


Communication of building in Charles Jencks semiotics at KAKR Bamboo Hall: Vernacular buildings and semiotic trichotomy

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ARTICLE INFO	ABSTRACT
<p><i>Article history:</i> Received April 27, 2022 Received in revised form Sept. 09, 2023 Accepted November 02, 2023 Available online December 01, 2023</p> <p><i>Keywords:</i> KAKR Bamboo Hall, Semiotics, Trichotomy, Vernacular buildings</p> <p>*Corresponding author: Aulia Muflih Nasution Department of Architecture, Faculty of Engineering, Universitas Medan, Indonesia Email: auliamuflih@staff.uma.ac.id ORCID: https://orcid.org/0000-0002-4573-1064</p>	<p><i>This study includes a semiotic analysis of the KAKR Bamboo Hall facade. This is inspired by the architecture and surroundings of the building, which a young vernacular architect created. The first steps in conducting research on buildings are identification studies of the local environment, local culture, and the data utilized in the design process. This study makes use of semiotic theory by Charles Jencks and employs a quantitative research methodology with a descriptive approach. To obtain actual field data, the research began with a direct survey of the research location. A test on semiotics-related architectural theory was conducted using this data. The objective of this study is to provide a foundation or point of reference for the accuracy of the design work that will subsequently be performed on the nearby buildings. This, it is said, is because the village will eventually transform into a historical tourism destination. The findings show that Semiotic trichotomy indicators and Peirce's semiotic theory are compatible. The research's output is a design concept that uses a vernacular building approach in the Buluh Awar area. It does this by emphasizing semiotic trichotomy—the relationship between semiotic concepts and physical structures—in the form of buildings.</i></p>

Introduction

In the 1950 Italian architectural debate that questioned the International Style, semiotics in architecture was first introduced. Even before the term "ArSemiotics" was coined in 1970, Architectural Semiotics was a hot topic in architectural theory circles. In architecture, semiotics is a science that helps interpret spatial configurations and architectural forms (Dariwu 2012).

When studying architecture from a semiotics perspective, we are not far from discussing the sign system, which encompasses the physical form and all of its components as well as size, proportion, distance between components, materials, colors, and so forth. This indicates that the building's signage has a purpose or

significance that is interpreted so that people who use the building can understand it.

Semiotics is important in architecture, because it is closely related to signs and human perception. This semiotics will provide our thoughts on architectural forms, which can be seen in the visual appearance of building facades, where there are architectural signs or symbols in architectural elements and architectural decoration in terms of semantics (form), form relationships (syntax) and meaning of form (pragmatics) (Nugraha and Ashadi 2020).

According to philosopher and logician Charles Jencks, signs are instruments that people use to reason. Peirce also said that semiotics, which deals with different kinds of signs, and logic are the same thing. In social and cultural contexts, buildings' shape and design can convey meaning and symbols, as explained by Charles

Jencks. According to Charles Jencks' theory, architectural features like lines, shapes, and colors serve as signs or symbols that have specific meanings, and the form and structure of buildings can be studied similarly to language.

Through this theory, Jencks proposes that buildings can be used as tools to communicate meaning and symbols in certain social and cultural contexts. He also emphasized the importance of understanding cultural context and history in designing buildings that can communicate appropriate meaning. Jencks' semiology and architectural theories have influenced modern architectural views and practice, and provided the basis for further study of the relationship between architecture, language, and meaning (Steen 2015).

According to him, classifying a building plan must have 3 supporting indicators known as "Grand Theory" (Sudradjat 2020). This theoretical model is known as the triadic model and trichotomy concept, which is explained in (Widodo and Artiningrum 2022):

1. Representative is an icon that can represent, can be felt and touched by the five senses but cannot be seen from the shape of the building.
2. The object in question is the initial concept of the building which can be shown in a representation which is the basic shape of the building.
3. Interpretation is something that humans think about or refer to when looking at objects or building formations.

Jencks uses this semiotic triangle to analyze a building by examining these three components. According to him, buildings are more than just actual structures; they're also a type of visual language with messages and meanings of their own. Jencks attempts to recognize the signs found in buildings and decipher the meaning or message that the architect wishes to get across by comprehending the three components of the semiotic triangle.

Jencks's semiotics is simpler to see because the signs are not seen from building structures but cognitive concepts or activities that can be felt by humans as the audience.

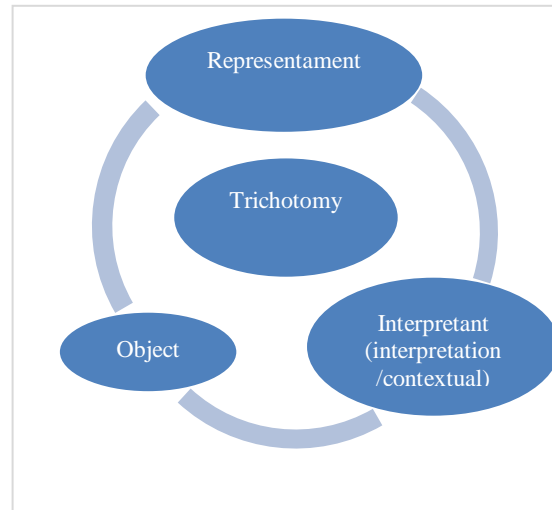


Figure 1. Semiotic trichotomy
Source: A. P. Steen 2015, Model "triangle semiotics"
Charles Sanders Pierce

The classification of signs in semiotics according to Pierce, semiotics is closely related to denotatum or better known as (object), where signs are divided into "icons, indexes and symbols", semiotics is also related to ground, signs are divided into "qualisign, sinsign and legisign" (Yudhaa et al. 2019).

In studying objects, three trichotomy concepts are (Adiputra and Salura 2021):

- A. Sign (Representant) is anything that can be absorbed by the senses which refers to the physical shape of the building. The first trichotomy is divided into three, namely:
 1. *Qualisign* is the quality of a sign, where the sign becomes a sign based on its nature.
 2. *Sinsign* are a classification of signs based on an event or occurrence, their distinctive shape or appearance.
 3. *Legisign* is a classification of signs that contain norms or certain laws behind a sign.
- B. Objects, which are divided into:
 - a. Icons are signs that resemble objects (things) or are similar. For example, a facial sketch depicts himself.
 - b. An index is a relationship between signs, where the signs have a relationship, namely cause and effect. For example, a door is a means of entering, so if you want to enter you must have a door.

- c. A symbol/symbol is a sign that already exists, is formed conventionally or is a mutual agreement, the symbol or emblem describes an applicable regulation.
- C. Interpretant, where signs are divided into:
 1. Rhyme is when symbols are interpreted and can be developed
 2. Dicisign, namely when there is a correct relationship between the symbol and its interpretation.
 3. Argument is when a sign has a general interpretation.

Charles Jencks' semiotic triangle employs symbols to examine how a structure's form, materials, and details can convey significance and meaning. The semiotic triangle comprises three primary symbols, which are:

1. Iconic symbol: Includes the shape and physical appearance of a building, including architecture and visual elements such as color, texture, and materials used.
2. Indexical symbol: Includes the association or relationship of a building with its surrounding context, including environmental conditions, historical context, and social or cultural factors.
3. Symbols symbolic: Includes the abstract meaning or message communicated by the building, such as the brand image or artistic message the architect wishes to convey.

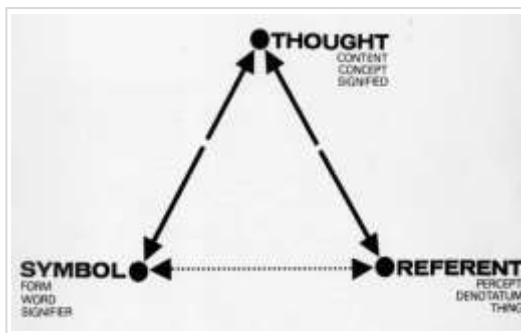


Figure 2. Triangle semiotic Charles Jencks
 Source: A. P. Steen 2015, Model "triangle semiotics"
 Charles Sanders Peirce

Charles Jencks can analyze how a building can convey meaning to viewers or building occupants by using these symbols. It can also be useful in comprehending how culture and context affect how a building is understood and interpreted.

The "thought" component of Charles Jencks' semiotic triangle relates to how we interpret or

comprehend the structure. As was previously mentioned, the context and culture of a building can influence the meaning of symbols on it. As a result, when examining a building, it's important to comprehend not just the symbols that are there but also how the general public and building users interpret and understand these symbols. Through careful interpretation of these symbols, we can decipher the meaning and message that the architect intends to express through the architecture he creates.

"Referent" in Charles Jencks' semiotic triangle alludes to the actual physical structure of the building. Regarding architectural analysis, the building under examination and its tangible elements, including dimensions, materials, texture, shape, and proportion, are referred to as the referent. According to Jencks' semiotic triangle, referent analysis entails examining a building's external attributes and how its shape, materials, and other details affect how the building is experienced visually and emotionally. This analysis contributes to our understanding of how the building's structural components work to convey particular meanings and messages.

According to Jencks, the language of architecture has changed over time and now encompasses a variety of architectural styles that can convey various meanings and messages. Architectural styles are only one component of the creative process that is design; paradigms, syntagms, and metrics are all intertwined in a complex way. He contends that architecture uses paradigms, syntagms, and metrics to create new meanings and messages, as well as combining elements from different historical architectural styles in unexpected ways (Weston 2010).

In previous building research, the majority of studies were carried out using only studies of semiotic theory. (Dariwu 2012; Nugraha and Ashadi 2020; Widodo and Artiningrum 2022). The latest in this research is examining the KAKR Bamboo Hall building using semiotic theory and adding several aspects of knowledge and understanding, including philosophical, social, community culture and environmental ecological approaches.

The objective of research analysis in this study is to provide architects with a foundation for designing, a source of ideas and references, or a basis for determining the accuracy of designs that will be implemented on other buildings in the future. The research's formulation of the problem is:

1. Why is the KAKR Bamboo hall building identified as a vernacular building?
2. How to measure or analyze the KAKR Building using a vernacular architectural approach that emphasizes the social and cultural aspects of society?
3. How to measure or analyze the semiotic communication of the KAKR building using the Semiotic triangle concept?

It is intended that this research will contribute to the development of design concepts, the strengthening of cultural identity in design, the understanding of the built environment, and the understanding of formed visual communication.

Method

This study employs a quantitative, descriptive methodology that draws on the semiotic theory of Charles Jencks. The basic information for surrounding building planning is the goal of this research. The methodical, factual, and real descriptions that include data and the relationships between the phenomena that will be studied with comparisons of previous theories are the first steps in this research process (Suqiyono 2014).

The object of this research is a multi-purpose building located in Buluh Awar Village called the "KAKR Bamboo Hall" building. In its construction, this building used bamboo material almost entirely from the lower structure of the building to the upper structure of the building, around 95%. The use of concrete is only for the lower columns of the building as a support so that the bamboo does not go directly to the ground surface. Building planning data, building concept data, and field survey data-which takes the form of observations of the surrounding structures, surrounding environment, building materials, and local culture-will all be gathered for this study.

According to human philosophy, community culture is the most important design concept, as evidenced by the 70% of buildings that incorporate it (Saputra, Suroto, and Handayani 2019).

Flow diagram of research methods, namely:

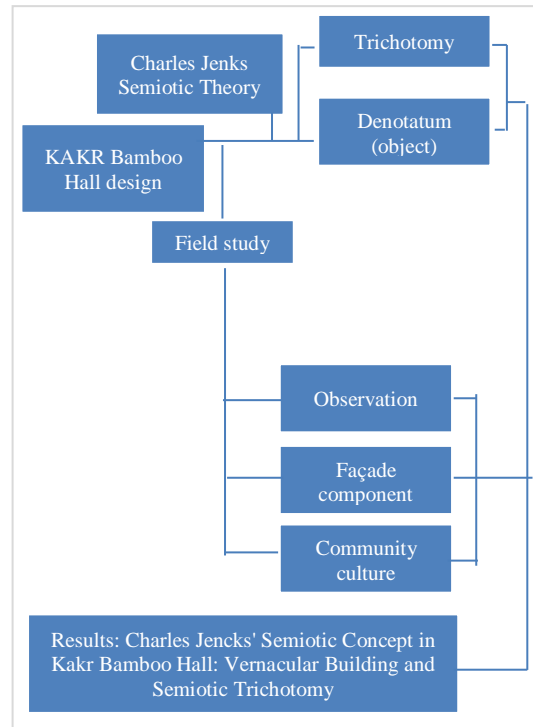


Figure 3. Research flow chart

Result and discussion

Franky Parulian Simanjuntak, ST, IAI, a North Sumatran architect and activist for the advancement of vernacular design, is the creator of the KAKR Bamboo Hall building. Many things happened during the first study, from the redesign to the construction design, particularly concerning the community's trust in being able to support this development. It took four years for this to be a real building. The KAKR Bamboo Hall building got its name because bamboo was used extensively throughout the construction process, from the lower structure to the upper structure, including the frame, walls, roof, and roof covering. Stairs were also included as a vertical feature in the building. What is interesting about this development is the use of bamboo, where bamboo which was initially a pest for residents, which many residents destroyed and burned, has now turned into "seedlings" for the residents' economy, so that people have started to plant bamboo as an addition. their economy.

This structure can be discovered in the North Sumatra Province's Buluh Awar Village in the

Sibolangit District of the Deli Serdang Regency. The word Buluh Awar is a combination of two syllables: "Buluh" means bamboo, and "Awar" is derived from the Karo word Aweran, which means "without segments." This is a result of the hollow bamboo segments found in Buluh Awar village. Thus, this serves as the cornerstone for using bamboo materials to strengthen Buluh Awar village's identity. Although Buluh Awar Village is the original site of the Batak Karo Protestant Church (GBKP), this does not imply that the village has a thriving tourism industry; rather, the industry and tourism in this cultural tourism village are stagnant and have not significantly enhanced, especially from local residents. This Batak church is still often visited by people to see its condition, some of them even stay in people's homes.

With a regional historical background, the development of historical tourism which directed Buluh Awar village as one of the historical tourist villages to be developed, became the basis for planning the KAKR Bamboo Hall building. In designing this building, the approach taken was to look at site conditions and local culture, so that the building has historical links as an element of a tourist village. So, the approach taken in the design was to take Karo culture as the starting point for planning, with a Siwaluh Jabu building approach. Although to create a historical tourist village at the location of Buluh Awar Village, the planning is not only for KAKR, but there are also villas, cafés and other supporting buildings, which use the same design approach.

KAKR Bamboo Hall building as a vernacular building

The KAKR Bamboo Hall building is a building whose design uses a neo vernacular architectural approach. This strategy is employed in the Siwaluh Jabu building, a traditional Karo home that continues to follow Karo laws and traditions. This traditional house's construction was previously done in a spirit of kinship and mutual cooperation, which produced a work of great artistic merit. The front and rear ends of the roof protrude farther towards the front, where a buffalo head is located, giving the roof a distinctive and intriguing shape. The roof of this traditional home is covered in palm fiber. Bundles of rolls made of palm fiber are affixed to the ends in order to fill in the 15–20 cm thick roof slope. Next, install the roof using black fiber on top of the roof frame. In the past, the meaning of using

palm fiber defined its importance in a cultural environment, with its existence of multi-level social obligations, and knowing the social status of its inhabitants (Syafindra et al. 2019). The roof of this Karo traditional house uses bamboo and palm trees as the main construction combination, which makes this building a symbol (Napitupulu 1986).

This particular building serves multiple purposes. In general, the community used a collaborative approach to build Siwaluh Jabu, helping one another in the form of cooperation that was transformed into a building design. As a result, it is compared to a group of kids helping and supporting one another to show cooperation and serve as a cultural symbol of the Karo people finishing their traditional home (Franklin 2017).

The concept of child development and children supporting each other parallel to different heights is used as the top concept of the building. This is accomplished to allow for natural ventilation into the building, which is tailored to different building concepts, and to create a space between the roof structures that are stacked on top of one another. This can be seen from figure 3 (Napitupulu 1986).

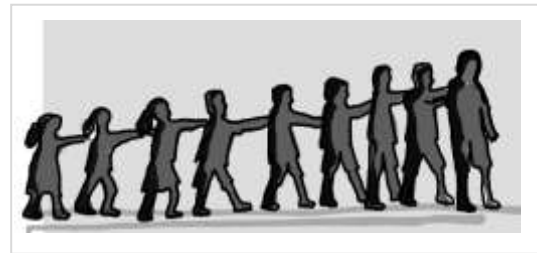


Figure 4. Siwaluh Jabu cooperation concept as the basic concept of KAKR Bamboo Hall

In figure 2 you can see the Jabu traditional Siwaluh house. This building looks like a building with a roof covering that rises to a height of 1200. With high and large dimensions, it is supported by 20 wooden foundation pillars which only stand on stone bases (Halim 2020). This is also the basis for architects to plan the KAKR Bamboo Hall building in planning the building by making the building consist of wooden foundations that only stand on stone pillars with a roof that rises to a height of around 1200. The thing that wants to be interpreted in this building is a building that majestic, towering in accordance with the personality of the Karo people as their gathering place.

In the Jencks principle, the concept of collaborative integration of the Karo community takes into account the needs and preferences of the building towards the concept of Karo community collaboration. Jencks' architectural theory can help strengthen the concept of Karo community cooperation in designing multi-story building roofs.



Figure 5. Application of the Siwaluh Jabu roof concept

The shape of the building is also inseparable from the condition of the existing land. At the site, the topography appears to have several contours in several parts, although it is not steep. Additionally, there is a small hill on the property known as the prayer hill. The neighborhood's spiritual icon is now this prayer hill. The idea behind this design is to use the prayer hill as the foundation or starting point for any building project. To create harmony between the building's and the hill's designs, building construction is directed toward the prayer hill, for the building to be oriented and made more curved following the central location of the building structure poles, as shown in figure 6.

The architectural theory put forward by Charles Jencks is also related to the concept of prayer hills, especially in the concept of "sacred geometry" emphasized by Jencks. Sacred geometry is a concept that states that there is a geometric order that originates from the universe and is the basis of all things, including architecture.



Figure 6. Shape application curved building

The use of geometric shapes in the construction of structures with symbolic spiritual and religious meaning links the idea of a prayer hill to Jencks' theory of sacred geometry. Visitors may have a spiritual experience in a building that is balanced and orderly through the use of harmonious and proportionate geometric shapes.

According to Charles Jencks' architectural theory on the use of sacred geometry, the prayer hill concept can be utilized as a foundation for creating buildings with symbolic geometric shapes that have spiritual and religious significance.

Building form as a semiotic triangle object

Buildings are physical objects when looking at a building. This object provides a feeling, an experience for those who feel it, who enjoy it or use it. So as an object, he has to give positive things to get positive thoughts, on the contrary, he will give negative things if he looks and feels negative. The KAKR Bamboo Hall building is a multi-purpose building which is used by residents and people around it usually for meetings and religious events. Thus, how does a building as an object provide positive value to the building?

If we look at this building, it consists of symmetrical buildings on the right and left. The building which is the same shape on the left and

right, if compared to a human body like an outstretched hand, can be seen in the picture.

As explained above, the building concept is a symbol of the Karo community's form of cooperation in building the Karo traditional house, which is likened to children supporting each other. Consequently, it makes sense that, following Peirce's theory, the relationship between the building's shape and its analogy demonstrates semiotics, specifically:

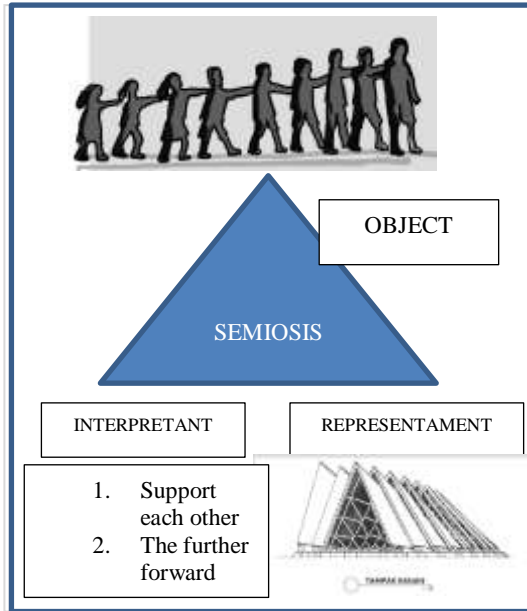


Figure 7. Semiosis of the KAKR Bamboo Hall building



Figure 8. Semiosis of the KAKR Bamboo Hall building

Column analysis is employed to determine the structural strength of the KAKR Bamboo Hall building. Twenty wooden poles make up the analogy of a wooden column. With twenty columns set directly into the stone pillars, this is the architect's interpretation of the Jabu village building. However, bamboo ended up being the primary material used in the building's

construction due to Buluh Awar village's application of local wisdom. Bamboo is also utilized in buildings as a horizontal structural material. As bamboo cannot be directly exposed to sunlight or water under the current method, it cannot be used or preserved according to theory (Mayasari, Yunus, and Daud 2015). Because it will reduce the level of durability even though the wood has been preserved. So, using the Siwaluh Jabu analogy, this building approaches the column structure by planting bamboo on cast or stone pillars.

Using regional symbols and cultural context to create architectural design with user-understandable meaning and messages is based on Charles Jencks' semiotic triangle theory. The incorporation of regional emblems and cultural background can contribute to giving building occupants a more profound and significant experience. The architect intended for this to be the building's meaning.

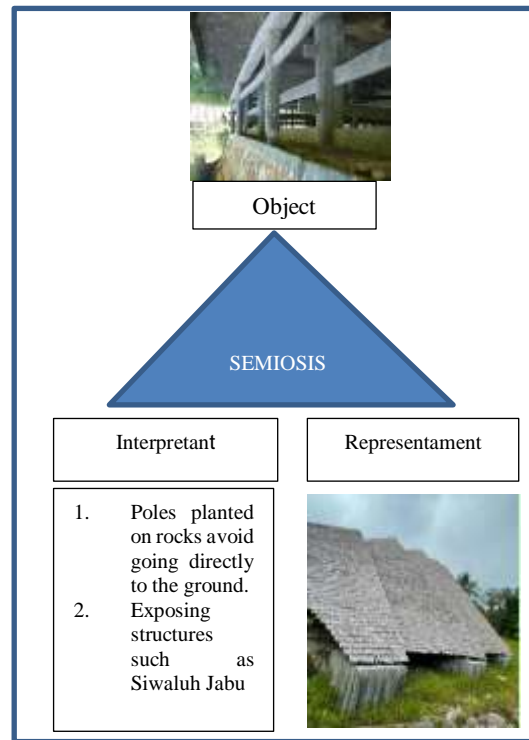


Figure 9. Semiosis of the KAKR Bamboo Hall column building with Siwaluh Jabu

To help preserve and appreciate the local culture in the area, it is in accordance with Jencks' view that architecture must also respect the cultural context and environment around it, so that

bamboo as a local material is used as the main material in design.

The building on the site, which is situated atop the prayer hill, is comparable to a triangle that was originally straight before angling slightly in a more circular direction. This was performed to reverse the building's orientation concerning the prayer hill by drawing an imaginary line between the buildings on the left and right and the hill's center.



Figure 10. Prayer hill as the center of the Jabu building

The building's basic shape is likewise oriented in a circle, as though it were encircling the hill. Therefore, looking at it from the hill's perspective, it appears to be the center of gravity for the column structure and the location of the roof that surrounds it. Based on this analogy, the building's shape automatically resembles an Islamic prayer warrior raising his hands in prayer.

This concept of prayer becomes a symbolic context for the building which is one of the phenomena of phenomenological understanding adapted to environmental conditions during the construction of the KAKR Bamboo Hall. This will provide a certain level of emotion involved in a work hermetically, which becomes interpreted in a culture (Ghozali and Zuhri 2020).

Buildings are considered to have their strengths with designs that apply the culture and surrounding environment (Ortony 1993).

A building will gain religious strength as a result. Work involves various emotional levels. The idea of legisign, or a norm contained in a sign that is a fundamental behavioral signal or a building code that leads to the semiotics behind a sign, is explained in Charles Jencks' semiotics (Wardani 2010).

With this formation, the things that show Peirces' semiotics are:

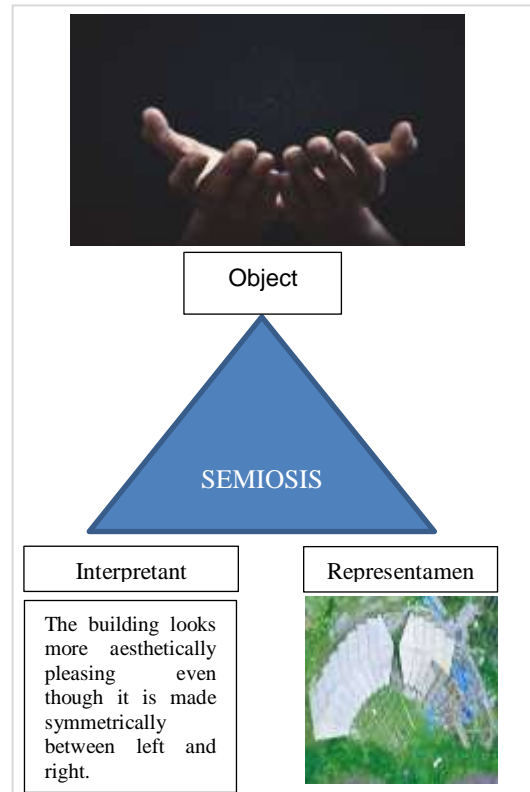


Figure 11. Semiosis of prayer objects as a concept for the KAKR Bamboo Hall building

Connotative meaning is used to express this; that is, the sign or norm is an expression that permits interpretations beyond the obvious. This expression's contents will take on new forms until the process of changing its form turns into a distinguishing element of the building in a historically significant tourist destination.

Analytically, the Siwaluh Jabu form is used to categorize the signs on the KAKR Bamboo Hall building. These forms range from subtle—like the shape of a roof—to overt, like an alternative kind of supportive community cooperation. Consequently, "legisigns," or the application of an object that adopts the norms behind a sign, are representations in the form of buildings that

render up signs (Ayiran 2012). However, one thing is visible to the naked eye, the KAKR Bamboo Hall building from the human eye's perspective cannot be seen in terms of the building using the Jabu sewaluh building. However, only for neo vernacular buildings using natural elements in the building. This is confirmed by the absence of use of ornaments which are usually used as signs in a neo vernacular building. A comprehensive and directed approach to perception that provides signs or symbols as messages about an object is carried out in a subtle way (Harisah and Masiming 2008).



Figure 12. Building facade as a representation but does not function as a sign

The interior shape of the building is designed to be exposed so that apart from being made of bamboo to attract people, it also makes the building aesthetic. This structure itself is the attraction of this building. From a semiotic analysis, it can be classified as an index in an object.



Figure 13. KAKR Bamboo building

Conclusion

The KAKR Bamboo Hal building is a building with a vernacular concept of Karo architecture, Sewaluh Jabu. Looking at this building, you indirectly see an approach that analytically has value in the semiotic concept of architecture with Charles Jenck's theory.

An architect's attempt to harmonize and communicate with buildings through existing signs is referred to as semiotics in vernacular architecture. The trichotomy semiotics of the habit of helping the community, or implicitly the curved shape of the building, is expressed by the shape of the roof that rises further forward by taking note of the surrounding prayer hills as places where people pray.

Through the element of communication in architecture, it becomes closer to the local geographical and cultural context, namely Karo culture, so that people feel comfortable, safe and calm about cultural erosion or introducing other cultures into a building.

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Author(s) contribution

Yunita Syafitri Rambe contributed to the research concepts preparation, methodologies, investigations, data analysis, visualization, articles drafting and revisions.

Aulia Muflih Nasution contribute to the research concepts preparation and literature reviews, data analysis, of article drafts preparation and validation.