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# THE INFORMATIC SYSTEM FOR MANAGING THE PRESENT DEMOCRATIC SOCIETY

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***Abstract.*** *The present administrative society is a pyramidal building, on distinct levels given by the property form. Within each level two new operators have been identified, the administrative fusion and administrative division. The crossing from an inferior level to the superior one is made according to the new operator, Administrative Reunion. There is an order relation between levels: Administrative Inclusion.*

In order to built an informatic system of the democratic society it must be taken into cosideration the fixed elements invariable within the space-time dimension, in comparison with the scale of society development of a minimal complexity[1].

Today, the human society, considerated of the administrative point of vue[2], has divided the vital space – The Earth – in administrative maps. An administrative map, briefly map, is a geographical space limited by imaginary lines settled by a laws set and belongs to a definited number of people[1].

It is not the object of this paper to give the definition into political, social and human terms for administrative entities (locality, region, state, state union); therefore, I will resume to think the map as a link between the territory and its owners.

**New elements*:***
*1.*Administrative setting in a pyramidal form
2. Introduction of operators which built the pyramide:
a) Administrative Reunion
b) Administrative Fusion
c) Administrative Division
3. Introduction of the order relation :Administrative
The main characteristic of these operators is: Through the operation, the operators are modified
**Inclusion**

**Definition** : It is named plot an area physically or administratively limited which has no other area administratively limited.
Building the administrative society, the plot which can be a field, house, appartment or any other space with administrative settlement, is considered the minimal element for the whole administrative building.

**Definition**: The plot is a relation P_ID (Co_x, Co_y, Co_z), where Co_i represents the attributes of geo-space co-ordinates for the outline points.

We say a point P (x, y, z) $\in$ P_ID only and if only its projection belongs to the co-ordinates system ({(Xm, XM),
(Ym, YM), (Zm, ZM)}, where Xi, Yi, Zi $\in$ (Co_x, Co_y, Co_z).

***Theorem***: The plot being the minimal element, then for any Pi_ID and Pj_ID, two plots Pi_ID $\cap$ Pj_ID = $\varnothing$.
This theorem must not be proved.
Today, any field area or any thing which is part of a map, is claimed by one or several owners[3]. We understand by this the international territories (Antarctica, international waters), which, by extension, belong to all people.
If we consider People and H the administrative map of Earth, then between People and H is a relation „several for several". For people $\in$ People, there are several plots (spaces) and a space (plot) can belongs to several people[1].

We define the limk (relation) between prople and plot as POSSESSION.

**Definition**: Building the administrative society, briefly society, POSSESSION is defined as the crowd of relations between people and plot.

In law terms, possession can be unique, collective, temporary, definitive, indivisible or any other form of law definition[4].

Because the law definition of possession has no influence on the informatic building of society, we don't refer to it.

**Axiom**: $\forall$ P_ID $\exists$ people $\in$ People and $\exists$ $r \in$ R, where R is the crowd of relations which settle possession so that P_ID *r* people and people *r* P_ID[5].
Following the conventions above, we can define ROAD as a plot of P_ID in relation *r* with a indefinite crowd of people[4].

From the development of human society at present, in order a possession can be fructified, it must be a ROAD to the plot, so the access to the plot is free.

**Axiom**: Any plot is bordered upon a road.

By extension, any common space can be considered a ROAD.
Within this paper the crowd People will be considered as relation People (People_ID, R1---Rj), where Ri represents the attributes for identifying each person on Earth. For example: name, forename, birth date etc[3].

Possession is defined as relation between People and the crowd of plots P: P_ID (Pj_ID, Peoplej_ID, R1-------Rj), where Pj_ID $\in$ P, Peoplej_ID $\in$ People şi Ri $\in$ R, where R is the crowd of relations which settle possession[4].

Simplified model of administrative society
I will built a model of administrative society based on three main elements: people – plot – possession[4].

**Definition**: A reunion of plots is a map.

**Definition*:*** Is named administrative map an arbitrary reunion of plots, possessions and subcrowd of people in relation with those plots, having the property that for any two possessions in the map there is at least a road included in the map which unite them.

For illustrate the definition of administrative map, it is shown that during the human history, all the administrative regions were compact, allowing the free mouvement or on international common routes (empires)[6].
The administrative buildings without common points were not viable. In fact, at present, any map in the world has at least two different neighbours. There is no state totally viable included in other state. There are two well-known exceptions, San Marino and Vatican, but it is about administrative special regions included in Italy[6].

**Definition**: Is named administrative map of zero level (H0) a map which includes no other map.

**Definition**: Is named administrative map of „i" level a map which include at least a map of i-1 level.

**Definition**: Is named property the reunoin of all possessions (relations) of a man in a map of „i" level.

**Main definition of administration**: People belong (resides, has right to vote) to a map Hi **only and if only** own a property in the map Hi.

For example: in the actual context generally accepted the permanent residence is defined as the link between people and possession (relation) with a plot (house) well defined in a map.
We say people have the residence in locality L when they own a property (personal, rent, indivisible) on those plot. Having an imobiliar property in a locality, people can define the residence in that locality[7].

We can not define the residence in a locality without having a possession on a plot in that locality. A tourist in a locality doesn't belong to it. People belong to a map only if they have a possession in that map. When we say people reside in Timisoara, we say they have a house in Timisoara, indifferently of their legal rights on that plot (house)[7]
The direct implication „**if**".
According to the present laws, if we have a possession (residence in a locality) we can define the residence in that locality. In the informatic society, if we have the right of property for a building, we define in an instant the residence in that building[7].
Be H0, H1, .. Hi the total crowds of maps of 0,1,…i levels.
**Theorem**: $\forall$ pi$\in$Hi, $\exists$ pj$\in$Hj a.i. pi$\subset$pj, where j=i+1

**Operators on maps crowd**
**Reunion**

**Definition:** Is named administrative reunion or reunion, two possessions Pi_ID, Pj_ID from Hi defined Pi_ID (pi_ID, peoplei_ID, r1----rj), Pj_ID (pj_ID, peoplej_ID, qi.....qj), where peoplek_ID $\in$ People, and ri, qi $\in$ R and we note
Pi_ID $\cup$ Pj_ID the operation from which result the following:
P1i_ID (Pi_ID, peoplei_ID, r1.....rk) with k<i;
P1j_ID (Pj_ID, peoplej_ID, p1.....pk) with k<j;
Pi$\cup$j_ID (Pq_ID, peopleq_ID, rn.....rm, pl....pv).
where rn...rm, pl....pv are the attributes transffered to the reunion
Where : P1i_ID si P1j_ID $\in$Hi;
Pi$\cup$j_ID $\in$Hi+1;
Pi_ID$\cap$ Hi=$\varnothing$, Pj_ID $\cap$ Hi=$\varnothing$

In other words, through the reunion of two possessions results a crowd composed by 3 possessions which include the two initial possessions (modified) giving up to same attributes; it is created a new possession composed by the attributes transffered applied for all possesions[8],[9],[10].

Example: The reunion of two or several localities in a region, two or several region in a state or two or several states in a state union. Following the reunion, each locality (reguin, state) remains as administrative entity with its attributes and the new union has the transffered attributes[6].
Observation: The resulted crowd can not have attributes which don't appear among the attributes of crowds in the reunion.

Example: If two regions are joined and among the administrative attributes there are not the attribute „has own currency", their reunion can not have as attribute „has own currency".

Observation**:** The reunion can not have attributes which don't appear in the crowd of attributes reunion.

Fusion
**Defintion**: Is named administrative fusion or fusion of two possessions Pi_ID, Pj_ID from Hi defined Pi_ID (pi_ID, peoplei_ID, r1----rj), Pj_ID (pj_ID, peoplej_ID, qi.....qj), where peoplek_ID $\in$ People, and ri, qi $\in$ R and we note Pi_ID $\subset\supset$ Pj_ID the operation from which result the following:
Pij_ID (pij_ID, people_ID, $r^1_i$ ..... $r^1_j$),
where pij_ID $\in$ P_ID (Co_x, Co_y, Co_z), Co_x, Co_y, Co_z are the new outline co-ordinates, and $r^1_i$ ..... $r^1_j$ are common attributes for the two possessions and attributes decided regarding the incommon attributes[8],[9],[10]
Where: Pij_ID$\in$Hi;
Pi_ID$\cap$ Hi=$\varnothing$, Pj_ID $\cap$ Hi=$\varnothing$

**Observation:** Following the administrative fusion the crowds in the fusion operation disappear.
*Example*: When two administrative localities fusion it will be one locality with the common attributes of two localities, attributes decided referring to the diverging attributes. This example is well observed when a suburban locality fusions with the next one.
Division
Be P_ID (p_ID, r1.....ri possession) $\in$ Hi with rj $\in$ R.

**Definition**: Is named division of possession P_ID and we note ⌉ P_ID the operation from which result two or several possessions Pi_ID, Pj_ID∈Hi defined:

Pi_ID (pi_ID, $r^1_i$ ..... $r^1_j$) ∈Hi with $r^1_m$ ∈ R1;
Pj_ID (pj_ID, $r^2_k$ ..... $r^2_l$) ∈Hi with $r^2_n$ ∈ R2;

So that R1 ∪ R2 = R , R1 ∩ R2 =∅ and pi_ID ∩ pj_ID =∅ [7],[8],[9].

Through the division of a possession result two or several possessions which maintain the same main attributes; a part of the common attributes can lose only the number of relations with People crowd; only the number of owners or owners can decreases[8],[9],[10].

Example: In the last years we have assisted to the division of some states (Yugoslavie, Soviet Union); following the division it were created states which have taken over relations from the initial states, but the citizens in a divided state have not rights on the common territories in the other state (social rights)[6].

Order relation

**Inclusion**

**Definition***:* We say a relation Pi_ID is included in Pj_ID and write Pi_ID ⊂ Pj_ID only and if only there is a join nenull on the fields (p_ID, People_ID) from Pi_ID to Pj_ID [8],[9],[10].
Observtion*:* (p_ID, People_ID) is unique key.
Example: A locality is included administratively in a county, state or state union.

Simplified relation model of administrative society[12],[13]

Be relations: People (People_ID, r1.....rn) relation for all people in the world. P_ID (co_x, co_y, co_z) relation for plots (spaces) and relation Possession (P_ID, People_ID, rule 1 .....rule i). The three relations are at the base of building the relation system of the democratic society. By extension, a map of level i is a possession relation and a plot is a map of level zero.

The model is a building from a map of level zero applying the three operators: division, reunion and fusion and which has an hierarchical inclusion relation.

**For the operators there are the following models:**

**Division**

Be P_ID (co_x, co_y, co_z) a plot, and Possession relation (P_ID, People_ID, rule 1 .....rule i) ∈Hi

We define the division ⌉ P_ID =

P1_ID (pi_ID, $r^1_i$ ..... $r^1_j$) with $r^1_m$ ∈ R1;
P2_ID (pj_ID, $r^2_k$ ..... $r^2_l$) with $r^2_n$ ∈ R2;

Eample of code[8],[9],[10],[11]:

```
CREATE TABLE P1_ID
AS
SELECT co_x, co_y, co_z
FROM P_ID
WHERE co_x r (x1, x2), co_y r (y1, y2), co_z r (z1, z2);
....
CREATE TABLE P2_ID
AS
SELECT co_x, co_y, co_z
FROM P_ID
WHERE co_x r (x3, x4), co_y r (y3, y4), co_z r (z3, z4);
        .......
DROP TABLE P_ID
        .....
DELETE FROM Possession
WHERE P_ID = „P_ID”
INSERT INTO Possession (P_ID, People_ID, r1....ri)
VALUE („P1_ID”, „People_ID”, „r1”....).
.....
```

**Fusion**

For fusion is modified the relation Possession for the attribute P_ID of two relations.
Be P1_ID (co_x, co_y, co_z) ∈Hi;
P2_ID (co_x, co_y, co_z) ∈Hi;
and Possession (P_ID, People_ID, rule 1 .....rule i) ∈Hi.
P1_ID ⊂⊃ P2_ID = Pn_ID

**Reunion**

Considering the following sets:

1) P1_ID (co_x, co_y, co_z) and Possession_1 (P_ID, People_ID, rule _1 .....rule_ i) ∈Hi.
2) P2_ID (co_x, co_y, co_z) and Possession_2 (P_ID, People_ID, rule_ 1 .....rule_ j) ∈Hi.

P1_ID ∪ P2_ID =
P1_ID, Possession_1 (P_ID, People_ID, rule1_1 ,..... rule_1_ i)
P2_ID, Possession_2(P_ID, People_ID,rule_1_1 ,..... rule_1_ j)
and
Possession_3 (P_ID, People_ID, rule_ i , rule_j)

Example of code[8],[9],[10],[11*]*:

```
CREATE TABLE Possession_3
AS
SELECT P_ID, People_ID, rule_ 1,..... rule_ i
FROM Possession_1;
.....
INSERT INTO Possessie_3 (P_ID, People_ID, rule_ i ,..... rule_j)
AS
SELECT P_ID, People_ID, rule 1 ,..... rule i
FROM Possession_2;
.....
ALTER TABLE Possession_1
DROP rule _1' ,.....rule_ i';
.....
ALTER TABLE Possession_2
DROP rule _1'' ,.....rule_i'';
```

**Observation 2**

A map of level i can be divided and reunited only in a map of same level.
Building a model of democratic society, the principles applied must be transitives; a principle is applied indifferently of the number or nature of the group or map dimension.
The division of a map only if a submap wishes it, is to solve.

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