

Research plan

Introduction

The theme of Urban architecture graduation studio is bricolage this year, which is also the starting point. My research began from thinking the role of bricolage as a way of doing and thinking in architecture.

Bricolage is an interesting word. In *Savage Mind* Strauss explained in its old sense the verb 'bricoler' applied to ball games and billiards, to hunting, shooting and riding. It was however always used with reference to some extraneous movement: a ball rebounding, a dog straying or a horse swerving from its direct course to avoid an obstacle. So bricolage here can mean an unexpected result,



Figure1

Later, bricolage was used to refer to a way of solving problems with things at hand, which often manifested as some unexpected ways of solving problems. The reason for the unexpected is that when we try to solve the problem, we often think from the perspective of an engineer which Strauss referred to in *Savage Mind*, while the bricoleur's creation limited by reality becomes a result of some deviation from ideal, an accident in a specific time and space.

For example, in the bricolage work in figure 1, the chair is leaned against the door to prevent the door from closing. The chair is separated from the service system of tables and chairs and becomes a part of the mechanical order that supports the door. From this we can see that the essence of bricolage is a kind of appropriation of things, a kind of reconstruction of order. The sturdiness of the chair

is utilized. Even though this is not the most reasonable mechanical structure to support the door, within certain conditions, the demand for the support door is indeed fulfilled. But as a part of the result, the redundant structure of the chair also brings additional attributes, which make the door no longer passable.

Through the above example, we can find that bricolage often means a combination of things that are not originally under the same structure. Although this unexpected combination sometimes brings special advantages, it will inevitably produce contradictions in combination. So how to locate this contradiction, how to weaken or even resolve it will be an interesting process.

When this structural thinking is applied to the urban scale, the individual buildings in the city are like objects from different systems, which continuously reconstruct the existing structure of the city in the process of urban renewal. Buildings in different periods and under different social backgrounds inevitably contain different internal needs, and they are bound to be full of contradictions and conflicts. The occurrence of such contradictions is truly affecting the boundary space in the city, and this is the entry point for my next urban research.

base



Figure2

Our base is located in the center of Nijmegen. Nijmegen is a city in the southeastern part of the Netherlands. It has been established since the ancient Roman period, so it is called the oldest city in the Netherlands. There have been countless events in the long historical development. The occurrence of the Second World War brought huge changes to the entire city. Buildings from different periods are scattered throughout the city. The complex composition gives Nijmegen the characteristics of a collage city described by Colin Rowe.

1.components in base

When we look at the base from the perspective of the combination of components in bricolage, we can think of the site as a combination of several blocks. These buildings are built in different social contexts and have different goals.

1).Mall

Molenpoort is a shopping mall in the base. It is presented in the base completely in a consumerist attitude. The pursuit of commercial interests makes it recklessly occupy every inch of land it can touch, which results in about half of the base is occupied by its volume. Molenpoort was built in 1982 and has undergone several reconstructions since then, but in fact its operating conditions are still not optimistic. There is almost no space for customers to stay inside, and the vacancy rate of the second-story store is very high.

Through the study of this type of building, we know that Molenpoort is an experiment in Europe for the shopping space type of American mall. However, the original target locations of American malls are actually suburbs. In order to meet the shopping needs of suburban residents, they often have a wealth of business formats. However, under the prevalence of traditional outdoor commercial streets in Europe, this type of mall has lost its competitiveness. In particular, the mall in the base is located in the city center. Due to the limitation of street density and the population base of the Netherlands, these malls cannot reach the size of the American commercial mall. The

volume limitation has reduced the abundance of businesses within the mall a lot. This weakens the competitiveness of mall.

On the other hand, molenpoort, like the American mall, has a clear indoor and outdoor boundary, transforming the mall into a whole that confronts the outside in perception. Customers can clearly understand what can be bought in the traditional commercial street, but for molenpoort, this perception is missing, which will hinder the entry of customers to a large extent.



Figure3.movie screenshot



Figure4. movie screenshot

Through the mapping of the commercial distribution in Nijmegen city center, we can find that the commercial structure of the city center is supported by three commercial loops (figure6). The passage inside molenpoort is an important part of it. However, after the above analysis, we know that it does not perform its intended function. This causes molenpoort to become an existence that interrupts the existing texture on the urban scale.

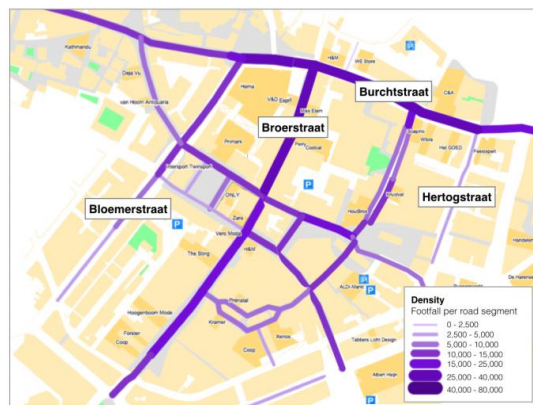


Figure5. Density of people



Figure6. Commercial loops

2).Church

For historical reasons, the church in the base is itself a product of bricolage. It consists of two parts, the old and the new. The part near the altar adopts the traditional church plan, and the side near the entrance is a modernist space. The collision of the two spaces can be clearly felt on the ceiling. (figure8)

It was built in the 19th century and was later rebuilt after being blown up during World War II. The newly built church reused part of the old church wall, including a complete rose window. This makes the facade of the church a monumental structure.

The entrance part of the church was completely rebuilt, using a form similar to the ancient Roman colonnade to form a space for people to stay along the street, as the threshold connecting the street. In addition, the bell tower of the church is the tallest structure in the block. It has a certain landmark nature and can act as a collective memory from the perspective of

people on the street.



Figure7 .Church facade



Figure8. Ceiling bricolage

3).Shophouse

The shophouse in the base is a typical type of nijmegen's local commercial and residential system. They usually appear in the form of a group, seamlessly side by side with each other, so there are only two facades, inside and outside. The exterior is facing the street, the ground floor is for commercial use, and the upper floor is for residences. The neat arrangement makes each block look like a complete wall. Except for decorative bumps, there are few structural protrusions on the facade. This further strengthens the feeling of integration of the block facade. The inner façades often face each other, with spaces of different nature as the media according to the specific conditions of the block.

Another common phenomenon is that the depth of the upper-floor houses is often less than that of the commercial, which leads to the upper-floor residents usually having additional outdoor space, that is, the roof of the lower commercial, but these spaces are currently mostly abandoned or piled up due to ownership and other reasons.



Figure9. Outside



Figure10 Inside

2.Broken relationship

As described in the previous description of various architectural groups, the responses of these buildings to the texture mostly remain in the response to the main street. This results in a building that seems to have a good relationship with the city streets on the street side, but on the back facade, a collision of various values occurs. The back of the traditional shophouse is often the residential terrace space, which exists as a private outdoor space of the residents, but the commercial logic of molenpoort makes it seamlessly connected with these residences. The tall

enclosed wall interrupts the residents' terraces. The pedestrians on the roof of the mall also have a serious impact on the privacy of the residents. For the church, the direct contact between the mall's straight plane profile and the arc plane of the church altar also creates a lot of unusable space. In addition, the church garden also faces an awkward situation similar to that of a residential terrace. Due to the barbaric attitude of molenpoort, the ornamental value of the church facade has been eliminated. In reality, the only place where these facades can be seen is the roof terrace of the mall. This means that the roof terrace of this mall is a place with potential, but in fact this space is now occupied by the parking lot.



Figure11.Leftover courtyard in base

3.Untapped potential

Through previous interviews with the base population and various local reports, we learned that the shortage of social housing in the base is also an urgent problem to face. Especially in the case of population expansion, people are increasingly inclined to return to the city center to live, which has brought great housing pressure to the city center dominated by traditional low-rise buildings. The mall in the base occupies a lot of land, but only provides two-story commercial functions. The large outdoor space on the roof is also used for parking. Therefore, the introduction of aerial residential functions to increase density and enrich the social functions in the base will have the opportunity to activate the base various shattered and abandoned spaces inside, increasing the value of the land.

Theory frame

Urban poché 1984

The tension of boundaries in the base can be seen as the result of objects with different purposes ignoring the external space, reminiscent of the contradiction between object and fabric articulated in Colin Rowe's *Collage City*. The continuity of fabric can be understood as the guiding principle of the traditional city, a way of developing fabric that is dominated by public space, while the crisis of the object refers to the modernist approach to architecture that is centred on itself, like the functionalist approach where form follows function, a way of thinking that ignores context.

In 'Collage City', Rowe and Cotter invoke a poché concept derived from the Beaux-Arts, or Parisian Academy of Fine Arts system. This concept was used by Venturi in *The Complexity and Contradiction in Architecture* to illustrate the contradiction and complexity of the junction of rooms in architecture that take different shapes according to the requirements of different uses. However, in both the planar and sectional sense, Venturi does not go beyond the level of the architectural monolith to talk about the poché that characterises the 'contradiction' and 'complexity' of architecture. "By contrast, through the concept of urban poché, Rowe and Cotter seek to present the complexity and ambivalence of an urban phenomenon. They seek to demonstrate, a building can be caught between different urban elements and become an urban poché. By understanding 'collage' as 'a method of introducing and producing objects according to fabric, Rowe is trying to find a balance between objects and fabric.



Figure12

Looking at the base from a fabric perspective reveals that all the buildings within the base don't work like objects which tend to refine their own concepts or functions and leave a fragmented urban space around them, nor do they bring a healthy urban grid to the neighbourhood like traditional fabric. They are like a circle of walls which adopt a completely different approach inside and outside, being fabric-driven externally and transforming into objects-driven internally. Thus a large number of poché space cities are produced within the block.

These poché spaces within the block can be seen as semi-public spaces that belong to the interior of the block, but from another point of view they are also an extension of the urban fabric, a structure between the city and the building. Then on what level can the urban gap be shaped positively? How can the conflict between objects with different purposes be reconciled? These questions can also be considered from an urban perspective.

To further the issue of cognitive boundaries, I will introduce the theory of urban morphology, which is not usually object-centred, as it emphasises the relationships between urban components. By analogy with linguistics, its focus is on the active vocabulary and its syntax. There is therefore a tendency to use morphological techniques to study the ordinary, non-monumental areas of the city and to emphasise processes and their structures rather than any particular state or object, thus going beyond architecture and looking at the whole built landscape and its internal logic. The following references to several urban theories will provide directions for the study of boundary spaces in terms of place, image and society respectively.

place

In 'The architecture of the city' (1982), Rossi sees place as a certain relationship between a particular location and the buildings within it, which is both unique and universal. Place is about events and history. What attitude should we take towards the existing buildings within the base and what they mean for the city at this point in time. First I try to understand Rossi's overview of the urban artifacts. He argues that the city as a whole and its grace is made up of many different moments of formation, and that the synthesis of these periods is the unity of the city as a whole. The time dimension is also an attribute of it; it is an organism that spans a long period of time. Urban regeneration is a state of continuous succession, and it is difficult to clearly delineate the stages of its development. History is therefore an inseparable part of the city. Perhaps in the face of fragmented architecture of different periods, it is first necessary to adjust attitudes and confront the significance of history in architecture and the perception of the city as a whole. When talking about each of the buildings, in order to create a good weaving relationship with the remains, we need to judge the tendency of its remaining form, as a respect for the local history. When there is no clear tendency, we can adopt an appropriate design to achieve our intentions by analysing the current situation. I can make some assumptions based on the existing research, for example about the church in the base, which as a spiritual building is often kept at a distance from other buildings, and which, due to its complete façade and unique form, can be connected to the church by means of a street or square not only to enhance the special status of the church, but also to offer the possibility of viewing the building. This can also be seen in the urban fabric of the other two churches in the city centre.

Image

'The image of the city' by Kevin Lynch is about the look of cities, the importance of this look, and the possibilities of changing it. Lynch argues that giving visual form to the city was a new and special kind of design problem. He proposed a method to deal with visual form at the urban scale and offering some principles of city design.

A five-element classification of the contents of the city images that are related to physical forms is offered in the third part of this book: (i) paths, the channels along which people move throughout the city; (ii) edges, the boundaries and breaks in continuity, such as rivers and train tracks; (iii) districts, the areas characterized by common characteristics; (iv) nodes, the strategic focus points for orientation, like squares and junctions; (v) landmarks, the external points of orientation, usually easily identifiable physical objects in the urban landscape, such as distinctive buildings, statues or landscape features.

Socail aspact

'The social logic of space' by Bill Hillier and Julienne Hanson was published in 1984. The book with the main purpose of understanding the influence of architectural design on the existing social problems in many housing estates that were being built in the United Kingdom. It attempts to build a conceptual model for the investigation of this relation on the basis of the social content of spatial patterning and the spatial content of social patterning. Then, it tries to establish a method of analysis of spatial pattern, with emphasis on the relation between local morphological relations and global patterns. It establishes a fundamental descriptive theory of pattern types and then a method of analysis. These are applied first to settlements and then to building interiors. On this basis, it establishes a descriptive theory of how spatial pattern carries social information and content.

Methodology

This study is divided into two parts: a pre-recognition base study and a post-thematic theory intervention study

1 .Pre-study

Our entry point was the shopping situation within the base, and molenpoort, as a mall with a large volume within the base, was a natural target for our research. At the beginning we tried to explore the commercial characteristics of the mall in a top-down manner, including finding technical drawings of the mall from archive and reading existing research reports on commercial development in the city centre. Later we made detailed drawings of the internal and external commercial sections and elevations combined into axial side drawings, including human behaviour in these spaces and the practices that take place as a way of observation. Then later we introduced video interviews to obtain information directly from the people involved in the base, and combed all the information through the process of editing the film to build a bottom-up perception of the base.

2.Theme research

Typology discusses the regularity of architectural entities and spatial forms over time, while morphology studies the co-occurrence of spatial relationships between typologies in a given socio-cultural and physical and material environment, thus the inseparable nature of both typology and morphology establishes architecture and the city. Morphology is explored at the urban scale and when the focus is on the architectural scale, the intervention of typology is required to carry out the analysis.

Having identified the theme of studying the relationship between architectural boundaries, I decided to collect information on the boundaries within the nijmegen. For each point selected for analysis I tried to represent the information using plan, section(figure13) and axonometric drawings. The plan is used to represent the depth of the boundary space, the section mainly reflects the height and width scale of the space and the axonometric is used to reflect the details on the façade.

After gathering enough information I will try to establish a classification criteria with a consideration of typology, what kind of space would be the boundary between different forms of buildings, whether it be a square, a street, a wall or an architectural space. Although the functions of the objects connected by this boundary can be complex, the type of boundary itself is limited, so I can divide all the cases into these four categories, analysing in turn the characteristics of the connections between the different elements of the urban form.

As Rossi says a particular type is a combination of a way of life and a form, although their specific form varies greatly with different societies. Through this meticulous analysis I try to find the logical relationships behind the way these elements are connected and use this to guide the upcoming design.

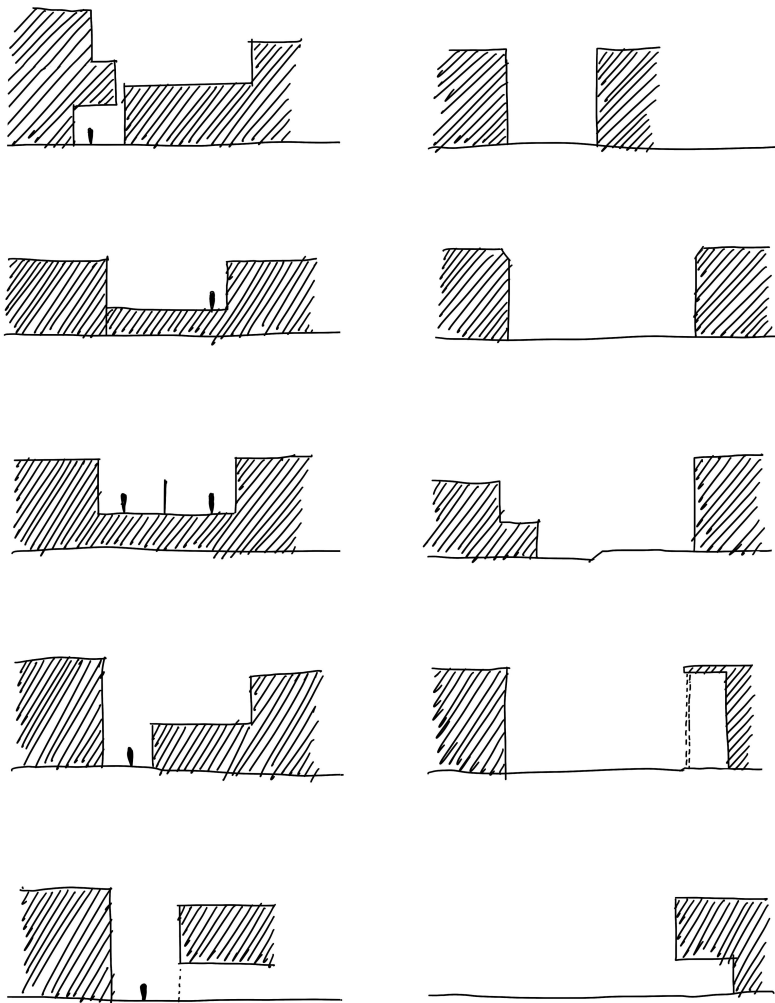


Figure13 Section type of boundary

	Single-Family Building		Andar Moradia	Multi-Family Building			
	Shallow Plot	Long Plot		One Dwelling per Floor	Two Dwellings per Floor	Three/Four Dwellings per Floor	Five Dwellings per Floor
Terraced Building	Narrow Plot Frontage	11a, 11b, 13					
	Medium Plot Frontage	12a, 12b, 14	16a, 16b, 10	14			
	Large Plot Frontage	15	11	15	18		
Semi-Detached Building	16a, 16b, 18		12	16			
Detached Building	17a, 17b		13	17	19	20	

Figure14. The typological process in Rua de Costa Cabral, Porto (SourceOliveira et al. 2015)

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