not at all suprising fact referring to this age. It seems more important to design morphological forms and constitution than to maximize motor expression.

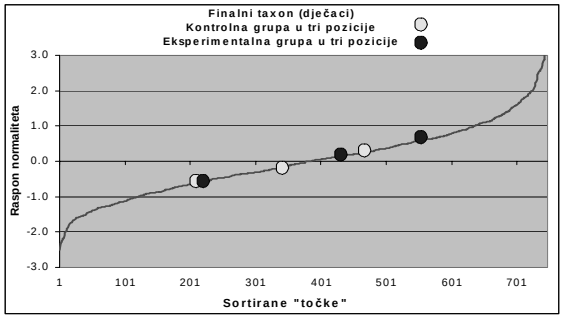
From the biology poin of view, this all is clear because a child organism after age of 8-9 will experience a lot of other changes, and for that reason it is impossible to expect to have forming of engram at some specially high level. Even in the case that it happened, it would be obstructive for general development because consistently with the growth and future morphological changes, motor functions will develop then and they should not be on no account stiff and firm as early as in the age of 8-9. For that reason it is more important to stimulate development of constitution, muscles mass and organs functions in the whole organism, with an emphasis on meeting bio-psycho-social needs. Maximation of motor expression will follow a lot later. In such a kind of physical ''environment'', motorics represents superstructure which is necessary for realization of movement which as an activity appears only after the foundation of a stable part of organism.

If all the entities were brought to the common space by projections onto the global taxon of space, it is then interesting to see where each of the groups is really positioned. Since logically we have 6 groups – two groups in three states respectively, it is easy to locate progress along the global taxon. It was realized in a way that each entity was precisely located on the global taxon and it was given three values in the way that each of their particular virtual states was given one. Obviously, the position 1. means the worst position in the defined space whereas the position number 747 means the best. The average values of virtual locations (measurements) according to groups are the following:

	V.LOK-1	V.LOK-2	V.LOK-3
EXP.	219	425	556
CON.	207	342	477

As it can be seen, the first measurement practically does not make any difference between the groups. However, in the second measurement, the experimental group surpassed on average for almost 80 positions along the cognition taxon, which continued to the end of the treatment (fig.2.).

Figure 2. Position of groups on final taxon



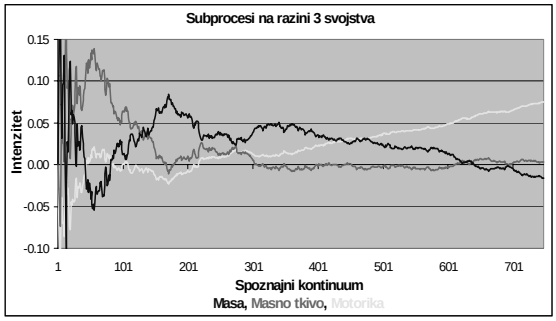
It is evident that an important progress was made in the surveyed space in experimental group, which, of course, resulted in superior position on the global taxon. Those kinds of improvements were also calculated and they gave the following indicators of differences (delta) for each of the three virtual states:

	Delta 2-1	Delta 3-2	Delta 3-1
EXP.	196	131	327
CON.	135	136	270

It is perfectly clear that the mentioned treatment provoked an important progress in the experimental group in the first part, in other words, to second control point position. So, it can be concluded that the treatments applied had an important influence on repositioning of entities on the global indicator which was imanent to the surveyed space consisting of 26 variables, but also that it was realized, firstly, by significant energy engagement, mostly in the first 9 months of active work. Identification of the process for the needs of this study brought also some interesting structure.

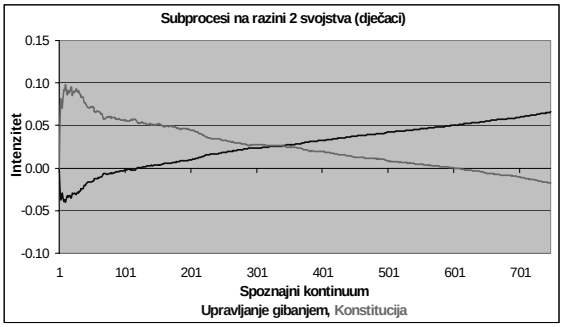
That is at the level 3 of subprocess (figure 3). As far as it can be seen, it is not only that these processes are strikingly similar to those from some other studies (Bonacin and Carev, 2002), but they are logically almost completely the same, which means that they are the processes which exist independently on the types of entities and variables. This kind of almost unbelievable conclusion leads us inevitably to acceptance of absolute processes at this level. Thus, at the very beginning, process 'chaos' is evident and it is typical to all the situations when some new space is in the process of familirisation. Then some 'intersection' of the expressed processes appears, whereas the third one gets its maximum at the end.

Figure 3. Sub-processes a the level of 3 features



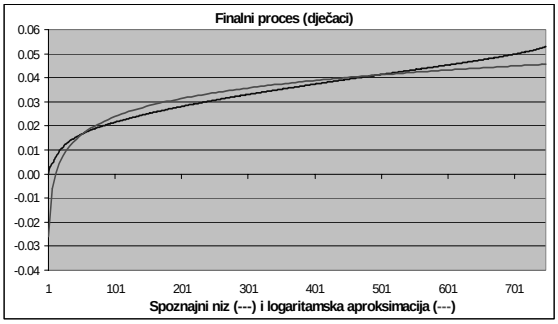
It seems to be completely unimportant if the entities will be rasterated forms sketched on the piece of paper or the childred of specific age because some universal results are obtained , which is an unbelievable conclusion. This could serve as confirmation for those who has always claimed that there is only one Universum and that all the rules in it were specified and unique but at different levels and in different spaces those rules are sometimes very difficult to see, although they exist in reality.

Figure 4. Subprocesses at the level of 2 features



Also, at the level of 2 sub-processes (figure 4.), the clear and completely visible indicators were extracted and based on them, it can be concluded that there exist the processes which aim at initial development even after stagnation (constitution), as well as the processes which are yet to obtain their maximum (movement control).

Figure 5. Final processes



If there were some differences at the levels 3 or 2, they absolutely do not exist at the level of final process (figure 5.). Evidently, the basic process, which all other individual or group processes of lower levels depend on, is represented by the process in all the mentioned situations which, in the scope of mathematics, and with some smaller deviations, can be easily identified with **logarithm function**. It means that it is a natural process because it is defined in the form of numbers and the future logartihm function is nothing else but the other form of exponential function, that is its inversion. **So, the general function of development of any kind of entities in any kind of defined space is in the end a natural process.** Such a kind of result will appear always in the end even if an extreme destruction of some entities in some space was performed. Natural cognitive process is asymptomatic and it never ends but it always goes on. While recalling the results of this study, it is easily claimed that the logic of composite process is always orientated to one of the two options (construction, destruction). While, possibly, influencing some isolated segments of the total development of entities, we act incongruously with some natural processes of any level and in that way we move some subprocesses away from their natural logic. However, it is reflected onto the entities in the form of incomplete and nonintegral development, and thus also in achievements that are not of the kind they would be if those natural processes were respected.

Conclusion

The transformational procedures with the aim to determine the achived effects were realized and programmed with the children aged 7-9. The total sample for the purpose of this research included 249 children of male sex who were 7 years old, +/- 2 months at the beginning . Among them, the number of 131 pupils were included in the experimental and 118 in the control programe. The total number of the applied variables for estimation of entity status was 26 and among them the number of 14 were morphological ,11 motoric and 1 simple functional variable. The control programe presented the standard program of work at primary school by the model prescribed by the competent management department whereas the experimental programe was specially prepared with the aim to check efficacity of the chosen stimulusis, intensity and model of work. The whole treatment lasted for 18 months and examinations are realized at three control points. The conclusions of this study can be reduced to a few items: 1) The world around us and to which we belong is determined and universal, with phenomena being repeated and with its rules we find out and respect. 2) The prime task in examining the rules and laws of transformations (that is, influence on environment) is to define the objects, entities which exist in some spaces for real. 3) Analysing the data from the stable models and their manifestations, we learn the patterns, in this particular study this refers to the paterns of idenfication of processes which exist in general. The most important pattern which is brought by this study is the experimental confirmation that: **There does not exist any time series, but only and exclusivelly the cognitive series.** 4) If the global taxon is completely imanent to the surveyed space, then it is already intuitively clear that the entities being positioned high on such a kind of taxon represent the ultimate range of development possibility, that is, cognition in that kind of space. In the defined conditions and with chosen variables which spread over the space, the processes (or subprocesses) which generally exist for the chosen entities are identified in the described way. 5) Subprocesses are nothing else but the development of typical entities of the second-class being located in the previous phases of data processing. When we know everything previously said, we must inevitably conclude what it is like to program transformation procedures congruos with the previously stated conceptions. 6) By application of methodology procedures and especially by taxonomization and identification of processes, it was confirmed that natural processes are completely invariant in regard to the defined space, the choice of an entity and the choice of variables. The general function of development of any kind of entities in any kind of defined space is in the end always a natural process which can be accurately identified by logarithm function.

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O NOVIM KONCEPTIMA IDENTIFIKACIJE PROCESA U SPORTSKOJ ZNANOSTI DANAS

Sažetak

Svrha rada je rasraza nekih novih koncepcija identifikacije procesa poveznih s modernim i potpuno novim procedurama u znanstvenim istraživanjima. Dizajn istraživanja s metodološke točke donosi konceptualnu raspravu o procesima u odnosu prema znanstvenim istraživanjima. Rezultati sugeriraju da je svijet oko nas i kojemu pripadamo, determiniran i univerzalan s pojavama koje se ponavljaju i s pravilima koja pronalazimo i poštujemo. Primarna zadaća u otkrivanju zakonitosti transformacija (kao i utjecaja okruženja) je definicija objekata, entiteta koji zaista u nekom prostoru egzistiraju. Analizom podataka stabilnih modela i njihovim manifestacijama, uočavamo pravila, a to u ovom slučaju znači pravila identifikacije procesa koji globalno postoje. Najvažnije od tih zakonitosti koje je eksperimentalno potvrđeno glasi: Ne postoje vremenske serije, već isljučivo spoznajne serije. Ako je globalni reprezentant (takson) potpuno imanentan razapetom prostoru, onda je već intuitivno jasno da entiteti pozicionirani visoko na takvom taksonu predstavljaju maksimalnu mogućnost razvoja, odnosno spoznaje takvog prostora. U definiranim uvjetima i s odabranim parametrima koji razapinju prostor, procesi (ili sub-procesi) koji postoje su tako jednoznačno identificirani. Sub-procesi nisu tada ništa drugo nego razvoj tipičnih objekata druge klase lociranih u prethodnim fazama obrade podataka. Kad sve prethodno znademo, nedvojbeno zaključujemo na koji način treba provoditi transformacijske procese u skladu s prethodnim konceptom. Primjenom opisanih metodoloških postupaka i posebno taksonomizacijom i identifikacijom preocesa potvrđeno je da su prirodni procesi potpuno invarijantni u odnosu na definirani prostor, izbor objekata ili varijabli. Opća tendencija razvoja bilo kojih entiteta u bilo kako definiranom prostoru je u konačnici uvijek prirodni proces koji se jasno može identificirati kao logaritamska funkcija.

Ključne riječi: *procesi, identifikacija, spoznajne serije, univerzalnost*

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