

Focus: Concept 1

Focus: Concept 2

Locus

# LINEAR SETTLEMENT AS THE IDENTITY OF KOTAGEDE HERITAGE CITY

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## ABSTRACT

Parameter

Purpose

Urgency

The Javanese Palace City including the old city of Kotagede is mostly described by using the existence of the four components—Palace (*kraton*), Mosque (*mesjid*), Market (*pasar*) and Square (*alun-alun*)—as its city great architecture and identity. It is very rarely explored its folk architecture and settlement pattern as a unique identity. The linearity of settlements found in the study challenges us to understand Kotagede old city has specific linear settlements as its identity complemented to the existing Javanese four components. This study is started to question the finding of previous research (1986) titled as “Kotagede between Gates”—a linear traditional settlement set in between “two-gates”, whether can be found at other clusters of settlement within the city. This study discovered that among 7 clusters observed, they are identified as linear settlements. The six-types of linear patterns associated with road layout that runs East-West where *jalan rukunan* (“shared street”) becomes the single access to connect Javanese traditional houses in its linearity pattern. It is urgent to conserve the Kotagede’s identity in the future, by considering to preserve the existence and the uniqueness of these linear settlements.

**Keywords:** Architectural Heritage; city identity; linear settlement; morphology; Kotagede-Yogyakarta.

## INTRODUCTION

### Kotagede Heritage City Identity

Pre-colonial

Parameter

Geography

Indicator

Kotagede city's history, had already been around for more than four centuries, and was made up of layers of changes, generating a unique townscape of Javanese Palace Cities. From the first layer consisted of Javanese city components: the palace (*kraton*), the mosque (*mesjid*), the square (*alun-alun*) and the market (*pasar*); The folk architectural heritage layers which were made up of traditional houses, infilled or covered the underutilized spatial setting of the ruined *kraton* and *alun-alun*; Up till, the reconstructed of vulnerable layers caused by process of decay and by the earthquake 2006, also enriched the dynamic change of the townscape. (Ikaputra, 2017) The dynamic layered process of the heritage city such Kotagede, raises an issue on identity of this historical city. The Javanese Palace City is mostly described by the above four components as its city identity. It is very rarely explored its folk architecture and settlement pattern as a unique identity. The heritage layers of settlement containing traditional houses challenge to be explored whether having specific character or not. Is the character reflecting a specific arrangement of houses and forming a specific pattern for a group of houses?

### Issues on Heritage City Identity

Problems faced by the heritage city is a question on its identity. The definition of identity by Erickson

& Roberts (1997; 36 in Bilgenoglu, 2004; 1) is "quality that makes a place capable of uniquely identifiable or have a distinguishing characteristic, and made its unique when compared to other places." As the historic city, Kotagede will evolve constantly changing layers, creating a new urban layer over the old layer of artefacts to survive from the dynamic changes in the context both for the present condition and future. The question is: “What distinguishing characteristic that Kotagede has uniqueness within the dynamic evolutive changes comparing other places?”

### The Kotagede Identity?

Kotagede’s Identity can be reflected in the architectural vocabulary, in its urban components, as well as on how the Kotagede’s built environment has meaning and value for the community. The Kotagede’s city structure was formed by four main components (*kraton – mesjid - alun-alun - pasar*), completed by the preserved Javanese traditional houses, and also lived by modernized Islamic community (*Muhammadiyah*) and silversmith families. These cultural assets of the city can be as a capital to strengthen the identity of the Kotagede heritage city. Historically, the identity of the Kotagede Heritage city, was mostly discussed within the above mentioned four components of Javanese City and the home of traditional houses. However, what if the Javanese four city components and its setting in Kotagede, remains only two: mosque and market? What if the dynamic folk heritage—the Javanese

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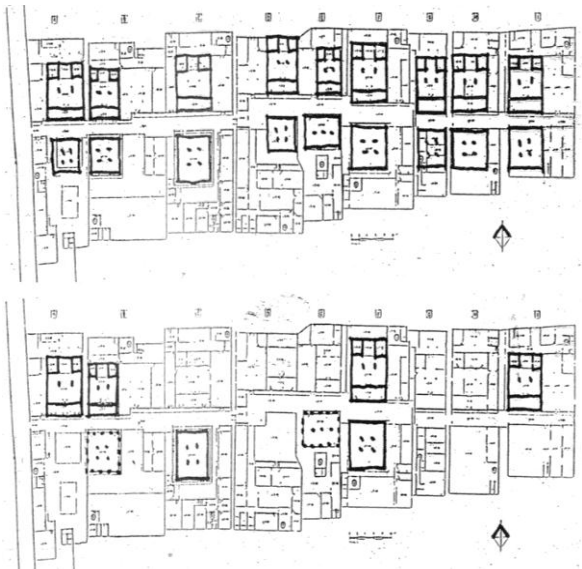
Variable  
Independent

Indicator  
social

Structure

Background  
empirical (-)

houses—as an articulation of Javanese culture in the architecture expression of the city, grew over the urban space, covered the *alun-alun* square, infilled in between ruins of palace, and some times were damaged by earthquake or decayed because of age? Could they become the identity of the Kotagede heritage city?



**Fig. 1.** Kotagede *Between Two-gates* (Source: Wondoamiseno & Basuki, 1986)

As other Javanese cities, both remains of the Javanese city components and the old traditional houses in Kotagede have been considered as the identity of Javanese City. Is the Kotagede heritage city having a specific characteristic which can be distinguished to other Javanese cities? In 1986, Wondoamiseno and Sigit Sayogya Basuki, found in their research, a cluster of settlement in Kotagede called as "*Kotagede between Two Gates*". (Fig. 1) The cluster was characterized by a linear east-west rows of traditional houses located area called *Kampung alun-alun* (a compound of ex-square). The rows of houses were connected by an alley known as *jalan rukunan* (shared alley) in the middle of the cluster. (Fig. 2) The *rukunan* literally comes from the word "rukun" means "harmonious" The alley was formed a living harmony among the neighbors by sharing a part of lands from all families living along the alley to establish a public access connecting each private residence with its neighbors. (Indartoro, 2000; 30-33 and Ikaputra, 2011; 367)

A question on Kotagede's identity: "Could the linear east-west rows of traditional house discovered by Wondoamiseno and Basuki in 1986 be an identity of the traditional settlement in Kotagede?"



**Fig. 2.** *Jalan Rukunan* (=Shared Street) in Kotagede ;If Wondoamiseno and Basuki, The term "pattern" in the most general sense, encompasses any kind of form or structure, or recurring features. (Stephen)

### LINEARITY OF KOTAGEDE'S SETTLEMENT PATTERN

The term "pattern" in the most general sense, encompasses any kind of form or structure, or recurring features. (Stephen and Gong, 2009; 19-20) The term 'settlement pattern' is defined here as the way in which people arrange in a particular, their position over the landscape on which they lived. (Willey, 1953 in Parson, 1972; 128-129) Therefore, the settlement pattern refers to a form or structure of dwellings which were arranged particularly to other buildings and placed in a natural environment pertaining to community life.

Settlement Form or Pattern can be identified through shape, building type, layout/street pattern and individual features/street furniture. (Stephen and Gong, 2009; 23) The design or pattern of settlement especially traditional, began to be discussed in relation to the interaction of rational and non-rational forces, which is interpreted through new efforts based on the symbolic expression of a culture that is found in architecture, art, religion, folklore including cultural aspects, customs, and everyday life of the community. (Saleh, 1997; 105)

Doxiadis (1967) in Tufek-Memisevic & Stachura, (2015; 191) did critics a linear city development as unfeasible ideas by arguing that: "...because the surface of the earth is three-dimensional, the creation and function of a linear city is impossible. Any connection with functions not situated along the axis of this city would disrupt its uniformity and linearity." (Doxiadis, 1967 in Tufek-Memisevic and Stachura, 2015; 191) However, various research proved to us that one of the pattern categorized into linear settlement.

Tufek-Memisevic and Stachura (2015; 190) stated that the idea of linearity in urban theory occurs in various forms, schemes and approaches and

Variable  
Dependent

Variable  
Independent

Contradiction

Order

Indicator  
Soc-culture

Variable  
Independent

Background  
empirical (-)

Indicator

continues throughout the last century. Nierlich (1963; 7-8) linear patterns of settlement are originated in response to a strong element of linearity in the environment such as natural features, political boundaries, or man-made transportation lines. In addition, the formation of the linear pattern of a district, can be caused not only traffic connectivity, but also influenced by environmental aspects such as Political environment, urban environment, Technological Environment, Social and Cultural Environment. (Tufek-Memisevic and Stachura, 2015; 190)

## METHODOLOGY

Issues on the identity of heritage city, the fragileness of the Kotagede old city in response to the dynamic change, and the challenge of the linear settlement precedent called “between two gates” in *kampung Alun-alun* as a pattern specific character of Kotagede, raise up two questions as follows:

- Is the linear settlement pattern known as “between two gates” in *kampung Alun-alun* found in other *kampungs* in the Kotagede old city?
- Is the linear settlement rowing east-west can be as the uniqueness or identity of the *Kotagede*?

The research method in this study explains steps for answering the research questions which end in a conclusion. The question on “whether the linear settlement pattern known as “between two gates” in *kampung Alun-alun* found in other *kampungs* in the Kotagede old city or not” directed this study into steps as follows:

- Select clusters that have part or complete traditional house compound (*omah-pringgitan-pendopo*) and the compound has a possible arrangement in linear pattern when the compound or part of compound are connected by an alley of *rukunan*. The selection process utilized a series of google earth satellite photos especially 2003, 2006, 2010 and 2015 to understand that selected cases with its change fit to the study.
- Make the selected study cases into basic maps showing the roof type of each houses and make clear the access road or alley within each cluster.
- Verifying the basic map which contained the house types to the inhabitants whether the houses were preserved or change due to the issues on their sibling’s relation, inheritance related matter, or changes of ownership of house for economic reasons. If it changed, the question was continued to: “what kind of architecture type the house had before?”. In the same time, the study also demanded to check whether the access within the cluster has been changed or not.

- The data and facts from the inhabitants have been checked and become a basis to reconstruct the linearity of the original settlement’s form. From the reconstruction of the original spatial form of the clusters, it can be understood the comparison between the linearity of clusters’ study cases and the *between two gates* case.

The above steps to answer the first questions continued to steps to answer the second question of this study “whether the linear settlement rowing east-west can be as the uniqueness or identity of the *Kotagede*?”. The purpose of the second question is to find how unique the linearity pattern of the settlements clusters in Kotagede. The steps to explore the uniqueness of the linear pattern of the cases found as a part of the answer of the first question can be described as follows:

- Defining why the linear settlements run east-west of all cases including the cluster of “between two gates”. The process of analyzing the east-west linear settlements utilized the dwelling units of the Javanese traditional house compound as mentioned above, including the specific orientation of the house in Kotagede.
- Categorizing the linear settlements run east-west of all cases including the cluster of “between two gates” into types which show the position of the *rukunan* alley and other access within each cluster. The types found in the cases reflected that linear pattern of settlements in Kotagede are originally unique and enrich the type of linear pattern of the “between two gates’ cluster”.

The final step of this study is to write all findings into the appropriate sequence which can be easily understood in the result and discussion by series of discussion which divided into the following parts:

- Explaining the unit analyses
- Describing the position and role of the Dwelling Units—the Javanese Traditional House Compound—to compose the linearity of east-west cluster settlements including the influence of the south orientation of the traditional house.
- Discovering the linear patterns of cluster settlements study cases by reconstructing the original spatial pattern of the cases.
- Raising up the finding on the current pattern change of linearity as a part of changing identity to warn that *Kotagede* is in the process of losing identity, but in the same time, to urge that *Kotagede* needs to conserve its linear settlements identity as one of unique historic Javanese cities.
- The conclusion became resume as well as remarks of the study.

## RESULTS AND DISCUSSION

### Unit of Analyses

The unit of analyses for a study on “*Archeological Settlement Pattern*” (Parson, 2012; 137-143) consists of 3 levels. i.e. Individual structure, settlement, and region. The Individual structure can be meant as “dwelling unit” which will compose a settlement or a cluster of settlement. The settlement is not only understood as a physical unit, but also as a neighborhood unit. Settlements unit both physical and social character structure a “region”.

This study will focus on the uniqueness of “dwelling unit” as an individual structure which together with other individual units compose a settlement. Further, the settlement will be observed whether in compliant with the linearity of the precedent settlement of “between two gates” in the *kampung alun-alun* or not. Although ultimate goal of the study towards “the linear settlements” as the identity of the Kotagede heritage city, this study has not analyzed research units in the level of “region” yet.

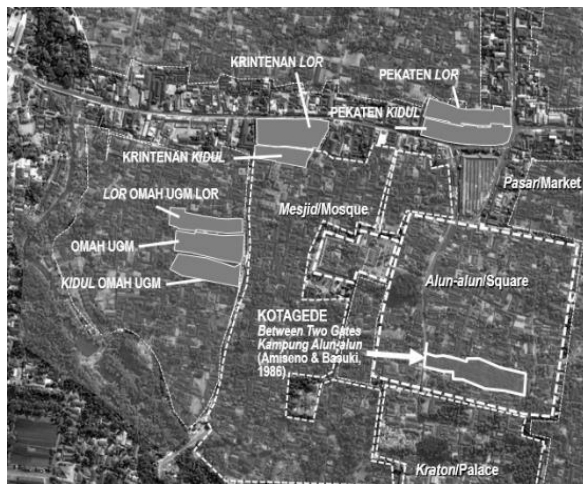


Fig. 3. The Location of Study Cases: Settlement Clusters

Based on the research of “Kotagede between two gates”—a linear settlement—found in *Kotagede* (1986), this study focused on 7 cluster settlements which have linearity in their pattern and compared them to “Kotagede between two gates” in *kampung alun-alun*. (Fig. 3) There are 2 linear cluster observed at Pekaten Lor (North Pekaten) and Pekaten Kidul (South Pekaten); Two cases at Krintenan Lor and Krintenan Kidul; and three cases located at Omah UGM, Lor Omah UGM (North of Omah UGM) and Kidul Omah UGM (South of Omah UGM). The discussion will be started with exploring the characteristic of dwelling unit as individual structure.

We will analyze further how dwelling units have shaped a linear cluster of settlement. By observing the current pattern of the cluster’s cases, we could recognize whether the linearity of the settlement clusters are changed or able to still show as linear specific characters for *Kotagede*.

### Dwelling Unit: Traditional House

The Javanese traditional house, compound commonly by at least three parts: *pendopo*, (b) *pringgitan*, dan (c) *dalem/omah*. *Pendopo* is open layout building using wooden materials, structured uniquely by four main pillars called *soko guru* support a top roof structure and form distinctive ceiling called *tumpang sari*—a series of stacked horizontal beams widening upwards. *Pendopo* is functioned to entertain guests, practice and performance Javanese culture (traditional dance, traditional orchestra, etc.) and other symbolic status of aristocratic or rich family. *Dalem/omah* literally means “house”. It is defined as a big house with wooden structure like *pendopo* but furnished with wood partitions or walls around. (Fig. 4) *Pringgitan* is a relatively linear narrow space in between *pendopo* and *dalem/omah* functioned as a place of screen for shadow puppet performance called *ringgit* or *wayang* for family celebration. Beside those three main parts, Javanese traditional house are also completed by pavilions called *gandok* (usually located to the right/left of the house) and *gadri* (set in the rear part).



Fig. 4. Traditional House (*dalem/omah*) view from *Pendopo* Building in Kotagede

### Building Orientation of Kotagede House

In the building engineering field, the building orientation is one of the important factors. Building orientation in passive architecture can be used for optimizing the daylight supply and thermal control to the space inside due to the critical energy efficiency. (Al-Tamimi et al., 2011; 143; Deshmukh and Kherde, 2016; 1596). Prianto et al., (2000; 95) relates the building orientation to wind direction and sun radiation.

Indicator

Order

Technology/  
Structure

Technology/  
Structure

Variable  
Dependent

Variable  
Independent

Indicator

Indicator

The Building orientation of Javanese Traditional houses, are usually facing to the North or South, such as houses in the north coastal palaces of Java such as Kudus as well as in the inland palaces city of Java. (Ikaputra, 1996; Prianto et al., 2000; 82) The building orientation was believed to be influenced by the Hindu cosmology. Akkach (2005; 1) in his book on *Cosmology and Architecture in Premodern Islam*, relates architecture and cosmology, by explaining how architecture can transform the mystical thoughts into the tangible expression.

Orientation

The orientation of traditional houses in the Yogyakarta Palace city, faces to the North and South, while the traditional building allowed to face to the East are only two buildings within the complex of *Kraton* (palace). Those are *Gedong Djene* (literally means “yellow building”, a house of Sultan) and *Ndalem Proboyekso* (the heirloom house for the Sultan). (Ikaputra, 1996) In *Kotagede*, all the traditional houses were built and oriented to the South only. The south orientation was believed to honour the Goddess of the Java South Sea—known as *Nyai Roro Kidul*—to protect the Mataram Palace in *Kotagede*. (Nakamura, 1983 in Wondoamiseno and Basuki, 1986; 10)

Orientation

Cosmology

In *Kotagede*, keeping the house orientation to the south was understood to be based on a belief in the “goodness” for the family who lives in the house rather than considering to protect direct sunlight from the west and east. Attitudes to consider all how people have spatial sensibility caused by the house orientation to the certain direction also reveal understanding of the sacred. (Akkach, 2005; 170) This concern also relates with the Belief System, a concept thorough conviction on what a community has a view on “the existence or the nonexistence” so that it influences in defining whether it is “good or bad” or leads to “good or bad” for their life. (Usó-Doménech and Nescolarde-Selva, 2016; 148-149).

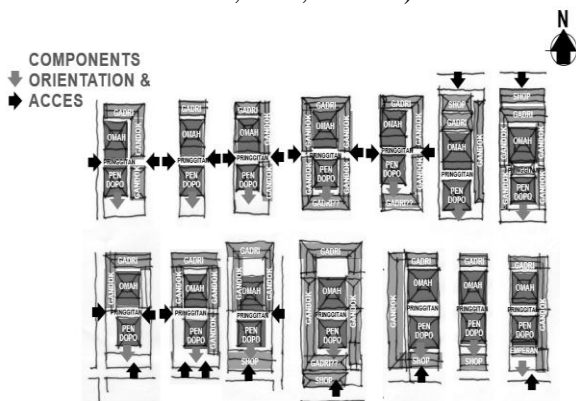


Fig. 5. Traditional House Compound and Its Orientation

With that belief, the traditional houses of *Kotagede* always face to the south. However, the

location of the entrance to the yard can vary, depending on the layout of the road where people can access the house from outside of the compound. The entrance can be a gate, a *butulan* (connecting door like between houses), or an entrance to a building as a part of a traditional house. Houses located in the main road, can have access or entrance from the main road. (See fig. 5)

Order

### Reconstructing The Linearity of Kotagede’s Settlement

In addition to the linear pattern found by Wondoamiseno and Basuki 1986 as "Kotagede Between Two Gates," in the *kampung alun-alun*, this study discovered five other linear patterns associated with road layout that runs East-West. The connected access of the east-west is not always in the position of *pringgitan* space but it could be in front of the house, (southern part of the house) or at the back of the house (north of the house). Through the understanding and analysis of the geometrical features of the urban web or road system connected to places, help us to identify the urban pattern of historic settlement. (Maistrou, 1998; 2) The linear pattern in *Kotagede* is understood by "reconstructing" the position of the possible access road and/or *jalan rukunan* to the layout or the row of traditional housing units in each case. There are six possible linear character of the settlement as follows (Fig.6):

Order

- Type 1. The linear access in the middle of cluster connected by the *jalan rukunan* which composed by linking *pringgitans* of traditional houses run east-west. One of the end of the *jalan rukunan* is connected to main road. The case of this type was linear settlement in *kampung alun-alun* (“Between Two gates” case), and in *Pekaten Lor*.
- Type 2. This type has same setting and condition to type 1, with exception on both end of the *jalan rukunan* are connected to alleys not main road. The case of type 2 are linear cluster in *Lor Omah UGM* and *Krintenan Kidul*.
- Type 3. The *jalan rukunan* run to east-west is located in the north part of the traditional houses’ row. Although the *jalan rukunan* as an access to houses is in the north of the row, the traditional houses still faced to the south. Within the row, it can be found a connected *pringgitan* linking one house to neighboring houses. The type 3 case can be shown as in the case of row of houses in the southern part of *Omah UGM* (*Kidul Omah UGM*)
- Type 4. Each traditional houses has access or entrance from an alley or *jalan rukunan* located in the south of the east-west row of houses.

However, there was also internal connector shaped by linking *pringgitan* parts of the traditional house parallel to the *jalan rukunan*. Linear Cluster at Omah UGM is one of the example.

- Type 5. The type 5 is similar to type 3, but the east-west linear access to the house is the main road of the city. The access to the house was from the main road located in the north of the houses' row, while the houses faced to the south. There was still can be understood an internal link using the connection of *pringgitan* space. The case can be shown in the cluster settlement of Krintenan Lor.
- Type 6. It was a type where the main road fit to the house orientation, it was located in the south of the row of the traditional houses. There was also *pringgitan* connection within the row of the houses as an internal link between houses. The example of the type 6 was in the Pekaten Kidul.

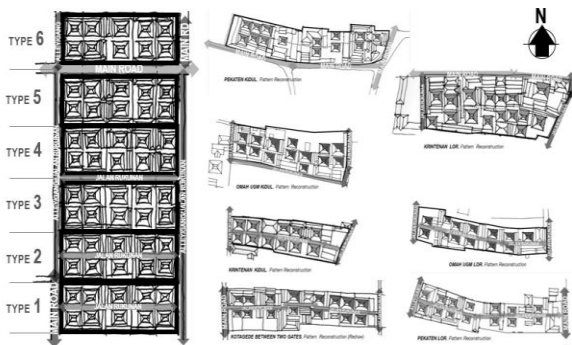


Fig. 6. Type of Linearity of the Kotagede's Settlements

From pattern reconstruction of the settlement linearity, we understood that the case of "Kotagede between two gates" (found in 1986) in kampung *alun-alun*, represented one of the six-types of the linear settlement clusters. The linear access running east-west to each traditional house can be *jalan rukunan* (alley), or main road. When the *jalan rukunan* or main road located in the north or south of the houses' row, it was still found an internal link in the row made from the *pringgitan* space connection. In all cases, the traditional houses kept on their orientation to the south, as people compliant to their old belief system, the goodness for their life.

### Understanding the Change of Linearity

The perfect pattern of "Kotagede Between Two gates" that have *jalan rukunan* in the middle, and marked with a gate at each end of the *jalan rukunan*, is not found in the current condition of 6 cases. The current condition of the cases other than the

"Kotagede Between Two gates" are not easily to be understood as a linear pattern to people who walk around the city. There was a pattern change of the linearity within the cases. It was found a pattern change on its linearity comparing to the original version. From the relatively straight or continues linear access changed into broken or bending connection in some cases. Through the interview, it was caused by a change of ownership, change of kinship and neighborhoods, and the problem of decay (by the age of building) and of damage (by earthquake) of the traditional houses (See fig. 7).

Disaster

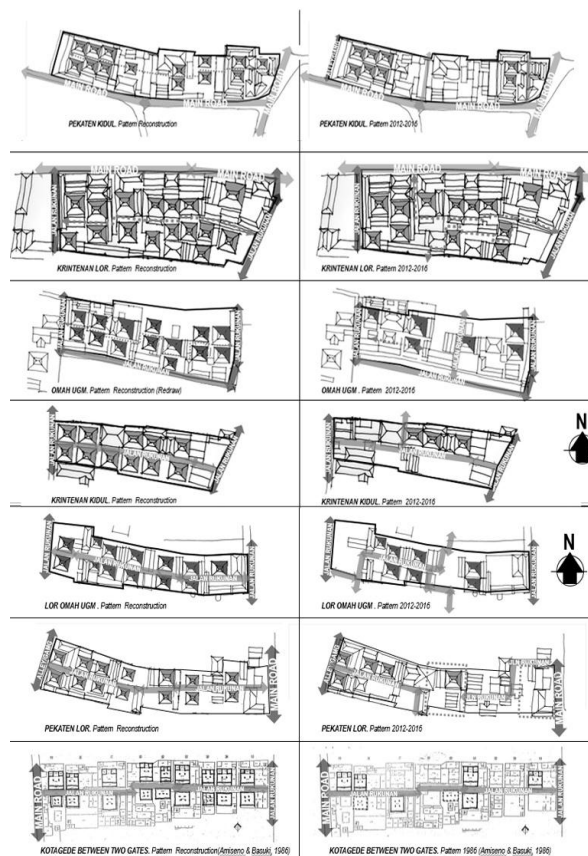


Fig. 7. The Linearity Change of Kotagede's settlement

The pattern change of the linearity can be understood as a part of changing identity of the settlement in Kotagede towards decreasing the existance of linear settlements in Kotagede. It means that current Kotagede is in process of losing the specific character of the city. However in the same time, the effort of this study to find the linearity of the original settlement in Kotagede proves to us that the city has strong identity especially its settlement's spatial pattern. The importance of this study result is to urge that the linear settlements found in several clusters and its problem of change are challenged to enrich the Kotagede identity complemented the great Javanese city components.

Component

## CONCLUSION

The study found that dwelling unit in *Kotagede* is a compound of traditional houses. The traditional houses are also as components of settlement cluster formed a linear patterns in *Kotagede*. The dwelling unit represented by traditional Javanese house consists, of *pendopo-pringgitan-omah/dalem* with various set of additional pavilions (*gandok.gadri*). The difference with Javanese traditional houses in other areas, the ones in *Kotagede* has strictly faced to the south as a belief system to honour to the Goddess of the Java south sea.

The current conditions of cases observed in this study are not easily to be understood as a linear pattern to people who walk around the city. The current condition of the study cases in fact, does not have a perfect linear pattern as it was or as perfect as the pattern of “*Kotagede Between Two gates*”. Utilizing the method to reconstruct the past condition of the study cases, we understand that all cases originally came from a linear settlement. By Reconstructing the setting of the shared street—*jalan rukunan*, main road and the traditional houses’ row of each specific case, the study found that there were six types of linear pattern including the “between two gates” case. The difference between the Wondoamiseno and Basuki pattern (type 1) and the other 5 types is the access and position of *jalan rukunan* and main road within the colonades of traditional house’s compounds (*omah-pringgitan-pendopo*). These types we found are not only enriching the finding resulted by Wondoamiseno and Basuki (1986), but also strengthening the identity of the *Kotagede* traditional settlements with its linear pattern.

However, the current situation of the settlement has undergone changing on its linearity caused by a change of ownership, change of kinship and neighborhoods, and the problem of decay (by the age of building) and of damage (by earthquake) of the traditional houses. This situation makes *Kotagede* in process of losing the specific character of the city.

The study recommends that the linear pattern of the cluster settlement in *Kotagede* becomes character specific of this historic city. Therefore the preserving the *Kotagede* identity in the future should consider to conserve the existence and the uniqueness of these linear settlements.

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