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SUBSUMPTION OF SPACE INTO SOCIETY

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Abstract

Space is in itself a pristine object, with attributes of absolute and relative. The absolute attribute is characterized by its contiguousness and universality; the relative attribute by the isolation and uniqueness. The space is to be incorporated into the society, or according to what we call "subsumed," but the attributes of pristine space that functions negatively to the social interaction need to be negated through production of space, in order for society to function. The contiguous nature of absolute space, detrimental to the independence of groups and subjects needs to be negated by means of bounding it, or creation of bounded space; and the isolating nature of relative space, detrimental to the social interactions, is to be negated by means of spatial integration. These processes of the production of space create, nevertheless, new contradictions which give rise to the two different forms of processes of real space subsumption, from which the spatial configuration of agglomeration and transportation, as well as land-use patterns emerge. The unevenly structured socio-economic landscape or the built environment that we see is, thus, nothing but the culminating outcome of these processes of space subsumption into society.

Space forms the key element of geography and the principal task of geography lies in research towards the discovery of new natural and social processes through integrating space into various bodies of natural and social sciences.

In the field of social and economic geography, this research task calls for the creation of an integrated and systematic theory of society with space integrated into the social processes as a vital part of society. In this field of research important theoretical achievements have been made in geography since the late 1970s; yet there are still room for advancing further. There has not been a systematic and dialectical understanding of why and how society incorporates space, considered in full, and of how society consequently creates uneven socio-economic space on the earth's surface.

The need for a more integrated theory of the social science of space comes from three sources.

First, the defects of the "structural" approach of Marxist geography and urban research, which takes spatial or urban reality as a mere manifestation of the underlying aspatial social structure [e.g. Massey, (1979)], mean that it has now come to the stage to abandon Marxism as the basic theory of society with space incorporated into society [e.g. Castells (1983), see also Harvey (1985, p. 125)]. There is no doubt in that aspatial social processes like those related to class or capital accumulation are incapable of explaining urban and spatial reality. Dismayed, these urban theorists abandon Marxism without making serious

efforts towards integrating space into urban theory. Their failure does not lie in Marxism itself, but in their "structural application."

Second, behind the emphasis on class or capital accumulation there is often neglect of the distinction between general, transhistorical spatial processes of society and processes particular to capitalist society. For example, whether the tendency to "annihilate space with time" is a process inherent, and historically particular, to capitalism or is a transhistorical process, still remains to be discussed. The transhistorical socio-spatial processes often seen to be treated in a capitalist context as if they take place only in capitalist society.

Third, a variety of research agenda related to spatial aspects of society have flourished indeed, but they are still isolated from each other. Many geographers carry out researches related to the society and space, but their research is often based on the existing "pigeon holes" which do good in defining clear-cut study objectives but do harm by standing in the way of the establishment of an integrated theoretical framework.

The aim of this paper is to overcome these deficiencies of recent space-oriented geographical research, through proposing an integrative, systematic framework for the theoretical understanding of the domain where aspatial models of society and space intersect.

I. *Dialectics in the Subsumption of Space*

The Concepts of Subsumption

The two different stages of the process whereby something that existed before the emergence of capitalism is incorporated into the capitalist mode of production are termed by Marx, in *Results of the Immediate Process of Production*, formal and real subsumption: the take over by capital of something that existed before the emergence of capitalism is *formal subsumption*, and the transformation of the formally subsumed into the shape most suitable and fit to be an integral part of capitalism is termed the social process of *real subsumption* [Marx (1977 edn.)].

Marx applied this concept of subsumption almost solely in terms of the labour process; but its theoretical implications are in fact more profound. These concepts of subsumption can be extended to that of space. The former, the process of incorporating pristine space with all its attributes into the pristine, "one-point" concept of human society and the emergence of concomitant contradiction-laden social processes may be termed the *formal subsumption of space*. The formal subsumption, however, gives rise to peculiar forms of socio-spatial contradictions. Human society having subsumed pristine space then transforms it into configurations of socio-economic space, suitable for the operation of human society, through intentional applications of labour and science and technology and, the creation of new social relations. The latter are processes towards the *real subsumption of space* into society. The ultimate in the real subsumption is space *an und für sich*, with all the contradictions inherent in spatial subsumption transcended away. Short of this ultimate form of subsumption, the dialectical relationship between pristine society and space always keeps separation between them within the unity, thus retaining and reproducing contradictions in the formal subsumption of space.

"One-Point Economy and Society": The Pristine Conception in Social Science

All the interactions of agencies take place in space and time. Nevertheless, the recursiveness of interactions, created through the systems of sanction and coercive laws of competition, makes the interactions crystallize into a structure in which agencies are absent [Giddens (1979)]. So much are the agencies absent that space and time are also abstracted away from the structure. In fact, this sort of "one-point world" assumption does make sense, and a theory of the capitalist mode of production may, for example, be construed with space abstracted away from the theoretical framework as space often functions indifferently to many social processes on which the theory is based.

Take an example of the category "commodity," the unity of use-value and value. The act of exchange, upon which the concept of value rests, can take place either between next-door neighbours or economic agents located on the antipodes of the globe without altering the very concept of value itself; the physical nature rendering the use-value to a particular commodity remains unchanged regardless of the relative position where the commodity exists. This makes the category of commodity, at the beginning of *Capital*, feasible as a spaceless concept. Similar situations apply to many of such basic models and categories of both neo-classical and Marxian economics, as utility, cost, capital, capital accumulation, surplus value and so forth.

Dialectics in Space Subsumption and the Production of Space

The spatial structure of society has in themselves internal interactions and its own contradictions. Once they subsume pristine space and nature, or space and nature *an sich*, with contradiction inherent in them, the space and nature engender a new contradiction within the pristine social structure. In contrast to space *an sich*, spaceless society—the pristine, spatial structure of society—can be termed as society *an sich*. Due to the new contradiction the agencies can no longer interact with each other based on the pristine model of the social structure. This is nothing but the negation of the structure of society *an sich*, or the negation of the "one-point" socio-economic structure through subsumption of space.

Faced with this contradiction, the agencies of society are forced to create new systems of social interactions which are capable of transcending or resolving the space-related contradiction. These systems of interactions attempt to negate the negation of "one-point" society and economy mentioned above. These particular systems of social interactions include space in its indispensable moment, thus they can be termed "socio-spatial processes." The socio-spatial processes eventually crystallize into the structures of heterogeneous space, etched in the pristine, homogeneous surface of the earth. Through creation of this socio-economic landscape society recovers the system of social interactions abstracted as the structures, or social institutions and economic models.

This is simultaneously the processes of producing space *für sich*, or those of reversion to the former "one-point" structure of society, at cost of negating the former pristine, featureless space, and transforming itself into heterogeneous space. That is, the negation of pristine space is the only way towards recovery of the pristine "one-point" structure.

Nevertheless, this is not the ultimate solution. The uneven space created through the above-mentioned process disturbs the very "one-point" nature of society and economy that it made for. The structure of the society thereby faces another contradiction, once

referred to by Soja as “socio-spatial dialectic” [Soja (1989)]: this time that between the created heterogeneous configurations of space and the “one-point” society. The social interactions based on the “one-point” structure of the society are again severely disrupted.

Many regional problems, which are often treated in its surface appearance as journalistic exposé, are in fact the outcome of these dual contradictions between society and space.

Based on these concepts, the “socio-spatial processes” to bring the two separated moments of society and space into a dialectical unity now needs to be investigated. This is the task of the discussion presented below.

II. *Dual Attributes of Pristine Space*

First of all, we need to discuss the physical nature of pristine space.

Pure space itself, or space in its pristine mode of existence, is not an invention of capitalism, just as the “original” powers of the land, independent “of the action of human industry” [Marx (1971 edn., p. 246)], are not. Space in its pristine mode is an exogenous, antediluvian object which has existed ever since the creation of the universe; thus pristine space is older than the emergence of the capitalist mode of production. This is the space “immune to influence” in itself [Sack (1980, p. 55)], and is still “the space of the physical world.” According to Sack (*ibid.*), space of this nature is that which “the physical scientist bequeaths to the geographers and to the social scientist. It is the framework in which their facts and events are supposed to be located.”

Einstein, in the forward of Jammer’s book *Concepts of Space* (1954, p. xiv), states that space incorporates in itself two concepts: “(a) space as positional quality of the world of material objects; (b) space as container of all material objects.” The former is relative space, and the latter absolute. These two are the inseparable attributes, or separation within the unity, of one and the same object: pristine space. It is not possible to take one attribute and discard the other arbitrarily—society must take both simultaneously even though one of them may create more harm than good.

Contiguity, uniformity and boundlessness are the fundamental attributes of the *absolute* aspect of space. Absolute space thus offers the “container,” without which no substance can exist and no social processes or relations could take place. Space in this sense is called a “universal instrument” of labour [Marx (1977 edn., p. 286)] which gives the labour process a *locus standi* or a “field of employment” (*ibid.*, p. 287).

Everything stands equal before the boundless, uniform and contiguous extent of absolute space. Contiguity simultaneously means the potential to deprive the substance and social agencies of their independence, by physically relating them to one another towards equalization and physical equilibrium without the mediation of any social relations.

The action of social agencies to create a territory is nothing but to block the potential of the contiguousness towards physical equilibrium. The territory manifests itself in various ways, including the barriers around the plot of a bounded area. The barriers may sometimes only be implied, not actually built. Absolute space thereby turns into a mosaic of countless numbers of plots of bounded space, or what Harvey (1985, p. 79) call “collective absolute spaces.” A plot of bounded space can contain only a limited number of substances or social actions. The creation of territories and boundedness out of pristine absolute

space thus brings about the "exclusion principle" [Musgrave (1959)] in space.

Its *relative* nature is the other attribute of space. It is related to "position" and "distance." At first glance, the relative attribute of space may seem to exert its homogeneous nature on society [Harvey (1982, p. 339)]. Indeed, all the positions are equal in themselves, as position is a point with no dimensions. A distance of a certain number of kilometres is equally possible everywhere in space due to the isotropic nature of pristine space.

Yet so much for the uniform nature of relative space. Distance, an important attribute of relative space, is the magnitude of spatial isolation between two different positions. Every spatial position occupies a unique location in space, and the spatial distance linking two uniquely defined spatial positions is also unique. The set of these unique positions and distances makes every element of relative space unique. To social agencies that cannot overcome or annihilate the distance at their own labour, the distance forms a natural, absolute barrier, which creates a territory without any intention to create one. In this sense, relative space has an inherent propensity towards individuation and differentiation.

Being a dialectical unity of absolute and relative attributes, pristine space is in itself a dialectical unity with a separation between uniformity. Equilibration on the one hand and uniqueness and isolation on the other; but they are interrelated to one another, as in the case that only with the help of social interaction over distance the potential of absolute space in attaining physical equilibrium manifests itself. This is the potential source of contradiction behind the subsumption of space into society. The only ultimate way to transcend this contradiction is to "annihilate" space: to attain perfect spatial integration and to prevent any physical effects of the equilibrating process over space. This is the nature of space in our theoretical investigation.

III. *The Subsumption of Absolute Space into Society*

The Transhistorical Aspects of Absolute Space Subsumption

The absolute aspect of space subsumed into society is laden with contradiction transhistorically. Absolute space plays both positive and negative roles towards society; and society, having subsumed the absolute space, must accept the set of the contradictory roles all at once.

Consider, first, the positive role. The agencies of society, first of all, need absolute space as the "container" of his or her processes. In the process of manufacturing, space does not enter into the immediate production process, yet it is nevertheless an absolute necessity. In agriculture, by contrast, space can be a direct instrument of labour in which seeds are sown and crops harvested. In general, the absolute attribute of space is a crucial requirement for the *locus standi* of the labour process of any modes of production.

What is required by each individual agency in society for their economic and social activities is, therefore, not absolute space in its unbounded and uniform nature, but in the form of a bounded territory. The "exclusion principle" is a manifestation of the nature of territory created under this form of space subsumption. The greater the degree that these activities need to be isolated from the interference of other social agencies, the stronger the exclusion principle must function on the territory. Even if space is bounded and the

exclusion principle established, however, an agency can not use the particular bounded plot at his or her own will, without regard to others or any social interactions. This is because the contiguous nature of absolute space can never be negated altogether, due to the need of each agency to relate self to one another. It can be eliminated at one level through bounding, but the boundary thus created may have no meaning at another.

The nature of the agencies "contained" in the bounded space often regulates the nature and strength of the boundedness of the territory. For example, in a primitive society where communality in the production and consumption processes are stronger and the power vested in any individual agency weaker, much territory is reserved for the commune and put in general use for all the members of the society. The contiguousness of space still dominates; and the edge of the commune territory often fades into the frontier. In market society, by contrast, each individual agency is supposed to be independent of one another and the private, exclusive ownership of territory needs to be respected and enforced by state apparatus. The frontier thus transforms itself into boundary and the principle of exclusion of a territory is firmly structured [Kristof (1959)]. The sign "No Trespassing," high walls with barbed wire on top or watch-dogs are all indications of absolute space subsumed into a society with a high degree of alienation among its members. When a social formation with such a degree of alienation is articulated into a communal one, there are often cases that the communal land is expropriated and turned into a bounded territory governed by the dominating state apparatus.

Ironically, however, this absolute need for the bounded "container" transforms itself into an obstacle as soon as the products leave the production process. Space is a "container" after all, thus the interest of a consuming agency lies solely in the use-value, or the utility, of the product itself, and not in the space that has been employed. The conception of use-value contains no trace of the absolute space employed in the production process at all. The effort or cost, if any, in acquiring and employing absolute space vanishes entirely and becomes superfluous from a microscopic view of a consuming agency as soon as the product leaves the *locus standi*. This situation is even more clear in the context of a society with division of labour where consumers and producers interact with each other only in the marketplace. Here we see that the bounded territory as well as its exclusiveness, provides society with a *locus standi* merely as a "necessary evil."

This irony leads us to another aspect of absolute space: the negative role. The "exclusion principle" of territory denies the use of an identical plot by two different agents simultaneously. Faced with this absolute obstacle the agencies are forced to compete against each other, or must put themselves under the coercive rule of arranging the configuration of space. There may be a need for rental payment, to be discussed later, or a fierce fight to secure a better plot—mostly for an empty "container."

Seen from the point of macroscopic social interactions, the extent of absolute space is nevertheless an absolute necessity. In a society based on social division of labour, space is the indispensable precondition for the structure of society as a whole to function: in a class society, particularly those based on peasantry, space is the territory of exploitation and domination; in a market society, space is the territory for the realization of products produced; and in capitalism, space is the territory where variegated factions of the working classes live to reproduce their labour power. None of these societies could function at all without subsuming space.

In short, absolute space, once subsumed into society, comes into dialectical contradictions. Bounded and fragmented into territories, it is an absolute necessity as the *locus standi* or means of production from the point of an individual agency, but an absolute obstacle in terms of its "exclusion principle." From the point of social interactions space is again an absolute necessity for the society as it cannot continue to maintain its interactions and concomitant social structure without subsuming space.

The Question of Subsumption of Absolute Space in Market Society: Externality

So far we have discussed the subsumption of absolute space into society principally in its transhistorical perspective. In the market society, the subsumption process takes a new, historically specific form: the contradiction contained between the contiguous nature of physical space and universal market competition. This contradiction between space and society is the topic to which we now turn.

The "one-point economy" models of the market, mentioned in chapter 1, become dysfunctional as soon as space is subsumed and its contiguous nature, giving rise to its equilibrating potential, attached to absolute space disturbs the operation of market society.

Mediated by social interaction based on the proximity of distance, absolute space is capable of bringing the substances contained in it into equality and equilibrium. The market system aims to attain the same equality and equilibrium, but by means of social interactions among the agencies of the market economy which are expected to be independent of each other. These two processes contradict one another if the equilibrating process of space at one level breaks the separation and independence of the agencies of the market created by means of the bounding at another.

The benefit of externality is a free, labourless acquisition of substances which once belonged to some other agency. The unequal exchange consequently emerges; but it is then internalized into the market system as information as to the existence of extra value spreads among the potential benefactors. The spatial agglomeration of the recipients and emitters of externality becomes a general condition of production; and the extra value once appropriated disappears due to the general decline of the market value of the product produced through externality. From this process we see that spatial agglomeration, or production of heterogeneous space, is the market form of solving the unequal exchange created through subsumption of absolute space.

The case of external diseconomy is not in a simple contraposition to that of external economy. Contiguity remains the source of emitting externality, yet this time in the form of pollutions which create suffering in the vicinity of the emitters. Although individual agencies can evade the nuisance and concomitant economic loss through spatial dispersion, such evasion is not possible at all at the macro-level. In the emission of nuisances, the contradiction arises between, on the one hand, the contiguity of absolute space which does harm and, on the other, the physical isolation created by relative space which enables the evasion at micro-level. The contiguity renders another problem: some may spend labour in an attempt to prevent the emission of nuisance, but this labour input of an agency, although socially necessary, will not realize in the market system due to the "free-rider" problem. Thus the spatial resolution of unequal exchange is not possible in the case of external diseconomy. The "fallacy of composition" is here created due to space subsumption. A modification of market interaction towards a more controlled form of resource

allocation to prevent the negative externality becomes necessary, which creates an antithesis to the free operation of agencies: the legitimate state apparatus with power to prevent pollution emission into space.

In sum, subsumption of absolute space into the system of market interaction necessarily creates various contradictions. The equilibrating processes of market interaction based on the "one-point economy" structure of society is sustainable only through the production of its antithesis: heterogeneity that extends over space and the state apparatus. Externality and the concomitant market failure have long attached the interest of public economics, without explicit awareness that "market failure" or the "fallacy of composition" has much to do with the social processes of space subsumption.

IV. *Subsumption of Relative Space into Society*

The Transhistorical Aspect of Subsumption

Let us now consider the subsumption in the second attribute of pristine space: its relative nature. As the relative attribute of space assumes, by definition, the establishment of self in relation to others, the subsumption of relative space immediately presupposes a system of social interactions. In the case of the subsumption of absolute space, on the contrary, social interaction is only implicitly assumed, as absolute space can be defined and discussed without any assumption of others.

No agencies can interact with each other without specifying a particular place and time of interaction. In this context, relative space provides society, regardless of its mode of production, with the spatial designations for interaction. For this purpose, space must be somehow differentiated socially, with labels attached to every point across its extent. Relative space, with its attributes of spatial particularity and differentiation, thus holds a positive function in society in transforming space into place.

There are various ways to designate particular place; and all of these employ the means to designate the relative positions of the places across the extent of space. These means include the longitude-latitude coordinate system on the globe and addresses using the hierarchical system consisting of house number, street, city, state, etc.

These various means of place designations are not neutral in their social implication in a class-based society, however. Domination of one class over another is effected through the domination of the place where the ruling class controls over those being ruled. The place to rule thus eventually acquires a superior social meaning in relation to places being ruled. This sort of intersubjective notion among agencies as to the superiority of places is an important element in the legitimation of the class rule. The social differentiation in a class-based society thus manifests itself in the hierarchical configuration of designation of places and thus transforms itself into the hierarchically differentiated meaning of places.

Another transhistorical characteristic of relative space has to do with the isolation between two different points in space. Spatial distance forces any social agencies and processes to expend their energy or labour on annihilating it for their interaction. This has been a crucial task for society ever since emergence of the human being. The isolation creates "distance-decay" effect, which forms an element of spatial differentiation. The

total absence of space annihilation [Marx (1973, p. 524)] means the separation of these two points with an absolute, natural barrier of pristine space standing in the way of interaction between the agencies located in these different points in space.

In a society based on social division of labour, the goods produced in the labour process are distributed across space to those who demand them and are located at points different from the point of production, in order for the exchange of goods to be accomplished. The spatial range of the exchange depends on the difference in the volume of goods pushed out of the labour process on the one hand and the intensity of demand for the goods on the other. In any case, the goods have to be transported over a certain distance: an attribute of relative space. Thus it is essential for the society based on the division of labour to annihilate relative space between the locational points of a producing agency and that of consuming agencies. This is termed by Harvey (1982, p. 375) "spatial integration."

The technological level of the means of transportation therefore serves as an indicator showing the depth of social interactions. Perfect annihilation means integration of space to the level that the society ultimately recovers the "one-point world," the theoretical construct of a society without space subsumed.

However, there is a deep topological contradiction behind the process of spatial integration: the only way known to integrate space, which is at least two-dimensional, is to use transport or communication lines, which are one-dimensional (the only exception being omnidirectional radio transmission). This contradiction engenders an uneven geographical development of society, or created heterogeneity in space on the "one-point" social structure. Those agencies which are not located along a particular transport line, for example, cannot annihilate space using that particular means of transportation. On the other hand, as long as transportation lines are not subject to the exclusion principle, a line connecting one agency in one spatial point with another normally serves to link agencies located at intermediate points along the line as well. Thus in an attempt to annihilate and integrate space, the means of transportation ironically creates the situation contrary: intensification in the differentiation of spatial configuration.

This irony is transcended and the spatial integration of two- or three-dimensional space at a macro level attains the perfection only when the countless numbers of transportation lines of a uniform nature form an extremely dense network to cover the entire spatial extent.

However, in the real social process this is an impossibility. An attempt towards more efficient integration of space involves an accelerated speed and a larger capacity in transport technology. These kinds of technology ironically bring space away from the perfect, ultimate integration: the more massive and the faster are the means of transportation, the higher is the proportion of fixed asset in the total investment and the cost of construction per kilometre. As the amount of labour and resources to be allocated to the means of transportation are finite, networks consisting of more massive and faster transportation technology inevitably become more sparse than that of lighter and slower. Although some parts of space may be annihilated through the more advanced transportation technology, the rest of space must put up with annihilation through conventional ones. This varied transportation technology entails spatial integration that is far from perfect.

In addition, the operation of more massive and faster means of transportation normally requires professional operators, making the service offered only at certain time intervals

according to the fixed time schedule. This makes for the alienation of lay agencies from the act of annihilating space.

The solution to these problems appears to lie in the invention and proliferation of private means of transportation: automobiles. "Motorization" has thus become a passport to the freedom in spatial integration, as it allowed many agencies to move over every corner of space at his or her own will with little restriction. An automobile turned to a symbol of the individualist ideology, not to mention its positive role for suburbanization and the creation of massive effective demand on steel, petrol and gum industries.

However, the appearance of perfect spatial integration through automobile is, of course, an illusion. Its safety level is much lower than that of other forms of transportation, which is indicated by formidable traffic accidents caused by automobiles. Furthermore, the ownership of automobiles is directly dependent upon the income level of an agency. Social stratification thus directly determines the power of each agency to annihilate space. The cost of individualism in the annihilation of space can, therefore, be very high (i.e. death) and individualism is granted only to those agencies who can afford it.

Subsumption of Relative Space in Capitalist Society

In the capitalist mode of production, the annihilation and integration of space takes on a historically specific form. To the eyes of an individual capitalist, spatial isolation creates a stumbling block by putting off the moment when the commodity is actually sold.

In capitalism, the turnover of capital comes in "the unity of production and circulation" [Marx (1973 edn., p. 745)]. Although the whole process appears to be directly related to the amount of surplus-value, in reality "circulation time is . . . not a positive value-creating element" (ibid., p. 539). As long as capital remains out of the labour process, where surplus value is produced and exploited, it cannot produce, nor posit surplus value. Capital circulation is thus "the negation of itself" (ibid., p. 620) as a self-valorizing value. Nevertheless, capital cannot stay away from the circulation process, and movement of commodities across space is an indispensable moment of capital as a process, once space is subsumed. Only by passing through the physical circulation process can capital realize the labour spent on the objects of labour in the labour process. Should the circulation process not take place due to lack of sufficient spatial integration or lack of capable means of transportation, the commodity would not realize itself, and the capital circulation would come to a halt. Relative space immediately becomes the absolute natural barrier for capital circulation. For this reason, the action of agencies in capitalism is always directed towards the perfect integration of space possible. Yet, spatial integration by means of transportation has its inherent contradictions discussed above.

In addition, the potential of relative space to form a natural barrier against the interaction of the agencies of the market system engenders the possibility of realizing microscopic maximization of self-interest of agencies, as the spatial immobility of suppliers fixed to a particular location forms a barrier to entry, called "natural monopolies." It is commonly argued that in the case of a limited local effective demand, entry would create local over-supply, and hence the devaluation of goods and services. This leads to monopoly prices leading to unequal exchange.

The natural monopolies can be partially solved, and market competition resurrected and enhanced, however, through the vertical disintegration of the production process or

creation of "fixed capital of an 'independent' kind" [Harvey (1982, p. 226)]: the investment of a segment of capital with heavy "sunk cost" [Baumol, Panzar and Willig (1982)] could be burdened with a public sector as social capital. The private agencies of a market economy are then relieved from investment in assets not mobile nor resalable in a second-hand market. As in the case of absolute space discussed in the previous chapter, subsumption of relative space into the market structure of society engenders the intervention of public sector as well. The creation of a social and spatial institution that is antithetical to the market structure itself, the state apparatus, does not alter the spatially uneven distribution of "sunk capital," however. The spatial unevenness is rather enhanced through introduction of market criteria to the social capital provision. We will come to the point shortly.

V. *The First Form of Real Subsumption of Space*

We have so far discussed the subsumption of the absolute and relative attributes of space separately. The discussions above already reveal that the subsumption of space *an sich* into society creates contradictions which eventually entail the negation of the pristine, uniform space through production of a heterogeneous spatial configuration and, in the case of market society, a partial negation of the society itself through creation of antithetical, more collective social relations: the state apparatus.

Nevertheless, space being a dialectical unity of absolute and relative attributes, the analysis so far is bound to be partial and confined in its scope. For having a comprehensive perspective, therefore, we need to analyze the socio-spatial processes with the two attributes of space subsumed interrelated and dialectically combined together into society, particularly in relation to its social interactions.

As discussed earlier, the production and living of every agency spread over space. The absolute space is the necessity for the social interactions. This relationship is particularly obvious in the social interactions carried out in class-based societies, in which space is the object of domination for appropriation of surplus product or labour produced or reproduced in space as a "container." In the market society, absolute space is the arena of competition for realization of commodities. In order to dominate and appropriate, or to engage in the competition for realization, however, the relative space has to be annihilated and integrated.

The social interactions thus give rise to new processes whereby space and society *für sich* are created through the transcendence of this contradiction in the subsumption of space into society. The "production of space" comes into the full agenda. The production of spatial configuration in this respect is the outcome of society transcending the contradiction that exists between the attributes of relative space and absolute space: spatial extent, or spatial area, an attribute of absolute space, playing a positive role to the agencies of the society on the one hand; and spatial distance between two points, an attribute of relative space, playing a negative role as an obstacle to the agencies on the other. Society in any modes of production produces and creates its own spatial configuration in the course of its subsuming space as a whole through transcendence of this contradiction.

The social processes necessary to transcend this contradiction that emerges as these two attributes of space are simultaneously subsumed may be termed the "first form of real

subsumption of space.” Here the agencies of society attempt to annihilate distance in their interaction while retaining the “collective absolute spaces,” with exclusion principle, as indispensable to their economic and social activities.

This first form essentially takes on two forms: spatial agglomeration and transportation/communication. In the following, we will discuss them in turn.

Spatial Agglomeration

Let us consider, first, the spatial agglomeration. As discussed in the chapter on relative space, reducing time and labour required for communication between agencies located at two different spatial points is always of necessity as long as there are social interactions. Spatial agglomeration is the physical annihilation of the space that stands as a barrier between the agencies concerned. As in the case of externality, it aims at reducing labour input on the part of the agencies in their interactions.

The social interaction of the agencies necessitates the direct annihilation of space through agglomeration regardless of the historical stages. Even in the most primitive family in the stone age, for example, the family members were spatially agglomerated in a small settlement to make personal contacts between them possible for production and consumption purposes. The ancient cities are also the product of spatial agglomeration, bringing various controlling and dominating functions as well as luxurious consumptions of the ruling classes close to each other.

In the capitalist mode of production, the annihilation of space becomes an imperative for successful capital accumulation [Harvey (1985, p. 35ff.)]. The circulation period is in itself a negation of capital which is a self-valorizing value. This imperative of capitalism pointed out by Marx, as annihilation of space by time, works in the case of agglomeration, in an inverse way: the annihilation of circulation time by the elimination of physical space, or “annihilation of time by space.”

Conventional location theory has noted this relation, although insufficiently, as suggested by the following statement made by Scott (1983, p. 8): “[l]ocation theory begins with the idea that locators will always seek to mitigate the costs of distance by adopting locations that reduce linkage length as far as possible. Suppliers will want to locate close to demanders in order to maximize demand, and demanders will want to locate close to suppliers in order to minimize c.i.f. prices.” According to Weber, “an agglomerative factor” is defined as “an ‘advantage’ or a cheapening of production or marketing which results from the fact that production is carried on to some considerable extent at one place” [Weber (1929 edn., p. 126)]. Nevertheless, “cheapening of production” does not come solely from transportation costs. It is also mediated by the abbreviation of circulation time, which brings about increased turnover of capital, or more continual use of fixed capital, which contributes to the reduction of cost-price.

Were agglomeration of entire economic activities into one particular spatial point possible, this would mean the creation of the “one-point economy” in reality. But this is not possible since economic activities must spread over space, as mentioned earlier in this chapter: production activities, especially those of primary industries; concomitant consumption, which takes the form of effective demand in the market society; agricultural production, which created the source of surplus value to be exploited in pre-capitalist social formation; etc. No social interaction can proceed without this spatial extent.

Transportation and Communication

The “complementary region” in the central place theory [Christaller (1957)] represents the point discussed above. A spatial isolation is inevitable between an agglomeration centre and the locations of production and consumption that form the complementary region. The spatial barrier discussed above cannot be eliminated, as much as the distance between the centre and its complementary region cannot be annihilating space physically. Herein lies the reason why the agencies come to resort to the other means of annihilating space: transportation and communication for spatially scattered production and consumption processes to maintain the social interaction.

If the space that the social system must integrate is the unevenly developed space with agglomerated centres of various sizes scattered over it, with an uneven distribution of population and uneven effective demand on transportation and communication, the topological contradiction in spatial integration discussed in the previous chapter now exerts an explicit influence on the social interaction at this stage. Spatial integration requires, by definition, that every corner of space be covered with the transportation and communication network. However, due to lack of sufficient effective demand on transportation in sparsely populated regions, some parts of the transportation network may not be produced and operated profitably so as to realize the labour embodied in the production of transportation or communication. The spatial integration of society across the entire space thus becomes virtually impossible in the pure market system with the absence of the state apparatus.

The Contradiction Inherent in the Two Forms of Annihilating Space

The two forms of annihilating space, agglomeration and transportation/communication, are again in a position to contradict each other in the capitalist mode of production.

The more capital agglomerates at a particular spatial point the larger is the commodity output, hence the wider the spatial extent of effective demand needed to realize the labour embodied in the commodity produced. In other words, a more intense and effective spatial integration is necessary to distribute and realize the larger volume of commodity output. The annihilation of space by one means, agglomeration, tends to negate the successful annihilation of space by the other means, transportation and communication.

On the other hand, an attempt to reduce the labour and resource allocated to spatial integration by truncating the range of market areas of an agglomeration centre means to restrict the scale of the output of the commodity produced at the centre. Such an attempt would negate the further annihilation of space through agglomeration.

The outcome of this contradiction is the transformation of the pristine into a heterogeneous, uneven space with many agglomerated points arranged hierarchically across space, in the manner central-place theory prescribes, or “territorial structure” [Buch-Hanson and Nielsen (1977)] does. The centres of agglomeration scattered across pristine space have to be, then, integrated by means of transportation and communication.

The uneven spatial structure thus created is the outcome of the socio-spatial interactions of the agencies but, in the meantime, is the medium through which socio-spatial interactions take place. The perfect transcendence of these two different means is then made difficult in the pure market system. The direct annihilation of space can be attained on the level of the individual agency, no matter how small resources s/he has. Making a decision to

locate in a city and moving the premises there would be enough. The annihilation of space by time by means of transportation/communication involves, on the contrary, the collective will of various social agencies, due to its need of a large amount of surplus in the society, the cooperation of labour power, a longer gestation period for construction and externality exerted once they are completed. There is little possibility that unrestricted social interaction would come up with such a decision to work collectively for a means to annihilate space with time. This difference typically creates the situation of excessive spatial agglomeration and excessive utilization of existing transportation networks, with some underdeveloped regions left out of the networks.

Many utopians, futurists and urban planners set out images of the "one-point world" where the space is created to subsume pristine space *an und für sich*, thereby all the contradictions related to space subsumption are transcended [see, for example, Corn and Horrigan (1984)]. Yet, apart from the topological contradiction of space subsumption discussed earlier, the above argument suggests that the ultimate subsumption of space *an und für sich* does not easily come to fruition.

VI. *The Second Form of the Real Subsumption of Space*

In the preceding chapters, we discussed the attempt by capitalists to annihilate space stemming from the fact that "[c]irculation time in itself is a barrier to valorization" [Marx (1973, p. 543)]. In contrast, by paying closer attention to the exclusion principle that entails utilization of a plot of bounded absolute space for the labour process (for example, an industrial plant) or the circulation process (for example, a store premise), a different form of the process of real subsumption of space emerges: the second form, which comes from the contradiction between the attribute of exclusiveness of collective absolute spaces and the uniqueness of each place, which is an element of relative space. Through social interaction society attempts to transcend this contradiction by creating institutional arrangements to coordinate the varied land use of various agencies of society. In the market system, this coordination typically culminates in the rent and concomitant land use pattern [Harvey (1982, chap. 11)].

The Second Form in Transhistorical Perspective

First, let us consider this second form from a transhistorical perspective. Recall that a bounded plot of absolute space provides an agency of society with his/her *locus standi*. But, at the same time, each plot has exclusiveness: no two social or economic actions can occupy, or take place in the identical spatial plot. In case two or more agencies or groups of agencies choose one and the same plot for their location, there must be competition for the use of that particular land plot. No economic agencies can avoid this competition as there is no way for an economic agency to annihilate the need of absolute space. Therefore, the constraint imposed by the inherent exclusion principle stand in the way of every economic agency.

Should economic agencies be indifferent as to the relative location of plots of absolute space, then the competition for a particular land plot would be almost nonexistent. There is abundant land on the earth, much of which lies beyond the frontier of human economic

activity. Yet, in most cases in reality economic agencies interact to compete for a bounded plot that has a particular uniqueness: economic and/or social superiority as compared to other plots. This superiority of land always comes in parallel with the notion of the uniqueness of a particular place which is an attribute of relative space. The plots of space that have such superiority can be quite limited, and in many cases the level of superiority of land plots is based on their relative locations.

In the first form of space subsumption the "barrier to capital" is distance, an attribute of relative space; but in the second form the "barrier" comes from the exclusion principle attached to the collective absolute spaces with superiority to promote certain socio-economic actions of agencies in a social system. The attributes of space play a reverse role here: the agencies have a strong, positive concern in an attribute of relative space—superiority—but the physical nature of bounded absolute space—exclusiveness—does not allow every agency to occupy the same superior plot.

In any modes of production, this contradiction has to be transcended in some way or other: there must be a system of social interaction, namely land-use coordination, in every mode of production. In most cases land-use is coordinated through the land-use planning implemented by the state apparatus or other public institutions backed by the dominating political power. This is the reason why we can talk of the particular cityscapes and urban configurations as reflexions of forms of social interactions and concomitant class structures of respective eras.

There are some means, however, although limited, to circumvent this contradiction. First of all, one can construct a multi-storey building on a land plot so that various socio-economic actions can be carried out on the same plot. This sort of consecutive use of the same land plot is dealt with under the conception of the second form of differential rent [Marx (1981), chaps. 40–5]. Another way to circumvent this contradiction is denser use of land. The latter solution, through the congestion and tight packing of land use, is more common than the former as it can be attained easily through the initiative of an individual agencies. Nevertheless, the congestion eventually encounters the absolute limit set by the physical and psychological limit of human being. Once this limit is reached, one must anyway turn to employing a fresh plot of land which is naturally subject to the competition and contradiction discussed above.

Land-use Coordination and Competition around Ground Rent in the Market Society

In the market system there are in principle no authorities with a legitimate and absolute power to control land-use. The configuration of land-use is instead determined through social interaction in the form of competitive bidding over privately-owned plots of absolute space. The outcome of this system of interaction is the structure of the land market and the concomitant landscape etched on the surface of land.

We would like here to describe how the interaction proceeds and the concomitant land-use comes about.

Let us consider once again the circulation of capital that we referred to in the previous chapter. In this circulation we find two processes of market competition. One is the threefold competition for the realization of the product ($C'-M'$) leading to the formation of market value; the other the process of $M-C(mp)$, competition to obtain the means of production for the production of the same product with less labour. Once market value

is established through the first process of market competition, the way left to the agencies of economy to earn extra value is to produce the same amount of the commodity with less labour input. This is made possible by employing superior conditions of production for the production process. If this condition of production is reproducible as new technology, all the agencies will eventually adopt it; and as a result, the market value itself will fall and the extra value disappear. However, if the superior condition of production cannot be reproduced and is monopolizable as superior location, the second process of market competition comes to surface: the creation of differential rent.

Based on the Ricardian concept of differential rent, Chisholm (1968, pp. 21-2) has concisely explained the social process of competition among potential land users who belong to the same economic sector (say, wheat) and between them and the landlords. But this explains only the very beginning. The competition for land-use among potential land-users of different economic sectors wants explanation. I have analyzed the former process elsewhere [Mizuoka (1981)] and concluded that the absolute value of parameter a in the land rent function

$$R = aD - aD_0,$$

where R is extra profit that turns to rent, and D the spatial distance from the core of the agglomeration centre where the market is located, and D_0 the farthest plot of land needed to be employed in order to fulfill the social demand of a particular commodity with which the rent function is concerned, is crucial in determining the winner in the competition to acquire the lease of the plot.

The resulting concentric land-use pattern in the urban landscape of the market society is nothing but an outcome of these anarchical interaction towards land-use coordination carried out by agencies in the market system. Coupled with the heterogeneous pattern of urban hierarchy discussed in the previous chapter, this spatial form of land-use, an outcome of the second form of space subsumption, creates an element of spatial configuration of the market society.

It is now clear that, again in the second form of real space subsumption, the creation of heterogeneous spatial configuration produced with the concentric pattern and a new social processes giving rise to ground rent is nothing but the consequence of the social interaction of agencies in the market in an attempt to subsume pristine space into the "one-point" structure of society.

This heterogeneous spatial structure as well as the ground rent are naturally not the ultimate subsumption of space *an und für sich*. Ground rent is bound to create land speculation and a concomitant distorted and irrational pattern of land-use; and the concentric land-use pattern tends to expel those agencies with smaller a of land-use function towards the periphery, thereby forcing those pushed outward to input more labour for annihilating space between their location and the market.

VII. *Spatial Dialectics and Subsumption of Space:*

A Concluding Excursus

In this paper, we first examined how the pristine space subsumed into society creates

contradictions in the "one-point" social structure. Society cannot survive without space that "contains" society while space subsumed into society can have negative consequences. Faced with this contradiction, the society, with its agencies and system of social interactions, has one option only: to annihilate space while employing it. This option is in itself contradictory, but whether this option materializes or not is crucial to the continued survival of the society. The interaction of agencies, in the face of these contradictions, functions towards the transcendence and resurrection of a pristine "one-point" social structure. Society thus produces heterogeneous space, the antithesis of the uniform, pristine plane assumed in the beginning, and creates new social relations which can be antithetical to the original social structure. In a market system, the resulting social structure is the partial negation of the free market system itself. The consequences of failure in subsuming space can be fatal, as space is bound to destroy the supposed independence of the agencies, and stand in the way of social interactions as an absolute barrier. In capitalist society, space can block capital circulation to negate capital itself altogether.

In this context it would be intriguing to have a brief look into the debate on "spatial dialectics" and "spatial fetishism" carried out between Richard Peet and Neil Smith almost a decade ago.

Neil Smith (1981, p. 112) criticized harshly Peet's concept of spatial dialectics (1978) in that "far from achieving a dialectic, the theory [of the spatial dialectics] treats space in practice as a relatively autonomous thing or field, a separate realm of existence."

The matter of real import is, however, to treat the relation between space and society in an intertwined dialectical manner: space is indeed a "separate realm of existence" or a container to capitalism in so far as it is formally subsumed; and space becomes an object produced by society in its process of real subsumption. Both are the ways for space to exist in society; the question is not to choose one or the other. The two concepts, "spatial dialectics" (Peet) and "created space" (Smith) are not in unreconcilable antagonism: the seemingly antagonistic arguments are transcended and synthesized into the dialectics of the formal and real subsumption of space which have been discussed in this paper.

Uneven spatial development, which includes the built environment in forms of metropolis and industrial agglomeration and such peculiar social forms as social capital and ground rent, are the product of the social processes towards real subsumption of space into the society. An uneven geographical landscape is thus the demonstration of the sole way in which the "one-point world" manifests itself in reality as well as of the concomitant contradictions embedded in the society operating across space with the "one-point economy" fabrication.

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