

"Space and Place: The Philosophical Foundation of the Science of Geography"

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1. Introduction

Every scientific discipline requires a philosophical explanation. This means that it must address several fundamental questions, as follows:

1. **What is the nature of the discipline?** What does it study? In other words, what is its subject matter? And to what extent is it real, tangible, and researchable—whether objective or subjective, apparent, hidden, or virtual?
2. **Why should the discipline exist?** What are its existential and ontological necessities? How distinct and unique is its epistemological domain? To what extent does it overlap or intertwine with other scientific disciplines? What are the points of convergence and divergence with other fields? How real or constructed are the phenomena it examines?
3. **What is the ultimate goal of the discipline?** What cognitive or practical human needs does it fulfill?
4. **How should the subject of the discipline be studied?** What philosophical and cognitive methodologies, as well as research methods and techniques, are (or can be) used in this process? What is the epistemological validity of these methods?

A comprehensive and reasoned response to these questions effectively shapes the theoretical framework and scientific philosophy of the discipline in question. Since geography has long been recognized as one of humanity's cognitive and epistemological domains, its philosophical explanation is essential.

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2. The Philosophical Foundation of Geography

The philosophical foundation of geography is constituted by geographical place and space. The renowned German philosopher Immanuel Kant, in the mid-18th century, regarded space as the subject matter of geography—the framework within which objects are situated (Hafeznia and Kavianirad, 2014:139). From the author's perspective, place is the fundamental unit, the "cell" of space, and space is the systematic composition of interconnected places. Geographical place and space is a real and tangible existence, it is researchable.

Place and space constitute the ontological foundation and the very substratum of all beings in the universe. Without place and space, no being can exist. All living and non-living entities, including humans and every manifestation of human life—such as culture, religion, literature, art, society, politics, defense, security, economy, technology, science, industry, agriculture, engineering, medicine, infrastructure, development, spatial planning, and the like—are inherently dependent on geographical place and space. Even in the virtual or cyber space, all beings require virtual place and space to exist.

Geographical space constitutes the fundamental ecosystem that serves as the habitat for both human constructs and living organisms. The commonly used term "environment" represents a conceptually flawed and semantically misleading construct that has become erroneously entrenched in public and academic discourse. More accurately, this should be termed "geographical space of living", which properly reflects its spatial and systemic nature and should replace the current misnomer.

Geographic space contains places that exist in two forms: absolute and relative. In an absolute form, place is the smallest indivisible spatial unit, serving as a private realm for living, working, moving, and resting- like a room for sleeping, a desk for working, or personal space for movement. This space cannot be divided further, as any smaller area would make living, working, and movement impossible, leading to conflict, overcrowding, reduced efficiency, and personal discomfort. Such a phenomenon may be called an "atomic" or "nano-scale" place.

Geographical places take on a relative nature at larger spatial scales. Locations such as homes, offices, institutions, schools, clinics, universities, military bases, factories, farms, cities, and villages are considered as relative places. The causes of this are as follows: first, these spaces can

simultaneously be divided into numerous absolute places; and second, they are conceptually treated as "space-less points" when represented on maps. For instance, a city appears as an urban "place" on a macro-scale map, yet this same urban place both contains numerous atomic-scale places within it and acts as a spatial container for settlements, pathways, institutions, and other elements.

Geographical spaces exist in both physical and virtual forms as real, tangible entities with structural, functional, and relational characteristics across the globe. These spaces emerge from the systematic combination of absolute and relative places, manifesting at various scales from micro to macro, or from local to global and universal levels.

Geographic space contains three dimensions of length, width, height (extending from Earth's core to human activity zones in astronomic space). Three-dimensional geographic space is a living, working, moving, and interacting realm in individual, collective, and societal forms. This space contains matter, energy, objects, phenomena, and living/non-living beings, collectively forming what we call the created world.

Geographic space is fundamentally Earth-based, extending vertically from Earth's core to the depths of galaxies and stars. In other words, its breadth and height depend on humanity's ability to expand life and activity into interstellar realms. Geographic space is Earth-based and extends upward through human expansion. What is particularly noteworthy is that humans, as inherently Earth-based beings, give meaning to the expansion of geographic space. As they extend this space, they inevitably bring with them the requirements of Earth's ecosystem (the planet Earth) into the galactic and interstellar realms. As earthly creatures and part of Earth's ecosystem, humans are compelled to either find or construct and simulate Earth's ecosystem within expanded space and galactic realm (such as inside spacecraft and space stations). Otherwise, humans and other Earth-based organisms would perish and cease to exist in the non-earth realms of galaxies. No matter how vast or expansive this space becomes, it retains an Earth-based nature. It is for this fundamental reason that the suffix "geographic" remains logically applicable to this space (Hafeznia and Kaviani-Rad,2014:56).

Geographic space, regardless of its scale (local, national, regional, continental, global, or beyond), possesses an overarching tripartite structure whose components maintain systematic interrelationships. This structure is

referred to as the geographic ecosystem (or geo-ecosystem). The fundamental components of this structure of geographic ecosystem consist of:

1. The first fundamental component is the natural element (comprising location, expanse, area, geomorphology, topography, climate, water resources, vegetation, wildlife, mineral resources, energy, etc.), that are in a systematic, developmental relationship with one another. The natural structure of geographic space holds a foundational position, forming the biological basis and primary substrate for human constructions and other organisms' habitats.
2. The human element—comprising populations and human constructs with all components, characteristics and societal features, to forms human system and soul of geographic space with its life, activity, movement, communication, and dynamism.
3. The third component consists of human-made structures (settlements, communication networks, economic/institutional/service infrastructures, terminals, hubs, etc.), which result from human will and functionality, and are created through humanity's efforts to meet its needs while interacting with nature, collectively termed the built environment or social production. This spatial element emerges from combining natural foundations and ecological capacities with human mental faculties, thought, reason, science, and knowledge—to fulfill material/spiritual needs and aspirations of human societies.

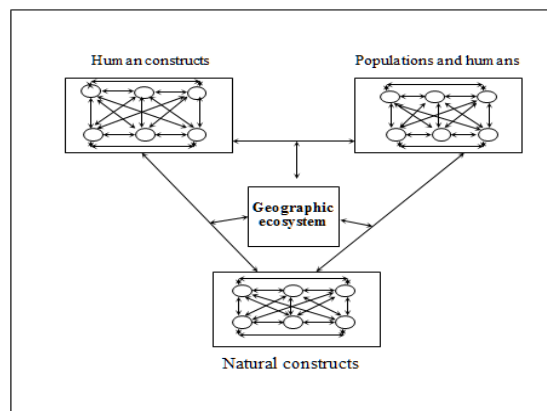


Figure (1): The Concept of Geographic Ecosystem of Place and Space
(Source: Hafeznia,2025)

The three components of geographic ecosystems interact through systematic internal and external relationships, forming the holistic three-dimensional geo-ecosystem. These ecosystems also have both horizontal and vertical (hierarchical) spatial interactions - such as inter-city, inter-regional, international (diplomatic), and inter-organizational relations. Consequently, geographic spaces and places exist within complex, multi-level, multi-dimensional networks operating at local, national, regional, and global scales. Examples include virtual social networks, global financial systems, worldwide energy/goods/idea/electron transfer networks, smuggling, and political relations. Across all scales, geographic space is permeated with systemic relationships among elements, components, and structural parts, manifesting as bilateral/multilateral causal relationships, two-or-more spatial mutual interactions and multidimensional social relations.

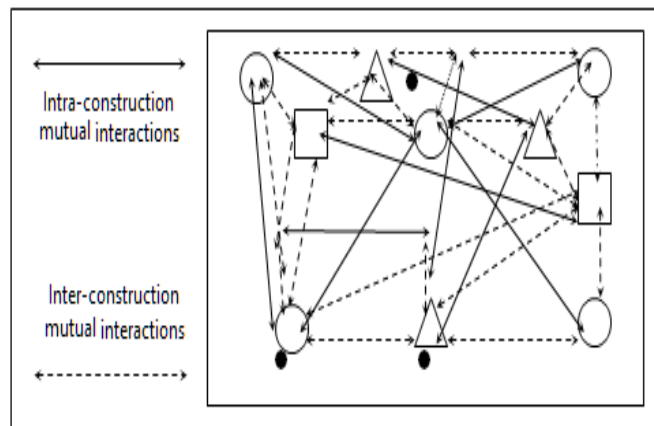


Figure (2): The Visual Concept of Space
(Source: Hafeznia,2025)

The composition of the geographic ecosystem's components forms its structure. The ecosystem's structure determines its function. The combination of the ecosystem's structure and function defines the identity of the geographic space. Geographic space has a dynamic and active state. In other words, it is not static and is constantly changing. Intra-systemic developments, as well as extra-systemic developments and the expansion of the flow of inputs and outputs with other geographical places and spaces at regional and global levels, cause the dynamism of geographic space. The dynamism and changes of geographic space and place are generally

evolutionary and progressive, although in specific conditions such as natural and human insecurities like the outbreak of wars, it may temporarily regress. However, it is restored again and follows the path of change towards perfection and progress, and is constantly renewed and modernized.

Geographic spaces possess both internal and external systems. That is, the phenomena and structural elements of space interact with each other through inputs and outputs, forming a system of systematic relationships, or in other words, a geographic ecosystem composed of natural, human, and artificial elements, the balance of which must be monitored and guaranteed. Otherwise, the ecosystem of geographic space will suffer from an imbalance and crisis, leading to spatial anomalies and causing problems and challenges for the citizens residing within it. The spatial anomalies and challenges that humankind faces today in its functional workplaces and spatial habitats—rural, urban, district, regional, national, global, and beyond—indicate the illness and it is the product of imbalance in the respective geographic space ecosystem due to the misconduct of the political, ideological, economic, technological, engineering, and civic spheres.

The structure, system, and function of geographic space reveal its nature and identity. The nature of any space also indicates its structure, function, and performance. All geographic spaces and ecosystems, across all scales from micro to macro/local to global, have external relationships based on their functions and are in horizontal and vertical (peer or hierarchical) relationships with each other, forming a systematic pattern of complementary or mutually completing relationships. At the scale of national or country-level geographic space, this is referred to as the international system or relations, and at the global scale, it is termed globalization. The study of the structure and function of geographic spaces helps in understanding the nature of that space.

Geographic spaces function as habitats for human constructions and living organisms, which is the origin of the formation of a complex and extensive structure of ecological relationships in biological, spatial, and social dimensions. This leads to the emergence of spatial dependencies, interests, attachments, emotions, and spatial affection for humans. Generally, people, in individual and structural forms, are attached to the place and geographic space of their habitat as their homeland and the source of their identity. They are interested in its sustainability, progress, honor, and brilliance, and are willing to stand in line to protect it against the threats of others,

sacrificing their wealth and lives, creating scenes of heroism and epic, and strengthening and perpetuating their identity and epic literature as the foundation of nationalism in the context of their history. Accordingly, all dimensions, characteristics, and manifestations of the life of human constructions have a spatial basis and significance, and they derive their meaning from it. Therefore, understanding and explaining the historical, cultural, political, ideological, international, economic, social, strategic, organizational, managerial, legal, security, military, defense, policymaking, religious, linguistic, spatial planning, developmental, and similar dimensions without addressing their spatial aspect would be incomplete and somewhat meaningless. Nothing exists in a vacuum; everything derives meaning from and interacts with its geographical location and space. In relation to geographical space, the following concepts are noteworthy:

Spatial Relationship: refers to the interaction or mutual influence between places and the elements/components of geographical spaces. In other words, it is the relationship established between two locations or spaces, such as transportation networks, electronic communications, financial exchanges, etc.

Spatial relationships are based on two key components:

1. Physical/Structural: Includes physical infrastructure, transportation networks, and communication systems.
2. Flows: The content that is transported within these networks, such as carriers, vehicles, electrons, humans, goods, money, ideas, and so on.

Spatial system: refers to a set of spatial components and elements that are in a systematic relation which can be horizontal (peer-to-peer) relationships, such as between two cities or universities, or vertical (hierarchical) relationships, like those between a capital city and provincial centers, national capitals and global metropolises, or branch offices and the headquarters of multinational corporations.

Spatial structure: refers to the physical organization and arrangement of a space's elements and components. It occurs when physical elements are properly matched and positioned in their logical locations, creating spatial order and organization. These elements form the space's identity, and if they change, the space's identity and function change as well.

Spatial planning: refers to the logical locating and optimal organization of geographical space elements to achieve spatial/geographical equity, spatial order, ecological balance in the geographic ecosystem, balanced spatial

development, and optimal provision of material/spiritual needs and comfort for inhabitants.

Political spatial planning: refers to the organizing and harmonizing, or arranging the elements and components of geographical space that have a political nature. Examples include civil or administrative divisions, electoral districting, logical siting of capitals and political-administrative centers, regulating the hierarchical relationship between centers of administrative divisions and the urban system, organizing border regions and passages, etc.

Spatial disorder and chaos, spatial anomaly or disturbance: This occurs when the elements and components of geographical space are situated and arranged in a way that disrupts and neutralizes each other's functions. In such conditions, the geographical space becomes chaotic and disordered, making life difficult and distressing for citizens and related human structures. Examples include the disordered state of urban habitats, especially in Third World and underdeveloped countries. It can be said that many problems and challenges in geographical spaces arise from the disruption of the balance of geographical ecosystem and the illogical siting of spatial elements, leading to spatial disturbance and anomaly.

Traffic, air pollution, unsuitable housing patterns, uneven distribution of population across countries and cities, unequal distribution of wealth across countries and cities, spatial/geographical injustices, marginalized slums, core-periphery structures, and similar issues are among the spatial anomalies in countries.

Where is the best location in geographical space? This is one of the most fundamental questions in the science of geography. In other words, where is the optimal and logical placement for objects, elements, and components of space? Locating involves organizing and coordinating the spatial and functional relationships of these elements in such a way that they synergize and complement each other, rather than disrupting one.

To achieve this, geographers must conduct extensive studies to model the logical spatial placement of elements and components, develop standard typological plans for each spatial element, establish standards, and continuously optimize them. In fact, geographical location is a fundamental concept in spatial planning. Therefore, the first step in spatial planning is locating spatial elements, which itself requires modeling and the preparation of feasibility study report.

3. Conclusion

Place and space as the habitat of human structures and living organisms form the philosophical foundation of geography as a science. Thus, the ontology, structural analysis, systemology, and functional study of geographical spaces, along with their scientific, intelligent, and continuous monitoring—to maintain the balance, health, and sustainability of the spatial geographical ecosystem—as well as the organization, spatial planning, development, and evolution of geographical space (from local and national to global scales), constitute the fundamental mission of geography and geographers. From the author's perspective, geography as a science can be defined as:

"Fundamentally, geography is the science of spatial cognition and understanding, and in application, it is the science of spatial construction" (Hafeznia,2008).

Its goal is to create an optimal living space or habitat for human structures and citizens inhabiting geographical space.

Thus, the subject of geography is the understanding and optimal construction of geographical spaces across all scales—local, national, and global (and potentially, in the future, beyond global)—with an approach centered on harmonious coexistence with nature, as follows:

1. Understanding spatial compositions, spatial typology, spatial dimensions, spatial phenomena, spatial arrangement, spatial aesthetics, spatial characteristics, etc.
2. Understanding and explaining the structure, system, function, and scientific laws of the spatial geographical ecosystem.
3. Understanding the *raison d'être*, structure, and function of spatial phenomena, as well as their patterns of distribution and spatial relationships.
4. Understanding and explaining systemic relationships—both uni-dimensional and multidimensional, whether causal or spatial interaction.
5. Generating theories, theoretical propositions, concepts, and spatial models based on the epistemology of geographical spaces.
6. Applying theoretical propositions and practical spatial models for planning and constructing optimal geographical spaces.

Extreme deterministic and possibilistic approaches in geography have led to serious challenges for humanity, making human life vulnerable across the

Earth and various geographical spaces. For this reason, the author has long advocated and prescribed the philosophy and approach of coexistence with nature as an appropriate strategy for humanity's path forward—and still considers it valid today and the future.

This is where geography, with its dual fundamental and applied dimensions as **"the science of optimal human living in geographical place and space,"** gains a powerful ontological and philosophical foundation. Accordingly, the very existence of geography as an academic discipline with its specialized branches becomes a philosophical necessity for studying and exploring geographical places and spaces, developing scientific theories and theoretical propositions along with applied spatial models, and optimally planning and organizing geographical spaces as habitats for humans and other organisms (Hafeznia,2014; Hafeznia and Others,2012).

Reference

1. Hafeznia, Mohammad Reza; Kavianirad, Morad. (2014). *The Philosophy of Political Geography*. Tehran: Strategic Research Institute.

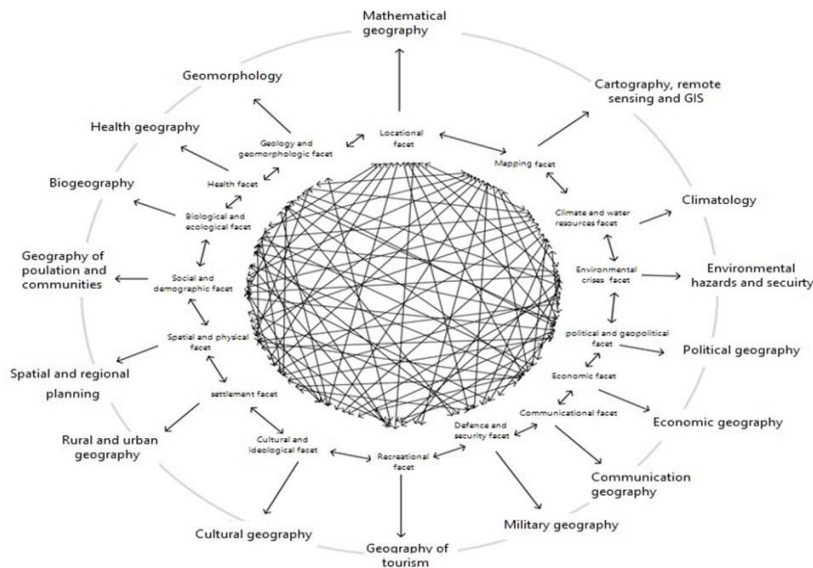


Figure (3): The Systematic Model of Studies of Geographical Space and Place (For Political Management & Spatial Planning of Space)
(Source: Hafeznia,2013)