# THEORIES OF URBAN MORPHOLOGY

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## Component-I (B) - Description of Module

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Component II - e-Text

Theories of Urban Morphology

I - Introduction:
Urban geographers have made important contributions in the field of spatial transformations that have been witnessed by urban landscapes in the material and symbolic aspects during the twentieth and twenty-first centuries. Some of the landmarked attempts in this direction were the analyses of urban morphology done by Burgess, Hoyt, Harris and Ullman. Although cities at present have changed significantly since the models were developed; yet they are frequently cited in debates of urban morphology even if to dismiss their continued relevance. It is true that to a large extent each city possesses a distinctive combination of various types of land uses, but to some degree a common pattern is can be traced. The models provided by Burgess, Hoyt, Harris and Ullman, today are part of the philosophy of urban geography and one needs to discuss them in order to understand the basic foundations of this field.

In this module the three theoretical explanations of morphological pattern of a city have been discussed. These are - 1. The Concentric Zone Model 2. The Sector Model and 3. The Multiple Nuclei Model

II - The Concentric Zone Model:
The concentric zone model was devised in 1923 by E.W. Burgess based on his extensive and detailed case studies on Chicago and its various neighbourhood. His model is radiating out from the Central Business District and represents increasing degrees of cultural assimilation with greater economic and social status through each successive residential zone. In the words of Duncan (1996) the zonal model became a significant and long standing representation of the North American city especially to study the correlation of social and spatial distance among the various classes of the society.

Before understanding the Burgess’s model of Concentric Zone one has to study the tendency of the city to expand. In the words of Park (1925) the typical processes of expansion of the city can be best illustrated by a series of numbered concentric circles as shown in Figure 1. In the figure, Zone I ‘the Loop’ represents the Central Business District (CBD). Encircling this is an area in transition which is usually surrounded by business and light manufacture (II). The third area (III) is inhabited by the workers in industries who have escaped from the area of deterioration (II) and have the desire to live within easy access of
their work. Next is the residential area (IV) of high class apartment buildings or a district of single family dwellings. Zone V is beyond the city limit – the commuter zone comprising of satellite cities or suburban areas; within a thirty to sixty minute ride of the CBD. And each inner zone has the tendency to extend its area by the invasion of the next outer zone. This basically deals with the physical growth of the city and with the extension of the technical services that make city life liveable, comfortable and luxurious.

Figure 1: The Growth of the City

Burgess through his model presented an image of progressive movement as residents of the inner city had a tendency of moving outward to zones of better environmental conditions. According to him, the American city should take the form of five zones. These zones are:

**Zone I** as Central Business District (CBD), the focus of the city’s social, commercial and civic life. CBD is also the focus of transportation. Burgess identifies its two parts: (i) the downtown retail district, and (ii) the wholesale business district encircling the downtown.

**Zone II** is the ‘zone in transition’ surrounding the CBD. It is a zone of residential deterioration of older private houses consisting of largely subdivided dwelling units. The transition area is occupied by immigrants and infested by ‘vices’. In this zone rotten business and light manufacturing from Zone I encroaches upon residential areas. Some of the parts of
this zone are likely to be found in the city’s slums or areas of poverty and crime. In other words, this is a zone with submerged regions of poverty, degradation and disease and their underworlds of crime and vice.

![Concentric Zone Theory](source.png)

**Figure 2: Concentric Zone Theory**


**Zone III** is the third ring made up of the houses of ‘workingmen’s homes’. This is predominately inhabited by factory and shop workers who are skilled and thrifty. In other words, this is the zone of old residential buildings occupied by stable social groups of working class families. These are families of people who have moved out of Zone II to live near their place of work. This is an area of second immigrant settlement, generally of the second generation. It is the region of escape from the slum.

**Zone IV** is the zone with concentric space still farther from the centre and is occupied by spacious dwellings. In Chicago this was dominated by middle-class groups of native-born Americans. The people residing in this zone are likely to be proprietors of small businesses, professional people, clerks and salesmen.

**Zone V** is far from the city centre; it is almost at the distance of one hour’s travelling time. This zone may still be an open country. Most of the people of this zone seem to commute daily for their livelihood in the CBD.
Criticism of the Concentric Theory:

Burgess’ theory is popular and widely used by current authors with a few modifications. But the concentric zonal theory is severely criticized on the grounds of local topographical features which affect the location of residential areas. This type of criticism seems invalid because Burgess himself pointed out those zonal distortions may result from variations in relief features. Davie (1972) is the most active critic of the theory who criticised the theory on the following grounds:

(i) CBD’s size is irregular; it is often rectangular than circular,
(ii) Areas of commerce and business usually extend radially along streets from the CBD,
(iii) Industrial units lie along lines of transportation, near water or rail network
(iv) Usually there is low-grade housing near industrial and transportational areas in every zone, and
(v) Finally, concentric zoning of Burgess lacks universal pattern.

The critics of Burgess’s theory emphasize that the theory is not appropriate in case of its treatment of wholesaling activity. Similarly, heavy industry in the modern city does not take the form of concentric belt just outside the CBD, instead, it tends to form wedges like areas along transportation lines.

In the historical context too, the theory of Burgess seems weak. The cultural areas along with buildings, streets and railroads developed during historical phases do not easily change their location. The theory was particular in time and place, and by the late 20th century it was outdated and limited only to large Western industrial cities.

Sjoberg (1960) negated the concentric scheme for the ‘pre-industrial city’ in which privileged classes – the elite, gather at the centre because of governmental and religious buildings’ nearness. In feudal cities, religion and politics had far more status than the economic – the main market of the centre being subsidiary to religious and political structures.

Merits of the Concentric Theory

Quinn (1950) the chief supporter of the Burgess theory, says common-sense observations tend to confirm the theory. Urban-gradients’ researchers indicate the probability of the concentric structure around the dominant retail area in various cities.

Local irregularities may violate the symmetry of concentric ones, yet Quinn opined that most cities conformed at least roughly to the Burgess pattern. Haggett and Chorley
(1965) too had appreciation about the contribution of Burgess’s model which according to them was a normative model, ‘a simplified structuring of reality presenting supposedly significant features of relationships in a generalized form.’ To conclude, Burgess’ model was plainly introduced to illustrate the expansion of the city in its comprehensible manner by a series of concentric zones.

II. The Sector Theory:

The Concentric theory of Burgess was based on the morphology of American cities in 1920s. Homer Hoyt observed that the structure of cities had changed and therefore, he propounded the sector theory in 1939. He emphasizes on the ribbons of development that extended along commercial streets leading out of the central business district and the tendency of industrial establishments to concentrate along railroad lines and rivers. He further notes the existence of poor and middle-income housing along the rich residential areas in the peripheries of the cities. He opined that the internal structure of the American cities was more axial than concentric resulting in the formation of different sectors. In other words, as the city grows, activities expand outward in a wedge or an axis or a sector from the centre (Figure 3).

Figure 3: The Sector Theory

Hoyt’s theory, deals only with residential land use; the other types of land uses are considered because of their influence upon the residential areas of the city. Rent areas in cities tend to conform to a pattern of sectors rather than of concentric circles. (Figure 4). The highest rent areas tend to be located in one or more sectors of the city. But various rent areas are not static. High quality residential areas tend to migrate outward in the sector, older houses remaining behind to become medium-quality areas. Hoyt stated that the sector theory is of fundamental importance in analysing neighbourhoods especially in the American cities for locating markets for retail sales. The high rent neighbourhoods of a city do not skip about at random in the process of movement—they follow a definite path in one or more sectors of the city. No city conforms to the ideal pattern but the general figure is useful as in American cities the different types of residential areas tend to grow outward along rather distinct radii and the new growth on the arc of a given sector tends to take on the character of the initial growth of that particular sector (Figure 4).

Figure 4: Shift in the Location of Fashionable Residential Areas

Hoyt’s theory is based on a vast amount of empirical work. The data for the theory were collected for 64 cities in America by the Works Progress Administration. The data of these small and mediumsized cities were supplemented with surveys of New York, Chicago,
Detroit, Washington and Philadelphia. Thus, it amounts in large part, to empirical generalizations. Nevertheless, the theory has not gone unchallenged.

**Criticism of Hoyt's Theory:**
Walter Firey (1945) carried out a land use study of central Boston. In his study he explored the role of social factors in shaping urban land use. On this basis of his survey, he contradicted various aspects of sector theory. He opines that there is little validity of comparing the internal structure of number of cities when physical features like relief, location on a waterfront and other factors affect the pattern of some cities. He also criticised that Hoyt has not sufficiently considered the roles of cultural and social characteristics in conditioning land use. Wealthy residents can choose to live anywhere and may not follow the ‘normal’ i.e either sector or concentric pattern.

**III. The Multiple Nuclei Theory:**
Harris and Ullman (1945) brought together their work on central palace theory and classification of cities respectively to represent a metropolitan area that was not defined by distances from the central business district but was based on patterns of land-use of the surrounding areas of the CBD. They suggested multiple nuclei model for accommodating growth of residential, business, industrial or other elements taking place in cities during the course of time from their inception to the present day (Figure 5).
Harris and Ullman unlike Burgess and Hoyt stressed upon the development of special purpose districts instead of social differentiation of residential areas. These districts were nodes of economic activity that needed specialized facilities and benefitted from agglomeration economies of different activities centred there. The rise of such special districts or nuclei was due to various factors which influence the distribution of human activities within a city. These factors are of four categories:

(a) Certain activities require specialized facilities, for example, CBD can function at the point where maximum accessibility is available.

(b) There are also group of activities which prefer cohesion. Clothing industry is clustered in the densely packed inner districts of large cities. They profit from cohesion.

(c) Certain activities are detrimental to one another, and generally seek separate sites. For example, heavy industry and high-class residential areas do not prefer to be near-neighbours.

(d) Certain activities are unable to pay the rents of most desirable sites: residential areas of low-income residents or bulk storage facilities have to seek nuclei in remote corners.

The above factors along with social, cultural and economic characteristics provide a peculiar urban landscape with separate nodes. Moreover, this theory reveals two significant observations based on historical and site elements of morphology. One is that the theory produces a model involving complexities of urban structure which may not be easily and immediately discernible because of historical stratification of land uses during the process of urban growth. Although most cities have only one CBD they have a series of sub-centres around nuclei. These are less specialized but enough to provide needs of smaller sections of the city.

Second observation which is more significant is about the probability of elements of the concentric and sector models present in its depth. Nothing new is involved conceptually in the multiple nuclei, and, it should not be given the status of a theory. Therefore, multiple nuclei theory should be looked upon as an approach which guides to think about the structure of the city, rather than as a rigid generalization about urban form.