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**Comparative Study on Spatial Characteristics
of Traditional Farmhouses in Japan and Turkey
through Behaviour Analysis**

**-Case Studies of Fukui Prefecture and Eastern
Black Sea Region-**

**（行動分析を通して見た伝統的農家の空間特性に
関する日本とトルコの比較研究**

-福井県と東黒海地方のケーススタディ-

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論 文 内 容 の 要 旨

Introduction

Minka, literally mean “house of the people”, are the traditional houses of the common people from premodern past in rural Japan. Minka form derives from the origins deep in Japan’s prehistoric past. In the Japanese archipelago, where different climatic zones extending from north to south; minka also show regional changes according to their geographical, climatic conditions and occupations of the user.

On the other hand, the Turkish House is the house types which Turks have lived in. Their location diverse from Central Asia to the Balkans, from North Africa to Arabia and to the north coast of the Black Sea throughout the Ottoman Empire. As it is seen, the Turkish House spread over a wide geography. For the general scope of this study, the Turkish House located in the Turkey are discussed. Although the Turkish House has a similar plan organization in general, the material usage varies according to the geographical and climatic conditions of their region.

This study aims to make a comparative research of the farmhouses of the Japanese people who inherited sedentary life from prehistoric times and Turkish people coming from a nomadic way of life focusing on environment-behaviour analysis. Thus, it aims to investigate the principles that

form spatial characteristics of the dwellings of two cultures’.

In the scope of the study, due to their climatic similarities, the mountainous settlements of Fukui Prefecture, Japan and Eastern Black Sea Region, Turkey are selected as a subject of research. (Figure 1)



Figure 1 Fukui Prefecture of Japan and Eastern Black Sea Region of Turkey selected as a subject of research.

From the selected regions, two traditional farmhouses named as Horiguchi House and Tsubokawa House, which still remain in their original location and preserve their original condition from Fukui Prefecture, Japan and four traditional farmhouses named as Ahmet Onat House, Mithat Sezgin House, Kadir Yılmaz House and Şerif Reyhan House remaining in their location and preserving their original condition substantially were selected for the case study. (Figure 2)

The traditional farmhouses, which are chosen for the case study from both countries, embodies same dwelling and agriculture functions. This paper attempts to grasp the relationship between environment and behaviour corresponding to the two major lifestyles of humankind, permanent residents and nomads, by clarifying the spatial characteristics of traditional farmhouses in rural Japan and Turkey.

The structure of the research was produced based on the article titled “Kankyō no Kōsei Yōso / Environmental Components” by Professor Shigeyuki Okazaki, 1969. In the article, researchers and experts from different branches come together and propose a table, in other words a systematic analysis method. This systematic analysis attempts to classify the environment related to behaviour and further classify it in relation to each behaviour. It was decided to employ this systematic analysis table, which consists of behaviour and environment axis, as a basis for this research.

The study is being conducted through field researches, interviews with the households, and literature review.

The significance of this study is that, it is the first research dealing the two countries’ traditional farmhouses analyzing with the environment-behaviour analysis. Furthermore, the case studies chosen from the both countries still preserve their original location gives an opportunity to observe them in their environment.

JAPAN / Fukui Prefecture



Horiguchi House



Tsubokawa House

TURKEY / Eastern Black Sea Region



Ahmet Onat House



Mithat Sezgin House



Kadir Yilmaz House



Şerif Reyhan House

Figure 2 Two houses from Japan / Fukui Prefecture, and four houses from Turkey / Eastern Black Sea Region are selected for the case study.

Chapter 1

Chapter 1 aims to clarify the spatial characteristics of traditional farmhouses of Japan focusing on Fukui Prefecture.

Section 1 introduces the architectural characteristics of traditional farmhouses in Japan and Fukui Prefecture briefly.

Section 2 conducts environment-behaviour analysis on the selected case studies under the subheadings of “Geographic Environment”, “Settlement Pattern”, and “Spatial Organization of the Farmhouses”. The spatial characteristics of the farmhouses that is to say, “geographical environment” (Figure 3), “settlement” (Figure 4), and “spatial organization” (Figure 5) are correlated with “basic behaviours”, “derivative behaviours” (“instrumental behavior” and “united behavior”) and “recreation”. Basic behaviours are classified as “defence / dwelling”, “eating” (cooking, meal), “drinking”, “reproduction”, “hygiene” (toilet, bath, laundry), and “sleeping”. Instrumental behaviours are classified as “production”, “education”, and “society”. United behaviours are classified as “religion” and “art”. These behaviours related with spaces were analysed and studied in detail. (Figure 3)

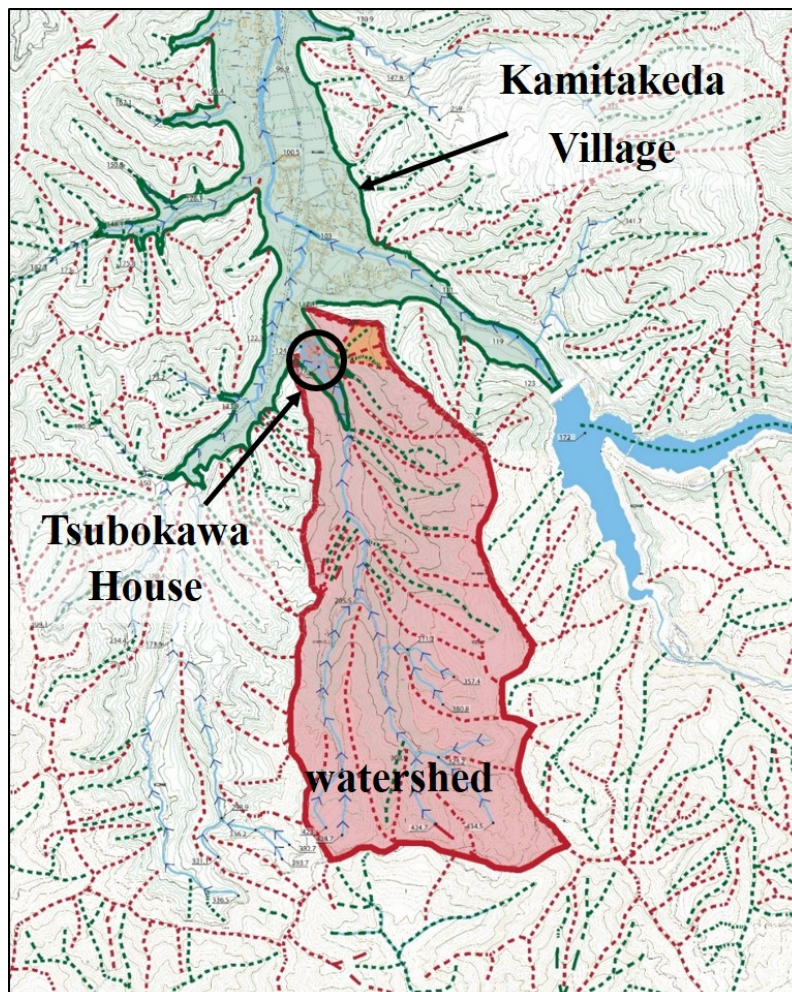


Figure 3 Japanese settlements are situated on the lowland areas of the topography where the land is more fertile and productive and to facilitate accessing the water.

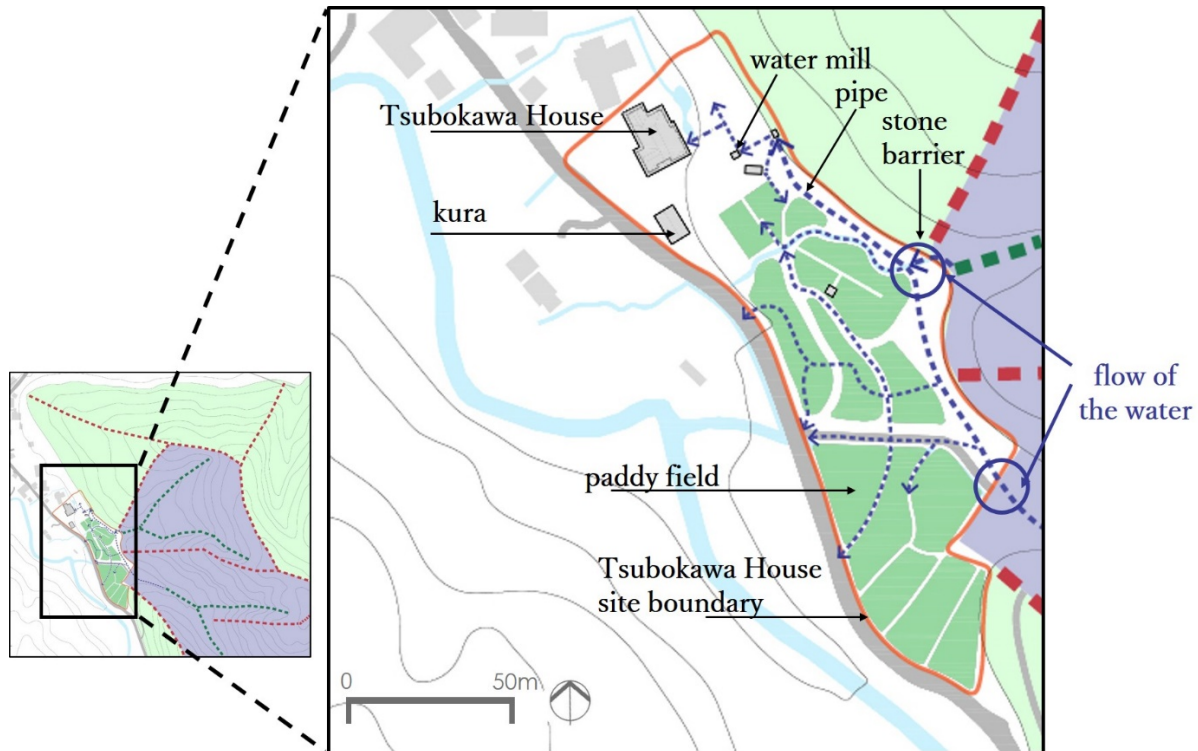


Figure 4 Water connection of the Tsubokawa House and its surrounding from the closest mountain valley is shown.

The findings of Chapter 1 is listed as follows:

- Geographic environment and settlement characteristics relate to basic behaviours.
- Regarding the spatial organization the farmhouses, doma, hiroma, nando spaces relate to basic behaviours. Especially among the behaviours, “eating,” relates to doma and hiroma spaces, “drinking,” relates to doma space, “hygiene / bath,” relates to doma space, “sleeping,” relates to hiroma and nando space. In addition to that, basic behaviours relate to other spaces; the attic floor, kura, water mill, toilet, bathroom, courtyard.
- Derivative behaviours relate to doma, hiroma, nando, butsuma, nakanoma, spaces. Especially, “production,” relates to doma, hiroma, nando and butsuma spaces, “education,” relates to hiroma space, “society,” relates to butsuma and nakanoma spaces, “religion,” relates to hiroma, butsuma and nakanoma spaces, “art,” relates to butsuma space. Furthermore, “production,” relates to stable and courtyard.
- Recreation behaviour relates to hiroma space and courtyard.

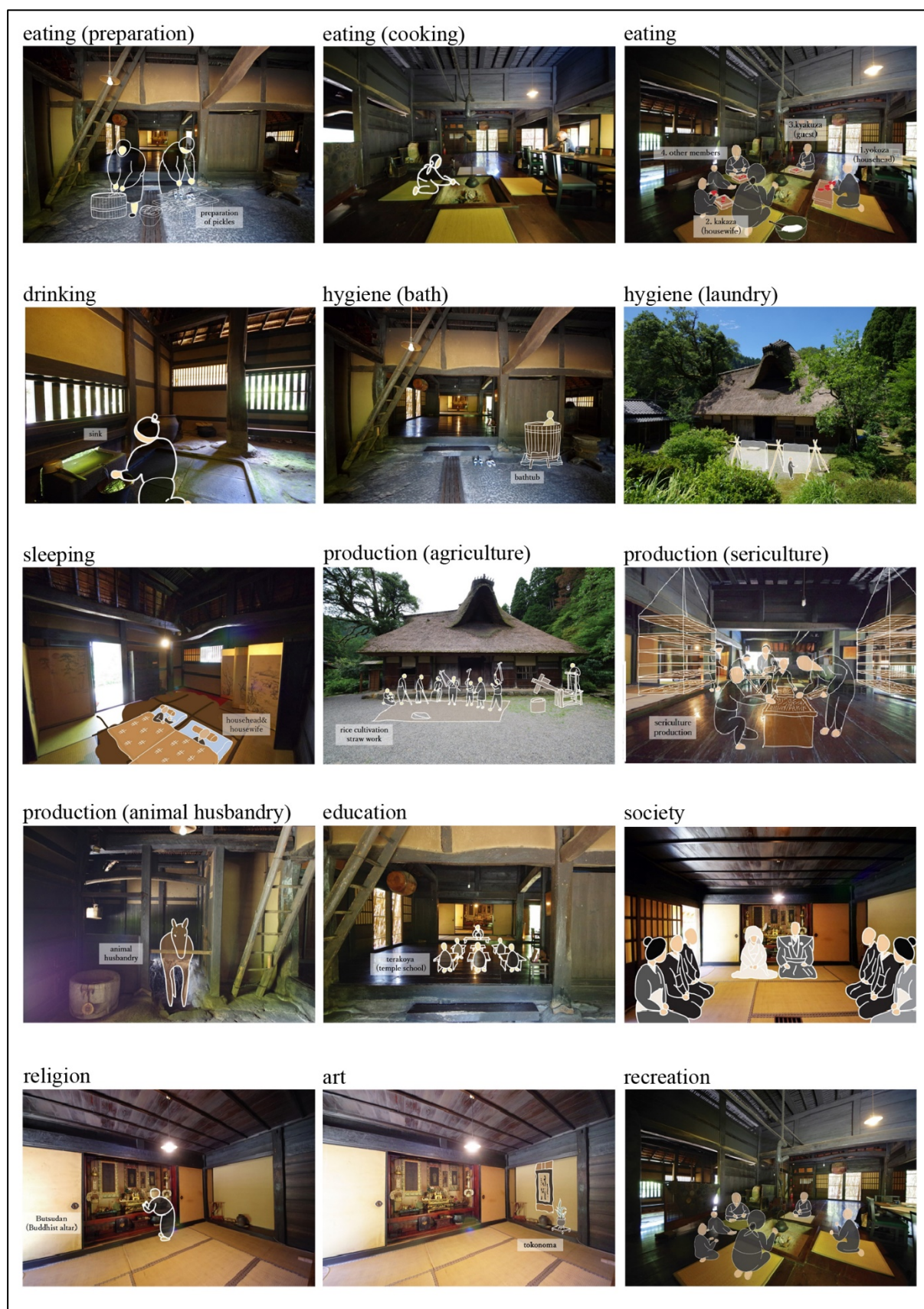


Figure 5 The information concerning where and how the behaviours correlated with spatial organization of Japan / Fukui Prefecture traditional farmhouses are described with sketches.

Table 1 The findings of environment-behaviour analysis on traditional Japan / Fukui Prefecture farmhouses are summarized.

- 7 -

As a result;

1. Doma and nando spaces strongly relate to basic behaviours.
2. Hiroma space strongly relates to derivative and recreation behaviours, while supplementing basic behaviours.
3. Butsuma and nakanoma spaces strongly relate to derivative behaviour.

Based on the contents from ① to ③, there is a spatial organization in the “basic behaviours-derivative behaviours” order. (Figure 6)

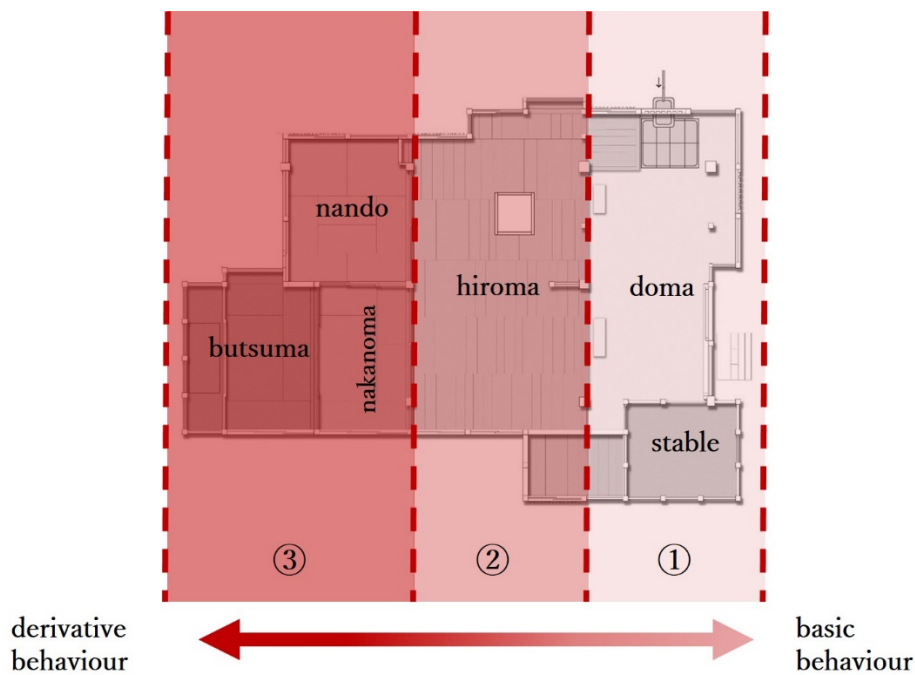


Figure 6 The spatial organization of the Japanese farmhouse are arranged in the “basic behaviours-derivative behaviours” order.

Chapter 2

Chapter 2 aims to clarify the spatial characteristics of traditional farmhouses of Turkey focusing on Eastern Black Sea Region with the same analysis likewise Chapter 1.

Section 1 introduces the architectural characteristics of traditional farmhouses in Turkey and Eastern Black Sea Region briefly.

Section 2 performs environment-behaviour analysis on the selected case studies under the subheadings of “Geographic Environment”, “Settlement Pattern”, and “Spatial Organization of the Farmhouses”. The spatial characteristics of the farmhouses that is to say, “geographical environment”, “settlement”, and “spatial organization” are correlated with “basic behaviours”, “derivative behaviours” (“instrumental behavior” and “united behavior”) and “recreation”. Basic behaviours are classified as “defence / dwelling”, “eating” (cooking, meal), “drinking”,

“reproduction”, “hygiene” (toilet, bath, laundry), and “sleeping”. Instrumental behaviours are classified as “production”, “education”, and “society”. United behaviours are classified as “religion” and “art”. These behaviours related with spaces were analysed and studied in detail. (Figure 7) (Figure 8)

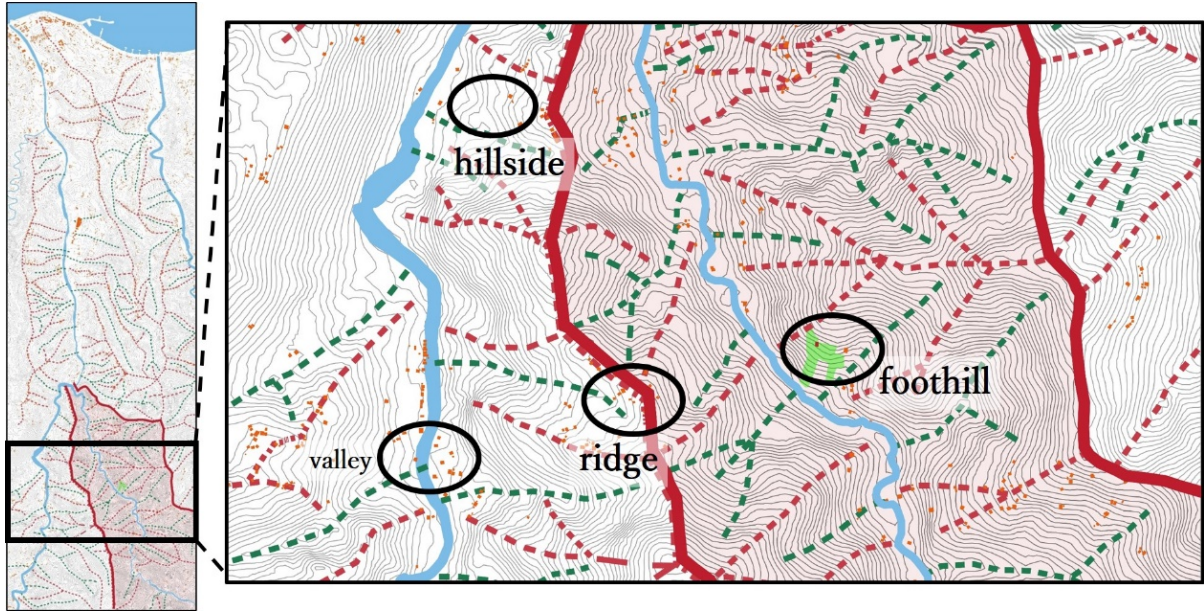


Figure 7 Settlements in the Eastern Black Sea Region are mostly located on the foothill and hillside of the valleys. The ridges of the mountains with the low wind are also preferred.

The findings of the analysis shown in Table 2, listed as follows.

- Geographic environment and settlement characteristics relate to basic behaviours.
- Regarding the spatial organization the farmhouses, aşhane, room, and guest room spaces relate to basic behaviours. Especially “eating,” “drinking,” “hygiene / laundry” behaviours relate to aşhane, “hygiene / bath,” “sleeping” behaviours relate to room and guest room spaces. Basic behaviours relate to other spaces; the serender, toilet, and courtyard.
- Derivative behaviours relate to aşhane, hayat, room, and guest room. Especially, “production” and “education” relate to aşhane, “society” relates to aşhane, hayat and guest room, and “religion” and “art” relate to aşhane, hayat, room and guest room. Furthermore, “production” also relates to other spaces; stable and courtyard.
- Recreation behaviour relates to aşhane, hayat and courtyard.

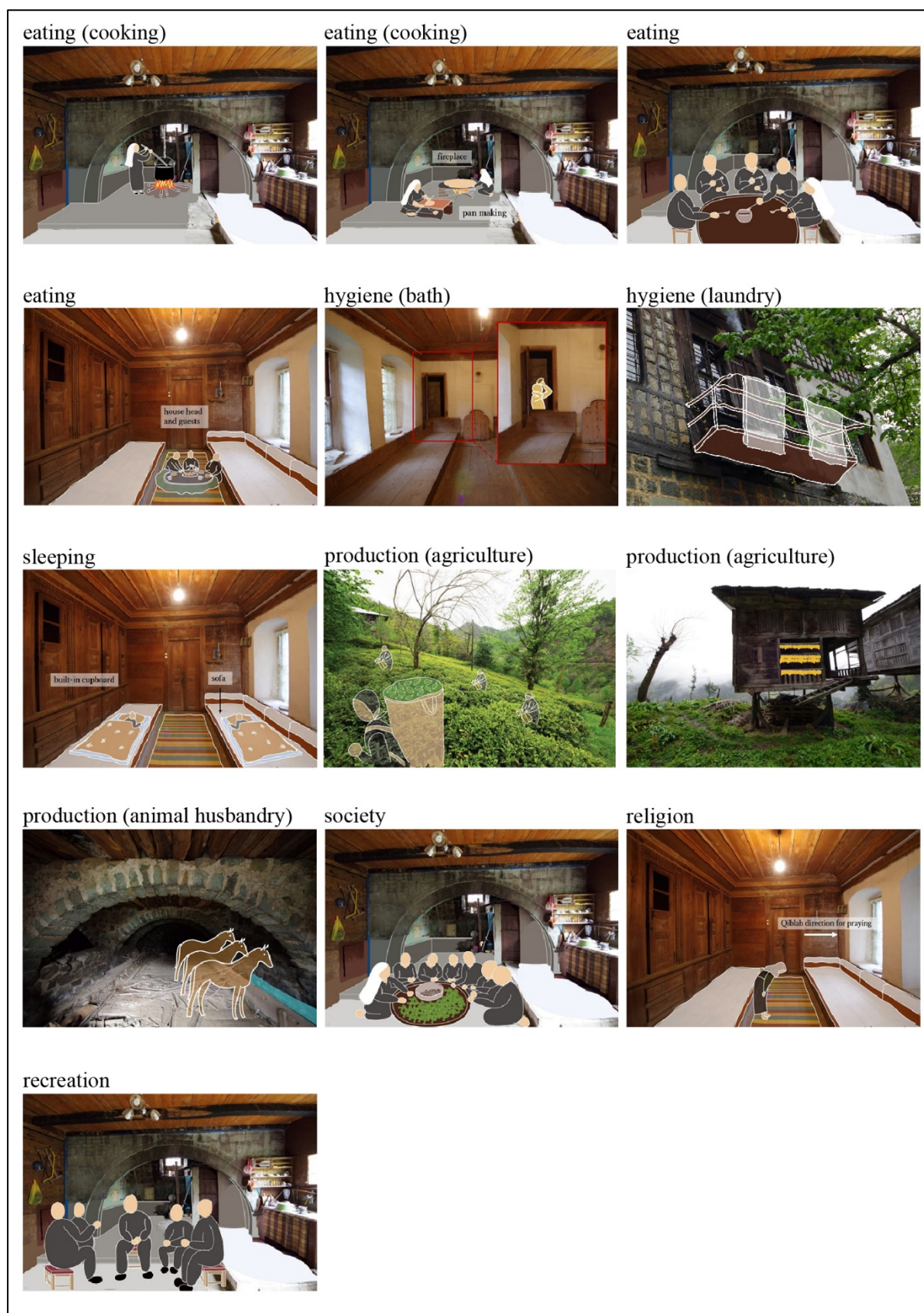


Figure 8 The information concerning where and how the behaviours correlated with spatial organization of Turkey / Eastern Black Sea Region traditional farmhouses are described with sketches.

Table 2 The findings of environment-behaviour analysis on traditional Turkey / Eastern Black Sea Region farmhouses are summarized.

TURKEY / EASTERN BLACK SEA REGION																								
環境 environment		地理的環境 geographic environment		集落 settlement		農家空間構成 farmhouse/spatial organization							装置・材料 equipment/ materials		集団 group/mass		他 other							
行動 behaviour		qşhane		hayat		room		guest room		stable		serender		toilet		courtyard		equipment/ materials		group/mass		other		
基本的行動 (basic behaviour)	防衛/棲家 defence/dwelling	• occupation (settling to valley) • settling close to water source		• permanent/semi-permanent • scattered village • scattered houses close to fields and/or valley • occupying to geographical shape																		seasonal movement		
	食べる eating	調理 cooking	• vegetation: staple food • animal: dairy product, meat • meal: fish	• daily/annual/seasonal food preparation • cooking in fireplace • eating in fireplace • eating arrangement (seating from hierarchy)		• serving food to men of the household • seating arrangement hierarchy						• preservation of animal • located inside (a grain drying building drying to region)						• kitchen utensils • tableware • sitting stools		• household (family)				
		食事 meal																						
	飲む drinking	• water: drinking water from the nearest valley of mountain • carrying water from the common fountain of the village				• each family member has his/her own room to have a privacy		• bathroom located in the rooms		• bathroom located in the rooms		• if there is no bath in the house, it is performed in the stable or hayrack												
	生殖 reproduction																							
	衛生 hygiene	便所 toilet																						
		風呂 bath																						
	洗濯 laundry	• laundry is washed in the nearest stream of the settlement						• rooming for guests • sleeping arrangement for young couple and elderly		• having formal guests								• small amount of laundry is washed and dried		• washbasin, washbasin rack, bucket		• household (family)		
睡眠 sleeping																								
派生的行動 derivative behaviour	手段的行動 instrumental behaviour	生産 production	• vegetation: copulative (potato, tea, corn, tobacco) • animal: animal husbandry, beekeeping		• indoor farm tools are performed • agricultural tools are stored																• men and women of family • village			
		教育 education	• children doing homework																					
	社会的行動 social behaviour	社会 society	• social meeting • marriage, funeral		• social meeting • marriage, funeral																			
		宗教 religion	• prayer during to Mecca • prayer during to Mecca		• prayer during to Mecca • prayer during to Mecca		• having formal guests														• mosque • cemetery • room (religious leader)		• co-operation in labor • village equipment • annual ceremonies, festivals	
	統合的行動 united behaviour	芸術 art	• ornaments on bul'h cupboards • ornaments on ceilings • ornaments on walls and ceilings • collective work • recreation after winter		• ornaments on cupboards • ornaments on ceilings • ornaments on walls and ceilings • recreation in the winter		• ornaments on walls and ceilings • ornaments on walls and ceilings • replace														• coffee house • family • village people			
あそび recreation																								

As a result;

1. Aşhane space strongly relate to basic behaviours such as eating, drinking, hygiene / laundry, and derivative and recreation behaviours.
2. Hayat space complements aşhane in derivative and recreation behaviours.
3. Room and guest room have a characteristic that they strongly relate to basic behaviours such as hygiene / bath, sleep and derivative behaviours.

Based on the contents of the basic behaviours, 1 and 2 have public characteristics and 3 has private characteristics, and there is a spatial organization in the “public space-private space” order. (Figure 9)

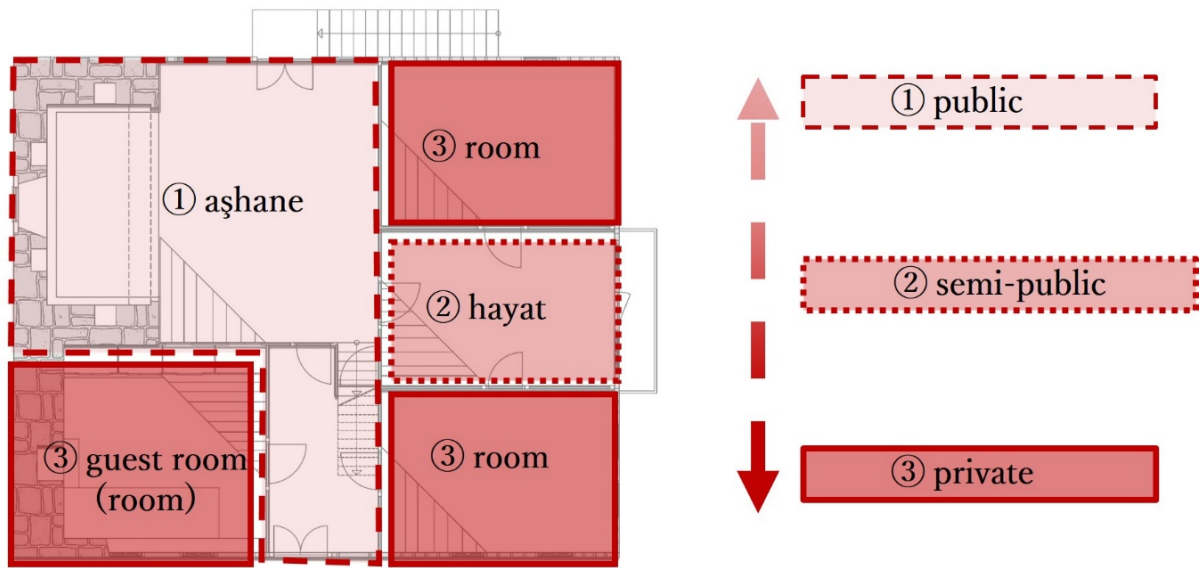


Figure 9 Based on the contents of the basic behaviours, 1 and 2 have public characteristics and 3 has private characteristics, and there is a spatial organization in the “public space-private space” order in Turkey / Eastern Black Sea Region traditional farmhouse.

Chapter 3

Chapter 3 aims to make a comparison on spatial characteristics of traditional farmhouses in Fukui Prefecture and Eastern Black Sea Region based on the Table 1 and Table 2 created as a result of the Chapter 1 and Chapter 2.

Section 1 makes comparison on geographic environment between the two counterparts. (Figure 10)
Section 2 makes comparison on settlement pattern between the counterparts. (Figure 11) (Figure 12)
Section 3 makes comparison on spatial organization between them. (Figure 13)

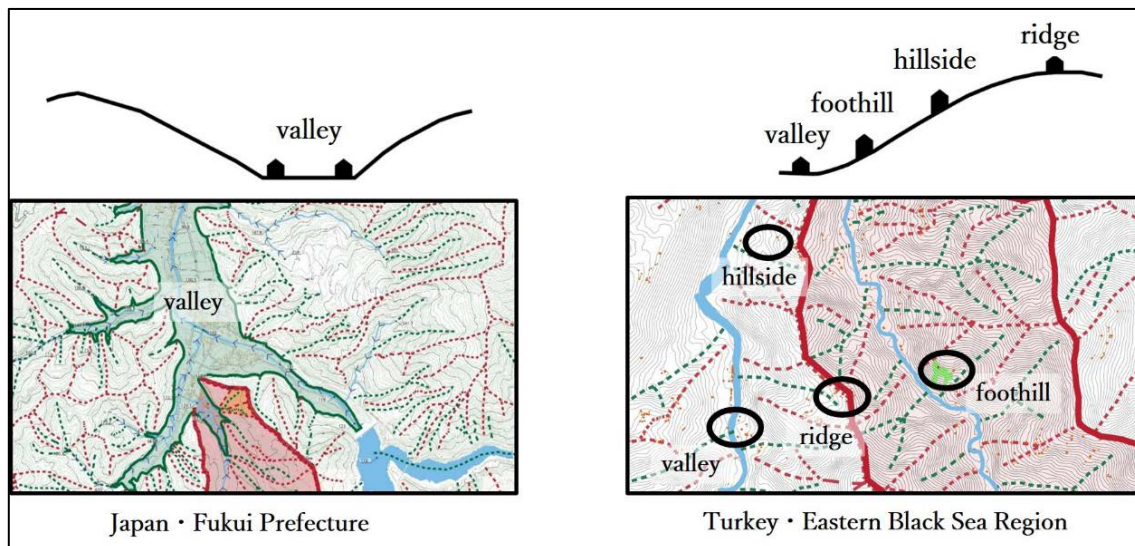


Figure 10 Preference of location to the topography between the two counterparts' settlements are shown.

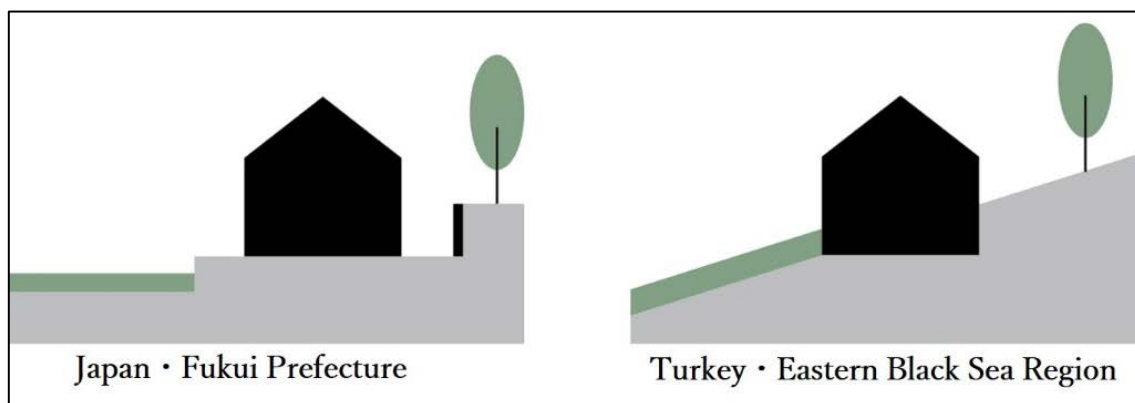


Figure 11 Settling to topography between the two counterparts are shown.

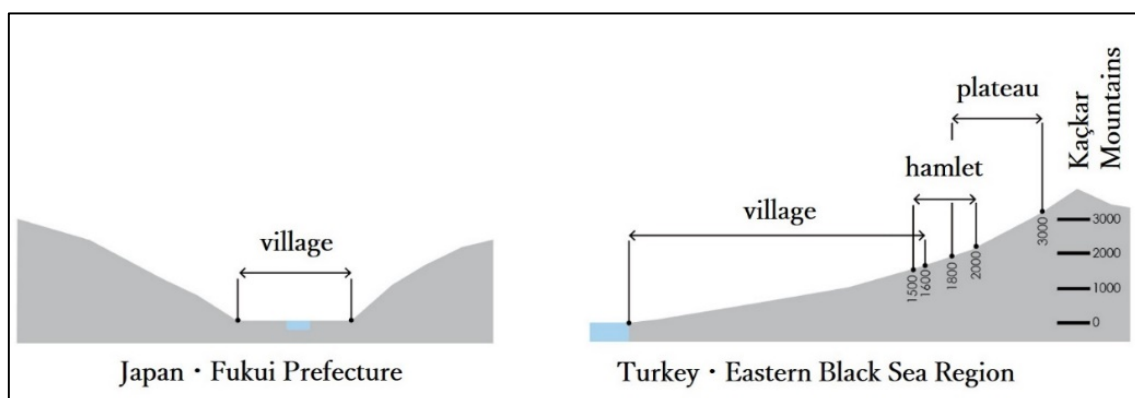


Figure 12 The settlement types between the two counterparts are shown.

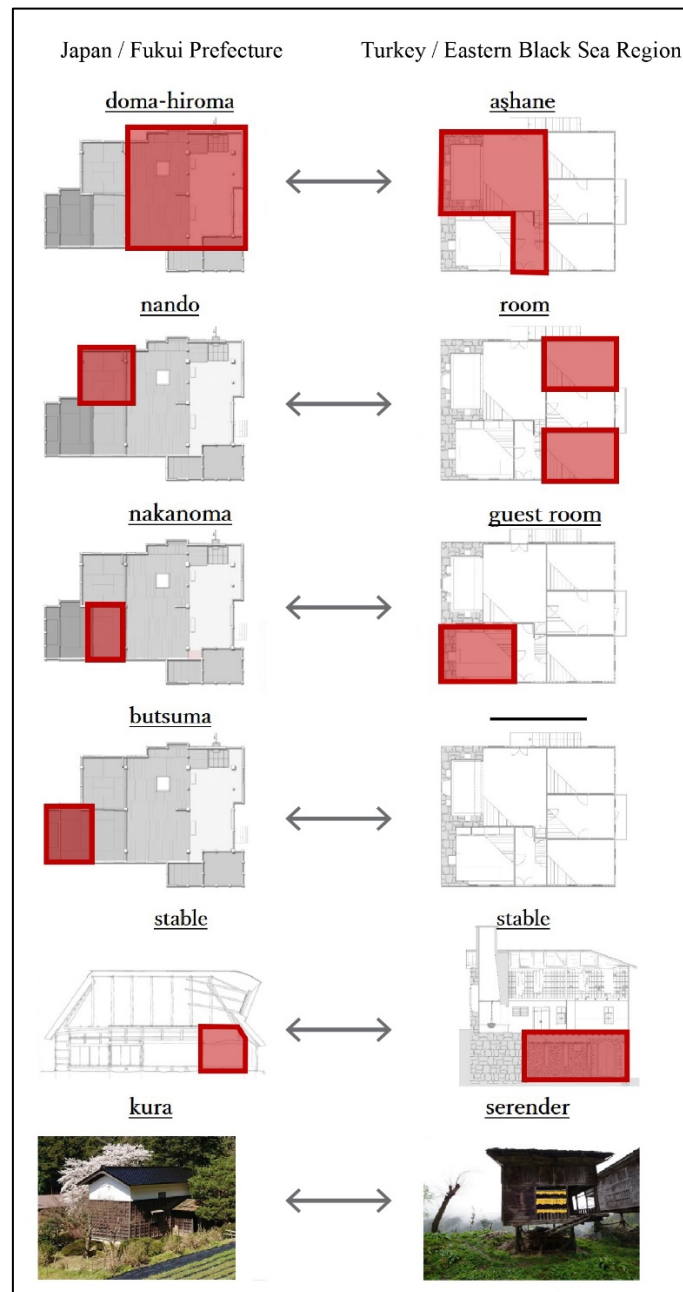


Figure 13 The corresponding spaces of the two counterparts are shown.

The following results were obtained at the end of Chapter 3:

- (1) In both farmhouses of Fukui Prefecture, Japan and Eastern Black Sea Region, Turkey, the geographical environment and settlement characteristics relate to basic behaviours.
- (2) In the farmhouses of Fukui Prefecture, there is a spatial organization in the “basic behaviours-derivative behaviours” order. From this fact, the “hierarchy” concept is found out as a spatial characteristic of Japan. (Figure 14) On the other hand, in the farmhouses of the Eastern Black Sea Region, Turkey, the spatial organization of the “public space-private space” order is more significant than “basic behaviours-derivative behaviours” order. From this fact, the “centrality” concept is found out as a spatial characteristic of Turkey. (Figure 15)

(3) While the “hierarchy” concept in the traditional farmhouses of Fukui Prefecture may result as a characteristic of the sedentary society (Figure 14), the “centrality” concept in the traditional farmhouses of the Eastern Black Sea Region may result as a characteristic of nomadic society. (Figure 15)

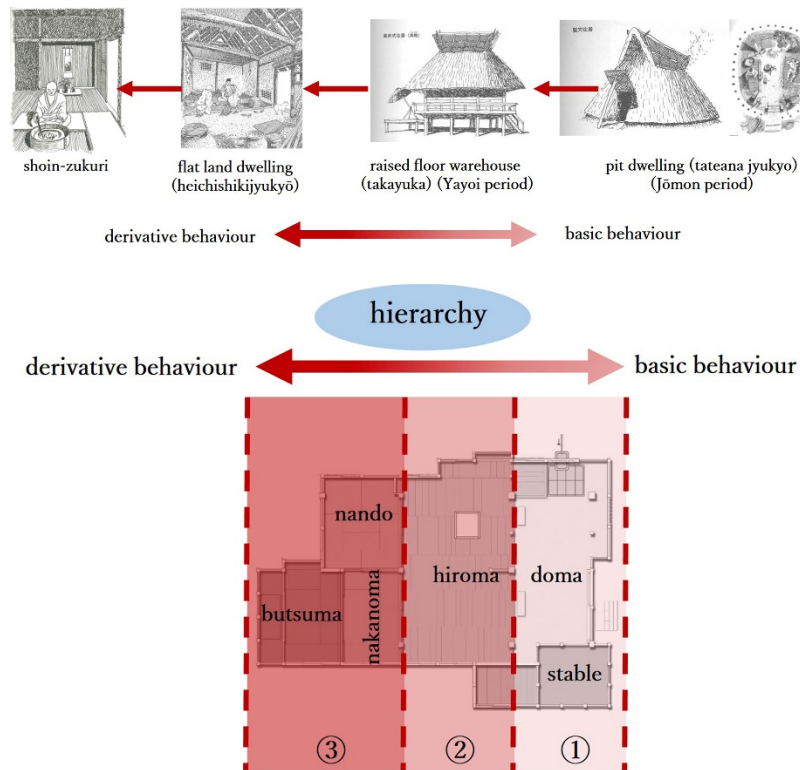


Figure 14 From the fact of “basic behaviours-derivative behaviours” order, the “hierarchy” concept is found out as a spatial characteristic of Japanese farmhouse. The hierarchy concept may result as a characteristic of the sedentary society.

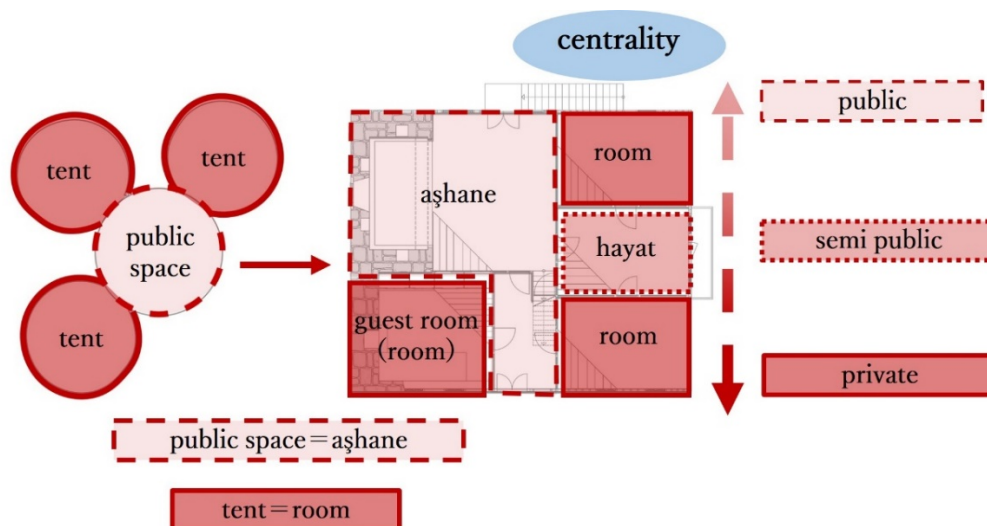


Figure 15 From the fact of the “public space-private space” order, the “centrality” concept is found out as a spatial characteristic of Turkish farmhouse. The centrality concept may result as a characteristic of the nomadic society.

Conclusion

This research focused on farmhouses of Fukui Prefecture and Eastern Black Sea Region, aimed to grasp the relationship between space and behaviour corresponding to the two major lifestyles of humankind, permanent residents and nomads, by clarifying the spatial characteristics of traditional farmhouses in rural Japan and Turkey.

Chapter 1 is focused on the spatial characteristics of the farmhouses of Fukui Prefecture within the scope of environment-behaviour analysis.

1. Doma and nando spaces strongly relate to basic behaviours.
2. Hiroma space strongly relates to derivative and recreation behaviours, while supplementing basic behaviours.
3. Butsuma and nakanoma spaces strongly relate to derivative behaviour.

Based on the contents from ① to ③, there is a spatial organization in the “basic behaviours-derivative behaviours” order.

Chapter 2 is focused on the spatial characteristics of the farmhouses of Eastern Black Sea Region within the scope of behaviour analysis.

1. Aşhane space strongly relate to basic behaviours such as eating, drinking, hygiene / laundry, and derivative and recreation behaviours.
2. Hayat space complements aşhane in derivative and recreation behaviours.
3. Room and guest room have a characteristic that they strongly relate to basic behaviours such as hygiene / bath, sleep and derivative behaviours.

Based on the contents of the basic behaviours, ① and ② have public characteristics and ③ has private characteristics, and there is a spatial organization in the “public space-private space” order.

Chapter 3 is focused on the comparison on spatial characteristics of traditional farmhouses in Fukui Prefecture and Eastern Black Sea Region based on Chapter 1 and Chapter 2.

1. In both farmhouses of Fukui Prefecture, Japan and Eastern Black Sea Region, Turkey, the geographical environment and settlement characteristics relate to basic behaviours.
2. In the farmhouses of Fukui Prefecture, Japan, there is a spatial organization in the “basic behaviours-derivative behaviours” order. From this fact, “hierarchy” concept is found out as a spatial characteristic of Japan. On the other hand, in the farmhouses of Eastern Black Sea Region, Turkey, the spatial organization of the “public space-private space” order is more significant than “basic behaviours-derivative behaviours” order. From this fact, “centrality” concept is found out as a spatial characteristic of Turkey.
3. While the former may be a characteristic of sedentary society, and the latter may be a characteristic of nomadic society.

In the conclusion, the findings obtained in each chapter were summarized.

It is necessary to emphasize again on these results that while the traditional Fukui farmhouses may reflect the traces of sedentary society, the traditional Eastern Black Sea farmhouse may reflect the traces of nomadic society. However, it can be interpreted that there may be a possibility of each cultures' religious concepts have an influence on the development of the spatial characteristics of them. (Figure 15)

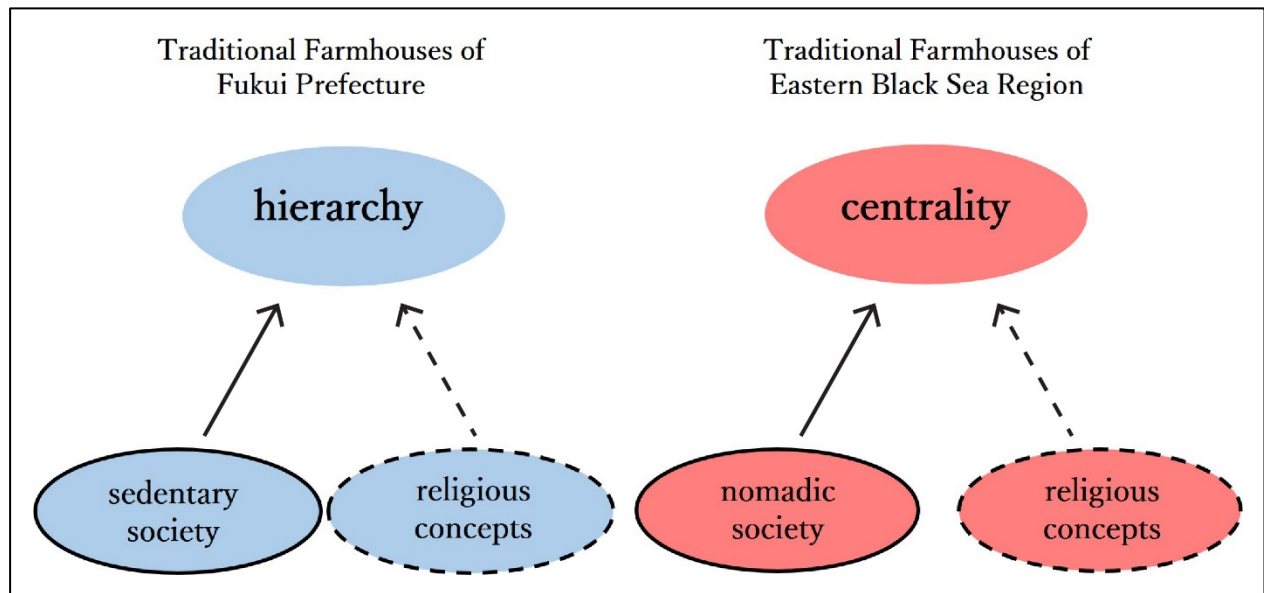


Figure 15 The hierarchy concept seen in the traditional Fukui farmhouses may reflect the traces of sedentary society, the traditional Eastern Black Sea farmhouse may reflect the traces of nomadic society. There is also a possibility that each cultures' religious concepts have an influence on the development of the spatial characteristics of them.

論文審査並びに最終試験の要旨

本論文は、日本とトルコの伝統的な農家の空間特性について、その行動分析を通して明らかにするものである。気候がよく似ている福井県の山間部集落とトルコの東黒海地域から事例を選び、現地調査、インタビュー、文献調査により研究が進められた。得られた主な成果は次のとおりである。

1. 福井県の山間部集落の伝統的な農家を対象とし、「地理的環境」「集落」「農家の空間構成」という環境に対して、「基本的行動」「派生的行動（手段的行動と統合的行動）」「あそび」という項目を設け、そこで関係している行動を詳細に分析・考察し

た結果、①土間や納戸は「基本的行動」に深く関係する、②広間は「基本的行動」を補足しながら、「派生的行動」や「あそび」に深く関係する、③仏間やなかのまは「派生的行動」に深く関係する、という農家の空間特性に関する「基本的行動—派生的行動」の間の関係構造を見出した。

2. トルコの東黒海地域の伝統的農家を対象として、同様の分析・考察を行った結果、①Aşhane は「基本的行動」「派生的行動」「あそび」全般に深く関係する、②Hayat は「派生的行動」や「あそび」を補足する、③Room や Guest Room は「基本的行動」「派生的行動」に深く関係する、という特性を見出し、特に①③より農家の空間特性に関する「パブリック—プライベート」の間の関係構造を見出した。
3. 日本とトルコの伝統的農家の空間特性の比較により、両国ともに「地理的環境」や「集落」は「基本的行動」に関係していることを示すとともに、日本の「基本的行動—派生的行動」構造からは空間の「階層性」を、トルコの「パブリック—プライベート」構造からは空間の「中心性」を抽出した。

以上を要するに、本論文は、日本とトルコの伝統的な農家の空間特性を明らかにすることで、定住民と遊牧民という人類の大きな二つの生活様式に対応する空間と行動との関係の一端を解明するものであり、学術上寄与するところが大きい。また令和 2 年 6 月 20 日には公聴会を行い、申請者は適切に発表や質疑応答を行った。よって、本論文は博士（建築学）の学位論文として、価値があるものと認める。