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**The form of the informal:**

**a type-morphological analysis of the urban fabric of Paraisópolis favela**

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**Abstract**

*The present work, in development at FAU-Mackenzie in São Paulo under the supervision of Prof. Angelica Benatti Alvim, continues the author's research carried out in Rio de Janeiro and published in the book INFORMAL ROOTING. AN OPEN ATLAS (Tessari, 2020). The focus of the work is the analysis of the morphological and typological configuration of Paraisópolis favela, located in the southwest part of the municipality of São Paulo, from the theoretical and conceptual framework of Urban Morphology, especially from the type-morphological or process typological approach (Kropft, 2009) also known as the Italian School (Moudon, 1997). The main objective of this work is the identification of morphological and typological patterns both public and private dimensions of favelas specifically in Paraisópolis. Starting from the realization that, on a global level, a process of "rooting" of favelas in the metropolises that are structured on themselves is at work, they remain and sediment in the collective imagination, producing an unprecedented sociocultural mutation; in other words, the physical structure of favelas, today, assumes the logic of stabilization and reorganization (Tessari, 2016). The research is divided into two stages: 1) macro territorial scale - verifying the growth and expansion relations of the Paraisópolis favela in interface with the expansion of the metropolis; 2) local micro-scale - to identify and understand the spatial micro-transformations and the evolution syntax of the urban fabric of the favela, responsible for the articulation of the different parts with each other and with the whole. The final product aims to build an unprecedented catalogue that brings together urban forms and spaces generated in the favela, which can be used as an instrument of knowledge and rigorous interpretation of informality.*

**Keyword:** type-morphological analysis, spatial complexity, informal syntax, informal rooting, informal space

**Introduction**

The Paraisópolis slum, today is considered the largest slum in the city of São Paulo, with an extension of 882,740m<sup>2</sup> including the Jardim Colombo and Porto Seguro complexes, all managed by the sub-prefectures of Campo Limpo and Butantã. The occupation is located about 15 km from the center of São Paulo and occupies an area that since 1960 has been divided by a grid resulting from a large-scale urban development operation. Initially, the region was part of the Morumbi farm, divided into blocks measuring 100m x 200m, containing 2,200 lots, intended for a population of middle class, upper class. However, the arrangement of the grid of lots in relation to the local topography caused a difficulty of occupation by the owners of the lot, which left them unused for years. It was, therefore, from the failure of subdivision and from the various

socioeconomic reasons faced by the city of São Paulo and Brazil that the favela of Paraisópolis developed. Therefore the favela is close to the Bairro Morumbi, a luxury area of the city where there is a series of condominiums with great infrastructure, little demographically occupied, it's corresponds to one of the best known informal settlements in the country.

The structure that the favela of Paraisópolis presents is quite unique when compared to most informal spaces in Brazil, given its division of unit independent of the blocks. The blocks have a total of 33 and have conformations that vary according to different aspects of morphology, which is configured according to its position in the territory and the relationships built between the various elements of interference. The research aims to analyse the blocks in Paraisópolis and build a comparative picture of the various urban fabrics in each of the blocks. The method of analysis was carried out through field research, conversations with residents, photographs and graphic surveys, on-site drawings and other studies that were deemed necessary. The work intends to use the strategy of reading the informal urban fabric derived from the morphological studies of the city, with special reference to authors from the Italian school such as Gianfranco Caniggia and Saverio Muratori.

## **Background**

Since the emergence of Favela do Morro da Providência in Rio de Janeiro in 1897 until the current decade, the phenomenon of slums in Brazilian cities has been growing and acquiring a degree of complexity that challenges the specialists' ability to understand itself. Despite the continued efforts of researchers from the most varied fields of knowledge dedicated to the task of studying favelas, there remains a notorious and embarrassing consensus about how much progress we still need to make in this area. Favelas have been extensively studied in the scientific literature from a social, economic and urban point of view, but there are still few studies that focus with the necessary precision and attention to their urban form, the logic of their generation and regeneration, the processes of rooting in the geography of territories and in the contemporary metropolis.

For this reason, it is necessary to develop a rigorous morphological study of the favelas; the objective of gathering, from a precise urban spatial perspective, the modalities of development and stabilization of the urban fabric itself, predisposing it to a new condition of permanence. This phenomenon has enormous consequences in terms of balances and internal dynamics of metropolises, it is carried out through small-scale strategies and in order to enter into this "micro-processes" the morphological analysis of the favelas in full is not enough, but an "anatomical study" of the informal body is needed.

## **Methodology**

For each block of the Paraisópolis slum, a field analysis was carried out, accompanied by the existing cartography, historical photographic archives, maps and bibliography that introduced and detailed some

historical and structural aspects of the area. The analytical scheme was carried out in three degrees of observation, the first was composed of an analysis of a general character, initiated by reading the historical development, seeking to understand the polarizations and directions of development and its phases of growth, densification and verticalization of the various constructed sectors of the pre-chosen blocks, and then the topography, hydrography, vegetation, original subdivision and limits were observed. The second degree of analysis was built from the reading of the built body, determined by a process of adaptation of the conditions of the first observation with that of the third degree of analysis. The reading was made from the height of each building, the sense of development that characterizes it, the facades and the relationships of the buildings with the immediate context, the level of precariousness and conservation of each building within the block, its functions was also observed. and public interventions, whatever they were, within or in its immediate surroundings. In the third degree of analysis, the reading was carried out observing the dimension of the empty and built spaces generated inside or on the edges of the blocks, the accesses, the roads, the nodes, and the ground design, observed through the distribution of pedestrian paths and cars, which characterizes the course of the blocks. At the end, an analysis was made of the dimension of the public space, if they are present and how they are distributed inside the blocks, and consequently the enjoyment of the inhabitants in relation to these spaces.

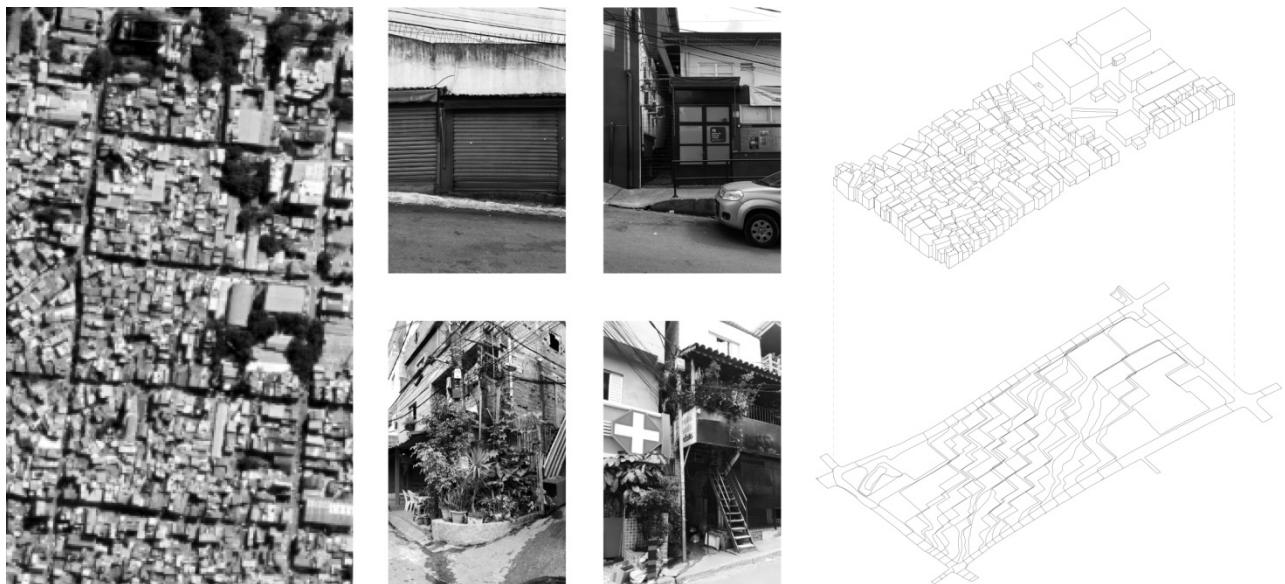


**Figure 1.** The favela of Paraisópolis. Aerial photo and axonometric view (buildings and morphology)

## Results and Discussions

To illustrate the analytical issues more precisely, we chose to study block number 27, which is located in the northern position of the Paraisópolis complex and develops at a point of distinction between the Centro sector and the Antonico sector in the eastern part of Rua Ernest Renan. It is a block inside the favela and therefore surrounded by four lanes, on the north by Rua Manoel Antônio Pinto, on the east by Rua

Ernest Renan, on the south by Rua Rodolfo Lotze and on the west by Rua Pasquale Gallupi, all of them have the same width and therefore they are quite regular. The choice of this block was motivated by several reasons, one of which is its position in the favela system that converges several strategic elements, such as what happens in the north zone in the transition between the favela and the Morumbi block, where a very strong influence from the formal block to the block. Another reason is due to the presence of the Antonico stream, which, despite passing through a small portion of the block, at the extreme north-western tip, creates changes in the composition of its urban fabric. There is also the discontinuous nature of the fabric between the east and west zones, as a result of the existence of a series of formal buildings in the central part of the block, where the west zone is characterized by a fabric similar to the other blocks, with high density and constructed buildings following the grid of the original allotment, and the eastern part characterized by the massive presence of formal public buildings.

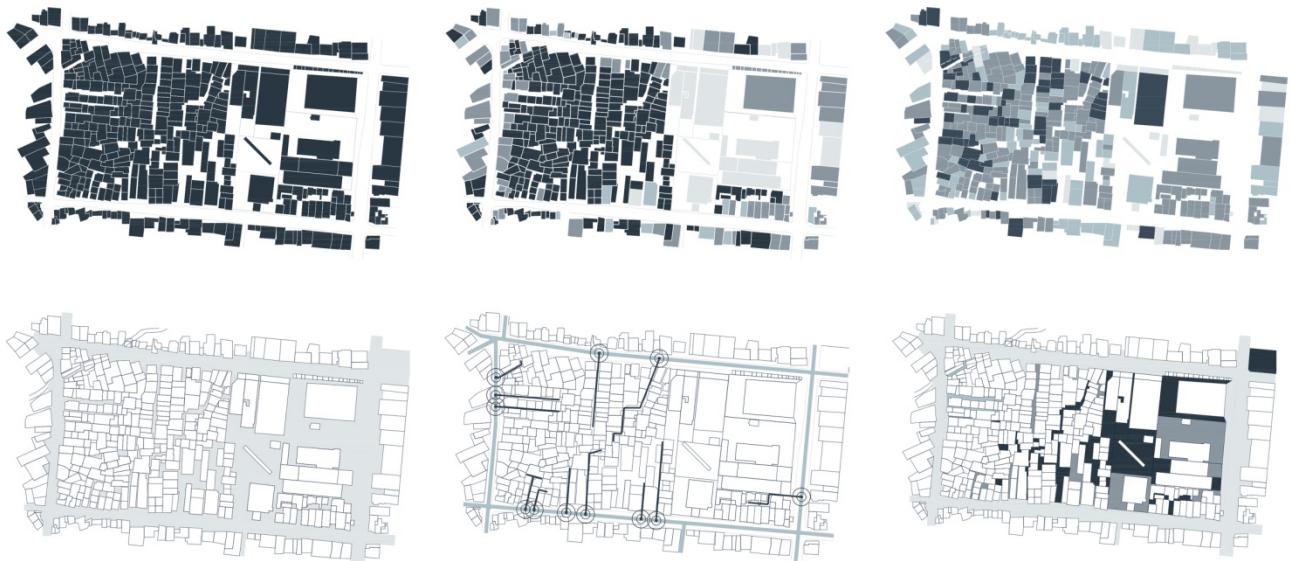


**Figure 2.** The block number 27 of the favela of Paraisópolis. Aerial photo, some photos of the informal space and axonometric view (buildings and morphology)

### Grade 1 of analysis

The historical development of the block is configured through a series of stages, the first of which takes place between the 1970s and 1980s with an occupation of the central sector, which in the following years becomes more dense. In the second stage, between 1990 and 2000, this central/southern development continues progressively with a densification of the entire remaining free area, always saving the edges of the roads. The third stage takes place from the 2000s onwards, when the east sector began to be occupied by large volumes, built on land that until then was unoccupied, interspersed with empty land for buildings and land with a small green mass. During the last years, the dense built mass left no space for other constructions, except for the verticalization of the built system to the west and the insertion of other parasitic figures on the margin left free between the wall and the street of the formal buildings. The topography of the block presents a fairly regular trend with a progressive slope of the orography from the

highest point, in the southeast, to the lowest point, in the northeast, which coincides with the Antonico stream and is approximately 17m from the higher point. Responsible for a characteristic morphology for its presence, the Antonico stream located in the northwest, is the only water body present in the block which is almost completely covered by the buildings in its perimeter. Today, the watercourse is one of the most fragile areas with a high level of risk of landslides due to the precariousness of the buildings that surround it. The block's original subdivision is still visible in the constructive organization, mainly in the formal sector, to the east, which respects the plot grid very faithfully. In a closer look, it can be seen, in the central and south-western part, that the development's direction of informal buildings follows the 10m x 50m grid, however, the same cannot be said at the place where the stream passes. Antonico, where in the passage from the highest to the lowest orographic lines, the constructed fabric adapts to the presence of the stream that gradually deforms the original grid design. The limits that define the constructed fabric of block 27 are substantially of three types, the limit of the original road lattice of the subdivision, the topography that very rigorously modifies the road layout, and the limit constructed after the initial occupation of the block, represented by the formal interventions of the eastern zone, which, through a series of large volumes, determine strong tensions between the eastern and western sectors. The western sector is an area in constant evolution, but somehow it suffers with the presence of formal buildings in its limits, through the impediment of its development, the same can be said of the area where the Antonico stream is located, which represents a surpassed limit through the construction over the watercourse, which placed a built mass practically indifferent to the stream.



**Figure 3.** Analysis scheme. From top to right: built spaces, functional analysis, building height, empty spaces, nodes, public spaces

### Grade 2 of analysis

The buildings present on the block have a very different character, where in the east sector the buildings that have public, sanitary, educational and commercial use, have large volumes occupying almost the entire

lot intensively with 2 or 3 levels of height, built formally, the western sector is made up of small, informal buildings, built very quickly in the last 20 years, generating a large distribution of land and with few free spaces, left only for internal pedestrian routes. The heights of the buildings in block 27 are varied, and are arranged depending on the location, in which the heights increase to the west as the dwellings approach Pasquale Gallupi and Rodolfo Lotze streets, exceeding 3 or 4 floors, while in the central part of the court, the buildings have lower levels and there are few units with 3 floors or more. The eastern part, on the contrary, is characterized by buildings of great importance, volumes with heights that can exceed two or more levels, such as the buildings at the Albert Einstein Institute and the school building located on Rua Ernest Renan. The direction of development of the buildings in block 27 quite faithfully follow the layout of the original subdivision in its transverse direction to the perimeter roads, however, as the buildings become more internal to the dense block, they start to have a perpendicular development. There is also an adverse behaviour of the buildings perpendicular to the Antonico stream that follow the orographic curves of the territory, inverting the pre-built order of the grid. The functional analysis shows a division, also in this case, between the east and west sectors, where the west sector is characterized by residential buildings, in the portion composed by the three boundaries of the perimeter streets, while in the east sector, it is characterized by the presence of large buildings public and commercial. In addition to these large volumes, there is also to the east, a parasitic use of small informal tents that take advantage of the wall along Manoel Antonio Pinto street to carry out commercial activities.



**Figure 4.** One of the main public space in block 27

### **Grade 3 of analysis**

The empty spaces of block 27 occur along the eastern area, between the large formal buildings, in the circulation spaces, in the private spaces of the service buildings and in the interstitial empty spaces of the west sector, which are part of the connection path between the inner area of the block and the outer area, which open true tunnels within the great built density of this area. Public spaces are distributed in a very complex way, in which, towards the east, there is a strong deprivation of free space, with regard to use, as it is an area of buildings with a sanitary and educational character and therefore presents spaces that are forbidden to frequency of people. Towards the west, however, there is a much more dynamic situation, where there is the collective public use of the perimeter road, allowing the occurrence of spaces of semi-public use that become spaces for meeting, socialization and collectiveness. There are also semi-private spaces for use almost exclusively by users of the space, formed by internal access roads to the houses inside the block, which lead to routes of a decisively private character. This diverse coexistence of various gradients of public, semi-public or private use of the routes, especially internal ones, shows how variable and constantly changing the character of enjoyment of the external space and free space inside the favela can be, especially within the dimension of the favela. block density.

### **Conclusions**

The study of the morphology of Paraisópolis and the conformation of the urban fabric in a structure formed by regular blocks from the first subdivision strategies of the territory, reveals a very particular organization. Analytical observation at the micro-scale yields a number of interesting results, which are worth observing. The fundamental issues can be summarized in a series of strategies for the construction of the formal fabric, within the rigid perimeter of the blocks, which is repeated in the different sites regardless of their position within the favela. If normally the reticular and regular structure is anomalous to a favela, in the case of Paraisópolis it becomes a significant element, while it determines a series of relationships regarding the height of buildings that become larger the closer to the main roads and by this determines a composition of higher volumes, while those located inside the block are more intimate because they have lower dwellings as their counterparts. The density of the built body has a similar logic, as the most valued areas, those facing the main access roads make up a space with more built elements, while those spaces belonging to the interior of the blocks have a lower density of buildings, especially in relation to height as stated above. The road system also determines a very clear hierarchy of functions within the same favela along the route of the grid, where it is organized in a more or less repeated and homogeneous way, with the exception of parts of the territory where this grid is deformed due to the topography, losing the clear formation of the schema. Along the main roads are present the entire main commerce system, cultural, religious and public health infrastructure, a very clear and functional scheme that coincides with the empty spaces used as public spaces, which however does not appear as a rule. Empty spaces have a direct relationship with public spaces, as they represent the space that was "evolved" as a public space of

enjoyment and coexistence, but this does not represent a rule, the inverse is also valid since many spaces were first constituted as public and due to the permanence as a public character, they gradually gained more space. The nodes are elements of great value to the local resident, they represent meeting and reference points, thus they carry a cultural component of the exchange of experiences that, in some cases, also transform them into public spaces. This configuration does not exclude the existence of different ways of enjoying the space inside the perimeter of the court, but it radically changes the character of coexistence that public spaces assume. If it is true that public spaces coincide with the favela's perimeter space, the characteristics that determine them coexist there, in other words, an articulated public space permeated with small commercial uses, small openings that open up to services commercials on the sidewalks, of use for small weekly ferries in the space of the road that has been interrupted and transformed into a reversible space for use no longer for connection, but for aggregation. In the opposite space, more internal to the blocks, the public aggregation is configured, where the quality is completely different, a space not reachable by cars characterized by more forced, narrow and closed spaces or in some cases very generous, but where the reach is limited, this presupposes a series of greater control, that is, it has a slightly more intimate character that condenses the aggregation activity of the block's residents or of the closest relatives. If, on the one hand, the public space determined by the organizational grid of Paraisópolis, very clear hierarchically spaces are generated, in which fruition is open both to local residents and to residents of other sectors of the favela, in the internal space, the character of the space is opposite. public is very hierarchical, that is, with a certain almost automatic control over the users of this space and where the offer is much more specific of services and activities, more linked to the activity of restaurants, small bars and snack bars, above all areas that they can also take advantage without any commercial services.

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