


Essay

## Notes on spatial differentiation

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# Notes on spatial differentiation

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## Abstract

Spatial differentiation is the result of the combined action of natural and social processes that produced a fragmented, irregular, complex, and unstable, although articulated, earth's surface. The earth's surface can thus be seen as a kaleidoscope, open to different interpretations. Geographical terms such as landscape, region, territory, place, and network reveal different readings on spatial differentiation. The latter, however, does not constitute a key concept inside geography's literature but interfere in geographers' motivation and their perspective analyzing human action on earth's surface. Temporality and spatiality are present in spatial differentiation. Spatial inequality is the perverse side of spatial differentiation and must therefore be eliminated. A socialist spatial differentiation is a possible trail to the future, ensuring that differences in the ways of seeing, feeling, thinking, knowing, communicating, and acting continue to exist.

**Keywords:** Spatial Differentiation. Mosaic. Kaleidoscope. Temporality. Spatiality.

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## Notas sobre diferenciação espacial

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### Resumo

Diferenciação espacial é o resultado da ação combinada de processos naturais e sociais que produziu uma superfície terrestre fragmentada, irregular, complexa e mutável, porém articulada. A superfície terrestre pode assim ser vista como um caleidoscópio, possibilitando diferentes leituras. Os termos *paisagem*, *região*, *território*, *lugar* e *rede* revelam essa diversidade de leituras a respeito da diferenciação espacial. Esta não se constitui num conceito chave da Geografia, mas na motivação, no olhar com que o geógrafo analisa a ação humana sobre a superfície terrestre. Temporalidade e espacialidade estão presentes na diferenciação espacial. A desigualdade espacial é o lado perverso da diferenciação espacial e deve, assim, ser eliminada. Uma diferenciação espacial socialista constitui um possível caminho para o futuro, garantindo diferenças nos modos de ver, sentir, pensar, conhecer, comunicar e agir dos seres humanos, diferentes e simultaneamente iguais entre si.

**Palavras-chave:** Diferenciação espacial. Mosaico. Caleidoscópio. Temporalidade. Espacialidade.

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# Notas sobre la diferenciación espacial

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## Resumen

La Diferenciación Espacial es el resultado de la acción conjunta de procesos naturales y sociales que ha producido una superficie terrestre fragmentada, irregular, compleja y mutable, aunque articulada. De este modo, la superficie terrestre puede ser vista como un caleidoscopio, en el cuál diferentes lecturas son posibles. Los términos *paisaje*, *región*, *territorio*, *lugar* y *red* revelan tal diversidad de lecturas respecto a la diferenciación espacial. Esta, en sí misma, no constituye un concepto clave de la Geografía, no obstante, funciona como la motivación, la visión con la cual el geógrafo analiza la acción humana sobre la superficie terrestre. Temporalidad y espacialidad están presentes en la diferenciación espacial. La desigualdad espacial es el lado perverso de la diferenciación espacial y debe, por lo tanto, ser eliminada. Una diferenciación espacial socialista se constituye en un camino posible para el futuro, garantizando diferencias en los modos de ver, sentir, pensar, conocer, y comunicarse de los seres humanos, los cuales son, simultáneamente, diferentes e iguales entre sí.

**Palabras clave:** Diferenciación Espacial. Mosaico. Caleidoscopio. Temporalidad. Espacialidad.

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## Nature, meaning and examples

In 1989, the geographer Denis Cosgrove published an article whose first part of the title remember us that “geography is everywhere”. He meant spatial differentiation, holding an understanding that the earth’s surface is covered by countless complex, irregular, changeable, and interconnected mosaics. These mosaics could be completely covered by each other, they can be partially superimposed, and sometimes even juxtaposed. These complex spatial arrangements allow us to conceive a kaleidoscope, a metaphor for spatial differentiation. As in a kaleidoscope with its ever-changing angle of view, by changing the perspective, we change what we see. We can look at the earth’s surface by observing its geomorphological features, observe urban or agrarian geography, or even geographic regions. It is our standpoint that will select what we will see. Both earth’s surface and its metaphor are thus subject to multiple viewpoints, voices, and eyes. But in each one, the spatial differentiation will be accentuated.

Spatial differentiation is the result of a long and complex process that combines nature itself with human activity, producing different spatial forms in the wake of this process. In other words, this relation produces landscapes, generates different uses of the land and material flows, ultimately creating a specific organization of space, which represents a true manifestation of physical and human processes.

But spatial differentiation should not be considered as a key concept inside geography's literature. These threshold concepts are space, landscape, region, territory, place, and network. Indeed, grasping spatial differentiation is what motivates and attracts curious geographers to provide meaning to human action on the earth's surface. This motivation suggests that spatial differentiation is, simultaneously, a reflection, a means, and a condition. It is a reflection of what results before the combined action of nature and society. It is a means by which economic, political and social life flows. And it represents a condition for the reproduction of spatial differentiation itself, but also a condition of changes. Spatial differentiation becomes then more than only motivation, but the basis of natural and social sciences. Without this geographical feature, contradictions would not exist, as well as life on earth's surface. This latter would be an undifferentiated isotropic plain, something not admissible even in science fiction.

The following examples point out some spatial differentiation. Nature is manifested whether on a global, regional or local scale. Expressions and terms such as equatorial and polar regions, plateaus, slopes, and plains, or even floodplains, creeks, and brooks denote forms created by nature. But even more prodigal in producing spatial differentiation is human action, which can be elucidated in geographic representation through maps and schemes. A population density map can illustrate this. It summarizes the differentiated results of human action. The spatial concentration of industries or spatial interactions between cities depicted in these types of maps, as in the same fashion of a map showing agricultural land use, displays the various possibilities of spatial differentiation. A map referring to residential segregation can reveal profound spatial inequality in showing the coexistence, in the same city, of exclusive gated communities, favelas, tenements, and housing projects. One can imagine maps with the spatial distribution of neo-charismatic churches, on the one hand, and the distribution of the place of residence of those who committed so-called "white-collar crimes". Spatial differentiation is also present in social imaginary, on think of places that have greater affection, what we could call topophilia, and those of lesser, that represent a topophobia, or we can think even in terms of sacred and profane spaces. Geography is everywhere.

Regional geography provides eloquent examples of spatial differentiation. Geographic regions result from an intricate combination of actions of nature and society, and the regional landscape clearly expresses spatial differentiation. One can observe, for instance, the differences between Campanha Gaúcha and German-Italian colonization regions in Rio Grande do Sul. Or the differences among Recôncavo Baiano, the zone, Chapada Diamantina or west of Bahia. Or compare Zona da Mata's area with agreste, marshes, or backcountry (sertão) in Pernambuco. Spatial differentiation is everywhere.

## **Temporality and spatiality in spatial differentiation**

Spatial differentiation, as with any product of nature and human action, exhibits both temporality and spatiality. These dimensions are seen as manifestations of time and space, that is, as expressions of movement and process while simultaneously representing pauses and forms. Both temporality and spatiality constitute a unit and they are interrelated but can be considered separately since each has a relative autonomy. Temporality is expressed in creation, development

and transformation, while spatiality is expressed in location, scale, spatial arrangement, and spatial interactions.

Spatial differentiation is a context-dependent creation carried out by certain social agents. The context involves a temporal environment - *genius temporis*, in which favorable conditions emerge underpinning the creation of spatial processes and spatial forms. It also involves local conditions - *genius loci*, that is, those favorable places for creation. In practice, the process of creation results from the action of social agents of all types, different from each other only by their interests and means for creation, but also in terms of power, capital, work, and their degree of participation in emerging social conflicts. Spatial differentiation presents a development expressed through periods defined by varying combinations of social attributes. One cannot consider development as a metaphor for biology, as it does not occur straightforwardly. Development can face reversals, resistances, and may go through rebalance or marginalization processes. Spatial differentiation displays areas and places that were given another function, pooling spatial forms created at different times together with other marginalized areas and places. The transformation is, apparently, the end of temporality. The product of this transformation, however, constitutes the starting point to a new temporality open up to new creations that, as a rule, put into play new social agents acting in other *genius temporis* and *genius loci*. Spatial differentiation thus presents several spatial forms that contain different times. As David Lowenthal stated, the past allows us to make sense of the present. In other words, spatial differentiation is a complex matter and is up to geographers to keep a careful eye on temporality.

Clearly, spatiality is more considered by the geographer than temporality. The empirical tradition of geographers is responsible for it. Location is the starting point for its analysis, among all other elements that constitute spatiality, since following geographic coordinates, an immediate spatial differentiation comes forth before our eyes. The site is the concept that constitutes absolute location since it is expressed both by coordinates and its geomorphology, the latter being a product of nature but with some degree of human interference. Relative location points out the accessibility quality of location, at road junctions or intersections, for example. Now, the concept of geographic position derives from the relative location. The relationship of one location vis-à-vis other locations, in many possible ways defines a relational location. Following this line, absolute, relative, and relational location, terms inspired by David Harvey, constitute key terms for the analysis of location. In the study of spatial differentiation, it is necessary to consider those abandoned or marginalized locations and the meaning attributed to them by different social groups. Place of rhetoric or vernacular place, sacred place, placelessness, are other possibilities. But the concept of location, fundamental to the study of spatial differentiation, has been left out or taken as a minor issue. But only to some extent, precisely due to its origins based on neoclassical economic perspective, based on the value-utility theory and the law of diminishing returns. But this does not diminish the importance of location for geographers, as they can rethink it from a critical perspective.

Scale, this polysemic term, is another element of spatiality. In geography, it is considered that we must go beyond cartographic scale, considering dimensional, spatial and conceptual scales. The first one refers to the division of built objects, involving length, width, and height.

Grand monuments and temples, for instance, change the landscape and denote power and prestige. A large integrated steel mill, on the other hand, exhibits internal economies of scale. Small and medium-sized industries together benefit from external economies of scale, creating advantages for each. The scale is also manifested in its spatial dimension of action. Local, regional, national and global scale constitute different areas of action with different economic, social, and political meanings.

If location defines a place, spatial arrangement, on the other hand, defines a predictable spatial pattern. And because the morphology of the object and its distribution are evidenced, grasping the spatial arrangement becomes a real possibility for theoretical formulation. There are countless spatial arrangements, each one endowed with a locational pattern that represents both society-nature relations, as well as technical progress and social relations. If one considers spatial concentration or dispersion, finding both a chessboard-like linear pattern or a no-pattern spatial arrangement are concrete possibilities, either for academic purposes or for public policy. These two elements, just similar to location and scale, contribute to form spatial differentiation.

Spatial interactions articulate locations and spatial arrangements, enabling spatial differentiation. Functional regions are then created and the spatial diffusion of innovation is implemented. People, goods, capital, information, epidemics, and so forth, circulate spatially. In the same way, capital accumulation and political power are manifested through spatial interactions. Interactions are thus at the very heart of spatial differentiation. Without the former, the latter could not exist. Spatial interactions can be analyzed considering those elements that circulate, the very means of circulation, intensity, direction, frequency, and routes among those locations involved in these interactions. Interactions, as an important aspect to be addressed in spatial differentiation studies, cannot be second string to research, considering different indicators and operational procedures. And there are many unanswered questions. If research on spatial interactions includes a framework of the past and present, it will involve movements of creation, and an analysis of spatial interactions development, transformations, and the spatial differentiation of investigated areas.

## **Two questions about spatial differentiation**

Spatial differentiation is far from constituting an unquestionable research subject. And these questioning covers from theoretical to epistemological investigation and debate. In this text, we briefly discuss two very important issues: dichotomies and uniqueness.

### **Dichotomy in Geography**

If temporality and spatiality are questions that need to be explained and clarified, dichotomies are a serious problem that has been detrimental to geographical studies, occurring frequently in a not-so-implicitly manner. Debate about approaches to geographic understanding has traditionally run to dichotomies: opposing physical to human geography, or regional geography to that geography striving to analyze spaciality-related questions. There are others involving urban and rural and so forth. In fact, they are of little utility and the development of geographical

studies can be hindered. Note that dichotomy is a mistaken intellectual edifice far from reality. This approach actually takes us away from perceiving that unity is in diversity and diversity is an integral part of unity. If one adopts a dichotomous perspective, it is not considered that processes and forms are generally interrelated and affect one another while maintaining relative autonomy. Interrelationships and relative autonomy do not produce dichotomies but indicate unity in diversity and vice versa. The misconception is not rooted in professional specialization but, on the contrary, in the poor training of geographers. Unity in diversity should open minds to studies covering topics that are seen as dichotomous.

The dichotomies that hinder many geographers to think properly can be deconstructed by reckoning Brian Berry's proposition in his 1964 article on regional analysis. In this text, published at the height of so-called theoretical-quantitative geography, Berry proposes a geographic matrix as a means to extirpate dichotomies in geographical thought. There are three types of matrices that geographers can use. The first is the thematic matrix, in which two themes are interrelated, such as education (row) and income (column). The second is of connections between places, used in studies related to spatial interactions. The third is the geographic matrix whose rows represent places and columns are the characteristics. It can contain a very large number of places and innumerable indicators. It is through reading the matrix, along with columns or rows, that the distinction between systematic (columns) and regional (rows) geography is established: it becomes clear that characteristics vary spatially, unveiling spatial patterns and paving the way for theorizing. By examining the rows, on the other hand, the combination of indicators in the same place can be perceived and, as two or more places with similar combinations form types or regions, it is as if they were spatially contiguous. And the matrix analysis reveals that systematic geography is demonstrated in the columns and regional geography in the rows. Thus, the geographic matrix constitutes a means by which dichotomies are deconstructed. And if the geographic matrix is a representation of Earth's surface, then dichotomies are deconstructed. It all depends on researchers' careful attention and their interest whether in systematic or regional geography.

## **The question of uniqueness**

In 1953, the professor at the University of Iowa Fred Schaefer published an article that constitutes a milestone in the history of geographical thought, establishing the rupture between traditional geography and those postures that followed, starting with so-called theoretical-quantitative geography. Schaefer discusses the "exceptionalism in geography", criticizing geographers' postures at that time, especially Richard Hartshorne's ideas exposed in his 1939 book *The Nature of Geography*. Schaefer criticizes Hartshorne, who claims that geography studies unique and unrepeatable phenomena and that it has no principles, laws, or theory. This is the thesis of uniqueness. Thus, the study of spatial differentiation would be the study of unique places.

Uniqueness is a major misunderstanding and runs up a dramatic disservice to geography, even though by the end of the 19th century, the nomothetic sciences, searching for laws, and idiographic sciences, which would study those unique phenomena, could already be recognized.

The polemic between Hartshorne and Schaefer was a one-way debate, as Schaefer died before his text was published. The theoretical-quantitative revolution was a powerful and not exclusive means to minimize the uniqueness thesis. And it also contributed to making the spatial differentiation debate scarcely relevant.

The question of uniqueness can be discussed in light of Karel Kosik's historical and dialectical materialism proposed in his *Dialectics of the Concrete*, but chiefly by considering Georg Lukács' *Introdução a Uma Estética Marxista*. Both authors argue that reality can be understood through the triad universal - particular - singular, categories that constitute a unity in diversity. The category of universal concerns repeatable general processes, while the category of particular manifests universal principles, in which the general processes take the form of specificities, producing classes, types and, we would add, regions. Thus, if we consider felines as universal, then tigers, jaguars, leopards, and cats would be taken as particular, that is, they continue to be felines but with specific characteristics. And if cats can be seen as an expression of the universal, a specific domestic cat or pet, can be seen as singular, as it is quite similar to general cats but has other characteristics derived from its unique specificities. This cat is not unique but singular and, at the same time, particular and universal. And it is precisely through singular manifestations that the particular and universal take recognizable material forms, that is, become a phenomenon. Likewise, Nigeria or Bolivia are singular expressions of one particular underdevelopment and, at the same time, they are manifestations of capitalism, the universal category. It is in this perspective that a given place on earth's surface, identified in the first place by its geographical coordinates, is not unique, but singular, particular, and universal. Thus, northern Rio de Janeiro's small town of Quissamã cannot be considered unique but singular, due to its unrepeatable characteristics, and simultaneously particular, as it is located in a decadent sugarcane plantation region. But this town also represents the universal, as it contains characteristics of many small Brazilian cities. Places are not unique.

With the adoption of the dialectical triad of universal, particular, and singular in geographical studies a wide door for theorization is left open, releasing this discipline from that shallow uniqueness perspective. The unique, by the way, excels in evidence, as Max Weber once said. Spatial differentiation thus takes on new meaning and further stimulates the geographer to case studies (dealing with singularity) and comparative studies (two or more singularities).

## Concluding remarks

Spatial differentiation is an integral part of the diversity of human life. It helps to reveal the different ways of seeing, feeling, thinking, knowing, communicating, and acting, but also of suffering, struggling, and winning. It must not be eliminated, for that would be the negation of the nature of human beings. Spatial inequality is the perverse side of spatial differentiation and must therefore be eliminated. Geographers can contribute to this by becoming activist geographers with an in-depth understanding of spatial differentiation. Perhaps geographers will contribute to the most important project of creating a socialist spatial differentiation, in which we are all brothers.



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