



The Use of Syntax in Chinese: Changchun FAW Historical Old City to Update the Old City Culture

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Abstract. The living area of Changchun FAW Historical and Cultural Block is a representative of “unit community”. Its “neighborhood-style” planning layout and “unit community” governance model provide a valuable case for domestic research on unit social urban planning and residential space. From the perspective of “unit community”, this paper takes Changchun FAW historical and cultural blocks as the research object, and uses space syntax theory and technology to analyze the spatial characteristics of Changchun FAW historical and cultural blocks on the basis of literature retrieval and field investigation. This paper analyzes the spatial organization logic, social relationship structure and development connection of Changchun FAW historical and cultural blocks, proposes strategies and plans for the protection, renewal and utilization of the old city according to local conditions.

Keywords: FAW historical and cultural blocks · unit community · space syntax · old city renewal

1 Introduction

Today, China is in the stage of rapid urbanization. The characteristics of today’s cities have undergone earth-shaking changes from those of the past, and the lifestyles of residents and urban landscapes have also changed accordingly. As a relatively well-preserved historical block, the FAW Historical and Cultural District carries the life connotation and spatial form of the historical period, the local traditional way of life and social structure [1]. The historical district once accommodated the production and living practices of the residents, described the humanistic spirit content of a period of time, and reflected the changing course of social features.

The FAW Historical and Cultural District has witnessed the development of Changchun in the past seventy years, and it is now a good example of social changes in research units and the renewal of the old city. However, with the development of society, more diverse industries, functions, and spatial forms than before have entered the neighborhood and become a necessary demand for people, which has brought about great changes to urban space and social networks. Therefore, how to draw a dialectical understanding in history and contemporary, protection and renewal, residents’ life and

social development is an important issue to promote the healthy development of FAW historical and cultural blocks and improve the quality of life of residents [2].

Nowadays, there are very few cases of research and protection and renewal of unit communities in China, and there is no complete research framework system to guide research on this. The existing protection and renewal theories and measures have strong homogeneity, and lack the principle of planning and design according to local conditions. Based on the above situation, on the basis of reviewing the current situation of FAW, this paper adopts the axis analysis method in space syntax, in order to try to propose some update strategies for the shortcomings of domestic research and protection and update cases of “unit communities”.

2 Regional Overview and Research Methods

2.1 Regional Overview

2.1.1 Current Situation of “Unit Community Unit” in Blocks

From the beginning of the 21st century, the “unit society” has gradually moved towards the ladder, and the “unit community” has gradually withdrawn from the historical stage. At the same time, the internal infrastructure of the block is dilapidated, the building is seriously aging, and the surrounding educational and medical resources are backward. Therefore, many residents in the block choose to move to a residential area that is more in line with modern living conditions, resulting in a decrease in the adhesion of the community, and the lack of a living area. The spiritual core gradually disappears.

Since the transformation process after the enterprise leaves the society, there are huge resistances, and problems such as the aging of the community and the management of the community grid management system in the post-epidemic era have gradually emerged. Nowadays, residents’ cognition of community boundaries and their daily activities are mostly confined to the unit, and the differentiation between units is also more obvious during this period, showing a multi-level differentiation pattern [3].

2.1.2 Overview of the Current Situation of Preservation of Blocks

On the whole, the FAW historical and cultural blocks are well preserved, the relative positions of the living area and the production area have not changed compared with the past, the block boundary is still the original planning layout, and the functions of the living and service buildings and residences are the same as before. Compared with the adjustment of some functions, no migration and demolition have occurred in the overall completed building. On both sides of Dongfeng Street, Eurasian Chebai is the main new large-scale public building complex, which has a great impact on the building complex in terms of spatial continuity [4].

In the living area, the residences continue their original residential functions, and some residences along Dongfeng Street have been partially rebuilt as bottom shops. The community units with relatively complete spatial form do not have a large number of additional buildings, only infrastructure buildings, property management buildings and garden buildings in the green space. The additional buildings in the incomplete group

mainly include residential buildings, various commercial and service facilities related to community life and office space related to enterprises. Some of the new buildings were constructed with reference to the early architectural image, but most of them were not in harmony with the overall style of the buildings in the early stages of construction of the entire block [5].

2.2 Research Methods

The Depth Map research method mathematically uses topology to describe the spatial relationship, modelling and importing after dividing the space, and visualizing the analysis results through computational data. Space syntax is mainly composed of three aspects: axis model, degree of integration, model analysis and verification, and then an analysis and explanation based on the theory and status quo of the expression of its achievements will be made [6].

This paper analyzes the road axis of FAW historical and cultural blocks through space syntax. The construction of the axis model is based on the 15-min walking distance of the living circles of Wenguang Community, Yingchun Community and Kunlun Community in the block. In this paper, the relationship between the global integration degree of the block and the integration degree within the specified topological radius is obtained through calculation and analysis; the relationship between the topological depth and the degree of selection is obtained. Update strategy.

3 Analysis of Block Space

3.1 Spatial Morphology Analysis

3.1.1 Targeted Analysis

From the analysis of the overall degree of integration (Fig. 1), the FAW Historical and Cultural District is the area with the highest degree of integration, which is mainly concentrated in the Eurasian Auto 100 business district. On the main urban roads, Dongfeng Street, Jincheng Street, Chuangye Street and Kuanping Road have a high degree of integration and good accessibility. From a global perspective, since the railway separates the north and the south, the north side of the axis model has a higher global integration degree than the south side, resulting in spatial fragmentation. From the analysis of the local integration degree (Fig. 2), the integration degree of urban arterial roads and urban secondary arterial roads has increased, while the roads inside the living area have declined, and the accessibility to external traffic is poor. After on-the-spot investigation, most of the users in the living area are the elderly, and the enclosed houses in the living area clearly define the space boundary. But it showed good accessibility.

According to the calculation (Fig. 3), the choice degree of secondary roads is lower than that of urban main roads, and the choice degree of residential roads is the lowest, indicating that pedestrians mostly choose to go from urban main roads to other spaces, which reflects the lack of traffic facilities in the block. In the axis model, the Kuanping Road connected with the block has the highest choice, and the end of the road is Nanhu Park, indicating that the end point of users in the block is Nanhu Park, which also reflects



Fig. 1. Intergration [HH] ($R = 0$)

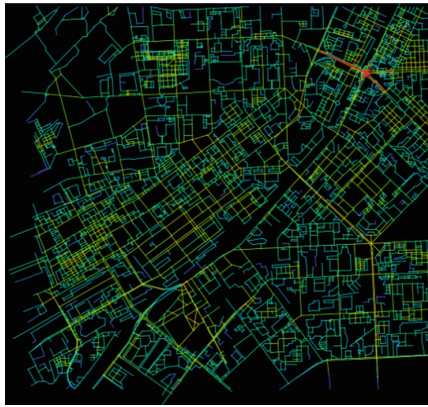


Fig. 2. Intergration [HH] ($R = 3$)

the lack of large-scale park facilities in the block. After on-the-spot investigation, the largest park facility in the block is the Communist Youth League Garden, but due to unreasonable zoning, it is difficult to meet the needs of residents. From the perspective of the entire axis model, the choice of Kunlun Road is low, indicating that travelers will not consider Kunlun Road more when crossing traffic. In fact, travelers often arrive at the Communist Youth League Park through cross-country roads.

3.2 Spatial Structure Analysis

Based on the above integration analysis, Dongfeng Street is the main road for residents to travel, and integrates most of the roads in the area, but there is a strong separation between the actual living area and the production area. It can be seen from Fig. 4 that the topological depth of the area north of the railway is significantly lower than that of the area south of the railway, and the result is the same as that of the global integration. The number of topological steps is also very low in the living area and the production area.



Fig. 3. Choice [Norm]

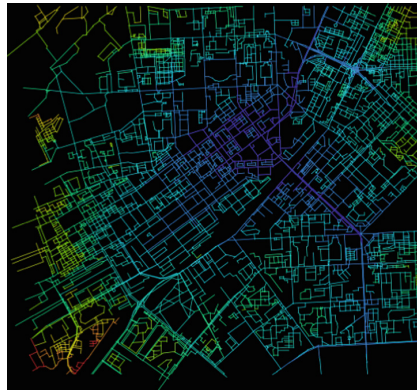


Fig. 4. Topological Depth with Dongfeng Street as Selection Set

The former is due to the increased space complexity of the enclosed courtyard house, and the latter is due to the excessive volume of the factory building in the production area.

3.3 Summary of Block Space Characteristics

- 1) Insufficient living facilities. With the refurbishment and planning of the living area, the existing public greening facilities, commercial services and other living and public service buildings are difficult to meet the actual needs.
- 2) The traffic accessibility is good, but the local accessibility is low. The vertical, horizontal and vertical grid-like road layout undertakes the main traffic and meets the needs of vehicle dealers. However, the traffic accessibility of the living quarters and the edge areas of the production area is low, and people's walking needs have not been fully met.

- 3) Fragmentation of spatial structure. The production area and the living area are independent and closely related to each other, but there is a lack of mutually compatible parts in space. From the production area alone, the edge area is divided by the excessive volume of the factory building, resulting in a large topological depth and low accessibility, forming a fragmented space. The lack of cultural factors that echo each other between the “blocks” in the living area has resulted in the isolation of the “blocks”, and the living area space is difficult to be integrated.

4 Old City Space Renewal Strategy

4.1 Update Ideas

The protection and renewal of FAW historical and cultural blocks is a simple renovation of buildings and supplementary space, and it should also be an action to sort out the context of the entire FAW culture and deepen and consolidate local IP. The renewal and protection of FAW’s historical and cultural blocks can be divided into two strategies: continuation of urban context and creation of industrial communities. The specific implementation strategies are as follows:

In terms of continuing the urban context, we should not only care about tourists’ experience of industrial heritage, but also strengthen the construction of spiritual space. Under the fact that FAW itself has an urban culture, it should also pay attention to the cultural and historical value of industrial heritage, including introducing the local “automobile culture” to the world and showing the entrepreneurial years of FAW workers. Therefore, attention should be paid to embodying the cultural value of “FAW” in the renovation design of the old city, making the FAW industrial heritage landscape a city feature, making it a new business card for the city’s external exchanges, promoting the development of Changchun’s tourism industry, and driving its economic growth.

In the construction of industrial communities, in addition to meeting the original production and living needs, functional spaces such as leisure, commerce, and tourism should also be introduced to reduce the separation phenomenon between the living area and the production area within the block, and the separation relationship between the block and surrounding areas, so as to meet the needs of users. Material and spiritual needs. Landscape nodes can be created between the living areas to connect the interior of the living areas; the spatial connection can be strengthened through the landscape belt or the landscape axis, which plays a role in the behavior and psychology of the users guiding role between the living area and the production area.

4.2 Update Strategy

1) Cultural continuity

The entrepreneurial and revolutionary spirit of the older generation of FAW people is an important part of the memory of the block. The buildings in the FAW Historical and Cultural District are intact, some buildings in the production area are restricted, and now the living area lacks internal development. Therefore, some buildings in the living area and production area are built into the Red Flag Party



Fig. 5. General layout plan

School. Through the analysis of the overall integration degree, the Red Flag Party School is established in the 3 blocks with low block utilization rate and high degree of integration.. A certain proportion of commercial components can be integrated into the Eurasian Auto 100 business district to realize the leisure use of this area.

2) Functional proliferation

According to historical value, exhibition value and other evaluation methods, the living area can be used as a museum area that can display workers' lives; the green isolation belt in the production area is given the form of an industrial theme park, which can enrich the outdoor experience in the block. Encourage the attempt of various business formats here to enhance the soft power of the neighborhood culture; The Communist Youth League Garden is an important public park in the block, but its form has a strong sense of separation between the 15th and 7th blocks and the 16th and 6th blocks. The bond of connection, the environmental improvement of the community public space represented by the Communist Youth League Garden, and the formation of a community public space with the characteristics of a certain industrial heritage community garden; 2b The site on the north side of the block is shaped as a community square, improving the interface along Dongfeng Street and providing a place for residents' daily activities (Fig. 5).

3) Spatial proliferation

Due to the large size of the factory building in the production area, the topological depth of the living area and the edge area of the production area in the block is large, which is difficult for users to reach, and the functional interaction between the area and the area is affected. In order to reduce the depth value of the production area, consider the factory building. Factors such as specific functions and structures can appropriately increase the entrance and exit, increase or decrease the volume of the workshop itself, and improve the accessibility of the road.

5 Conclusions

In this paper, by studying the evolution law in the “unit community” of FAW historical and cultural blocks and the current status of the spatial connection between the living area and the production area, using space syntax as a spatial analysis method, the following old city renewal strategies can be drawn: The lack of living facilities in FAW In view of spatial problems such as low local traffic accessibility and fragmented spatial structure, three regeneration methods of function, space and culture are proposed. The analysis of the overall structure of the block and the characteristics of each unit can find out the opportunities in the site, and transform the original disadvantaged development unit into an advantageous unit; integrate various advantageous resources in the area, can construct an overall development idea, and create a city and enterprise. Cultural brand.

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