



**THE APPLICATION OF ARCHITECTURAL SEMIOTICS
IN ADAPTIVE REUSE OF
CHINESE VERNACULAR ARCHITECTURE**

University of Pecs

Faculty of Engineering and Information Technology

Breuer Marcel Doctoral School

2024

THESES

Lai Xu, DLA Thesis
Supervisor: Prof. Dr. Akos Hutter



PREFACE

With the acceleration of Chinese urban-rural integration, the renovation and renewal of rural architecture have increasingly become a focus of social attention. In rural architectural design, semiotics offers an alternative perspective, enabling designers to incorporate regional cultural elements into modern architecture through the processes of sign extraction, translation, and reconstruction.

This research, through exploration of Architectural Semiotics theory and Adaptive Reuse theory, as well as analysis of practical cases and project practices, aims to provide a feasible design methodology for the adaptive reuse of vernacular architecture. The study seeks to offer new insights to scholars and designers interested in architectural semiotics, inspiring further exploration in this field.

Additionally, it aims to provide useful references for rural renovation practices, inject new vitality into the development of contemporary architectural semiotics, and promote continuous innovation and deeper application in this area.



The Rendering of Artist's Village (Drawn by the author)

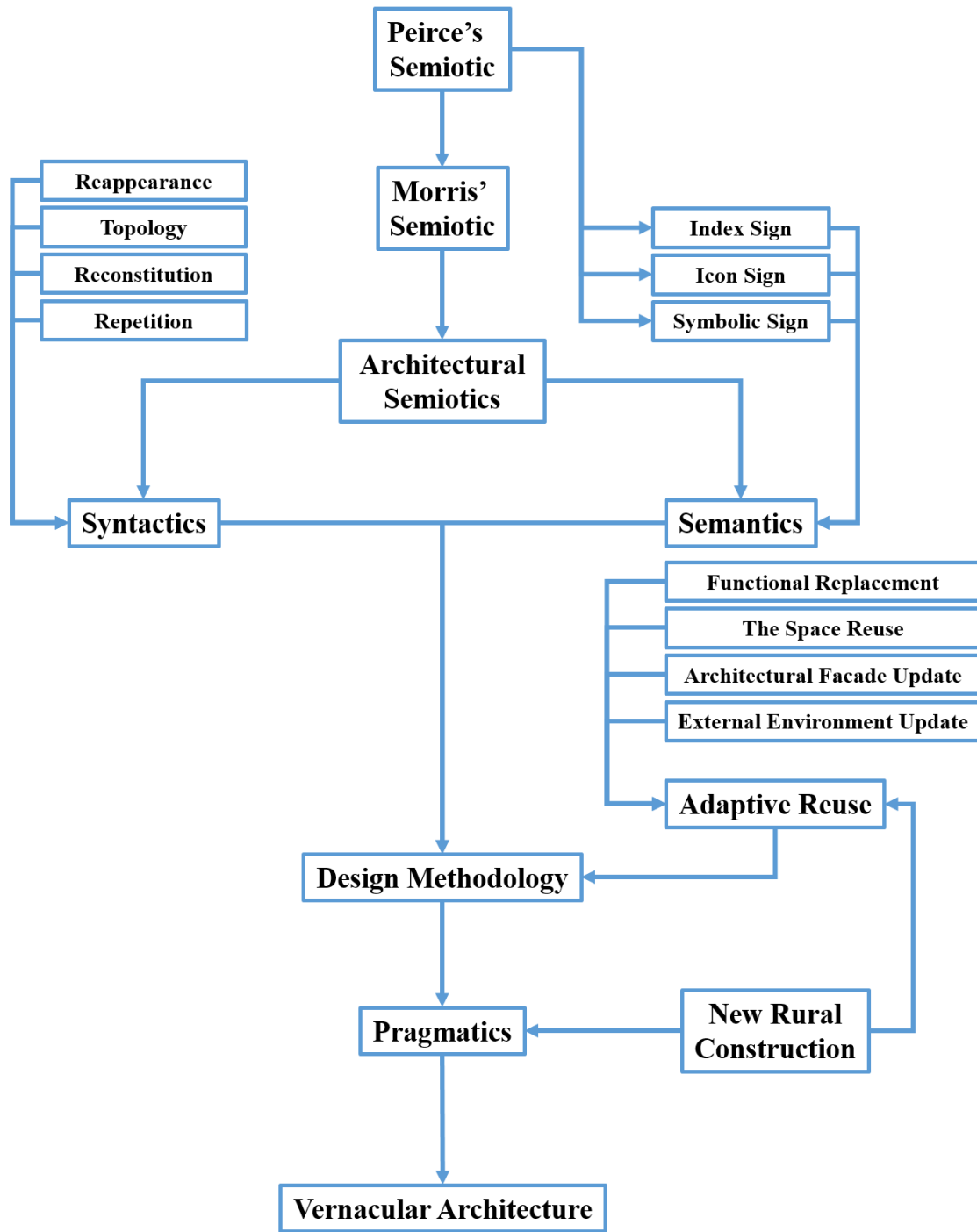
RESEARCH BACKGROUND

With the rapid development of the construction industry and the swift expansion of urban areas, China has successfully joined the ranks of the world's developed nations. Its rich historical and cultural heritage is globally recognized for its significant research value and potential for exploration. However, under the current strategy where urban architecture is predominantly driven by modernization, Western societies continue to hold a dominant position within the global framework, particularly in areas such as residential construction, infrastructure development, and urban environmental planning. Against this backdrop, the importance of architectural style is becoming increasingly prominent, as individuals and societies alike strive to express their unique cultural identity and charm through distinctive architectural signs.

Due to the long-standing development gap between urban and rural areas in China, rural development has been relatively slow, and the current state of vernacular architecture can no longer meet the developmental needs of contemporary society. Large-scale "museum-style" preservation methods are neither realistic nor meaningful. The protection and utilization of vernacular architecture is a comprehensive project, and numerous problems exist in the processes of renovation and use.

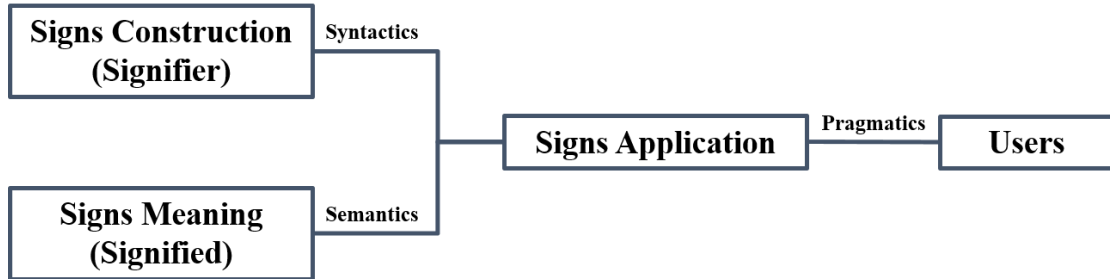
Simultaneously, the extensive outmigration of rural populations has resulted in some villages becoming "hollow villages", and the cultural transmission of traditional vernacular architecture has been severely disrupted. The preservation of vernacular architecture is not only a continuation of tradition but also a necessary requirement for people's living needs in the new era. Currently, Chinese primary strategy for rural development involves positioning and classifying architectural heritage and ordinary vernacular architectures to varying degrees. This method has led to the protection of classic architectural heritage while causing ordinary vernacular architectures to be neglected. However, these general vernacular structures, while maintaining rural characteristics, also possess cultural significance and, due to their more flexible renovation methods, can more readily adapt to current living needs.

THESES



The Research Framework (Drawn by the author)

THESIS 1



The Trichotomy of Architectural Signs (Drawn by the author)

The Trichotomy of Morris' Semiotics

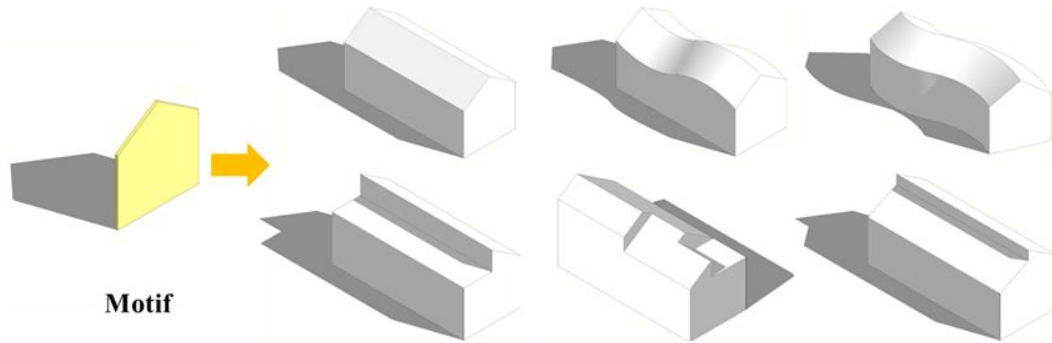
Based on Morris' semiotic theory, a possible way to explore the adaptive reuse as a design methodology of vernacular architecture is utilizing the theory of Syntactics, Semantics, and Pragmatics.

In design process, regarding the theory of Syntactics, the focus is on Signs Construction, specifically examining the formal relationships and combinatorial rules among Regional Architectural Signs, without addressing their specific meanings (Semantics) or the relationships between signs and objects (Pragmatics).

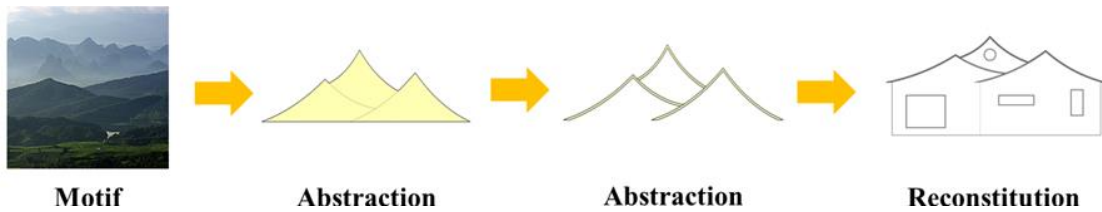
According to the theory of Semantics, through Signs Classification, the design method is focusing on analyzing the relationship between Regional Architectural Signs and their referents or meanings, emphasizing the interpretation and understanding of signs within specific contexts.

According to the theory of Pragmatics, Vernacular Architecture is determined as cultural sign carrier, on users and society. The analysis examines the social functions of these buildings after renovation and their influence on people's daily lives, further exploring the psychological responses of individuals to these cultural signs in specific social contexts.

THESIS 2



The Motif's Topology (Drawn by the author)



The Motif's Reconstitution (Drawn by the author)

Syntactics—Signs Construction

According to the applied design methodology Syntactics examines the structure of the sign system, exploring how signs are arranged and combined to create more complex sequences or systems, such as the organizational patterns of points, lines, planes, and volumes in architectural forms.

In this study, these signs representing Regional Architectural Culture are termed “motifs”. Four primary methods of motif reinterpretation are employed: Reappearance, Topology, Reconstitution, and Repetition.

THESIS 3



Space Signs and Structure Signs in Index Sign (uao-design.com)

Semantics—Signs Classification

Semantics primarily examines the relationship between signs and the objects or meanings they represent. It focuses on the meaning of signs and how they are interpreted and understood in specific contexts.

Our developed design method utilizes the Signs Classification in Peirce's semiotics and further subdivide architectural signs from three dimensions: form, style, and cultural spirit. The classifications include Form Sign, Concretization Sign, Space Sign, Structure Sign, Geometry Sign, Color Sign and Material Sign. These signs are used to explore how meaning can be conveyed in design and how people interpret these signs.

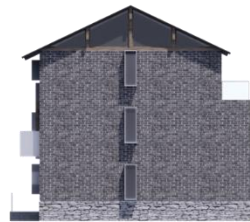
THESIS 4



Back Elevation



Front Elevation



Left Elevation



Right Elevation

Design Strategies Based on The Adaptive Reuse (Drawn by the author)

Adaptive Reuse

Architectural Adaptive Reuse is a key guiding principle in the renovation and design of vernacular architecture in Chinese New Rural Construction. The renewal of vernacular architecture should be carried out while preserving the original architectural characteristics, integrating environmental, social, economic, and cultural to adapt to the changing usage demands over different periods.

The design strategy for the adaptive reuse of vernacular architecture is systematically classified, based on the functional characteristics of buildings and case analysis. Specifically, it is categorized according to four aspects: Architectural Functional Replacement, The Space Reuse, Architectural Facade Update, and External Environment Update, providing clear guidance for design pathways in the renovation of vernacular architecture under different conditions.

THESIS 5



On-Site Photo in “Deep in the Cloud” B&B (Photographed by UAO Design Company)

Design Methodology

Possible design methodology of New Rural Construction in China is capable to integrate architectural semiotics theory and adaptive reuse theory, applying architectural semiotics to the adaptive reuse process of vernacular architecture.

Within this methodological framework, Adaptive Reuse theory serves as the design strategy, guiding the renovation of vernacular architecture to identify which areas require modification, reconstruction, or preservation to better meet new usage demands. Meanwhile, Architectural Semiotics theory serves as the design method, utilizing the extraction, translation, and recreation of architectural signs to achieve a balance between cultural heritage and modern functionality in Regional Vernacular Architecture, showcasing its unique regional characteristics and aesthetic value.

THESIS 6



The Culture Reception Hall in Tingrui Town, China (Photographed by UAO Design Company)

Pragmatics—The Influence of Vernacular Architecture on Users and Society

As cities are developing, people's material and spiritual needs are increasing, leading many to look towards rural areas in search of a lifestyle that alleviates stress. The harmonious development of vernacular architecture with the natural environment forms the foundation for such an ideal space.

However, traditional architectural forms struggle to meet modern needs, making modernization and technological innovation essential trends to enhance living quality, retain population, and revitalize rural areas. The key lies in balancing functionality and cultural heritage, allowing vernacular architecture to find a point of coexistence between modernization and traditional culture. Moreover, with the advancement of the times, rural infrastructure continues to improve, and technological innovation is driving the modernization of vernacular architecture, exploring rural design languages that better align with the needs of modern life.

University of Pecs
Faculty of Engineering and Information Technology
Breuer Marcel Doctoral School

Lai Xu
Supervisor: Prof. Dr. Akos Hutter
2024.10