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SPATIAL EXTENSION OF A RURAL SETTLEMENT

A case study

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At any given stage of the socio—economic development there always develops a space category that can provide a frame for the fundamental spatial processes of the period in question.

In fact the realization that socio—economic processes can properly be regulated by means of adequate spatial units, has also been based on this. The organization of space has thoroughly been studied; meanwhile various space categories have appeared: economic district, attraction zone, agglomeration belt, city—group, village—group, region of small towns, etc. All of them, from some point of view or other, are separated, structured, or homogeneous natural—physical parts of space, where the most important elements are the settlements. After all geographically all of them can be described by the horizontal extension of the interrelationship of the settlements. Undoubtedly the interrelationship of the settlements through the main lines of the socio—economic spatial structure can be defined by the flow of people, materials and information.

The spatial interrelationship of a settlement, however, are much more colourful and cannot be restricted only to the external interrelationship of the settlements. Starting from the fact that the inhabitants of each settlement determine and fill in a section of space wholly or in part, through their movement patterns, intensity and aim. The individual moves in this space and it gains functional meaning from human activities. In this way the co—ordinates of the position in the division of labour can also be expressed.

The mentioned space category investigations, in fact, reveal the effects of attraction and the directions operated by certain functions. Man is usually studied in this spatial relation—system as only workforce, or sometimes consumer. Little attention is paid to the development and effect mechanisms of the directions of movements set up by the spatial flows of people. It is worth investigating what sort of space of movement is provided for the inhabitants by a settlement (in its given

condition) and what space of movement* they are forced to move in because of the functional (provisional) shortcomings. It would also be interesting to reveal the nature of time structure of these „spatial paths" or more precisely, how the directions, distances, quantities change according to different periods of time (day, week, month, etc.).

Do all these satisfactorily express or describe the essence and size of the spatial extension of a settlement?

To find a solution of this task concentrated into questions, fairly few bases are presented in Hungarian technical literature. Though the terms, spatial lane, interrelationship of settlements, space of movements etc. have been mentioned in the title of some papers, their interpretations are different.

To build the concept of the investigation were of great help first of all *T. Hägerstrand*'s publications of time—geographic model, and papers of the related scientists: *T. Carlstein* (1982, 1986), *A. Pred* (1977), *P. R. Mounfield* (1977). Besides *R. Brunet* (1972) who deals with the division of space, *A. Cliff—P. Haget—J. K. Ord* (1975) who classify the elements of the structure of space, *P. Cloke* and *I. A. Dawson* (1983) who study the interrelationships of rural space, and *A. Gilg* (1985) who describes spatial and social structure of villages from a monographic point of view.

The Investigation started in 1986, on the basis of my research experience and the willingness on the behalf of the settlements we could gain the collaboration of preliminary sampling we put together a questionnaire (it contains 50 questions in 15 question—categories) and made a survey that included the entire adult population (over 18) of the nuclei of the rural settlements.

In this paper I would like to present some important consequences that might be drawn from the information gained in *Bócsa*. 863 questionnaires arrived covering almost the entire population of the nuclei of the settlement. *Bócsa* is a typical „farmstead settlement" on the sandy areas of the Hungarian plain. A real village core has developed only in the recent decades of its long history dating back centuries. The cluster of farmsteads, referred to as *Bócsapuszta* earlier, were completely connected to *Soltvadkert* as all the institutes of basic supply were available there. The old people of *Bócsapuszta* being tired of the constant struggle with sand retreated to *Vadkert:* any successful farmer had a „own house" there. The nearly 1500 scattered farmsteads did not have a school even in the 1930s. Consequential the rate of illiteracy was almost a hundred per cent.

After World War II, although compared to earlier growth, its development was undoubtedly faster, it could not keep up to the standards of dynamically developing villages.

In 1986 the population of *Bócsa* was less than 2000 and it was nearly one and a half thousand less than in 1949. But while only a very small per cent of the population lived in the inner built—up area at that time, in 1986 nearly half of them (45%)

* *Sociology* often uses the terms space of movement, and social space of movement which are usually interpreted as the domain of human social relations where individuals can realize their own activities.
Geography defines the term space of movement as a concrete area that can be expressed by distance measures and where social and economic activities of individual or communaty take place.

did. Over the past 15 years the population of the inner area has doubled. It is worth paying attention to that more than one—third of the inhabitants are under 30, what is more, the people under 40 form a greater part of the population (these proportions are lower on the scattered farmsteads: the people under 30 comprise 22 per cent, while the ratio of those under 40 is 39 per cent.). Anyhow this demographic composition in itself is a significant local resource, it can practically be qualified as the social basis of the vitality of the settlement.

The development of this situation was helped to great extent by the fact that the large—scale migration into the settlement brought mostly people under 30, furthermore, a similar process took place in the outlying areas too. The significance of this does diminish even if compared to the moves out of the area taking place at the same time, though it also affected the population of working age, because the latter reduced mostly the population of the outlying areas. It is interesting to note that from among the studied population, 28 per cent of the inhabitants of the settlement and 48 per cent of those living in the scattered farmsteads moved to *Bócsa* after the age of 1.

Though large—scale agricultural production, an important economic basic of the village, touched the bottom in the mid 1970s, the co—operative showed a deficit, and the level of results in the special co—operative greatly fluctuated, the past 15 years can be characterized as the period of prosperity. A particular settlement forming process has been taking place, induced by a local intellectual resource, the valuable ability of sizing up the situation. Nothing special has happened other than that they have only realized and made use of those elements of the development which took place in the organizational structure and production of agriculture in Hungary and which could be integrated into the development conception of the settlement: the development of the secondary activities, the integration of small—scale production, incentive agricultural wage—system. They have also become aware of the fact that economic measures strengthening the vitality of the village, should be completed by providing facilities that improve the living conditions. They could realize the distribution of cheap house plots and give favourable credit conditions for home building. All these have contributed to the dynamic development and spatial expansion of the settlement core (the physical spatial extension of it has almost doubled).

Incidentally it is also necessary to mention that the process outlined above also proves the notion according to which the decrease of the population in a settlement is not necessarily a negative phenomenon. In this case too, the progressive change of the inner structure indicates that presumably the development of a new state of equilibrium has been taking place. Though the spatial concentration of the population has not been followed, at least not at a similar rate, by the development of infrastructure. There still is not a pharmacy, a butcher, nor a book shop and the technical level of telephone system between the settlements falls below even the very low national standards.

While at same time almost every family has a car, a motor—bicycle and 80 per cent of the inhabitants are „bicycle—owners". The agricultural „small machine

park" in family ownership is very significant and the interest in home building and production is permanently stable. This situation is the determining background of the spatial lanes of the local adult population.

The following questions of the questionnaire helped to investigate the spatial paths:
Do you live together with your children?:
If not, where do your children live?:
Do you intend to leave the village?:
If yes, where to?:
When do you plan to move?:
Have you any local relatives?:
If not, where do your relatives live?:
How often do you visit them?:
Workplace?:
Occupation?:
How do you get to work?:
How often do you go a month to:

	Kecskemét:	Kiskőrös:	Kiskunhalas:	Other settlement:
shopping				
for medical treatment				
for education				
for entertainment				
other purposes (offical, family)				

What is your main from of transportation?:
Have you a household plot or an auxiliary farm?:
If yes, how far is it from your home?:
How often do you go there a week?:
What the average length of your stay there per occasion?:
Have you a family garden?:
Is it a garden adjoining your dwelling place?:
If not, how far is it from your dwelling place?:
How often do you go to the garden?:
What is the average length of your stay there, per occasion?:
Do you produce agricultural products for the market?:
If yes, where do you sell them?:
(the name of the settlement:)
Do you transport the products yourself?:
If yes, how often?:
Do you produce anything in the garden adjoining your dwelling place for sale?:
If yes, where do you sell it?:

From the point of view of the geographical evaluation of spatial paths the analysis based on the time structure has proved to be the most practical.

Two main differentiating circumstances can be recognized in the time—division of spatial paths:

1) The quantity, the content and direction of the spatial paths of daily regularity are qualitatively different from that of the spatial lanes less frequent in time.

2) The majority of the spatial path with economic meaning are of agrarian nature, therefore they are decisively connected with the growing season, thus their intensity is modified every half year. Their operation has a certain rythm.

The spatial paths of the population of *Bócsa* fall into 6 units of time: spatial movement made daily, more times week, weekly, every fortnight (twice a month), monthly, and less than once a month. The movements rarer than a monthly frequency do not reach 1 per cent of the total movements, their role in forming the spatial extension of the village is not significant, their detailed analyses is not necessary.

Daily spatial paths

From the summed up information it is quickly observed that the spatial—path system within the settlement is extraordinarily strong (Figure 1). This is in close connection with the economic structure of the settlement. Concerning the spatial order of activity, the economic structure of *Bócsa* is closed and restricted to the outlying areas. In the inner built up area there is no significant economic unit. This spatial concentration connected to the settlement is well represented by the structure of occupation also (Table 1).

STRUCTURE OF OCCUPATION
(the share of the evaluated population, percentage %)

Table 1.

		inner built up area	outlying areas
does not work at Bócsa		6.5	11.8
work at Bócsa	private farmer	6.5	8.1
	member of the co-operative	21.1	11.8
	member of the special co-op.	21.7	22.8
	bottling plant worker	9.0	2.9
	other sector	13.8	8.8
housewife		11.2	19.8
pensioner		8.5	12.5
		1.7	1.5

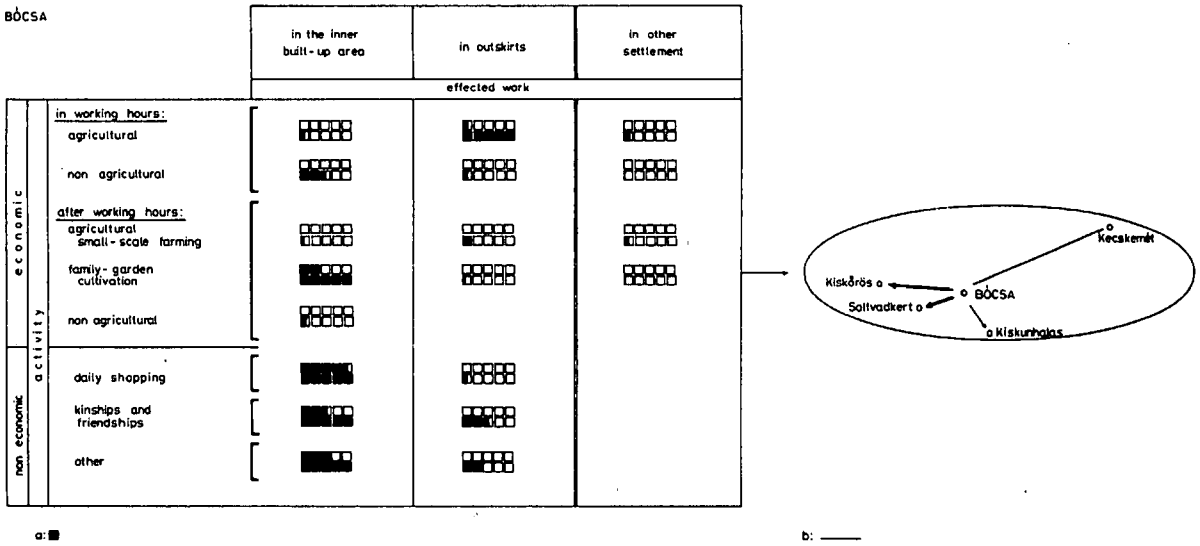

Figure 1: The spatial structure and essence of spatial paths with daily frequency
a: 10 per cent (the ratio of the activity within the given activity category)
b: 10 travel cases

The majority of (80%) of the 63 commuters altogether from the inner built up area and the outskirts move in a space (of little extension) around *Bócsa (Soltvadkert, Kiskörös, Kiskunhalas)*, which as we will see, is the basic space of movements of the other spatial lanes. (It must added that the other 20% of the commuters do not travel far to work either. They work in *Kecskemét, Jakabszállás* and *Tázlár.)*

The fact that the movement of labour force takes place in a small space is also indicated by the means of transport used for going to work: three—fourth of the workers walk, cycle, and motor—cycle to work.

The majority of economic activity carried out during the main period of work takes place in the outlying areas; the economic activity outside the normal working hors (also of agrarian nature) is instead related to the inner built up area and undoubtedly connected with small—scale garden economy. It is known that the morphology of the Hungarian village was always characterized by the garden of the family house. Earlier its main purpose was basically subsistence function, it has become a commercialized mini farm with strong specialization (vegetables out of season, flowers, and raising small animals). The new family houses having been built recently at *Bócsa* also have this functional, morphological trait (though the buildings used for small animal husbandry do not fit in with their style). These gardens of the built up area altogether, from an *agrarian space of the inner built up area* that is a significant sector of the agricultural production of the village. 92 per cent of the small gardens of *Bócsa* can be found on the plot of the family houses, 6 per cent on the outskirts and 2 per cent in the agrarian space of other settlements. The type agriculture (the great role of the special co—operatives) hindered the development of a garden zone on the outlying areas, more precisely, There was no demand for agricultural activity of this kind. It can be said that the gardening branch of small—scale agriculture binds the adult population to the micro—space of the dwelling place, except in the winter months, for 2—3 hours a day after the main working hours.

The other branch of small—scale farming (the use of householdplots, auxiliary farm) operates daily spatial lanes for a shorter period of the growing season, but it usually means an 8—10 hour engagement a week, though mostly in the outskirts. One—fourth of the household plots and auxiliary farms are less than 500 m from the dwelling place, one—fifth of them can be found between 500—1000 m, 26 per cent of them are still close, within a 3 km radius circle and only 28 per cent are situated farther than this.

The other large group of the daily spatial lanes is of a non—economic purpose. Nature one part of it is linked to the daily shopping activities (this activity attracts also the population of the inner farmstead zone to the inner built up area). The other part is formed by the spatial lanes of various relations between people. Here the family relations are worth paying special attention to, due to their sheer number. It is interesting to note and also represents the sort of closed nature of the settlement that three—fourth of the family relations are local. Even if there is no daily communication among the relatives, this mass of family relations Should be considered as a

possibility of the daily spatial lanes. Finally we should notice that a characteristic feature of all the daily spatial lanes of non—economic nature is that they do not cross the administrative boundary of the village.

Weekly—monthly spatial paths

The spatial paths of rarer frequency than the daily ones are mostly directed towards 4 settlements: *Kecskemét, Kiskörös, Soltvadkert* and *Kiskunhalas* (Figure 2). The date also show that:

— 72 people, mostly over 50, do not leave the settlement at even a monthly frequency;

— at the same time, surprisingly many people (138) get to all the 4 settlements once a month. While the distribution of the population according to sex is almost 50 per cent, more than half (58%) of those belonging to this group are under 40.

When analysing the individual time units, two marked features can be noticed. On the one hand, in each time unit there are a lot of spatial paths tending towards *Köskörös;* on the other hand the attraction of *Kecskemét* increases correspondingly to the decrease of the frequency of travel. Analysing the meaning of the spatial paths, it can be stated that the majority of the adult population of *Bócsa* leave the village to go *shopping* (Table 2).

Table 2.

THE NUMBER, MEANING AND TIME STRUCTURE OF TRAVELLING FORMING SPATIAL PATH

		Kecskemét	Kiskörös	Kiskunhalas	Soltvadkert
monthly	shopping	278	151	153	67
	for medical treatment	11	54	23	8
	entertainment	21	10	3	12
	other	22	28	12	15
twice a month	shopping	132	178	90	47
	for medical treatment	18	57	9	15
	entertainment	25	13	9	5
	other	18	19	7	24
weekly	shopping	95	137	78	141
	for medical treatment	11	39	4	12
	entertainment	23	11	7	2
	other	25	24	16	28
more times a week	shopping	13	27	11	26
	for medical treatment	4	5	3	5
	entertainment	—	4	—	—
	other	4	10	3	3

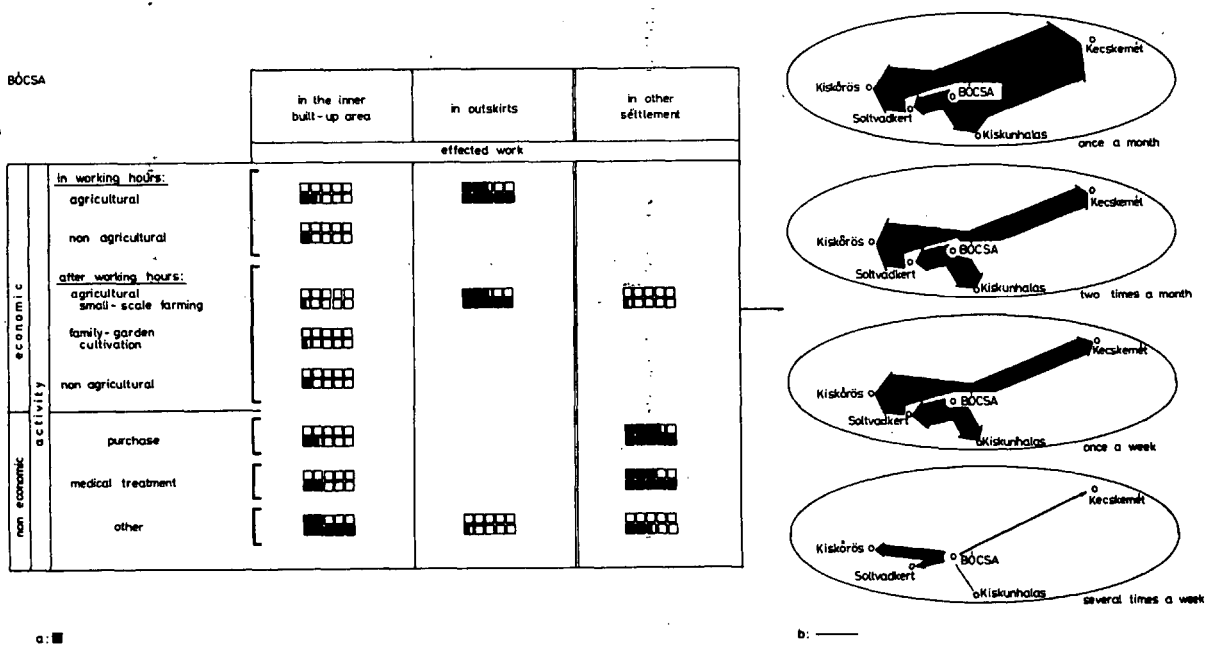

Figure 2: The spatial structure and essence of spatial paths with less than daily frequency
a: 10 per cent (the ratio of the activity within the given activity category)
b: 10 travel cases

It can be seen that the centre of *health services* is *Kiskörös*, while for *entertainment Kecskemét, Kiskörös* and *Kiskunhalas* are equally popular. The adult population's spatial paths with the purpose of *learning*, though very few, tends towards *Kiskörös*. But a detailed analysis of the questionnaires draws attention to some very important facts:

— the ratio of the population over 60 of the inner built up area is high among those who travel to *Kecskemét, Kiskörös* and *Soltvadkert*. They go to *Kecskemét* only once or twice a month at most, as for *Kiskörös* twice a month. while to *Soltvadkert* they travel weekly;
— in sharp contrast to this is that the surveyed population over 60 of the scattered farmsteads do not go to *Kecskemét* for shopping purposes;
— among the female population between 18—40, a dozen go to *Budapest* for shopping or entertainment monthly;
— travelling with the aim of entertainment was almost exclusively chosen by the 18—40 age group.

From among the travels *for other purposes*, administrative matters force the inhabitants of *Bócsa* to go to *Kiskörös* and *Soltvadkert*, but among these purposes, rather human relations (family) operate the majority of the spatial extension of *Bócsa*, too that a great part of the non—local family relations can be found in a 20 km radius circle, more significant outer cluster of relatives can be seen on only in *Kecskemét* (12%), and in *Budapest* (11%). Relatives of the inhabitants of *Bócsa* live in 20 settlements in various parts of the country (excluding Bács—Kiskun county), but this comprises only for 16% of all the non—local family relations and from extraordinarily unsystematic spatial often rarer than annual frequency.

Another factor that could deserve attention in shaping the present spatial path system, notably the spatial lane linked to the *transportation of agricultural products*. The provided information concerning the transportation of the privately produced agricultural products is not enough to draw satisfactory conclusions because very few people gave valuable data. In spite of this we can say that a great part of the agricultural products move within *Bócsa* (market, assorted procurement, winery). What leaves the village its direction is in accordance with the other external spatial paths, only *Dunaújváros* and *Budapest* deserve mentioning with a 2—3 say frequency in the pear period of selling the product in question.

The demographic process, the decrease in the population, characteristic of *Bócsa* up to now, will resumably continue in the future, too. The rate of this is modified by the prevailing external and internal impacts. At present 82 persons (47 from the inner built up area, 35 from the outskirts) plan to move away from the village in 5 years. This intention of leaving is a very important factor because it is a sort of manifestation of the present attitude to life in the expectable spatial behaviour of the individual. From the point of view of *Bócsa*'s future development it might be an important fact that on one hand one—third of those intending to move away is under 30; on the other hand 60% of all those leaving are women.

Thus it can be stated, with a little exaggeration that masses of young women intend to leave the village. In the first approach it calls attention to the possibility

that the number of potential, new families in *Bócsa* will decrease and might cause demographic problems in the long run. Among the „target settlements" *Kecskemét* and *Soltvadkert* are the most popular. As a consequence the majority of the people intending to leave the village also move in present spatial paths and plan to have their new homes in the target settlements of the spatial lanes.

Conclusions

1) The main direction of spatial movements of population determine spatial paths, s group of which stays within the administrative boundary (The traditionally interpreted spatial extension) of the settlement, while the other group crosses it. The majority of the population take place in the forming of the spatial path of both types.
2) The spatial paths leaving the settlement express the output conditions of the interrelationships of the settlements, which, mainly outlines the size of the spatial extension and the functional meaning, deriving from the condition of the settlement. Thus space definable in this conception can be identified with the spatial extension of the settlement, formed by its population. To determine the actual spatial extension of a settlement, it is certainly necessary to make use of the spatial paths of the other two elements (substance and information flow) of output conditions.
3) Knowing the frequency—composition and meaning of the spatial lanes, some concrete cases of the spatial structure of the regional distribution of labour and the functioning mechanisms of the interrelationship of the settlements have become more thoroughly analysable.

References

Bartke, I. 1982. A társadalom és a gazdaság területi szerkezetének alapvonásai I—II (Basic characteristics of the spatial structure of society and economy), Tervgazdasági Közl. No3.
Bánlaky, P. 1985. Társadalmi mozgásterek (Social spaces of movement) In.: Helyi társadalom III. (Local society), Budapest, pp. 99—128.
Berényi, I. 1983. A településkörnyezet társadalomföldrajzi vizsgálata (Social—geographical survey of the invironment of the settlement) Földrajzi Értesítő, 1. pp. 34—47.
Brunet, R. 1972. Memoires et etudes, Paris, 218 p.
Carlstein, T. 1982. Life paths and living possibility boundaries. Elements of the Hägerstrand Time—geographic Model. In.: Time resources, society and ecology. Lund Studies In Geography, Lund. pp. 38—64.
Carlstein, T. 1986. Planung Und Gesellschaft: ein „Echzeit"—System im Raum. Geographica Helvetica 3. pp. 117—125.
Cliff, A. D.—Hagett, P.—Ord, J. K. 1975. Elements of spatial structure A Quantitative approach, Cambridge, Cambridge Univ. Press, 258 p.
Cloke, P. 1979. Key settlements in rural areas, Methues, 259 p.
Dawson, I. A. 1983. Shopping centre development, Longman, 124. p.
English, P. W.—Mayfield, R. C. (ed) 1972. Man, space and environment Oxford Univ. Press, Oxford, 623 p.
Enyedi, Gy. 1983. A magyar településhálózat átalakulása (The transformation of the Hungarian settlement network), Magyar Tudomány, 4. pp. 341—352.

Gilg, A. 1985. An introduction to rural geography. E. Arnold, Australia, 210 p.
Hägerstrand, T. 1973. The domain of human geography. In.: Directions in Geography (Chorley, R. J. ed), London, Methuen pp. 67—87.
Lawton, R. 1983. Space, Place and Time. Geography, 3. pp. 193—207.
Mészáros, R. 1982. A falusi átalakulás alapvető térfolyamatai a Dél—Alföldön (Fundamentál spatial processes of rural transformation on the Southern Hungarian Plain). Akadémiai Kiadó, Budapest, 141 p.
Mounfield, P. R. 1977. The place of time in economic geography. Geography 4. pp. 268—285.
Pred, A. 1977. The choreography of existence, Comments on Hägerstrand's time geography. Economic Geography 53. pp. 207—221.